DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL

Q COMMUNITY IMPACT ASSESSMENT TECHNICAL REPORT

D.C. TO RICHMOND SOUTHEAST HIGH SPEED RAIL

September 2017

DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL

Community Impact Assessment Technical Report



DRPT
Virginia Department of Rail and Public Transportation

U.S. Department of Transportation
Federal Railroad Administration

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1 INTRODUCTION

The Federal Railroad Administration (FRA) and Virginia Department of Rail and Public Transportation (DRPT) propose passenger rail service and rail infrastructure improvements in the north-south travel corridor between Washington, D.C. and Richmond, VA. These passenger rail service and rail infrastructure improvements are collectively known as the Washington, D.C. to Richmond Southeast High Speed Rail (DC2RVA) project. The Project will increase capacity to deliver higher speed passenger rail, improve conventional speed passenger service, expand commuter rail, and accommodate growth of freight rail service, in an efficient and reliable multimodal rail corridor. The increased capacity will improve passenger rail service frequency, reliability and travel time in a corridor shared by growing volumes of passenger, commuter, and freight rail traffic, thereby providing a door-to-door time-competitive option for travelers between Washington, D.C. and Richmond and those traveling to and from adjacent connecting corridors. The Project is part of the larger Southeast High Speed Rail (SEHSR) corridor, which extends from Washington, D.C. through Richmond, and continues east to Hampton Roads (Norfolk), VA, and south to Raleigh, NC, and Charlotte, NC, and then continues west to Atlanta, GA and south to Florida. The Project connects to the National Railroad Passenger Corporation (Amtrak) Northeast Corridor (NEC) at Union Station in Washington, D.C.

The purpose of the SEHSR program, as stated in the 2002 Tier I Final Environmental Impact Statement (EIS) completed for the full SEHSR corridor, is to provide a competitive transportation choice to travelers within the Washington, D.C. to Charlotte travel corridor. The current DC2RVA project carries forward the purpose of the SEHSR Tier I EIS within the Washington, D.C. to Richmond segment of the larger SEHSR corridor by identifying the infrastructure improvements necessary to provide a competitive transportation choice for current and future conditions. The Purpose of the DC2RVA project is to increase the capacity between Washington, D.C. and Richmond to deliver higher speed passenger rail, improve conventional speed passenger rail, expand commuter rail, and accommodate growth of freight rail service in an efficient and reliable multimodal rail corridor. This Project will enable passenger rail to be a competitive transportation choice for intercity travelers between Washington, D.C. and Richmond and beyond.

The purpose of this Community Impact Assessment is to identify the social and economic aspects of the human/built environment along the DC2RVA corridor and analyze potential effects that could result from implementation of the build alternatives. Information in this Assessment supports discussions presented in the Draft EIS.

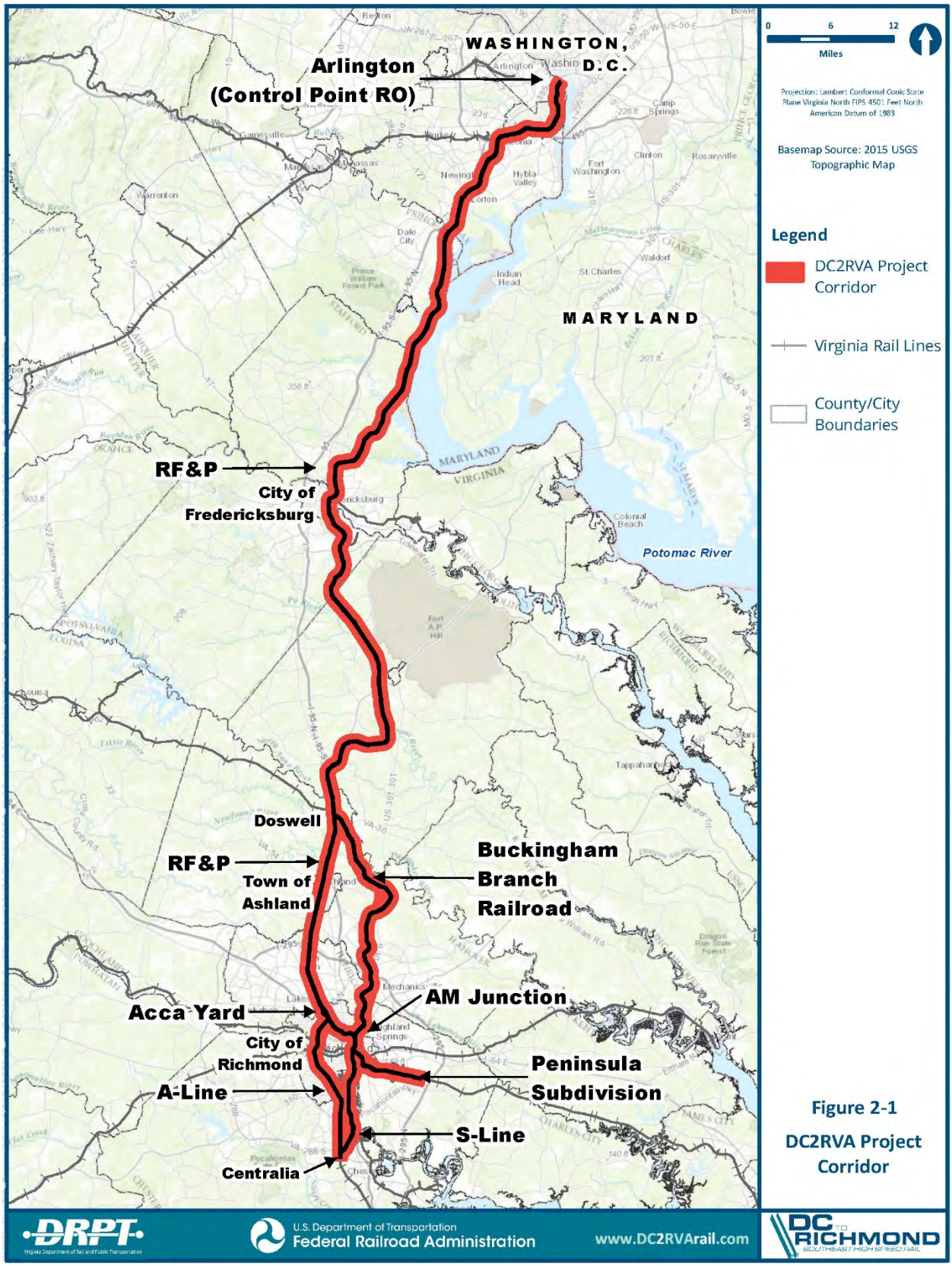
2 PROJECT OVERVIEW

The Washington, D.C. to Richmond corridor spans 123 miles along an existing rail corridor owned by CSXT between Control Point Rosslyn (RO) at milepost (MP) CFP 110 in Arlington County, VA to the junction of the CSXT North End Subdivision (referred to as the A-Line) between West Acca Yard in Richmond and Centralia, VA, and the CSXT Bellwood Subdivision (referred to as the S-Line) between Control Point Hermitage in Richmond and Centralia, VA (CE) at MP A-11 in Chesterfield County, VA (Figure 2-1). At the northern terminus in Arlington County, the Project limit is marked by the southern approach to Long Bridge, a double-track rail bridge connecting the rail corridor over the Potomac River to Washington, D.C. The Project corridor follows the CSXT Richmond, Fredericksburg & Potomac (RF&P) Subdivision from the Potomac River to Richmond. The southern terminus in Centralia is the junction of two CSXT routes (the A-Line and the S-Line) that begin in Richmond and rejoin approximately 11 miles south of the city.

Additional sections evaluated as part of the Project included approximately 8.3 miles of the CSXT Peninsula Subdivision CA-Line from Beulah Road (MP CA-76.1) in Henrico County, VA east of Richmond to AM Junction in downtown Richmond, and the approximately 26-mile Buckingham Branch Railroad (BBR) from AM Junction to the RF&P Crossing (MP CA-111.8) north of Richmond in Doswell, VA.

In Arlington, the Project connects to existing CSXT track extending across the Potomac River on the Long Bridge into Washington, D.C. and Union Station, the southern terminus of Amtrak's NEC. In downtown Richmond and at Centralia, the Project connects to both the Richmond to Raleigh segment of the SEHSR corridor and the Richmond to Hampton Roads segment of the SEHSR corridor. The Washington, D.C. to Richmond segment is an integral part of the overall Washington, D.C. to Charlotte SEHSR corridor and provides a critical link between high speed passenger service from Boston to Washington, D.C. and the southeastern United States (U.S.).

Long Bridge Over the Potomac River


WASHINGTON, D.C.
Arlington
(Control Point RO)
MARYLAND
RF&P
City of Fredericksburg
Potomac River
Doswell
RF&P
Town of Ashland
Buckingham Branch Railroad
AM Junction
Acca Yard
City of Richmond
A-Line
Peninsula Subdivision
S-Line
Centralia
0 6 12
Miles
Projection: Lambert Conformal Conic State Plane Virginia North FIPS 4501 Feet North American Datum of 1983
Basemap Source: 2015 USGS Topographic Map
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DC2RVA Project Corridor
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2.1 PROJECT DESCRIPTION

Alternatives developed as part of the DC2RVA Project include two elements: proposed train service that would run throughout the corridor (see Section 2.1.1), and physical improvements along the rail alignment. The Project will include specific rail infrastructure improvements and service upgrades to deliver higher speed passenger rail, expand commuter rail, and accommodate growth of freight rail service in an efficient and reliable multimodal rail corridor. The increased capacity will improve passenger rail service frequency, reliability, and door-to-door competitive travel time in a corridor shared by growing volumes of passenger, commuter, and freight rail traffic. Specific improvements to the existing rail infrastructure between Arlington, VA, and Centralia, VA, include:

- Corridor-wide improvements to train operating capacity to accommodate efficient operation of passenger, commuter, and freight rail service with increased frequency, reliability, and speed, including an additional main track along most of the corridor, additional sidings, crossovers, yard bypasses and leads, and other capacity and reliability improvements at certain locations.
- Corridor-wide upgrades to existing track and signal systems to achieve higher operating speeds, including curve realignments, higher-speed crossovers between tracks, passing sidings, and grade crossing improvements.
- New or replacement station, platform, and parking improvements at intercity passenger stations in the corridor to improve the efficiency of railroad operations, improve quality of service, and accommodate increased ridership.
- Safety improvements to roadway crossing treatments, to include median treatment, grade separations, and/or closure of existing at-grade crossings of the rail corridor.

The environmental impacts of these improvements and measures to avoid, minimize, or otherwise mitigate such impacts are described in the EIS.

Studies in support of the Project addressed passenger and freight rail operations and service between Union Station in Washington, D.C. and Richmond and beyond, but the Project will not include physical improvements to the Long Bridge across the Potomac River or to rail infrastructure within Washington, D.C. Other projects will address these improvements as well as improvements to the rail infrastructure north of Arlington and south of Centralia along the SEHSR corridor.

2.1.1 Passenger Rail Service in Project Corridor

Amtrak operates four types of passenger service in the DC2RVA corridor:

- Northeast Regional (Virginia) Amtrak service provides regional passenger rail service along the length of the Northeast Corridor from Boston and New York and continues south to serve routes in Virginia. Trains make local station stops.
- Interstate Corridor (Carolinian) Amtrak operates between New York and North Carolina (one single daily round trip) through Virginia, making fewer stops in the DC2RVA corridor than the Northeast Regional service.
- Long Distance Amtrak service operates from New York and continues through Washington, D.C. and Virginia to other out-of-state locations. Long distance trains serve the fewest of Amtrak station stops within the DC2RVA corridor.

- Auto Train Amtrak service operates as a daily nonstop, overnight train between dedicated station facilities in Lorton, VA and Florida, and carries passengers and their automobiles.

DRPT is proposing to add nine daily roundtrip SEHSR intercity passenger trains to the corridor:

- Four new roundtrips of Northeast Regional (SEHSR) service, to provide additional frequencies on the same routes of existing Amtrak Northeast Regional (Virginia) services, terminating within Virginia (either Newport News, Norfolk, or Richmond).
- Five new roundtrips of Interstate Corridor (SEHSR) service, to complement Amtrak's current Interstate Corridor (North Carolina) service, by providing additional frequencies to North Carolina. The SEHSR trains have slightly different service patterns in the DC2RVA corridor than the existing Amtrak service, and use different routes south of the DC2RVA corridor, where SEHSR trains are expected to provide a faster and more direct route to Raleigh and Charlotte, NC.

From Washington, D.C., all new SEHSR trains would continue on to Philadelphia, New York, and Boston. The plan is to incorporate this service in to Amtrak's regional and long-distance intercity passenger rail network. Refer to Chapter 2 of the Draft EIS for full summary of proposed service and ridership.

2.1.2 Tier II EIS Planning Dates

For this EIS, FRA and DRPT established two important planning dates. The first planning date is 2025, which is FRA and DRPT's current best estimate of when construction of the DC2RVA infrastructure could be completed and the new DC2RVA service would be placed in operation. FRA and DRPT's estimate of the year 2025 as the "opening day" is dependent on many factors, not the least of which is finalizing the EIS and Record of Decision. The date also assumes that federal funding in addition to other funding sources will be available at the level required to build all the proposed infrastructure improvements and acquire the necessary equipment and trainsets. DRPT based this date on an aggressive but potentially achievable schedule assumption that all necessary permits, approvals, agreements, and funding could be finalized by 2020, final design would take one year (2021), right-of-way acquisition (if needed) would take one year (2022), and construction would take three years (2023 – 2025). FRA and DRPT also used 2025 as the date when the physical impacts associated with DC2RVA Project construction would take place. Thus, all the physical impact analyses within this Draft EIS on human and natural resources are estimated for 2025, and compared to the No Build Alternative conditions projected for 2025.

The second key planning date established by FRA and DRPT is the planning horizon date of 2045, 20 years after the projected implementation of the new rail service in 2025. Both the Passenger Rail Investment and Improvement Act (PRIIA) and FRA guidance require that DRPT demonstrate that the proposed project is sufficient to deliver the proposed passenger rail benefits and an efficient and reliable multimodal rail corridor over a 20-year time horizon following the completion of the passenger project. DRPT uses operational simulations analysis, as discussed in Section 2.6.2, to test the proposed alternatives to determine if the rail capacity is adequate for both the opening day (2025) levels of projected freight, commuter and passenger rail traffic and to determine if the infrastructure remains adequate over the 20-year planning horizon or until 2045. DRPT also used the 2045 planning horizon date to estimate some of the longer term effects of the proposed service such as ridership, energy use, and effects on air quality, as well as indirect and cumulative effects.

2.2 PROJECT ALTERNATIVES

Developing potential rail alignments was an iterative process. DRPT relied on previous studies and public scoping comment as the starting point for developing potential rail alignments. Rail alignment modifications were made to avoid or minimize potential adverse effects on environmental resources and existing infrastructure, and to minimize the need for additional new infrastructure, while preserving the ability of that alignment to meet the Project's Purpose and Need. The final screening evaluation—to determine the Build Alternatives to be carried forward for evaluation in the Draft EIS—focused on each rail alignment's ability to reduce trip times based on increased track design speed and to increase the reliability of rail operations based upon added capacity, with the least potential environmental impact and consideration of cost to construct.

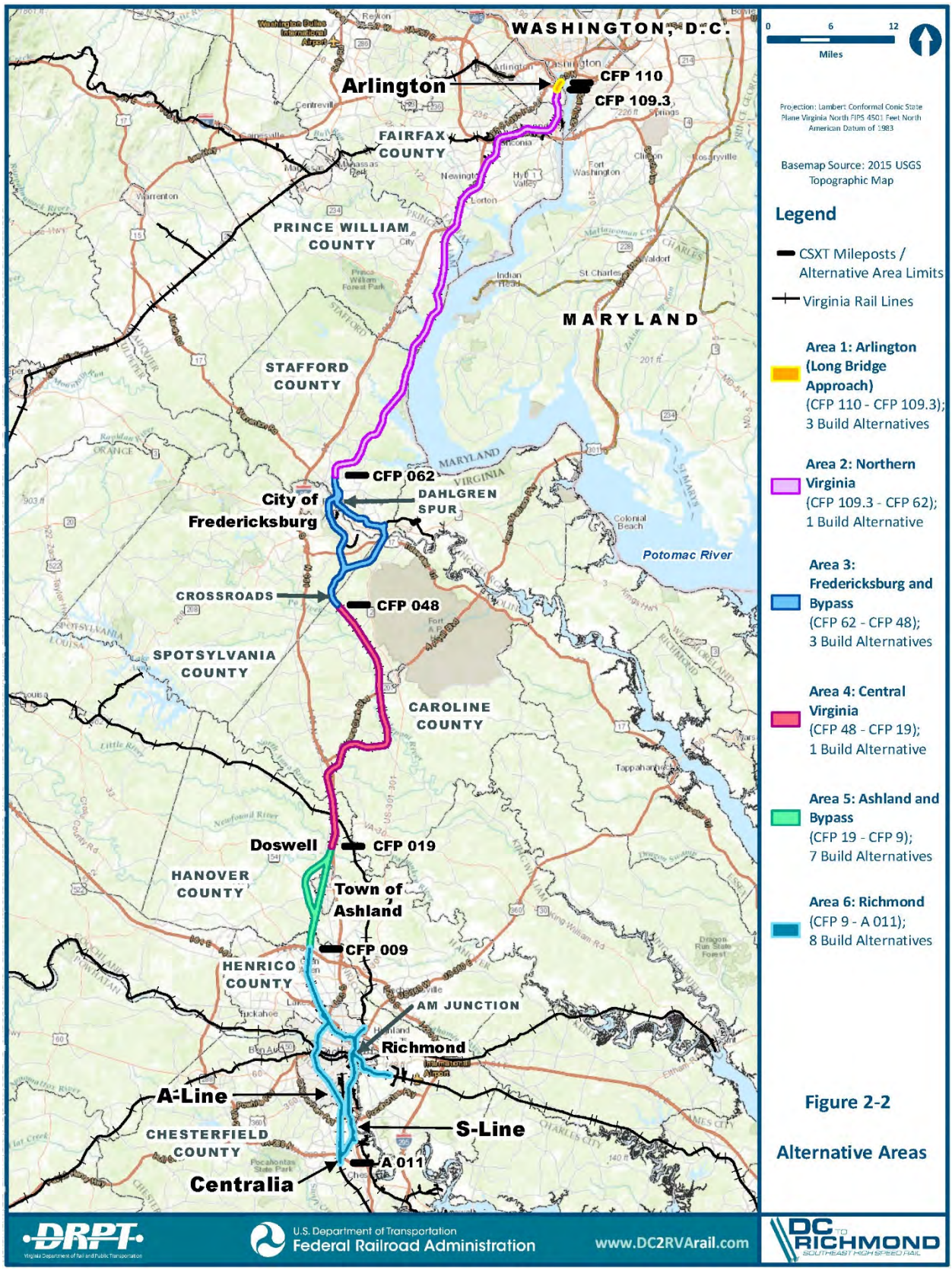
As part of the Build Alternatives, DRPT evaluated both existing and potential new passenger rail stations in the DC2RVA corridor. DRPT plans to incorporate the DC2RVA SEHSR passenger train service into Amtrak's regional and long distance intercity passenger rail network; along the DC2RVA corridor, these existing stations include: Alexandria, Woodbridge, Quantico, Fredericksburg, Ashland, and Staples Mill Road and Main Street in Richmond. Additionally, in Richmond, DRPT is considering two proposed new locations under some Build Alternatives: Boulevard Station and Broad Street Station. However, not all proposed trains would necessarily serve all existing or proposed stations.

For evaluation in the Tier II Draft EIS, DRPT combined and categorized Build Alternatives into six alternative areas along the corridor (Figure 2-2):

- Alternative Area 1: Arlington (Long Bridge Approach): 1-mile section that includes approach alignments to the Long Bridge, which crosses the Potomac River between VA and DC.
- Alternative Area 2: Northern Virginia: 47-mile section that includes additional track within existing railroad right-of-way.
- Alternative Area 3: Fredericksburg (Dahlgren Spur to Crossroads): 14-mile section that includes alignments through or around the city.
- Alternative Area 4: Central Virginia (Crossroads to Doswell): 29-mile section that includes additional track primarily within the existing railroad right-of-way.
- Alternative Area 5 Ashland: Ashland (Doswell to I-295): 10-mile section including alignments through or around the town.
- Alternative 6 Richmond (I-295 to Centralia): 23-mile section including different station locations and routing options along the A-Line and/or S-Line.

Project Build Alternatives were developed separately, specific to the existing conditions, constraints, and/or needs of each of the six areas, and will be linked to form a single DRPT Recommended Preferred Alternative for the corridor, to be confirmed in the Final EIS and Record of Decision (ROD).

Refer to Chapter 2 of the Draft EIS for full summary of the alternatives development process and description of Build Alternatives, and Chapter 7 of the Draft EIS for description of the DRPT Recommended Preferred Alternative.


WASHINGTON, D.C.
Arlington
CFP 110
CFP 109.3
FAIRFAX COUNTY
PRINCE WILLIAM COUNTY
MARYLAND
STAFFORD COUNTY
CFP 062
City of Fredericksburg
DAHLGREN SPUR
Potomac River
CROSSROADS
CFP 048
SPOTSYLVANIA COUNTY
CAROLINE COUNTY
Doswell
CFP 019
HANOVER COUNTY
Town of Ashland
CFP 009
HENRICO COUNTY
AM JUNCTION
Richmond
A-Line
S-Line
CHESTERFIELD COUNTY
A 011
Centralia
0 6 12
Miles
Projection: Lambert Conformal Conic State Plane Virginia North FIPS 4501 Feet North American Datum of 1983
Basemap Source: 2015 USGS Topographic Map
Legend
CSXT Mileposts / Alternative Area Limits
Virginia Rail Lines
Area 1: Arlington (Long Bridge Approach) (CFP 110 - CFP 109.3); 3 Build Alternatives
Area 2: Northern Virginia (CFP 109.3 - CFP 62); 1 Build Alternative
Area 3: Fredericksburg and Bypass (CFP 62 - CFP 48); 3 Build Alternatives
Area 4: Central Virginia (CFP 48 - CFP 19); 1 Build Alternative
Area 5: Ashland and Bypass (CFP 19 - CFP 9); 7 Build Alternatives
Area 6: Richmond (CFP 9 - A 011); 8 Build Alternatives
Figure 2-2
Alternative Areas
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In general, the DC2RVA Project proposes to increase capacity by adding one additional main track. In most areas, the Project will add a new third track in addition to two existing tracks. The determination of the location of the new track on the east or west of existing trackage varies by location within the corridor based on physical constraints and minimization of impacts. For each alternative, DRPT also evaluated the potential to realign the tracks to improve speeds. The proposed Build Alternatives vary within the City of Fredericksburg and the Town of Ashland, where alignments outside of the existing right-of-way were considered (i.e., bypass alignments around the downtown areas); the typical section of the new bypass alignments consists of two tracks.

From a wide range of options that were considered during the alternatives development process, 23 Build Alternatives, which vary within each alternative area, were included for evaluation in the Draft EIS (Table 2-1).

Table 2-1: Build Alternatives

Alternative Area	Alternative	Description
Area 1: Arlington (Long Bridge Approach)	1A	Add Two Tracks on the East
	1B	Add Two Tracks on the West
	1C	Add One Track East and One Track West
Area 2: Northern Virginia (Long Bridge to Dahlgren Spur)	2A	Add One Track/Improve Existing Track
Area 3: Fredericksburg (Dahlgren Spur to Crossroads)	3A	Maintain Two Tracks Through Town
	3B	Add One Track East of Existing
	3C	Add Two-Track Bypass East
Area 4: Central Virginia (Crossroads to Doswell)	4A	Add One Track/Improve Existing Track
Area 5: Ashland (Doswell to I-295)	5A	Maintain Two Tracks Through Town
	5A–Ashcake	Maintain Two Tracks Through Town (Relocate Station to Ashcake)
	5B	Add One Track East of Existing
	5B–Ashcake	Add One Track East of Existing (Relocate Station to Ashcake)
	5C	Add Two-Track West Bypass
	5C–Ashcake	Add Two-Track West Bypass (Relocate Station to Ashcake)
	5D–Ashcake	Three Tracks Centered Through Town (Add One Track, Relocate Station to Ashcake)
Area 6: Richmond (I-295 to Centralia)	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
	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

As shown in the table, the eight Build Alternatives in Richmond include four single-station options 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. These Richmond station options drive the corridor-wide operations of the DC2RVA Project. Ridership, travel time, and on-time performance vary by Build Alternative based on the

different Richmond station options. Estimated travel time between Washington, D.C. and Richmond is dependent on the number and location of station stops as well as the track design.

Each Build Alternative includes build-alternative-specific improvements to features such as stations and at-grade roadway crossings, as applicable. The following sections provide details of each of these Build Alternatives, as well as the No Build Alternative.

2.2.1 No Build Alternative

The No Build Alternative defines the future infrastructure and service levels that will result from planned investments in the Washington, D.C. to Richmond rail corridor, independent of the improvements planned by the DC2RVA Project.

Information about planned physical improvements and rail service additions in the corridor was gathered from fiscally-constrained Metropolitan Planning Organization (MPO) planning documents, Commonwealth multiyear improvement programs, and from transit agency planning documents. If a project was under construction, fully-funded, or was the focus of advanced collaborative planning (evidenced by partial funding, board-level commitments, or interagency agreements), it was assumed to be complete by 2025 for the purposes of the Draft EIS evaluation. Chapter 2 of the Draft EIS provides full description of elements included in the No Build Alternative.

The purpose of the No Build Alternative is to serve as a baseline for comparison of potential effects and impacts of the DC2RVA Build Alternatives. The No Build alternative was fully evaluated and dismissed by the FRA in the 2002 SEHSR Tier I ROD because it does not meet the SEHSR Purpose and Need. Although previously dismissed as not a viable alternative, it is fully considered as part of the Tier II Draft EIS for the DC2RVA Project because the baseline is required by the National Environmental Policy Act (NEPA).

2.2.2 Build Alternatives

The 23 Build Alternatives that are evaluated in the Tier II EIS for the DC2RVA Project are summarized below. Chapter 2 of the Draft EIS provides full information, including lists of specific improvements for track and station improvements, for each Build Alternative.

Figures 2-3 through 2-23 show the proposed rail alignment improvements by alternative. Figures 2-24 through 2-40 show the proposed station improvements. Note that all figures are provided at the end of this section.

2.2.2.1 Build Alternatives in Area 1: Arlington (Long Bridge Approach)

There are three Build Alternatives in Area 1, which are described in Table 2-2. Build Alternative 1A, 1B, and 1C are shown in Figure 2-3. There are no stations within this alternative area.

Table 2-2: Arlington Area Build Alternatives: 1A, 1B, and 1C

TRACK
All three Build Alternatives would: ▪ Equally support expanded intercity passenger service (all types), expanded VRE commuter service, and expanded CSXT freight service ▪ Add two main tracks, with minor shifts to improve speed

Table 2-2: Arlington Area Build Alternatives: 1A, 1B, and 1C

TRACK
▪ Be constructed within existing railroad right-of-way The difference between the alternatives is on which side(s) of the existing track the new track is added (as indicated in Build Alternative names): two tracks on the east (1A); two tracks on the west (1B); one track east and one track west (1C) Final decision deferred to the completion of the Long Bridge Study (separate study by DDOT) Track maximum authorized speed: ≤ 45 mph
STATIONS
No stations within area
CROSSINGS
No changes to existing public roadway crossings

2.2.2.2 Build Alternatives in Area 2: Northern Virginia

There is one Build Alternative in Area 2, which is described in Table 2-3. Build Alternative 2A is shown in Figure 2-4.

Table 2-3: Northern Virginia Build Alternative 2A

TRACK
One main track would be added, with realignment of some curves to improve speed, to create: ▪ Fourth track from Alexandria to Crystal City ▪ Third track from Spotsylvania to Alexandria Improvements are generally within existing right-of-way Track maximum authorized speed: ≤ 79 mph
STATIONS
Station improvements are mainly platform improvements and to be performed by VRE Proposed new DC2RVA service includes: ▪ Alexandria: Northeast Regional (SEHSR) and Interstate Corridor (SEHSR) *(Figure 2-24)* ▪ Woodbridge: Northeast Regional (SEHSR) *(Figure 2-25)* ▪ Quantico: Northeast Regional (SEHSR) *(no figure)* ▪ All other stations: VRE service only *(no figure)* No changes to the locations of Amtrak (Interstate Corridor (Carolinian), Northeast Regional (Virginia), Long Distance, or Auto Train) or VRE commuter stations served
CROSSINGS
Close one existing public roadway crossing (Mount Hope Church Road), with alternate access provided; no grade separations of at-grade crossings All other public roadway crossings would remain at-grade, with safety improvements Major water crossings at Occoquan River, Neabsco Creek, and Aquia Creek

2.2.2.3 Build Alternatives in Area 3: Fredericksburg

There are three Build Alternatives in Area 3, which are described in Table 2-4, Table 2-5, and Table 2-6. Build Alternative 3A, 3B, and 3C are shown in Figure 2-5, Figure 2-6, and Figure 2-7 respectively. All three Build Alternatives would support expanded intercity passenger (all types), VRE commuter, and CSXT freight service, without change to stations served by existing Amtrak Interstate Corridor (Carolinian), Northeast Regional (Virginia), and Long Distance

passenger service or VRE commuter service. 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 3B is consistent with the City of Fredericksburg Comprehensive Plan (2015).

Table 2-4: Fredericksburg Area Build Alternative 3A

TRACK
No construction of new track / no additional rail capacity within Fredericksburg ▪ Existing two main tracks would be maintained, which are used by freight, passenger, and commuter trains, similar to existing conditions ▪ Tracks would be shifted in some areas to improve speed Construction of one additional track, with some track shifts to improve speed, north and south of the city All improvements are within existing right-of-way Track maximum authorized speed: ≤ 79 mph
STATIONS
Improvements to Fredericksburg Station would include a new station building, side platform improvements, and a new parking structure *(Figure 2-26)* Proposed new DC2RVA service at Fredericksburg Station: Northeast Regional (SEHSR) and Interstate Corridor (SEHSR) The other station in this alternative area is located in Spotsylvania County and provides VRE service only
CROSSINGS
All public roadway crossings would remain at-grade, with safety improvements (no roadway crossing closures or grade separations of public at-grade crossings) Improvements to major rail bridge over the Rappahannock River

Table 2-5: Fredericksburg Area Build Alternative 3B

TRACK
One main track would be added in most areas, with track shifts to improve speed ▪ Within Fredericksburg, the additional track would be added east of the existing two tracks ▪ A third track already exists between Fredericksburg and Spotsylvania stations; therefore, no improvements are required in this section Improvements are generally within existing right-of-way Track maximum authorized speed: ≤ 79 mph
STATIONS
Improvements to Fredericksburg Station would include a new station building, a new elevated railway, side and center platform improvements, and a new parking structure *(Figure 2-27)* Proposed new DC2RVA service at Fredericksburg Station: Northeast Regional (SEHSR) and Interstate Corridor (SEHSR) The other station in this alternative area is located in Spotsylvania County and provides VRE service only
CROSSINGS
Proposed new DC2RVA service at Fredericksburg Station: Northeast Regional (SEHSR) and Interstate Corridor (SEHSR) The other station in this alternative area is located in Spotsylvania County and provides VRE service only Improvements to major rail bridge over the Rappahannock River

Table 2-6: Fredericksburg Area Build Alternative 3C

TRACK
Existing two-track corridor through the city would be maintained, with some track shifts to improve speed New two-track bypass would be constructed east of the city

▪ Would serve all freight rail as well as some or all of Interstate Corridor (SEHSR) and Amtrak Interstate Corridor (Carolinian), Long Distance, and Auto Train passenger trains ▪ Would require new right-of-way Construction of one additional track, with some track shifts to improve speed, north and south of the bypass Track maximum authorized speed: ≤ 79 mph
STATIONS
Improvements to Fredericksburg station would include a new station building, side platform improvements, and a new parking structure *(Figure 2-26)* Proposed new DC2RVA service at Fredericksburg Station: Northeast Regional (SEHSR) and Interstate Corridor (SEHSR) The other station in this alternative area is located in Spotsylvania County and provides VRE service only
CROSSINGS
Public roadway crossings along existing Dahlgren Spur would remain at-grade, with safety improvements All new public roadway crossings on the bypass would be grade-separated All other public roadway crossings would remain at-grade, with safety improvements Improvements to major rail bridge over the Rappahannock River

2.2.2.4 Build Alternatives in Area 4: Central Virginia

There is one Build Alternative in Area 4, which is described in Table 2-7. Build Alternative 4A is shown in Figure 2-8. Based on geography throughout this area, this section is most suitable for higher speed passenger rail service, and therefore provides the greatest contiguous section along the DC2RVA corridor with a maximum authorized speed up to 90 mph. There are no stations within this alternative area.

Table 2-7: Central Virginia area Build Alternative: 4A

TRACK
One main track would be added, with track shifts to improve speed Improvements are generally within existing right-of-way Supports expanded intercity passenger service (all types) and CSXT freight service Track maximum authorized speed: ≤ 90 mph
STATIONS
No stations within the area Would not preclude the development of a proposed future station at Carmel Church (not included as part of this study)
CROSSINGS
Close one existing public roadway crossing (Colemans Mill Road); no grade separations of at-grade crossings All other public roadway crossings would remain at-grade, with safety improvements Multiple crossings of small waterways and wetlands

2.2.2.5 Build Alternatives in Area 5: Ashland

There are seven Build Alternatives in Area 5, which are described in Table 2-8 through Table 2-11 below. Build Alternative 5A, 5A–Ashcake, 5B, 5B–Ashcake, 5C, 5C–Ashcake, and 5D–Ashcake are shown in Figure 2-9, Figure 2-10, Figure 2-11, Figure 2-12, Figure 2-13, Figure 2-14, and Figure 2-15, respectively.

The Ashland Build Alternatives include different station locations: either maintaining the station at the existing downtown station with improvements (Build Alternatives 5A, 5B, and 5C) or

relocating the station to south of Ashcake Road (all Build Alternatives with "–Ashcake" in their name). The Build Alternatives with the same letter, with and without the "–Ashcake" designation, are otherwise similar in terms rail alignment through Ashland and identical north and south of Town. For ease of comparison, they are presented together in the tables below.

Due to constraints of the geography through this location, the maximum authorized speed in this section is designed for 79 mph where feasible, with an existing 35 mph municipal slow order through the Town of Ashland.

Table 2-8: Ashland Area Build Alternatives: 5A and 5A–Ashcake

TRACK
Both alternatives would maintain two existing tracks (no construction of new track/no additional rail capacity) within Ashland Both alternatives would construct one additional track, with some track shifts to improve speed, north and south of the town All rail improvements are generally within existing right-of-way
STATIONS
Both alternatives would provide Northeast Regional (SEHSR and Virginia) service at different station locations: ▪ 5A: Would maintain existing station location with improvements, including 850-foot platforms, which would require closure of the existing roadway crossing at College Avenue; use of shorter, 350-foot platforms is an option to minimize impacts *(Figure 2-28 A & B)* ▪ 5A–Ashcake: Would close the existing station location and relocate service to a new the station south of Ashcake Road *(Figure 2-29)*
CROSSINGS
Both alternatives include the grade separation of two existing at-grade roadway crossings in Ashland: West Vaughan Road and Ashcake Road All other existing public roadway crossings would remain at-grade, with safety improvements

Table 2-9: Ashland Area Build Alternatives: 5B and 5B–Ashcake

TRACK
Both alternatives would maintain two existing tracks and construct one additional track east of the existing tracks within Ashland ▪ The addition of a third track through town would require closure of a short portion of Railroad Avenue/Center Street ▪ New right-of-way would be required for rail improvements within the town Both alternatives would construct one additional track, with some track shifts to improve speed, north and south of the town ▪ Rail improvements north and south of the town are generally within existing right-of-way
STATIONS
Both alternatives would provide Northeast Regional (SEHSR and Virginia), with different station locations: ▪ 5B: Would maintain existing station location with improvements, including 850-foot platforms, which requires closure of the existing roadway crossing at College Avenue; use of shorter, 350-foot platforms is an option to minimize impacts *(Figure 2-30 A & B)* ▪ 5B–Ashcake: Would close the existing station location and relocate service to a new the station south of Ashcake Road *(Figure 2-29)*
CROSSINGS
Both alternatives include the grade separation of two existing at-grade roadway crossings in Ashland: West Vaughan Road and Ashcake Road All other existing public roadway crossings would remain at-grade, with safety improvements

Table 2-10: Ashland Area Build Alternatives: 5C and 5C–Ashcake

TRACK
Both alternatives would construct a two-track bypass, west of Ashland, to serve all freight rail as well as all Interstate Corridor (SEHSR) and Amtrak Interstate Corridor (Carolinian), Long Distance, and Auto Train passenger trains ▪ New right-of-way would be required on bypass alignment Both alternatives would maintain the existing two-track corridor through town ▪ No additional right-of-way needed in town Both alternatives would construct one additional track, with some track shifts to improve speed, north and south of the bypass ▪ Rail improvements north and south of the town are generally within existing right-of-way
STATIONS
Both alternatives would provide Northeast Regional (SEHSR and Virginia) service at different station locations: ▪ 5C: Would maintain existing station location with improvements, including 850-foot platforms, which requires closure of the existing roadway crossing at College Avenue; use of shorter, 350-foot platforms is an option to minimize impacts *(Figure 2-28 A & B)* ▪ 5C–Ashcake: Would close the existing station location and relocate service to a new the station south of Ashcake Road *(Figure 2-29)*
CROSSINGS
All new roadway crossings on the bypass would be grade-separated All existing public roadway crossings within town would remain at-grade, with safety improvements

Table 2-11: Ashland Area Build Alternatives: 5D–Ashcake

TRACK
One additional main line track, with centering of all main line tracks on the existing alignment, would be constructed through the entire area, which generally requires additional railroad right-of-way, especially within the town of Ashland ▪ The addition of a third track through town would require closure of a short portion of Railroad Avenue/Center Street
STATIONS
This rail alignment would require removal of the existing station building and platforms, resulting in the relocation of service to a new station south of Ashcake Road, to provide Northeast Regional (SEHSR and Virginia) service *(Figure 2-29)*
CROSSINGS
Includes the grade separation of two existing at-grade roadway crossings in Ashland: West Vaughan Road and Ashcake Road All other existing public roadway crossings within town would remain at-grade, with safety improvements

2.2.2.6 Build Alternatives in Area 6: Richmond

There are eight Build Alternatives in Area 6. All Build Alternatives generally add one main track (though they vary whether they use the A-Line or S-Line through the city), and they vary in whether they consolidate passenger train service to a single station (including two potential new stations at Boulevard Station or Broad Street Station) or provide combinations of service at two stations. There are no changes to CSXT freight service routes due to proposed changes to passenger train routes as part of the DC2RVA Project. The Amtrak Auto Train does not stop in Richmond.

Five of the Richmond area Build Alternatives are single-station alternatives, which are presented in Table 2-12 through Table 2-16. The single station alternatives are Build Alternative 6A, 6B–A-

Line, 6B–S-Line, 6C, and 6D, which are shown in Figure 2-16, Figure 2-17, Figure 2-18, Figure 2-19, and Figure 2-20, respectively. All single-station alternatives consolidate Northeast Regional (SEHSR) and Interstate Corridor (SEHSR) service, as well as all Amtrak Long Distance, Interstate Corridor (Carolinian), and Northeast Regional (Virginia) service, to one station.

Three of the Richmond area Build Alternatives are two-station alternatives, which are presented in Table 2-17 through Table 2-19. All two station alternatives use the existing Staples Mill Road and Main Street Stations. The two station Build Alternatives are Build Alternatives 6E, 6F, and 6G, which are shown in Figure 2-21, Figure 2-22, and Figure 2-23, respectively. All two-station alternatives provide Northeast Regional (SEHSR) and Interstate Corridor (SEHSR) service to at least one station, and serves Amtrak Long Distance, Interstate Corridor (Carolinian), and Northeast Regional (Virginia) to one or both stations.

Table 2-12: Richmond Single Station Build Alternative: 6A (Staples Mill Road Station Only)

TRACK
One main track would be added along portions of RF&P (north of Richmond) and A-Line (through Richmond), with track shifts to improve speed
STATIONS
Existing Main Street Station would be closed to passenger rail service, and all service consolidated at Staples Mill Road Station Staples Mill Road Station would be improved and becomes the one passenger rail station to serve Richmond *(Figure 2-31)* ▪ Does not meet FRA requirement for CBD location ▪ Would be served by all passenger trains, including new proposed Interstate Corridor (SEHSR) and Northeast Regional (SEHSR) service Freight and passenger rail service operating together on the A-Line, CSXT's principal freight corridor, would increase rail congestion/delay
CROSSINGS
Close four existing public roadway crossings; grade separate three at-grade roadway crossings All other public roadway crossings would remain at-grade, with safety improvements Major waterway crossing of James River

Table 2-13: Richmond Single Station Build Alternative: 6B–A-Line (Boulevard Station Only)

TRACK
One of two Boulevard Station-Only alternatives in Area 6 One main track would be added along portions of existing RF&P (north of Richmond) and A-Line (through Richmond), with track shifts to improve speed Elevated loop track at new station
STATIONS
Main Street and Staples Mill Road stations would be closed to passenger rail service and all service relocated and consolidated to a new station at Boulevard Road New Boulevard Road Station would be the one passenger rail station to serve Richmond *(Figure 2-32)* ▪ May not meet FRA requirement for CBD location ▪ Would be served by all passenger trains, including new proposed Interstate Corridor (SEHSR) and Northeast Regional (SEHSR) service Freight and passenger rail service operating together on the A-Line, CSXT's principal freight corridor, would increase rail congestion/delay

CROSSINGS
Close four existing public roadway crossings; grade separate three at-grade roadway crossings
All other public roadway crossings would remain at-grade, with safety improvements
Major waterway crossing of James River

Table 2-14: Richmond Single Station Build Alternative: 6B–S-Line (Boulevard Station Only)

TRACK
Second of two Boulevard Station-Only alternatives in Area 6
One main track would be added along portions of existing RF&P (north of Richmond) and S-Line (through Richmond), with track shifts to improve speed
STATIONS
Existing Main Street and Staples Mill Road stations would be closed to passenger rail service and all service relocated and consolidated to a new station at Boulevard Road
New Boulevard Road Station would be the one passenger rail station to serve Richmond *(Figure 2-32)* ▪ May not meet FRA requirement for CBD location ▪ Would be served by all passenger trains, including new proposed Interstate Corridor (SEHSR) and Northeast Regional (SEHSR) service
Locating all passenger train service (except Auto Train, which does not stop in Richmond) to S-Line, separate from CSXT's principal freight corridor through Richmond (the A-Line), would reduce rail congestion/delay
CROSSINGS
Close five existing public roadway crossings; grade separate four at-grade roadway crossings
All other public roadway crossings would remain at-grade, with safety improvements
Major waterway crossing of James River

Table 2-15: Richmond Single Station Build Alternative: 6C (Broad Street Station Only)

TRACK
One main track would be added along portions of existing RF&P (north Richmond) and A-Line (through Richmond), with track shifts to improve speed
At-grade loop track at new station
STATIONS
Existing Main Street and Staples Mill Road stations would be closed to passenger rail service
New Broad Street Station would be the one passenger rail station to serve Richmond *(Figure 2-33)* ▪ May not meet FRA requirement for CBD location ▪ Would be served by all passenger trains, including new proposed Interstate Corridor (SEHSR) and Northeast Regional (SEHSR) service
Freight and passenger rail service operating together on the A-Line, CSXT's principal freight corridor, would increase rail congestion/delay
CROSSINGS
Station location would require two new at-grade crossings on West Leigh Street adjacent to proposed station, which would require a variance from state code and/or coordination with VDOT
Close four existing public roadway crossings; grade separate three at-grade roadway crossings

Table 2-15: Richmond Single Station Build Alternative: 6C (Broad Street Station Only)

All other public roadway crossings would remain at-grade, with safety improvements
Major waterway crossing of James River

Table 2-16: Richmond Single Station Build Alternative: 6D (Broad Street Station Only)

TRACK
One main track would be added along portions of existing RF&P (north of Richmond) and S-Line (through Richmond), with track shifts to improve speed
STATIONS
Existing Staples Mill Road Station would be closed to passenger rail service and all service consolidated at Main Street Station Main Street Station would be improved and be the one passenger rail station to serve Richmond *(Figure 2-34)* ▪ Meets FRA requirement for CBD location ▪ Would be served by all passenger trains, including new proposed Interstate Corridor (SEHSR) and Northeast Regional (SEHSR) service ▪ Potential increases in passenger and freight delay may occur as proximity to I-95 prevents adding sufficient station platforms / track on the west side of the station Locating all passenger train service (except Auto Train, which does not stop in Richmond) to S-Line, separate from CSXT's principal freight corridor through Richmond (the A-Line), would reduce rail congestion/delay
CROSSINGS
Close five existing public roadway crossings; grade separate three at-grade crossings All other public roadway crossings would remain at-grade, with safety improvements Major waterway crossing of James River

Table 2-17: Richmond Two Station Build Alternative: 6E (Split Service)

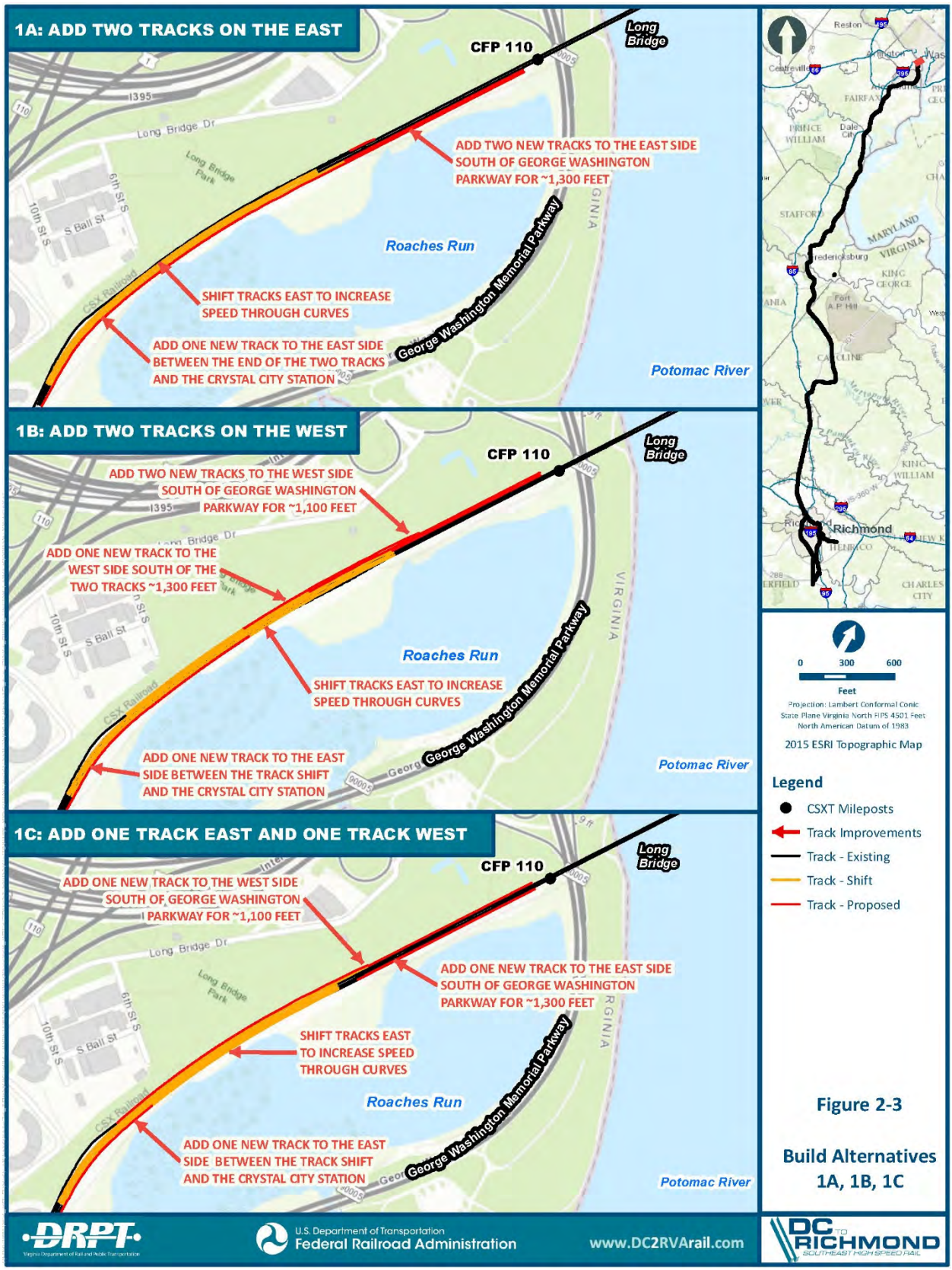
TRACK
One main track would be added along portions of existing RF&P (north of Richmond) and A-Line (through Richmond), with track shifts to improve speed
STATIONS
Both existing stations would remain operational. All passenger trains would serve Staples Mill Road Station; trains to and from Newport News would additionally serve Main Street Station. ▪ Staples Mill Road Station would be expanded and would be served by all passenger trains that stop in Richmond, including new proposed Northeast Regional (SEHSR) to Norfolk and Interstate Corridor (SEHSR) trains *(Figure 2-35)* ▪ Main Street Station would have platform and parking improvements and would be served by all Northeast Regional (SEHSR and Virginia) passenger trains to Newport News *(Figure 2-36)* Freight and passenger rail service operating together on the A-Line, CSXT's principal freight corridor, would increase rail congestion/delay
CROSSINGS
Close four existing public roadway crossings; grade separate three at-grade roadway crossings All other public roadway crossings would remain at-grade, with safety improvements Major waterway crossing of James River

Table 2-18: Richmond Two Station Build Alternative: 6F (Full Service)

TRACK
One main track would be added along portions of existing RF&P (north of Richmond) and S-Line (through Richmond), with track shifts to improve speed
STATIONS
Both existing stations would remain operational, with all passenger trains serving both stations. ▪ Both stations would be improved, including new/modified station buildings, platforms, and parking *(Figure 2-37 and Figure 2-38)* ▪ Both stations would be served by all passenger trains that stop in Richmond, including new proposed Northeast Regional (SEHSR) and Interstate Corridor (SEHSR) service Locating all passenger train service (except Auto Train, which does not stop in Richmond) to S-Line, separate from CSXT's principal freight corridor through Richmond (the A-Line), would reduce rail congestion/delay
CROSSINGS
Close five existing public roadway crossings; grade separate three at-grade roadway crossings All other public roadway crossings would remain at-grade, with safety improvements Major waterway crossing of James River

Table 2-19: Richmond Two Station Build Alternative: 6G (Shared Service)

TRACK
One main track would be added along portions of existing RF&P (north of Richmond) and the S-Line (through Richmond), with track shifts to improve speed ▪ The A-Line is used for service but does not require proposed track
STATIONS
Both existing stations would remain operational, with both stations being served by all new proposed SEHSR service and other Amtrak passenger train services to either one or both stations. ▪ Both stations would be improved, including new/modified station buildings, platforms, and parking *(Figure 2-39 and Figure 2-40)* ▪ Both stations would be served by all Interstate Corridor (SEHSR) and Northeast Regional (SEHSR and Virginia) trains ▪ Long Distance (Amtrak) and Interstate Corridor (Carolinian) would serve Staples Mill Station only Freight and passenger rail service operating together on the A-Line, CSXT's principal freight corridor, would increase rail congestion/delay
CROSSINGS
Close five existing public roadway crossings; grade separate three at-grade roadway crossings All other public roadway crossings would remain at-grade, with safety improvements Major waterway crossing of James River


1A: ADD TWO TRACKS ON THE EAST
CFP 110
Long Bridge
ADD TWO NEW TRACKS TO THE EAST SIDE SOUTH OF GEORGE WASHINGTON PARKWAY FOR ~1,300 FEET
SHIFT TRACKS EAST TO INCREASE SPEED THROUGH CURVES
ADD ONE NEW TRACK TO THE EAST SIDE BETWEEN THE END OF THE TWO TRACKS AND THE CRYSTAL CITY STATION
Roaches Run
George Washington Memorial Parkway
Potomac River
1B: ADD TWO TRACKS ON THE WEST
CFP 110
Long Bridge
ADD TWO NEW TRACKS TO THE WEST SIDE SOUTH OF GEORGE WASHINGTON PARKWAY FOR ~1,100 FEET
ADD ONE NEW TRACK TO THE WEST SIDE SOUTH OF THE TWO TRACKS ~1,300 FEET
SHIFT TRACKS EAST TO INCREASE SPEED THROUGH CURVES
ADD ONE NEW TRACK TO THE EAST SIDE BETWEEN THE TRACK SHIFT AND THE CRYSTAL CITY STATION
Roaches Run
George Washington Memorial Parkway
Potomac River
1C: ADD ONE TRACK EAST AND ONE TRACK WEST
CFP 110
Long Bridge
ADD ONE NEW TRACK TO THE WEST SIDE SOUTH OF GEORGE WASHINGTON PARKWAY FOR ~1,100 FEET
ADD ONE NEW TRACK TO THE EAST SIDE SOUTH OF GEORGE WASHINGTON PARKWAY FOR ~1,300 FEET
SHIFT TRACKS EAST TO INCREASE SPEED THROUGH CURVES
ADD ONE NEW TRACK TO THE EAST SIDE BETWEEN THE TRACK SHIFT AND THE CRYSTAL CITY STATION
Roaches Run
George Washington Memorial Parkway
Potomac River
Richmond
0 300 600
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI Topographic Map
Legend
CSXT Mileposts
Track Improvements
Track - Existing
Track - Shift
Track - Proposed
Figure 2-3
Build Alternatives
1A, 1B, 1C
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Federal Railroad Administration
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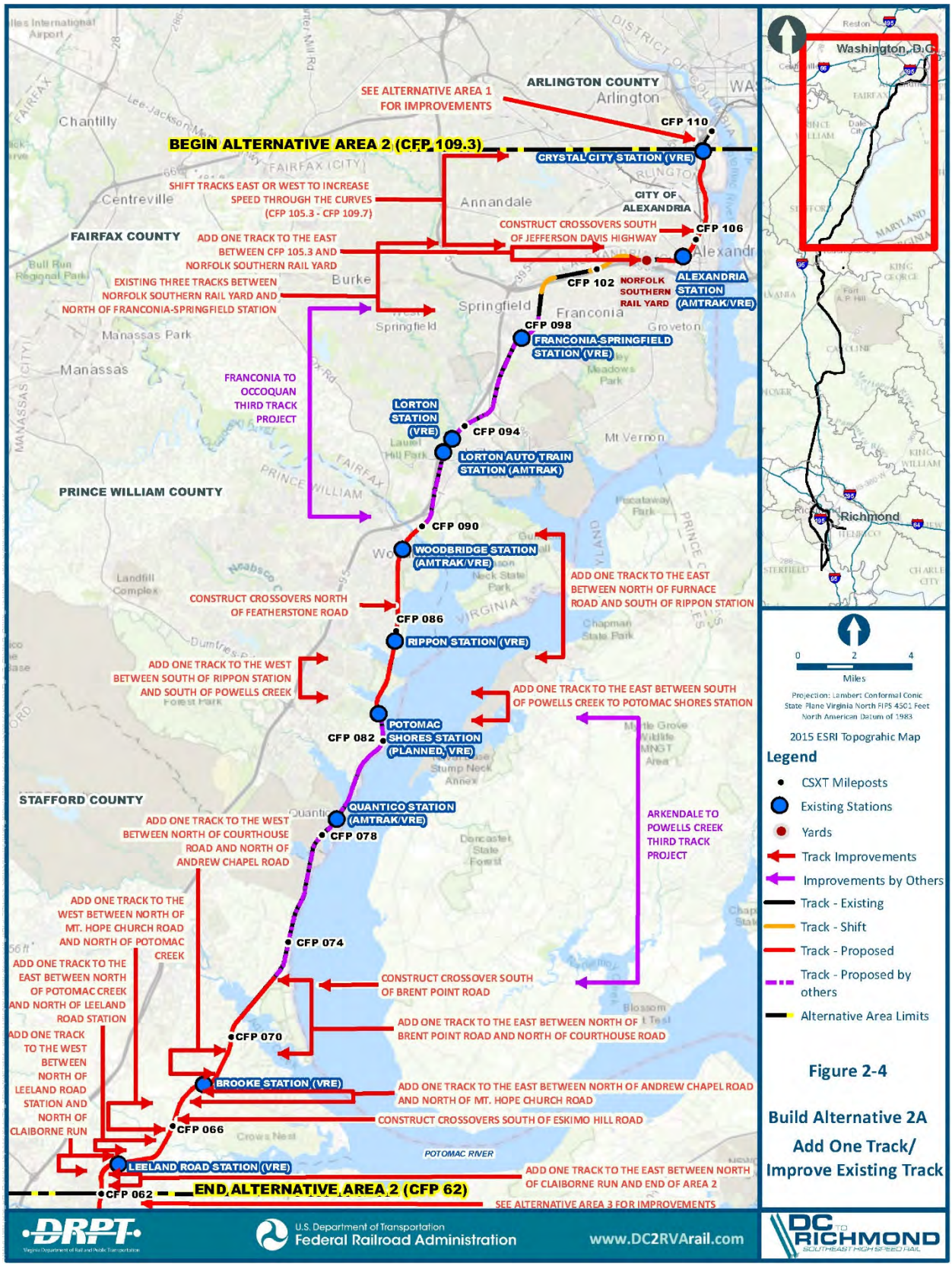
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


SEE ALTERNATIVE AREA 1 FOR IMPROVEMENTS
ARLINGTON COUNTY
CFP 110
BEGIN ALTERNATIVE AREA 2 (CFP 109.3)
CRYSTAL CITY STATION (VRE)
SHIFT TRACKS EAST OR WEST TO INCREASE SPEED THROUGH THE CURVES (CFP 105.3 - CFP 109.7)
CITY OF ALEXANDRIA
CONSTRUCT CROSSOVERS SOUTH OF JEFFERSON DAVIS HIGHWAY
CFP 106
FAIRFAX COUNTY
ADD ONE TRACK TO THE EAST BETWEEN CFP 105.3 AND NORFOLK SOUTHERN RAIL YARD
EXISTING THREE TRACKS BETWEEN NORFOLK SOUTHERN RAIL YARD AND NORTH OF FRANCONIA-SPRINGFIELD STATION
CFP 102
NORFOLK SOUTHERN RAIL YARD
ALEXANDRIA STATION (AMTRAK/VRE)
CFP 098
FRANCONIA-SPRINGFIELD STATION (VRE)
FRANCONIA TO OCCOQUAN THIRD TRACK PROJECT
LORTON STATION (VRE)
CFP 094
LORTON AUTO TRAIN STATION (AMTRAK)
PRINCE WILLIAM COUNTY
CFP 090
WOODBRIDGE STATION (AMTRAK/VRE)
ADD ONE TRACK TO THE EAST BETWEEN NORTH OF FURNACE ROAD AND SOUTH OF RIPPON STATION
CONSTRUCT CROSSOVERS NORTH OF FEATHERSTONE ROAD
CFP 086
RIPPON STATION (VRE)
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF RIPPON STATION AND SOUTH OF POWELLS CREEK
ADD ONE TRACK TO THE EAST BETWEEN SOUTH OF POWELLS CREEK TO POTOMAC SHORES STATION
POTOMAC SHORES STATION (PLANNED, VRE)
CFP 082
STAFFORD COUNTY
QUANTICO STATION (AMTRAK/VRE)
ADD ONE TRACK TO THE WEST BETWEEN NORTH OF COURTHOUSE ROAD AND NORTH OF ANDREW CHAPEL ROAD
CFP 078
ARKENDALE TO POWELLS CREEK THIRD TRACK PROJECT
ADD ONE TRACK TO THE WEST BETWEEN NORTH OF MT. HOPE CHURCH ROAD AND NORTH OF POTOMAC CREEK
CFP 074
ADD ONE TRACK TO THE EAST BETWEEN NORTH OF POTOMAC CREEK AND NORTH OF LEELAND ROAD STATION
CONSTRUCT CROSSOVER SOUTH OF BRENT POINT ROAD
ADD ONE TRACK TO THE WEST BETWEEN NORTH OF LEELAND ROAD STATION AND NORTH OF CLAIBORNE RUN
CFP 070
ADD ONE TRACK TO THE EAST BETWEEN NORTH OF BRENT POINT ROAD AND NORTH OF COURTHOUSE ROAD
BROOKE STATION (VRE)
ADD ONE TRACK TO THE EAST BETWEEN NORTH OF ANDREW CHAPEL ROAD AND NORTH OF MT. HOPE CHURCH ROAD
CONSTRUCT CROSSOVERS SOUTH OF ESKIMO HILL ROAD
CFP 066
POTOMAC RIVER
LEELAND ROAD STATION (VRE)
ADD ONE TRACK TO THE EAST BETWEEN NORTH OF CLAIBORNE RUN AND END OF AREA 2
CFP 062
END ALTERNATIVE AREA 2 (CFP 62)
SEE ALTERNATIVE AREA 3 FOR IMPROVEMENTS
Washington, D.C.
Richmond
0 2 4
Miles
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI Topograhic Map
Legend
CSXT Mileposts
Existing Stations
Yards
Track Improvements
Improvements by Others
Track - Existing
Track - Shift
Track - Proposed
Track - Proposed by others
Alternative Area Limits
Figure 2-4
Build Alternative 2A
Add One Track/
Improve Existing Track
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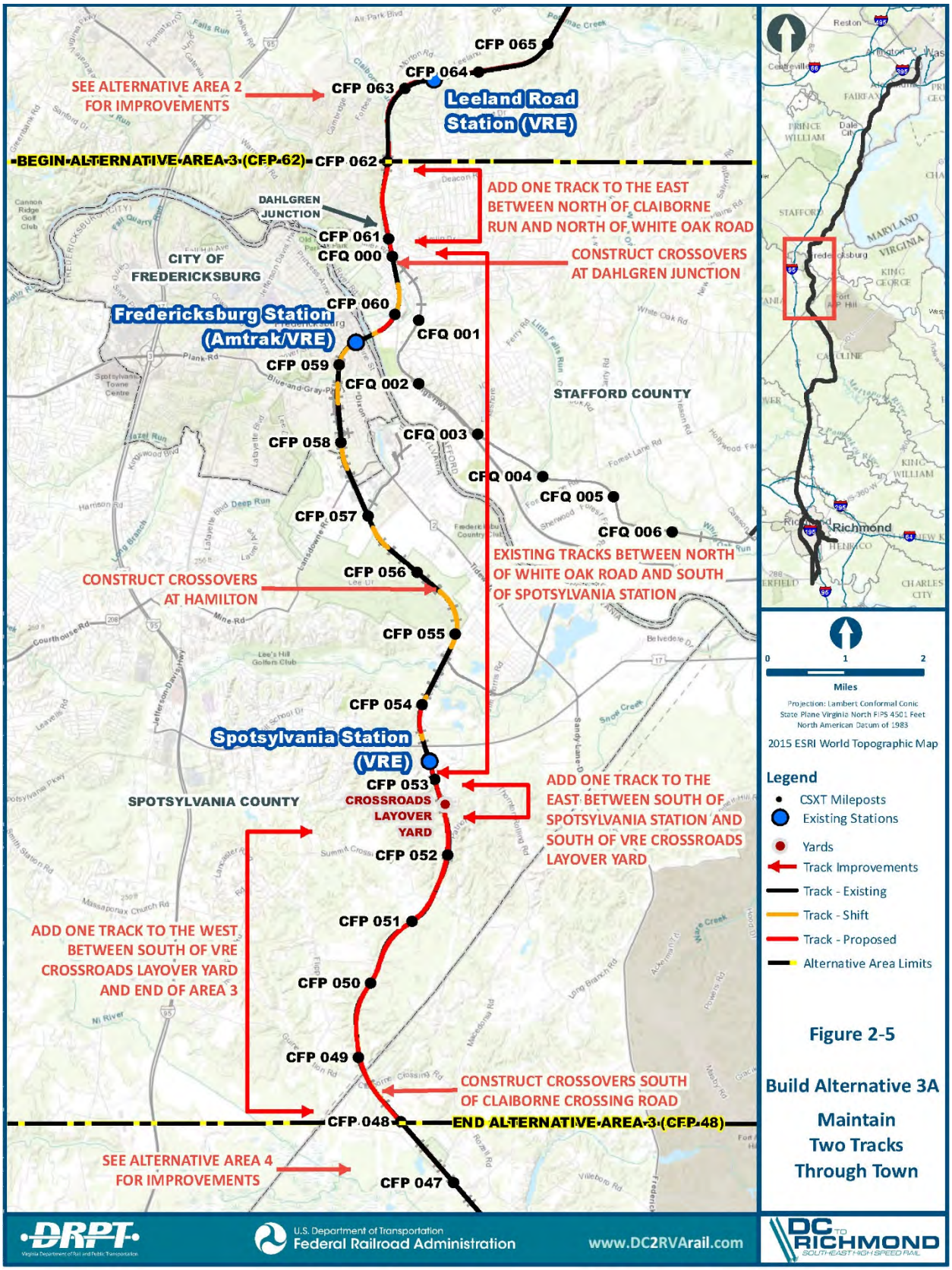
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


CFP 065
CFP 064
CFP 063
Leeland Road Station (VRE)
SEE ALTERNATIVE AREA 2 FOR IMPROVEMENTS
BEGIN ALTERNATIVE AREA 3 (CFP 62)
CFP 062
ADD ONE TRACK TO THE EAST BETWEEN NORTH OF CLAIBORNE RUN AND NORTH OF WHITE OAK ROAD
DAHLGREN JUNCTION
CFP 061
CFQ 000
CONSTRUCT CROSSOVERS AT DAHLGREN JUNCTION
CITY OF FREDERICKSBURG
CFP 060
Fredericksburg Station (Amtrak/VRE)
CFQ 001
CFP 059
CFQ 002
STAFFORD COUNTY
CFP 058
CFQ 003
CFQ 004
CFQ 005
CFP 057
CFQ 006
EXISTING TRACKS BETWEEN NORTH OF WHITE OAK ROAD AND SOUTH OF SPOTSYLVANIA STATION
CONSTRUCT CROSSOVERS AT HAMILTON
CFP 056
CFP 055
CFP 054
Spotsylvania Station (VRE)
CFP 053
CROSSROADS LAYOVER YARD
SPOTSYLVANIA COUNTY
ADD ONE TRACK TO THE EAST BETWEEN SOUTH OF SPOTSYLVANIA STATION AND SOUTH OF VRE CROSSROADS LAYOVER YARD
CFP 052
CFP 051
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF VRE CROSSROADS LAYOVER YARD AND END OF AREA 3
CFP 050
CFP 049
CONSTRUCT CROSSOVERS SOUTH OF CLAIBORNE CROSSING ROAD
CFP 048
END ALTERNATIVE AREA 3 (CFP 48)
SEE ALTERNATIVE AREA 4 FOR IMPROVEMENTS
CFP 047
Richmond
0 1 2
Miles
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Yards
Track Improvements
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Figure 2-5
Build Alternative 3A
Maintain Two Tracks Through Town
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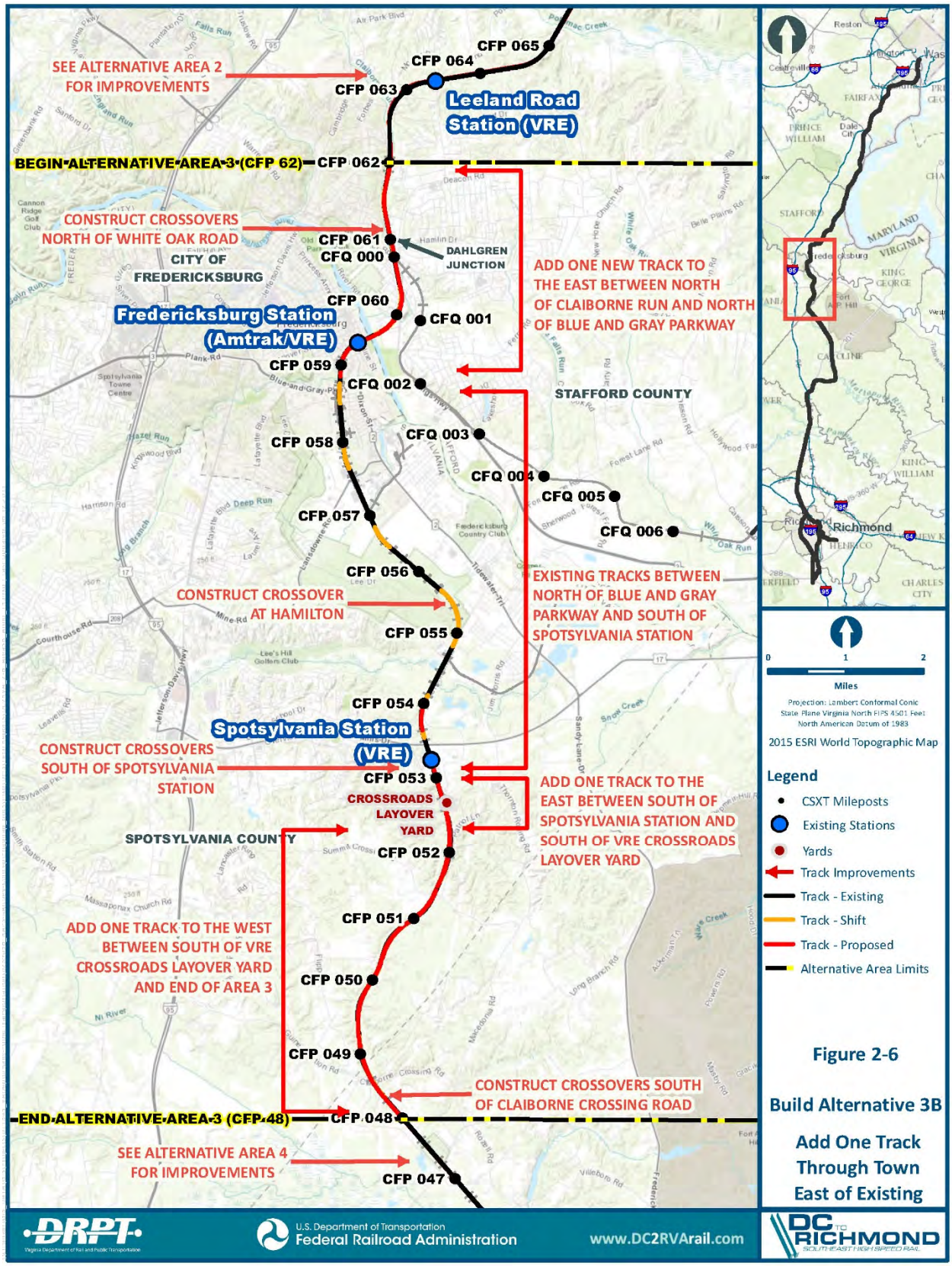
SOUTHEAST HIGH SPEED RAIL


SEE ALTERNATIVE AREA 2 FOR IMPROVEMENTS
CFP 065
CFP 064
CFP 063
Leeland Road Station (VRE)
BEGIN ALTERNATIVE AREA 3 (CFP 62)
CFP 062
CONSTRUCT CROSSOVERS NORTH OF WHITE OAK ROAD
CFP 061
CFQ 000
DAHLGREN JUNCTION
CITY OF FREDERICKSBURG
ADD ONE NEW TRACK TO THE EAST BETWEEN NORTH OF CLAIBORNE RUN AND NORTH OF BLUE AND GRAY PARKWAY
CFP 060
CFQ 001
Fredericksburg Station (Amtrak/VRE)
CFP 059
CFQ 002
STAFFORD COUNTY
CFP 058
CFQ 003
CFQ 004
CFQ 005
CFP 057
CFQ 006
CFP 056
EXISTING TRACKS BETWEEN NORTH OF BLUE AND GRAY PARKWAY AND SOUTH OF SPOTSYLVANIA STATION
CONSTRUCT CROSSOVER AT HAMILTON
CFP 055
CFP 054
Spotsylvania Station (VRE)
CONSTRUCT CROSSOVERS SOUTH OF SPOTSYLVANIA STATION
CFP 053
ADD ONE TRACK TO THE EAST BETWEEN SOUTH OF SPOTSYLVANIA STATION AND SOUTH OF VRE CROSSROADS LAYOVER YARD
CROSSROADS LAYOVER YARD
SPOTSYLVANIA COUNTY
CFP 052
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF VRE CROSSROADS LAYOVER YARD AND END OF AREA 3
CFP 051
CFP 050
CFP 049
CONSTRUCT CROSSOVERS SOUTH OF CLAIBORNE CROSSING ROAD
END ALTERNATIVE AREA 3 (CFP 48)
CFP 048
SEE ALTERNATIVE AREA 4 FOR IMPROVEMENTS
CFP 047
Reston
Richmond
0 1 2
Miles
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Yards
Track Improvements
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Figure 2-6
Build Alternative 3B
Add One Track Through Town East of Existing
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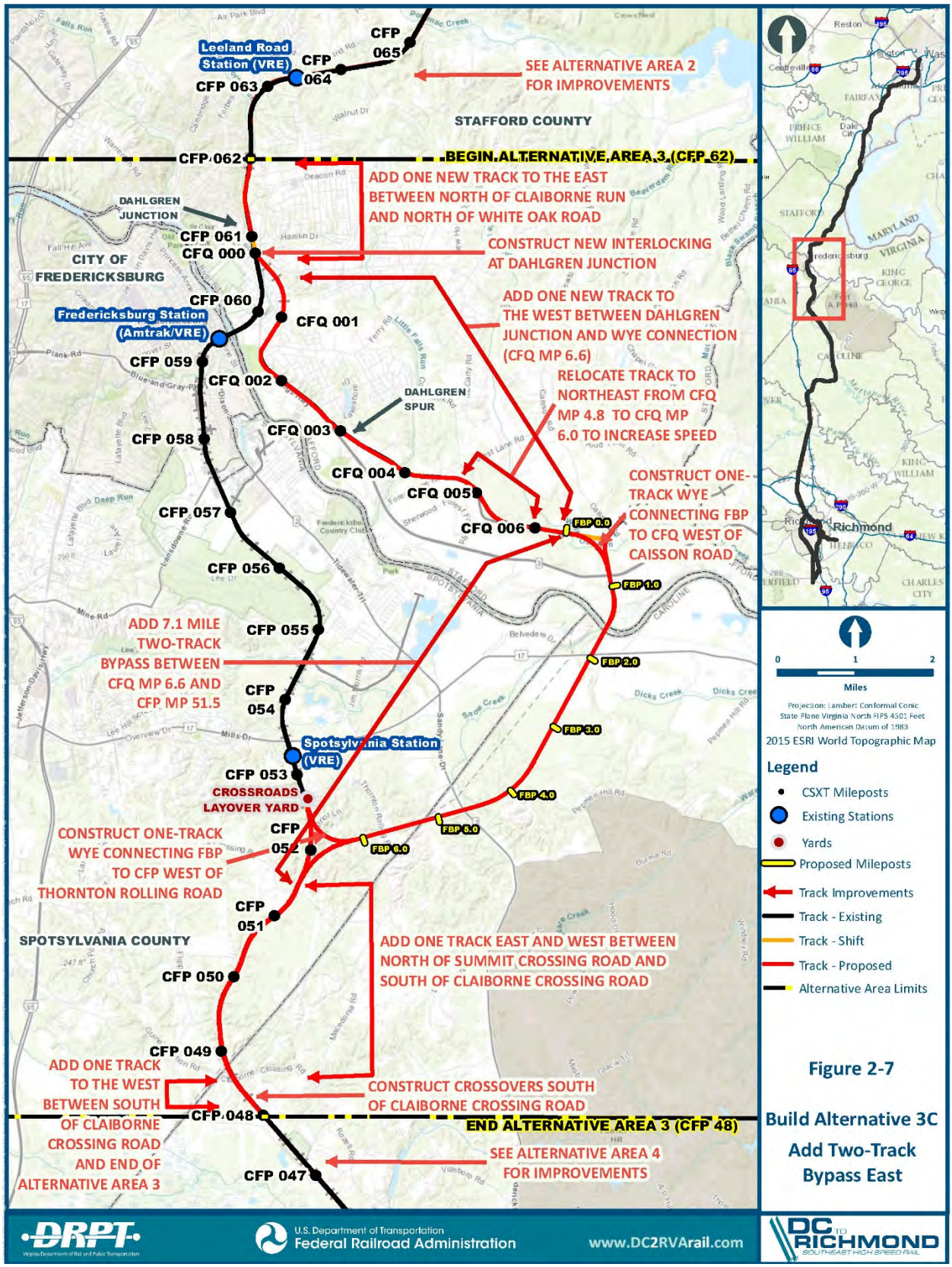
CFP 065
Leeland Road Station (VRE)
CFP 064
CFP 063
SEE ALTERNATIVE AREA 2 FOR IMPROVEMENTS
STAFFORD COUNTY
CFP 062
BEGIN ALTERNATIVE AREA 3 (CFP 62)
ADD ONE NEW TRACK TO THE EAST BETWEEN NORTH OF CLAIBORNE RUN AND NORTH OF WHITE OAK ROAD
DAHLGREN JUNCTION
CFP 061
CFQ 000
CONSTRUCT NEW INTERLOCKING AT DAHLGREN JUNCTION
CITY OF FREDERICKSBURG
CFP 060
Fredericksburg Station (Amtrak/VRE)
CFQ 001
ADD ONE NEW TRACK TO THE WEST BETWEEN DAHLGREN JUNCTION AND WYE CONNECTION (CFQ MP 6.6)
CFP 059
CFQ 002
DAHLGREN SPUR
RELOCATE TRACK TO NORTHEAST FROM CFQ MP 4.8 TO CFQ MP 6.0 TO INCREASE SPEED
CFP 058
CFQ 003
CFQ 004
CFQ 005
CONSTRUCT ONE-TRACK WYE CONNECTING FBP TO CFQ WEST OF CAISSON ROAD
CFP 057
CFQ 006
FBP 0.0
CFP 056
FBP 1.0
ADD 7.1 MILE TWO-TRACK BYPASS BETWEEN CFQ MP 6.6 AND CFP MP 51.5
CFP 055
FBP 2.0
CFP 054
FBP 3.0
Spotsylvania Station (VRE)
CFP 053
CROSSROADS LAYOVER YARD
FBP 4.0
CONSTRUCT ONE-TRACK WYE CONNECTING FBP TO CFP WEST OF THORNTON ROLLING ROAD
CFP 052
FBP 5.0
FBP 6.0
CFP 051
SPOTSYLVANIA COUNTY
ADD ONE TRACK EAST AND WEST BETWEEN NORTH OF SUMMIT CROSSING ROAD AND SOUTH OF CLAIBORNE CROSSING ROAD
CFP 050
CFP 049
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF CLAIBORNE CROSSING ROAD AND END OF ALTERNATIVE AREA 3
CONSTRUCT CROSSOVERS SOUTH OF CLAIBORNE CROSSING ROAD
CFP 048
END ALTERNATIVE AREA 3 (CFP 48)
SEE ALTERNATIVE AREA 4 FOR IMPROVEMENTS
CFP 047
Reston
Richmond
0 1 2
Miles
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Yards
Proposed Mileposts
Track Improvements
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Figure 2-7
Build Alternative 3C
Add Two-Track Bypass East
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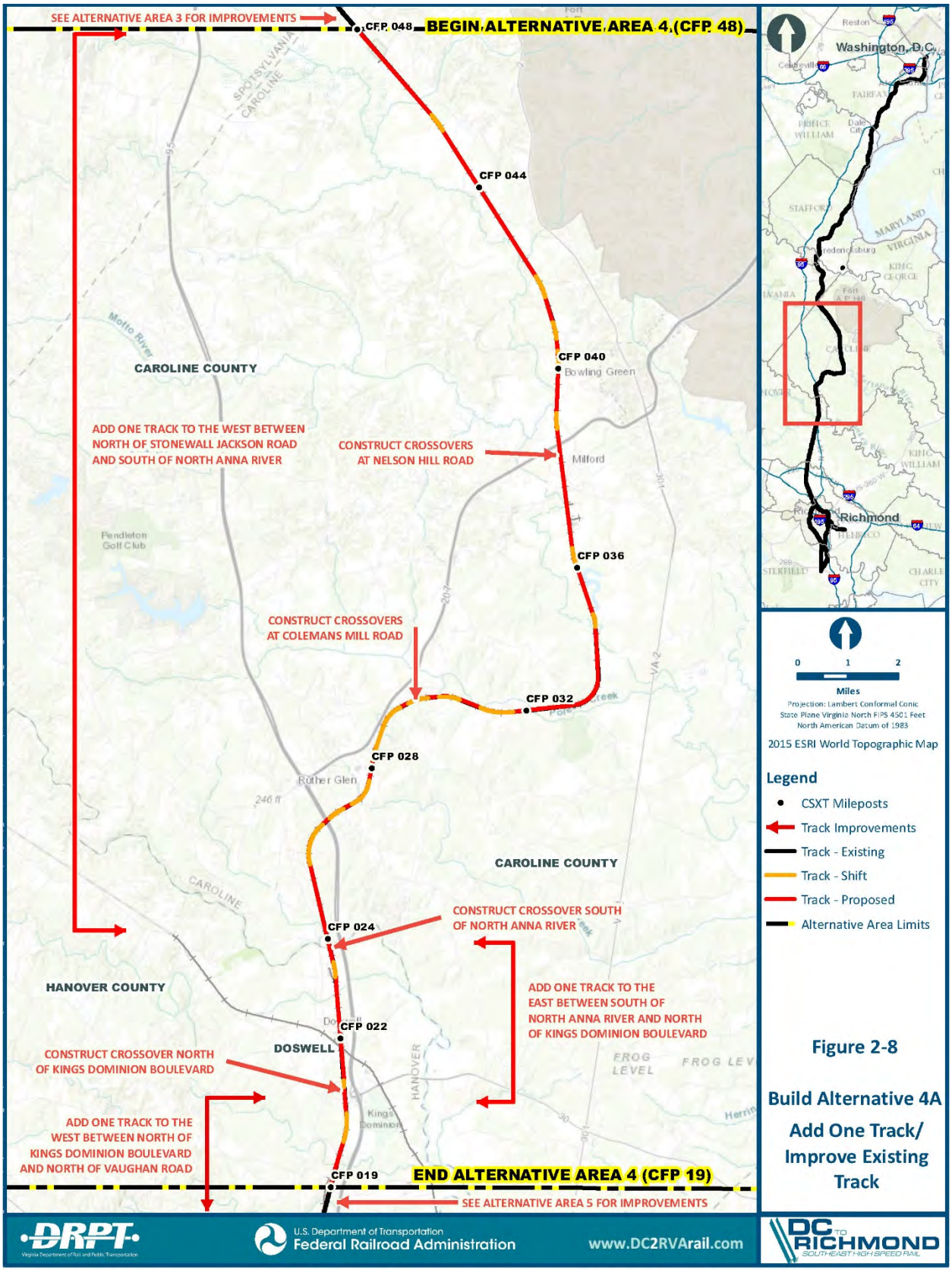
SEE ALTERNATIVE AREA 3 FOR IMPROVEMENTS
CFP 048
BEGIN ALTERNATIVE AREA 4 (CFP 48)
CFP 044
CFP 040
Bowling Green
CAROLINE COUNTY
ADD ONE TRACK TO THE WEST BETWEEN NORTH OF STONEWALL JACKSON ROAD AND SOUTH OF NORTH ANNA RIVER
CONSTRUCT CROSSOVERS AT NELSON HILL ROAD
Milford
CFP 036
CONSTRUCT CROSSOVERS AT COLEMANS MILL ROAD
CFP 032
CFP 028
Ruther Glen
CAROLINE COUNTY
CFP 024
CONSTRUCT CROSSOVER SOUTH OF NORTH ANNA RIVER
HANOVER COUNTY
ADD ONE TRACK TO THE EAST BETWEEN SOUTH OF NORTH ANNA RIVER AND NORTH OF KINGS DOMINION BOULEVARD
CFP 022
DOSWELL
CONSTRUCT CROSSOVER NORTH OF KINGS DOMINION BOULEVARD
ADD ONE TRACK TO THE WEST BETWEEN NORTH OF KINGS DOMINION BOULEVARD AND NORTH OF VAUGHAN ROAD
CFP 019
END ALTERNATIVE AREA 4 (CFP 19)
SEE ALTERNATIVE AREA 5 FOR IMPROVEMENTS
Washington, D.C.
Richmond
0 1 2
Miles
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Track Improvements
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Figure 2-8
Build Alternative 4A
Add One Track/ Improve Existing Track
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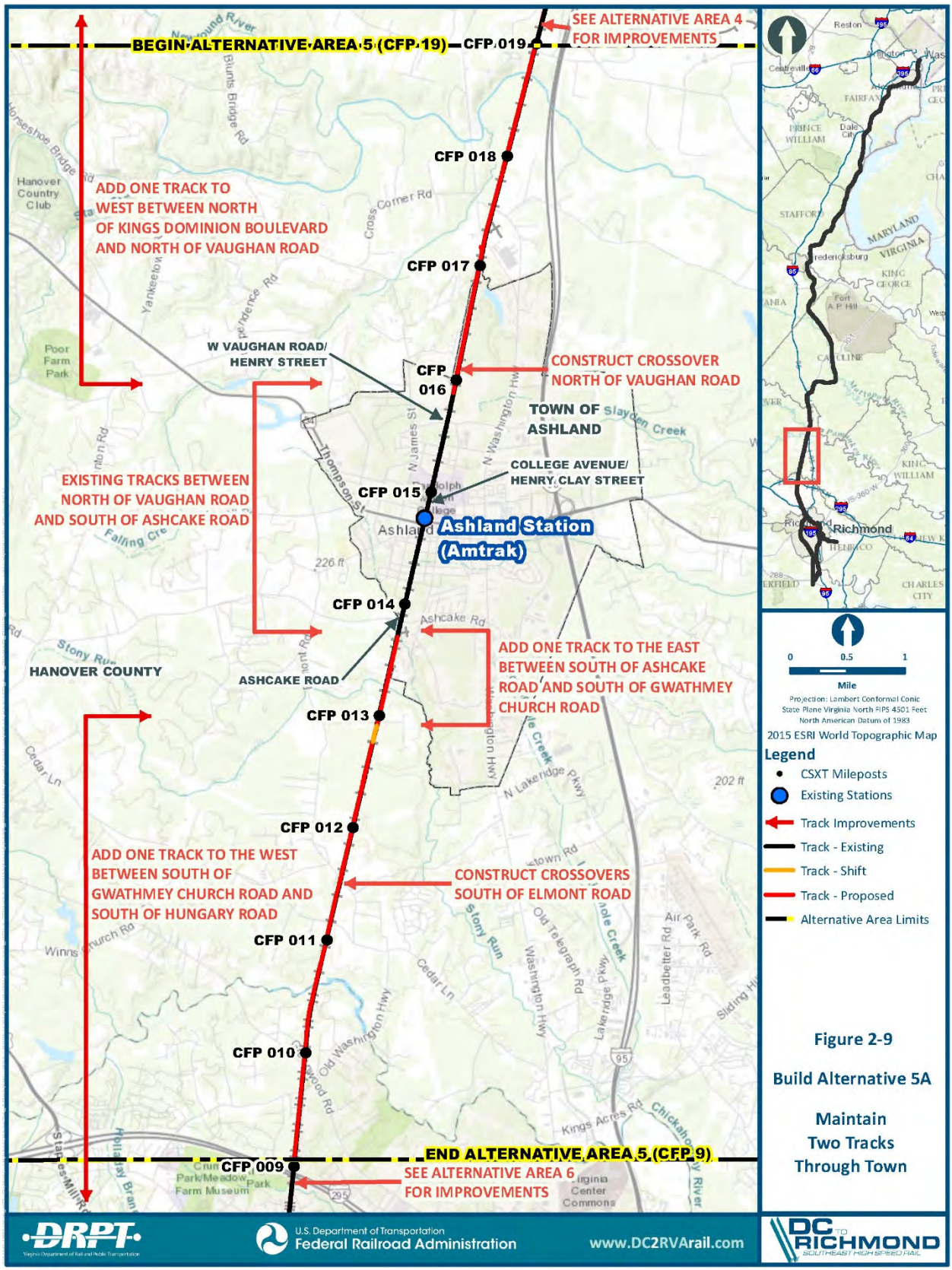
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


BEGIN ALTERNATIVE AREA 5 (CFP 19)
CFP 019
SEE ALTERNATIVE AREA 4 FOR IMPROVEMENTS
CFP 018
ADD ONE TRACK TO WEST BETWEEN NORTH OF KINGS DOMINION BOULEVARD AND NORTH OF VAUGHAN ROAD
CFP 017
W VAUGHAN ROAD/ HENRY STREET
CFP 016
CONSTRUCT CROSSOVER NORTH OF VAUGHAN ROAD
TOWN OF ASHLAND
COLLEGE AVENUE/ HENRY CLAY STREET
EXISTING TRACKS BETWEEN NORTH OF VAUGHAN ROAD AND SOUTH OF ASHCAKE ROAD
CFP 015
Ashland Station (Amtrak)
CFP 014
ADD ONE TRACK TO THE EAST BETWEEN SOUTH OF ASHCAKE ROAD AND SOUTH OF GWATHMEY CHURCH ROAD
HANOVER COUNTY
ASHCAKE ROAD
CFP 013
CFP 012
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF GWATHMEY CHURCH ROAD AND SOUTH OF HUNGARY ROAD
CONSTRUCT CROSSOVERS SOUTH OF ELMONT ROAD
CFP 011
CFP 010
END ALTERNATIVE AREA 5 (CFP 9)
CFP 009
SEE ALTERNATIVE AREA 6 FOR IMPROVEMENTS
Richmond
0 0.5 1
Mile
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Track Improvements
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Figure 2-9
Build Alternative 5A
Maintain Two Tracks Through Town
DRPT
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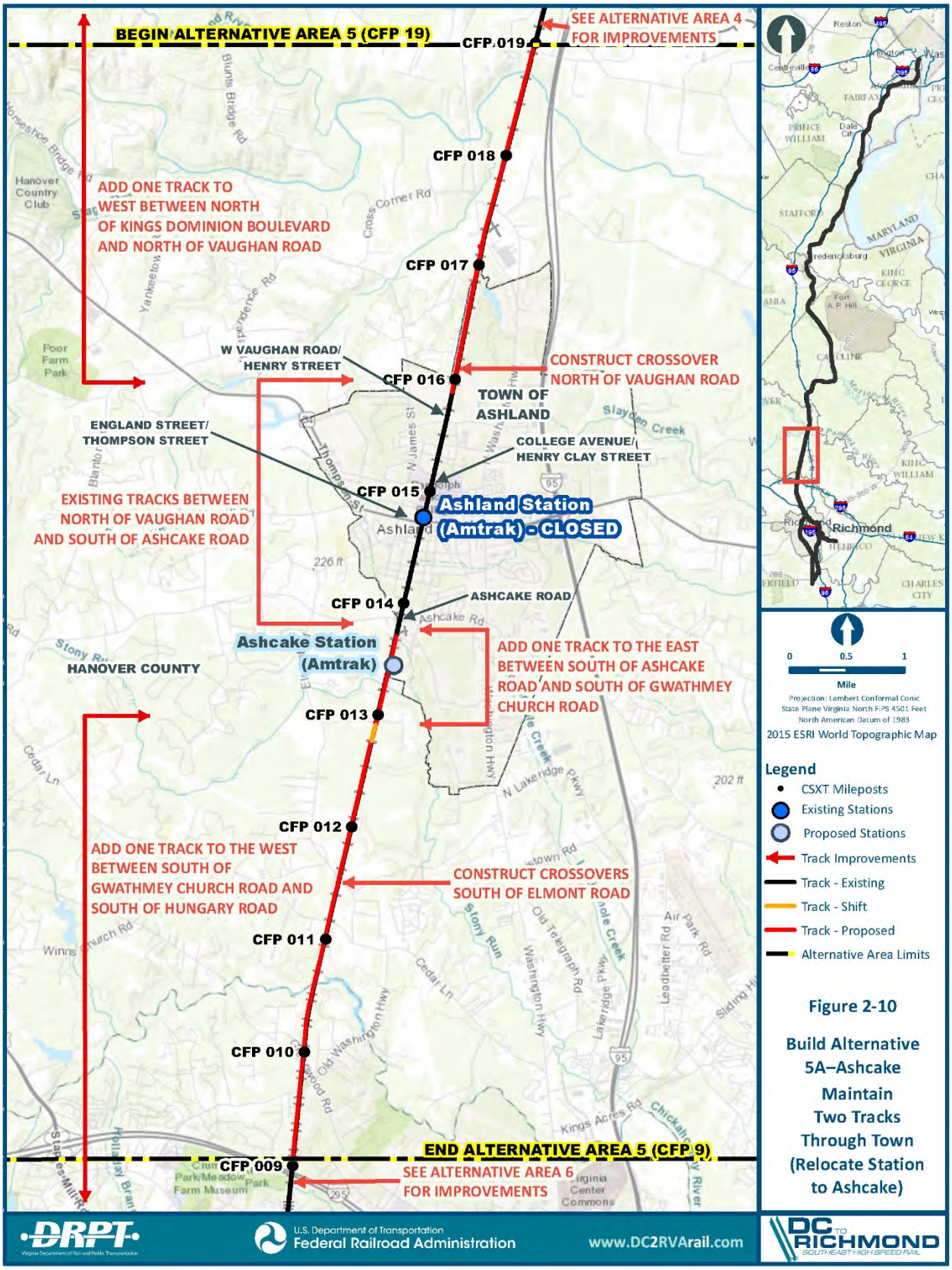
DC TO RICHMOND SOUTHEAST HIGH SPEED RAIL


BEGIN ALTERNATIVE AREA 5 (CFP 19)
CFP 019
SEE ALTERNATIVE AREA 4 FOR IMPROVEMENTS
CFP 018
ADD ONE TRACK TO WEST BETWEEN NORTH OF KINGS DOMINION BOULEVARD AND NORTH OF VAUGHAN ROAD
CFP 017
W VAUGHAN ROAD/ HENRY STREET
CONSTRUCT CROSSOVER NORTH OF VAUGHAN ROAD
CFP 016
TOWN OF ASHLAND
ENGLAND STREET/ THOMPSON STREET
COLLEGE AVENUE/ HENRY CLAY STREET
EXISTING TRACKS BETWEEN NORTH OF VAUGHAN ROAD AND SOUTH OF ASHCAKE ROAD
CFP 015
Ashland Station (Amtrak) - CLOSED
ASHCAKE ROAD
CFP 014
Ashcake Station (Amtrak)
HANOVER COUNTY
ADD ONE TRACK TO THE EAST BETWEEN SOUTH OF ASHCAKE ROAD AND SOUTH OF GWATHMEY CHURCH ROAD
CFP 013
CFP 012
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF GWATHMEY CHURCH ROAD AND SOUTH OF HUNGARY ROAD
CONSTRUCT CROSSOVERS SOUTH OF ELMONT ROAD
CFP 011
CFP 010
END ALTERNATIVE AREA 5 (CFP 9)
CFP 009
SEE ALTERNATIVE AREA 6 FOR IMPROVEMENTS
Richmond
0 0.5 1
Mile
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Proposed Stations
Track Improvements
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Figure 2-10
Build Alternative 5A–Ashcake Maintain Two Tracks Through Town (Relocate Station to Ashcake)
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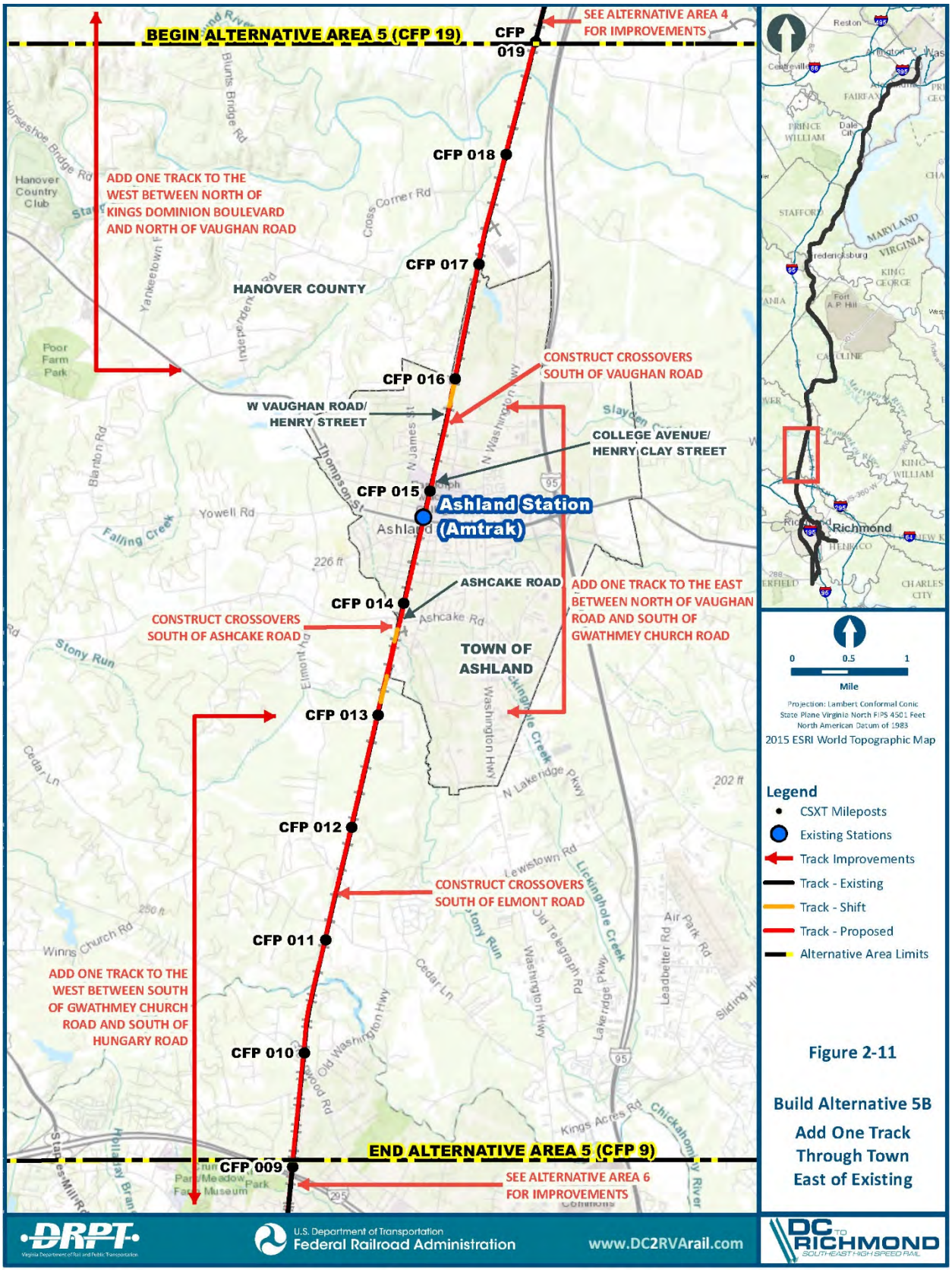
BEGIN ALTERNATIVE AREA 5 (CFP 19)
CFP 019
SEE ALTERNATIVE AREA 4 FOR IMPROVEMENTS
CFP 018
ADD ONE TRACK TO THE WEST BETWEEN NORTH OF KINGS DOMINION BOULEVARD AND NORTH OF VAUGHAN ROAD
CFP 017
HANOVER COUNTY
CFP 016
CONSTRUCT CROSSOVERS SOUTH OF VAUGHAN ROAD
W VAUGHAN ROAD/ HENRY STREET
COLLEGE AVENUE/ HENRY CLAY STREET
CFP 015
Ashland Station (Amtrak)
ASHCAKE ROAD
ADD ONE TRACK TO THE EAST BETWEEN NORTH OF VAUGHAN ROAD AND SOUTH OF GWATHMEY CHURCH ROAD
CFP 014
CONSTRUCT CROSSOVERS SOUTH OF ASHCAKE ROAD
TOWN OF ASHLAND
CFP 013
CFP 012
CONSTRUCT CROSSOVERS SOUTH OF ELMONT ROAD
CFP 011
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF GWATHMEY CHURCH ROAD AND SOUTH OF HUNGARY ROAD
CFP 010
END ALTERNATIVE AREA 5 (CFP 9)
CFP 009
SEE ALTERNATIVE AREA 6 FOR IMPROVEMENTS
Richmond
0 0.5 1
Mile
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Track Improvements
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Figure 2-11
Build Alternative 5B
Add One Track
Through Town
East of Existing
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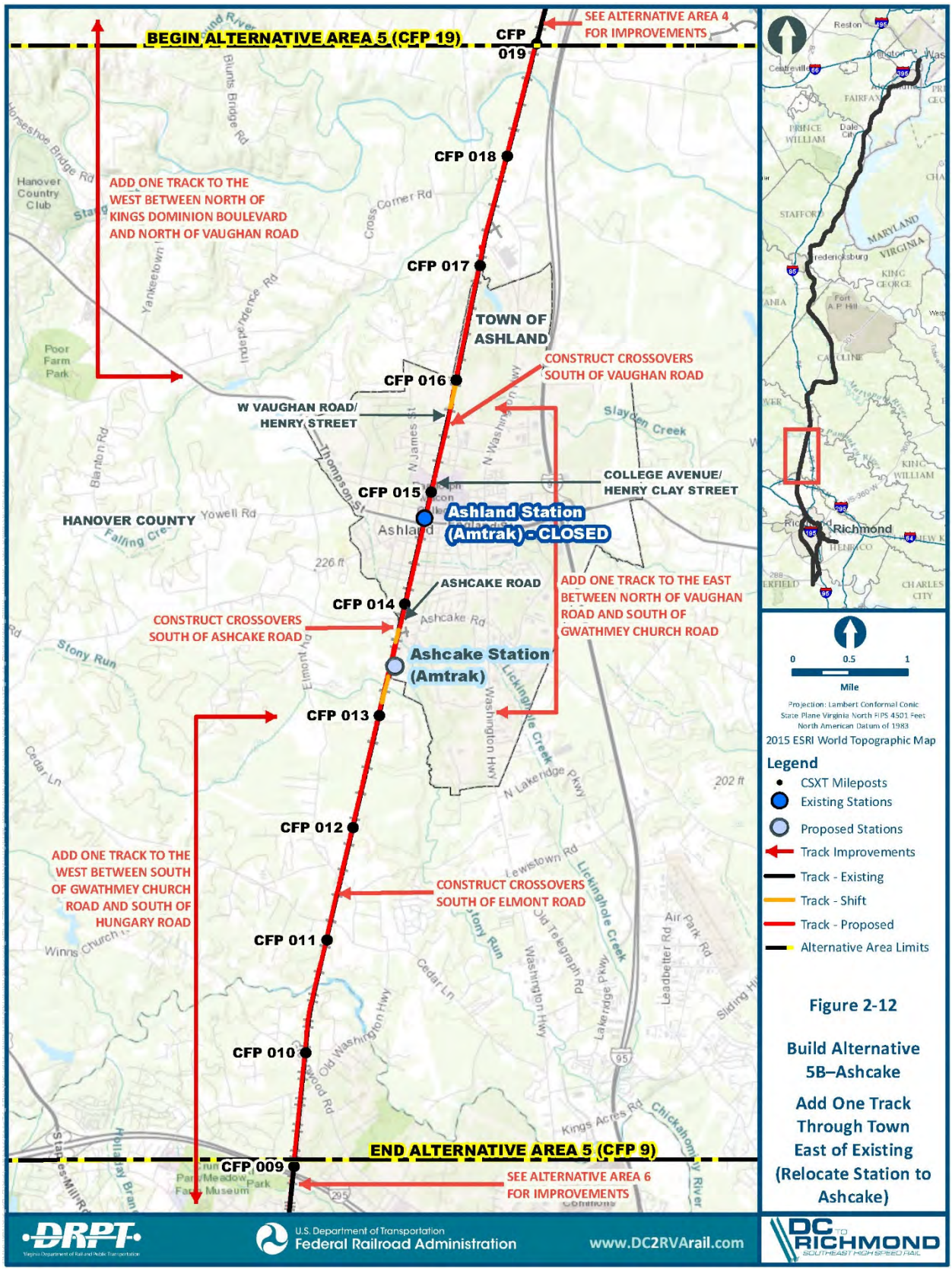
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


BEGIN ALTERNATIVE AREA 5 (CFP 19)
CFP 019
SEE ALTERNATIVE AREA 4 FOR IMPROVEMENTS
CFP 018
ADD ONE TRACK TO THE WEST BETWEEN NORTH OF KINGS DOMINION BOULEVARD AND NORTH OF VAUGHAN ROAD
CFP 017
TOWN OF ASHLAND
CONSTRUCT CROSSOVERS SOUTH OF VAUGHAN ROAD
CFP 016
W VAUGHAN ROAD/ HENRY STREET
COLLEGE AVENUE/ HENRY CLAY STREET
CFP 015
HANOVER COUNTY
Ashland Station (Amtrak) - CLOSED
ASHCAKE ROAD
ADD ONE TRACK TO THE EAST BETWEEN NORTH OF VAUGHAN ROAD AND SOUTH OF GWATHMEY CHURCH ROAD
CFP 014
CONSTRUCT CROSSOVERS SOUTH OF ASHCAKE ROAD
Ashcake Station (Amtrak)
CFP 013
CFP 012
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF GWATHMEY CHURCH ROAD AND SOUTH OF HUNGARY ROAD
CONSTRUCT CROSSOVERS SOUTH OF ELMONT ROAD
CFP 011
CFP 010
END ALTERNATIVE AREA 5 (CFP 9)
CFP 009
SEE ALTERNATIVE AREA 6 FOR IMPROVEMENTS
Richmond
0 0.5 1
Mile
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Proposed Stations
Track Improvements
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Figure 2-12
Build Alternative 5B–Ashcake
Add One Track Through Town East of Existing (Relocate Station to Ashcake)
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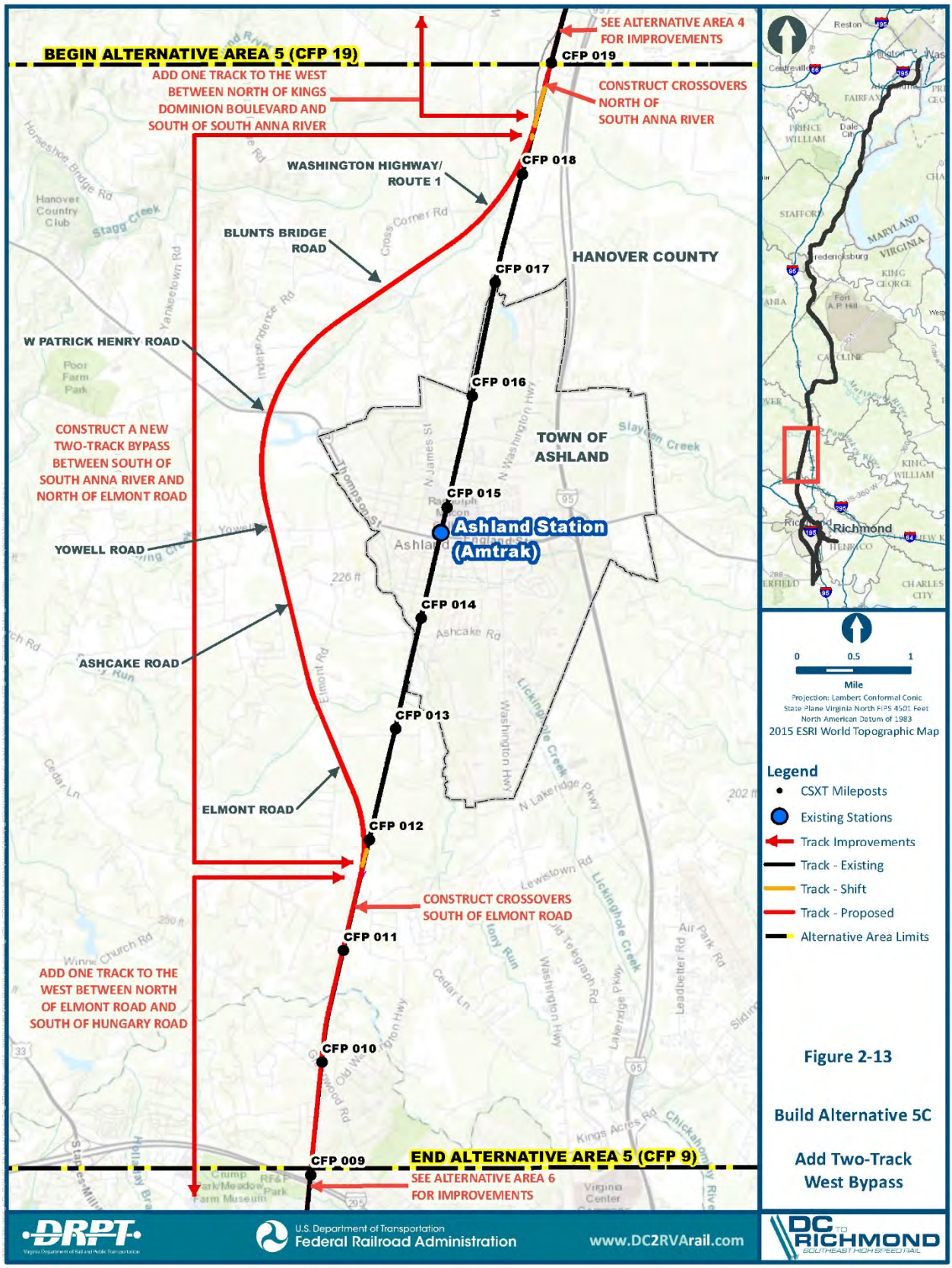
BEGIN ALTERNATIVE AREA 5 (CFP 19)
ADD ONE TRACK TO THE WEST BETWEEN NORTH OF KINGS DOMINION BOULEVARD AND SOUTH OF SOUTH ANNA RIVER
SEE ALTERNATIVE AREA 4 FOR IMPROVEMENTS
CFP 019
CONSTRUCT CROSSOVERS NORTH OF SOUTH ANNA RIVER
CFP 018
WASHINGTON HIGHWAY/ ROUTE 1
BLUNTS BRIDGE ROAD
HANOVER COUNTY
CFP 017
W PATRICK HENRY ROAD
CFP 016
CONSTRUCT A NEW TWO-TRACK BYPASS BETWEEN SOUTH OF SOUTH ANNA RIVER AND NORTH OF ELMONT ROAD
TOWN OF ASHLAND
CFP 015
Ashland Station (Amtrak)
YOWELL ROAD
CFP 014
ASHCAKE ROAD
CFP 013
ELMONT ROAD
CFP 012
CONSTRUCT CROSSOVERS SOUTH OF ELMONT ROAD
CFP 011
ADD ONE TRACK TO THE WEST BETWEEN NORTH OF ELMONT ROAD AND SOUTH OF HUNGARY ROAD
CFP 010
CFP 009
END ALTERNATIVE AREA 5 (CFP 9)
SEE ALTERNATIVE AREA 6 FOR IMPROVEMENTS
Richmond
0 0.5 1
Mile
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Track Improvements
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Figure 2-13
Build Alternative 5C
Add Two-Track West Bypass
DRPT
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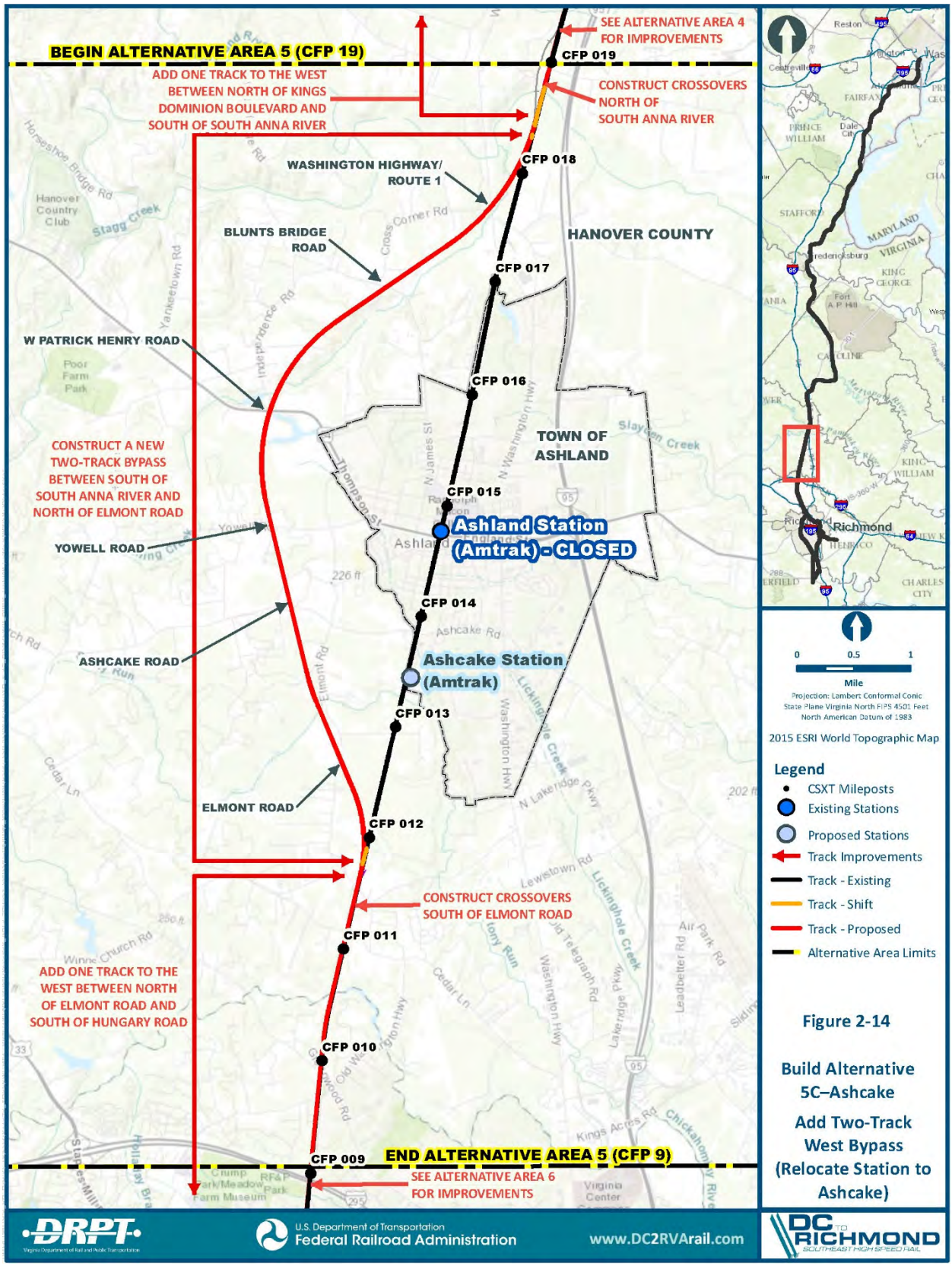
BEGIN ALTERNATIVE AREA 5 (CFP 19)
ADD ONE TRACK TO THE WEST BETWEEN NORTH OF KINGS DOMINION BOULEVARD AND SOUTH OF SOUTH ANNA RIVER
SEE ALTERNATIVE AREA 4 FOR IMPROVEMENTS
CFP 019
CONSTRUCT CROSSOVERS NORTH OF SOUTH ANNA RIVER
CFP 018
WASHINGTON HIGHWAY/ ROUTE 1
BLUNTS BRIDGE ROAD
HANOVER COUNTY
CFP 017
W PATRICK HENRY ROAD
CFP 016
TOWN OF ASHLAND
CONSTRUCT A NEW TWO-TRACK BYPASS BETWEEN SOUTH OF SOUTH ANNA RIVER AND NORTH OF ELMONT ROAD
CFP 015
Ashland Station (Amtrak) - CLOSED
YOWELL ROAD
CFP 014
Ashcake Station (Amtrak)
ASHCAKE ROAD
CFP 013
ELMONT ROAD
CFP 012
CONSTRUCT CROSSOVERS SOUTH OF ELMONT ROAD
CFP 011
ADD ONE TRACK TO THE WEST BETWEEN NORTH OF ELMONT ROAD AND SOUTH OF HUNGARY ROAD
CFP 010
CFP 009
END ALTERNATIVE AREA 5 (CFP 9)
SEE ALTERNATIVE AREA 6 FOR IMPROVEMENTS
Richmond
0 0.5 1
Mile
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Proposed Stations
Track Improvements
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Figure 2-14
Build Alternative 5C–Ashcake
Add Two-Track West Bypass (Relocate Station to Ashcake)
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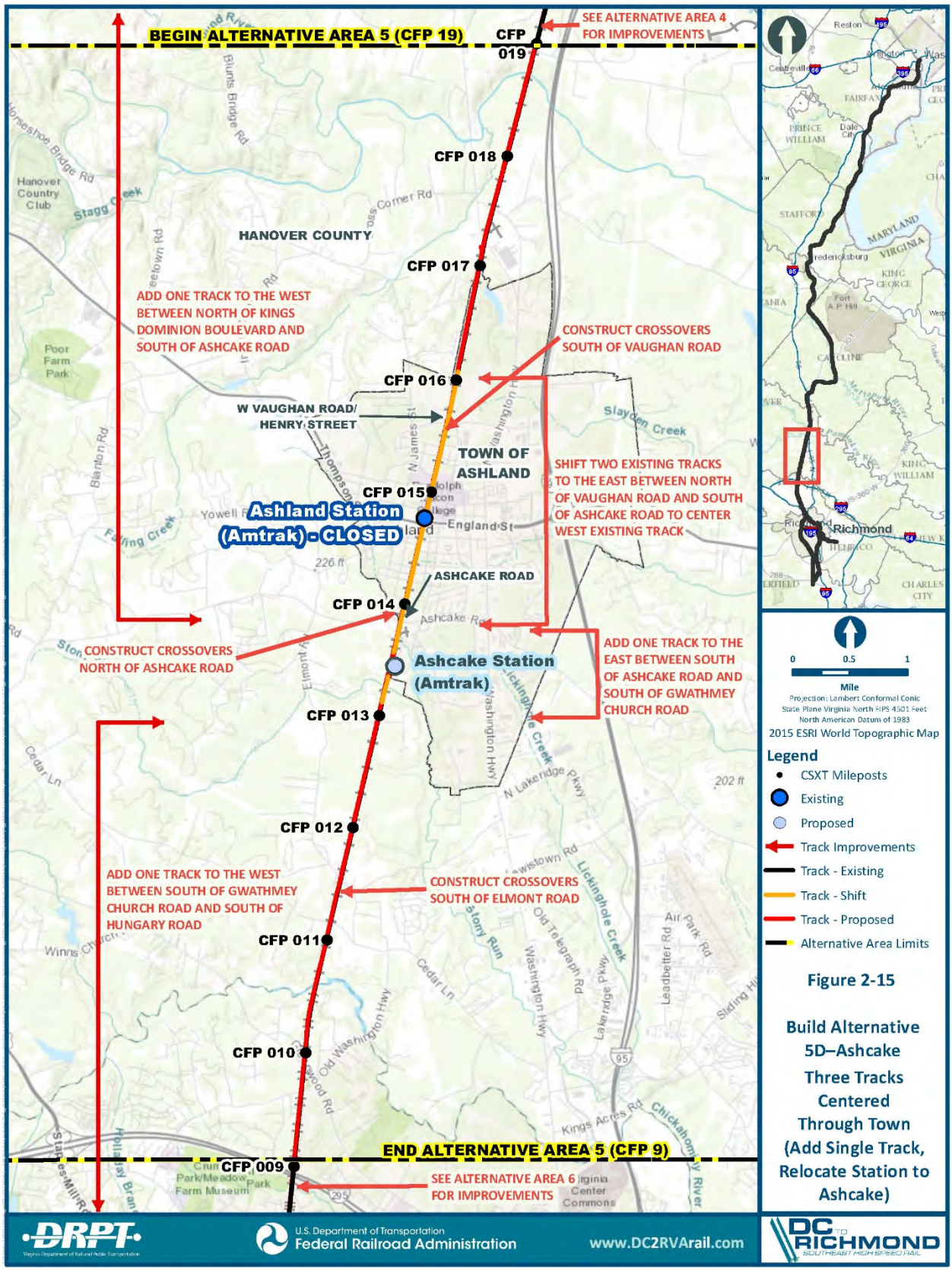
BEGIN ALTERNATIVE AREA 5 (CFP 19)
CFP 019
SEE ALTERNATIVE AREA 4 FOR IMPROVEMENTS
CFP 018
HANOVER COUNTY
CFP 017
ADD ONE TRACK TO THE WEST BETWEEN NORTH OF KINGS DOMINION BOULEVARD AND SOUTH OF ASHCAKE ROAD
CONSTRUCT CROSSOVERS SOUTH OF VAUGHAN ROAD
CFP 016
W VAUGHAN ROAD/ HENRY STREET
TOWN OF ASHLAND
SHIFT TWO EXISTING TRACKS TO THE EAST BETWEEN NORTH OF VAUGHAN ROAD AND SOUTH OF ASHCAKE ROAD TO CENTER WEST EXISTING TRACK
CFP 015
Ashland Station (Amtrak) - CLOSED
ASHCAKE ROAD
CFP 014
CONSTRUCT CROSSOVERS NORTH OF ASHCAKE ROAD
Ashcake Station (Amtrak)
ADD ONE TRACK TO THE EAST BETWEEN SOUTH OF ASHCAKE ROAD AND SOUTH OF GWATHMEY CHURCH ROAD
CFP 013
CFP 012
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF GWATHMEY CHURCH ROAD AND SOUTH OF HUNGARY ROAD
CONSTRUCT CROSSOVERS SOUTH OF ELMONT ROAD
CFP 011
CFP 010
END ALTERNATIVE AREA 5 (CFP 9)
CFP 009
SEE ALTERNATIVE AREA 6 FOR IMPROVEMENTS
Richmond
0 0.5 1
Mile
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing
Proposed
Track Improvements
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Figure 2-15
Build Alternative 5D–Ashcake Three Tracks Centered Through Town (Add Single Track, Relocate Station to Ashcake)
DRPT
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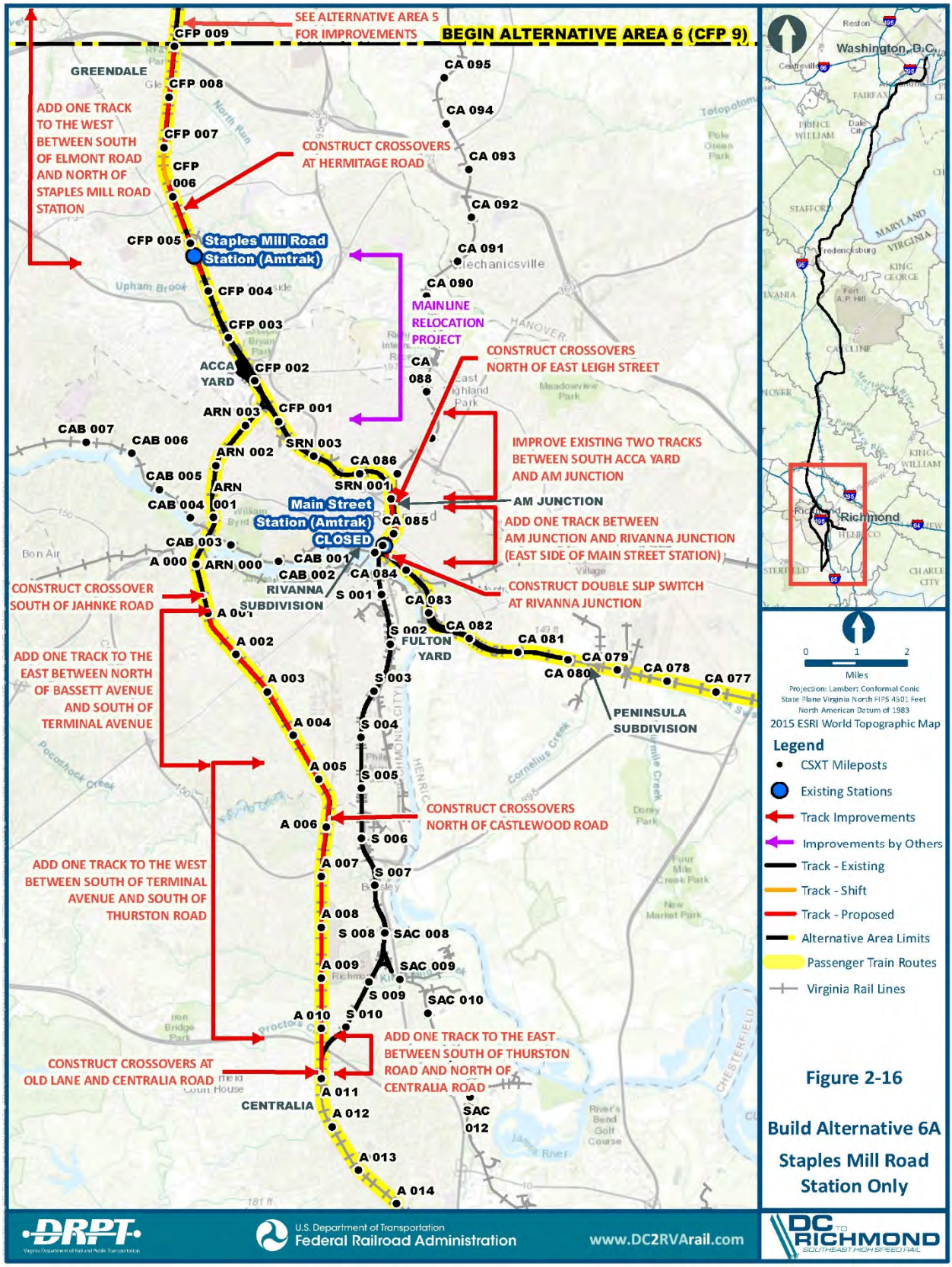
DC TO RICHMOND SOUTHEAST HIGH SPEED RAIL


SEE ALTERNATIVE AREA 5 FOR IMPROVEMENTS
BEGIN ALTERNATIVE AREA 6 (CFP 9)
CFP 009
GREENDALE
CFP 008
CFP 007
CFP 006
CFP 005
Staples Mill Road Station (Amtrak)
CFP 004
CFP 003
ACCA YARD
CFP 002
CFP 001
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF ELMONT ROAD AND NORTH OF STAPLES MILL ROAD STATION
CONSTRUCT CROSSOVERS AT HERMITAGE ROAD
MAINLINE RELOCATION PROJECT
CONSTRUCT CROSSOVERS NORTH OF EAST LEIGH STREET
IMPROVE EXISTING TWO TRACKS BETWEEN SOUTH ACCA YARD AND AM JUNCTION
AM JUNCTION
ADD ONE TRACK BETWEEN AM JUNCTION AND RIVANNA JUNCTION (EAST SIDE OF MAIN STREET STATION)
CONSTRUCT DOUBLE SLIP SWITCH AT RIVANNA JUNCTION
CONSTRUCT CROSSOVER SOUTH OF JAHNKE ROAD
ADD ONE TRACK TO THE EAST BETWEEN NORTH OF BASSETT AVENUE AND SOUTH OF TERMINAL AVENUE
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF TERMINAL AVENUE AND SOUTH OF THURSTON ROAD
CONSTRUCT CROSSOVERS NORTH OF CASTLEWOOD ROAD
ADD ONE TRACK TO THE EAST BETWEEN SOUTH OF THURSTON ROAD AND NORTH OF CENTRALIA ROAD
CONSTRUCT CROSSOVERS AT OLD LANE AND CENTRALIA ROAD
CENTRALIA
Main Street Station (Amtrak) CLOSED
RIVANNA SUBDIVISION
FULTON YARD
PENINSULA SUBDIVISION
Washington, D.C.
Richmond
Miles
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Track Improvements
Improvements by Others
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Passenger Train Routes
Virginia Rail Lines
Figure 2-16
Build Alternative 6A
Staples Mill Road Station Only
DRPT
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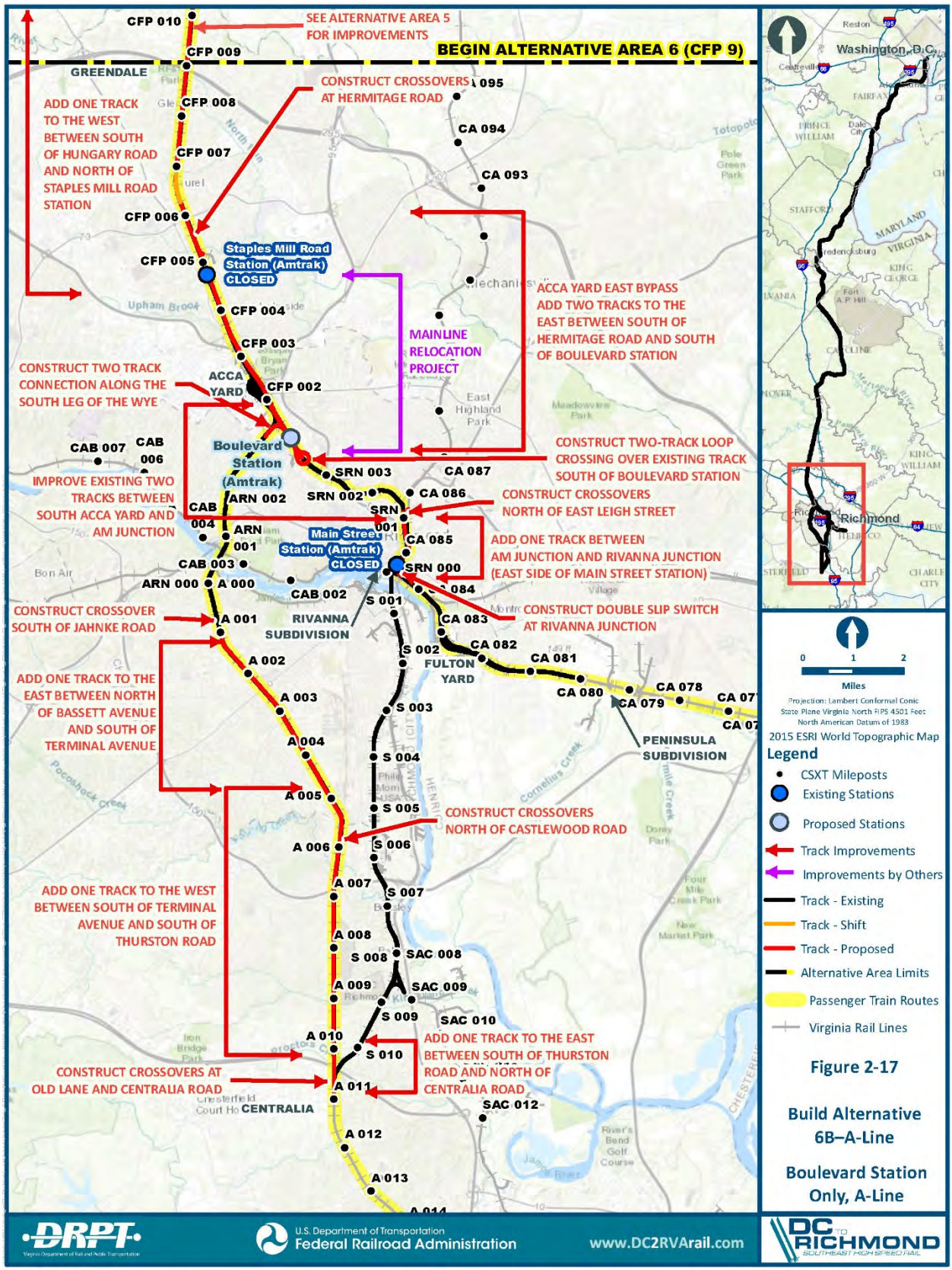
DC TO RICHMOND SOUTHEAST HIGH SPEED RAIL


BEGIN ALTERNATIVE AREA 6 (CFP 9)
SEE ALTERNATIVE AREA 5 FOR IMPROVEMENTS
CFP 010
CFP 009
CFP 008
CFP 007
CFP 006
CFP 005
CFP 004
CFP 003
CFP 002
GREENDALE
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF HUNGARY ROAD AND NORTH OF STAPLES MILL ROAD STATION
CONSTRUCT CROSSOVERS AT HERMITAGE ROAD
Staples Mill Road Station (Amtrak) CLOSED
ACCA YARD EAST BYPASS ADD TWO TRACKS TO THE EAST BETWEEN SOUTH OF HERMITAGE ROAD AND SOUTH OF BOULEVARD STATION
MAINLINE RELOCATION PROJECT
CONSTRUCT TWO TRACK CONNECTION ALONG THE SOUTH LEG OF THE WYE
ACCA YARD
Boulevard Station (Amtrak)
CONSTRUCT TWO-TRACK LOOP CROSSING OVER EXISTING TRACK SOUTH OF BOULEVARD STATION
IMPROVE EXISTING TWO TRACKS BETWEEN SOUTH ACCA YARD AND AM JUNCTION
CONSTRUCT CROSSOVERS NORTH OF EAST LEIGH STREET
Main Street Station (Amtrak) CLOSED
ADD ONE TRACK BETWEEN AM JUNCTION AND RIVANNA JUNCTION (EAST SIDE OF MAIN STREET STATION)
CONSTRUCT CROSSOVER SOUTH OF JAHNKE ROAD
RIVANNA SUBDIVISION
CONSTRUCT DOUBLE SLIP SWITCH AT RIVANNA JUNCTION
FULTON YARD
PENINSULA SUBDIVISION
ADD ONE TRACK TO THE EAST BETWEEN NORTH OF BASSETT AVENUE AND SOUTH OF TERMINAL AVENUE
CONSTRUCT CROSSOVERS NORTH OF CASTLEWOOD ROAD
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF TERMINAL AVENUE AND SOUTH OF THURSTON ROAD
ADD ONE TRACK TO THE EAST BETWEEN SOUTH OF THURSTON ROAD AND NORTH OF CENTRALIA ROAD
CONSTRUCT CROSSOVERS AT OLD LANE AND CENTRALIA ROAD
CENTRALIA
Washington, D.C.
Richmond
Miles
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Proposed Stations
Track Improvements
Improvements by Others
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Passenger Train Routes
Virginia Rail Lines
Figure 2-17
Build Alternative 6B–A-Line
Boulevard Station Only, A-Line
DRPT
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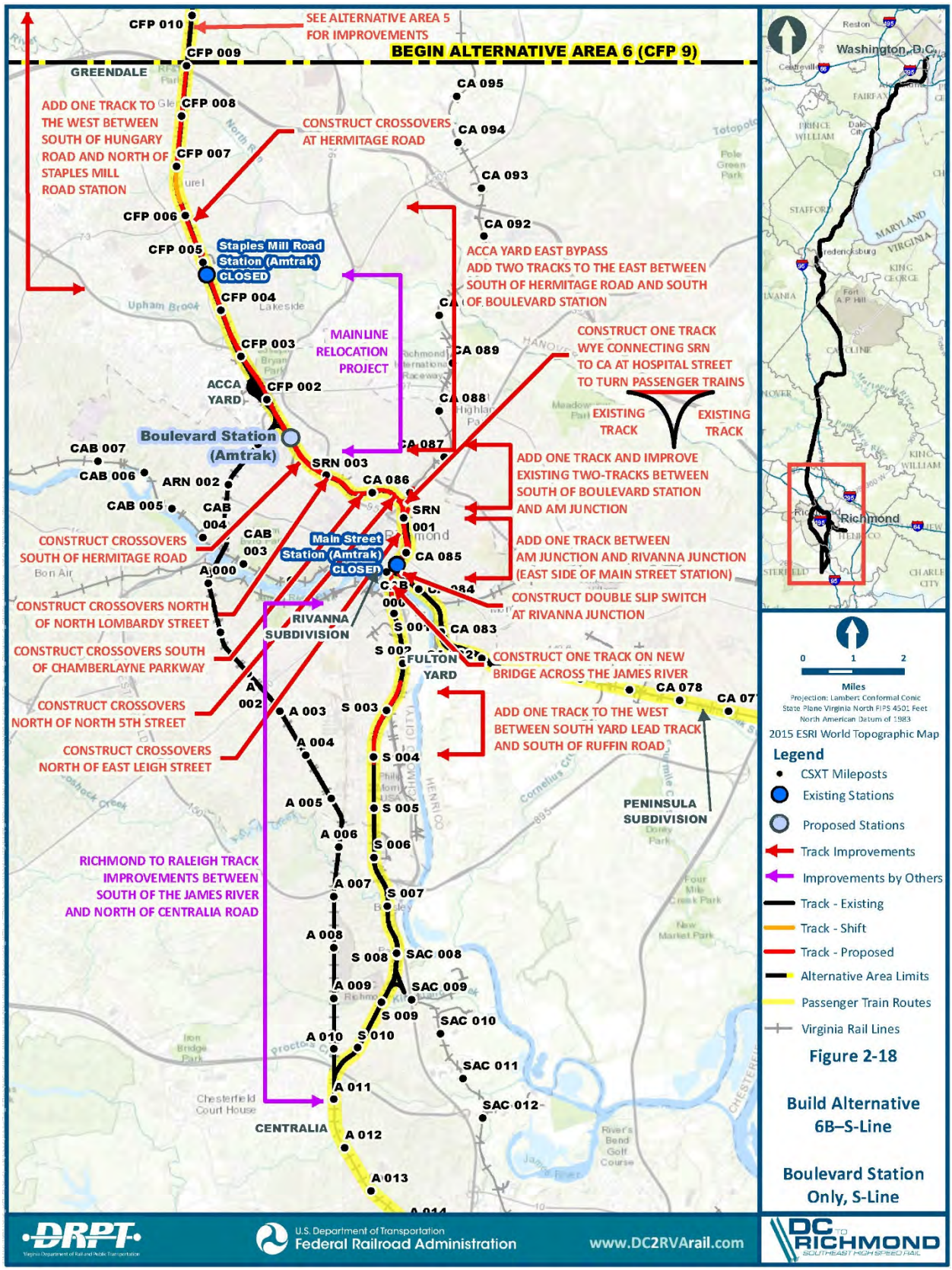
SEE ALTERNATIVE AREA 5 FOR IMPROVEMENTS
BEGIN ALTERNATIVE AREA 6 (CFP 9)
GREENDALE
CFP 010
CFP 009
CFP 008
CFP 007
CFP 006
CFP 005
CFP 004
CFP 003
CFP 002
CA 095
CA 094
CA 093
CA 092
CA 089
CA 088
CA 087
CA 086
CA 085
CA 083
CA 078
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF HUNGARY ROAD AND NORTH OF STAPLES MILL ROAD STATION
CONSTRUCT CROSSOVERS AT HERMITAGE ROAD
Staples Mill Road Station (Amtrak) CLOSED
ACCA YARD EAST BYPASS
ADD TWO TRACKS TO THE EAST BETWEEN SOUTH OF HERMITAGE ROAD AND SOUTH OF BOULEVARD STATION
MAINLINE RELOCATION PROJECT
ACCA YARD
CONSTRUCT ONE TRACK WYE CONNECTING SRN TO CA AT HOSPITAL STREET TO TURN PASSENGER TRAINS
EXISTING TRACK
EXISTING TRACK
Boulevard Station (Amtrak)
CAB 007
CAB 006
CAB 005
CAB 004
CAB 003
ARN 002
A 000
SRN 003
SRN 001
ADD ONE TRACK AND IMPROVE EXISTING TWO-TRACKS BETWEEN SOUTH OF BOULEVARD STATION AND AM JUNCTION
CONSTRUCT CROSSOVERS SOUTH OF HERMITAGE ROAD
Main Street Station (Amtrak) CLOSED
ADD ONE TRACK BETWEEN AM JUNCTION AND RIVANNA JUNCTION (EAST SIDE OF MAIN STREET STATION)
CONSTRUCT CROSSOVERS NORTH OF NORTH LOMBARDY STREET
CONSTRUCT DOUBLE SLIP SWITCH AT RIVANNA JUNCTION
RIVANNA SUBDIVISION
CONSTRUCT CROSSOVERS SOUTH OF CHAMBERLAYNE PARKWAY
FULTON YARD
CONSTRUCT ONE TRACK ON NEW BRIDGE ACROSS THE JAMES RIVER
CONSTRUCT CROSSOVERS NORTH OF NORTH 5TH STREET
ADD ONE TRACK TO THE WEST BETWEEN SOUTH YARD LEAD TRACK AND SOUTH OF RUFFIN ROAD
CONSTRUCT CROSSOVERS NORTH OF EAST LEIGH STREET
PENINSULA SUBDIVISION
RICHMOND TO RALEIGH TRACK IMPROVEMENTS BETWEEN SOUTH OF THE JAMES RIVER AND NORTH OF CENTRALIA ROAD
A 002
A 003
A 004
A 005
A 006
A 007
A 008
A 009
A 010
A 011
A 012
A 013
S 003
S 004
S 005
S 006
S 007
S 008
S 009
S 010
SAC 008
SAC 009
SAC 010
SAC 011
SAC 012
CENTRALIA
Chesterfield Court House
Washington, D.C.
Richmond
Miles
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Proposed Stations
Track Improvements
Improvements by Others
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Passenger Train Routes
Virginia Rail Lines
Figure 2-18
Build Alternative 6B–S-Line
Boulevard Station Only, S-Line
DRPT
U.S. Department of Transportation Federal Railroad Administration
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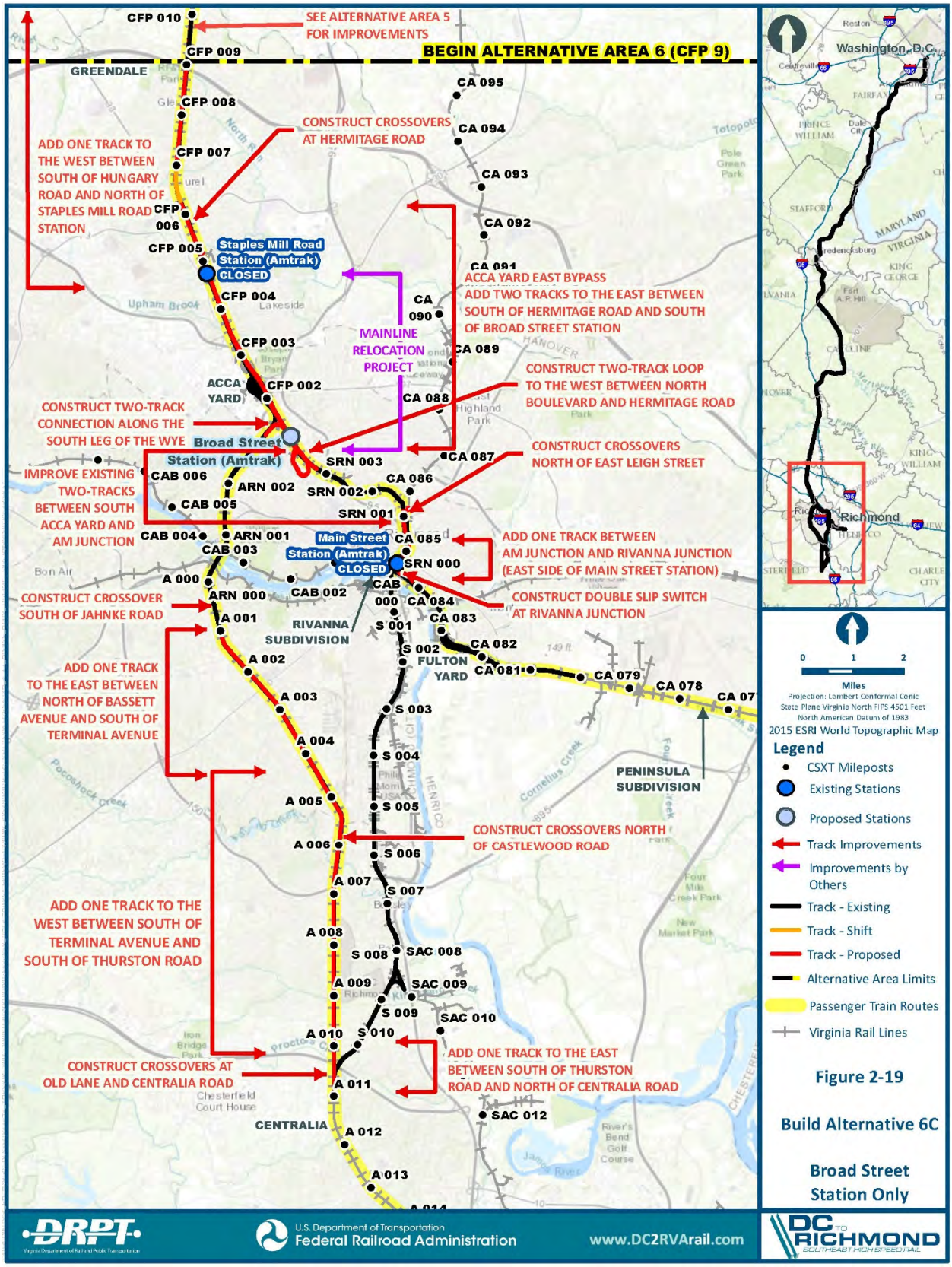
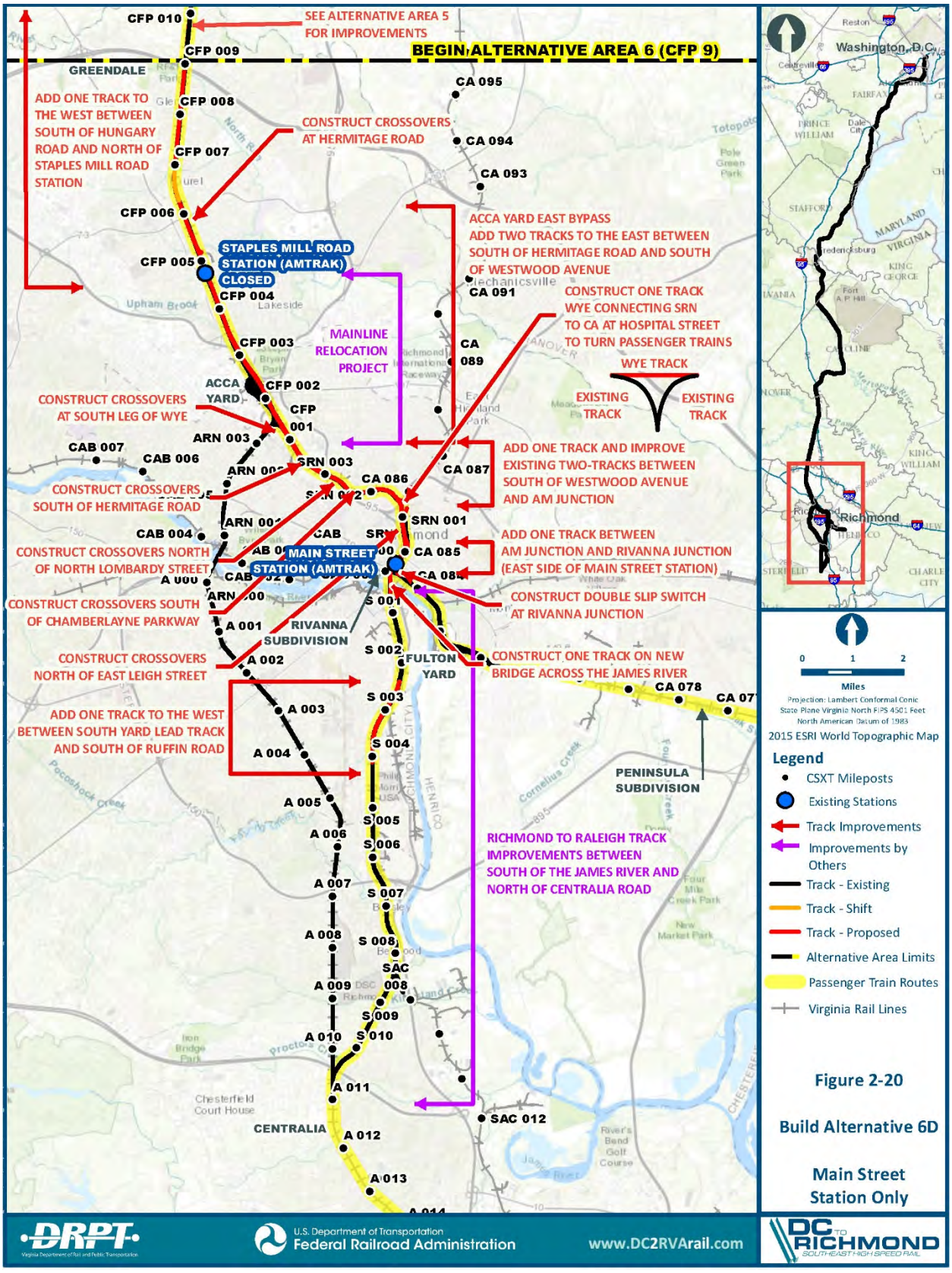
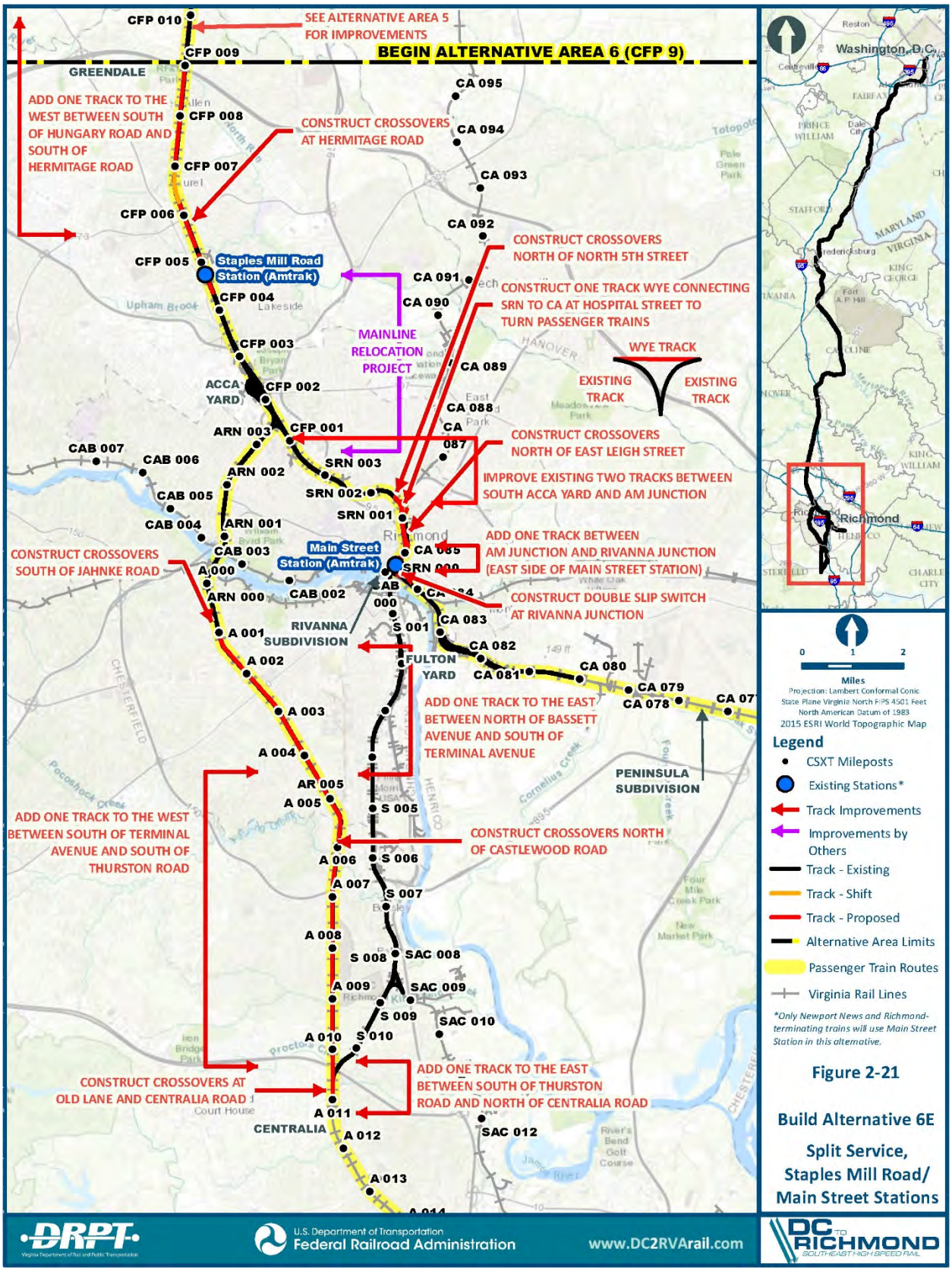
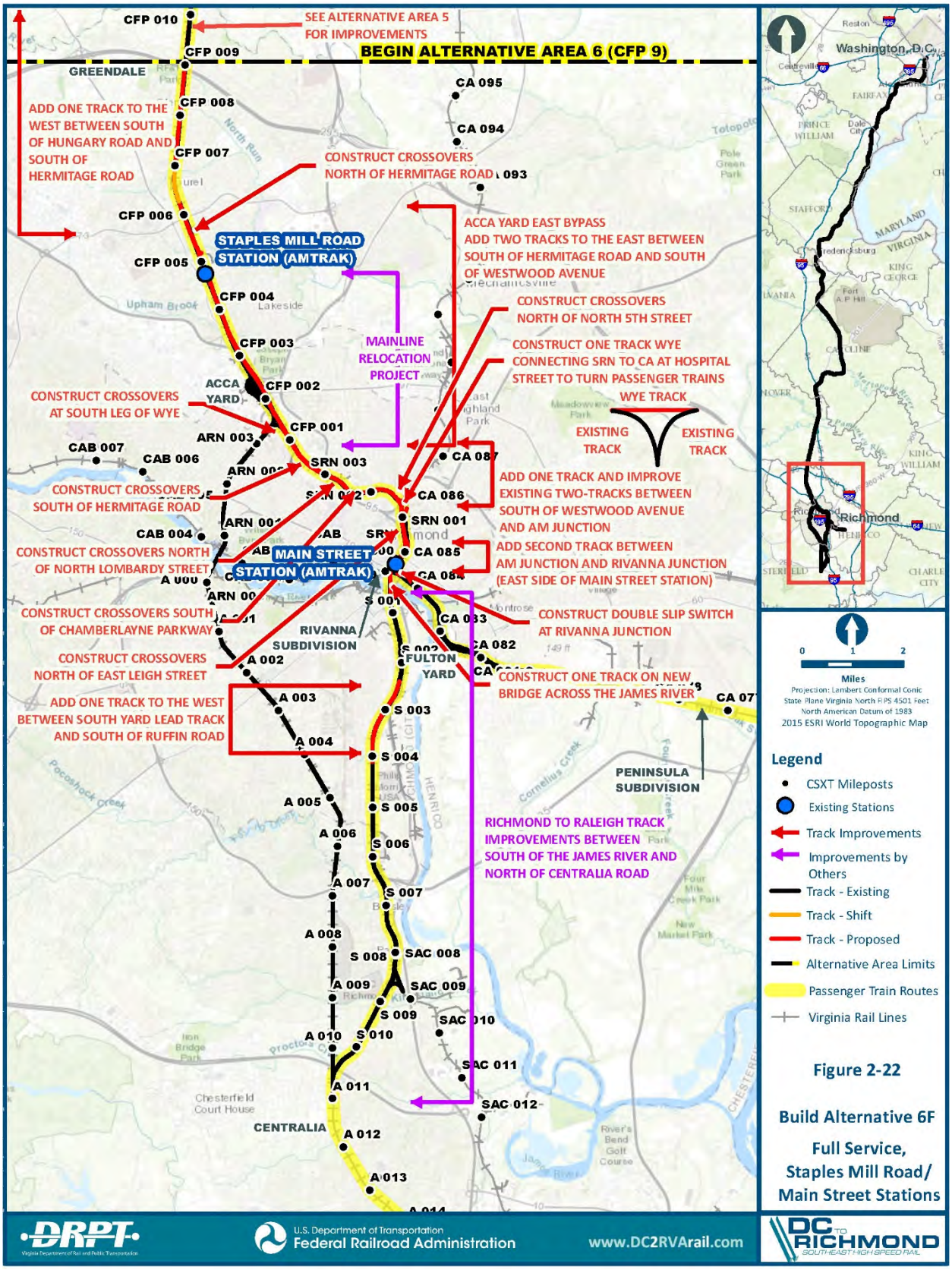
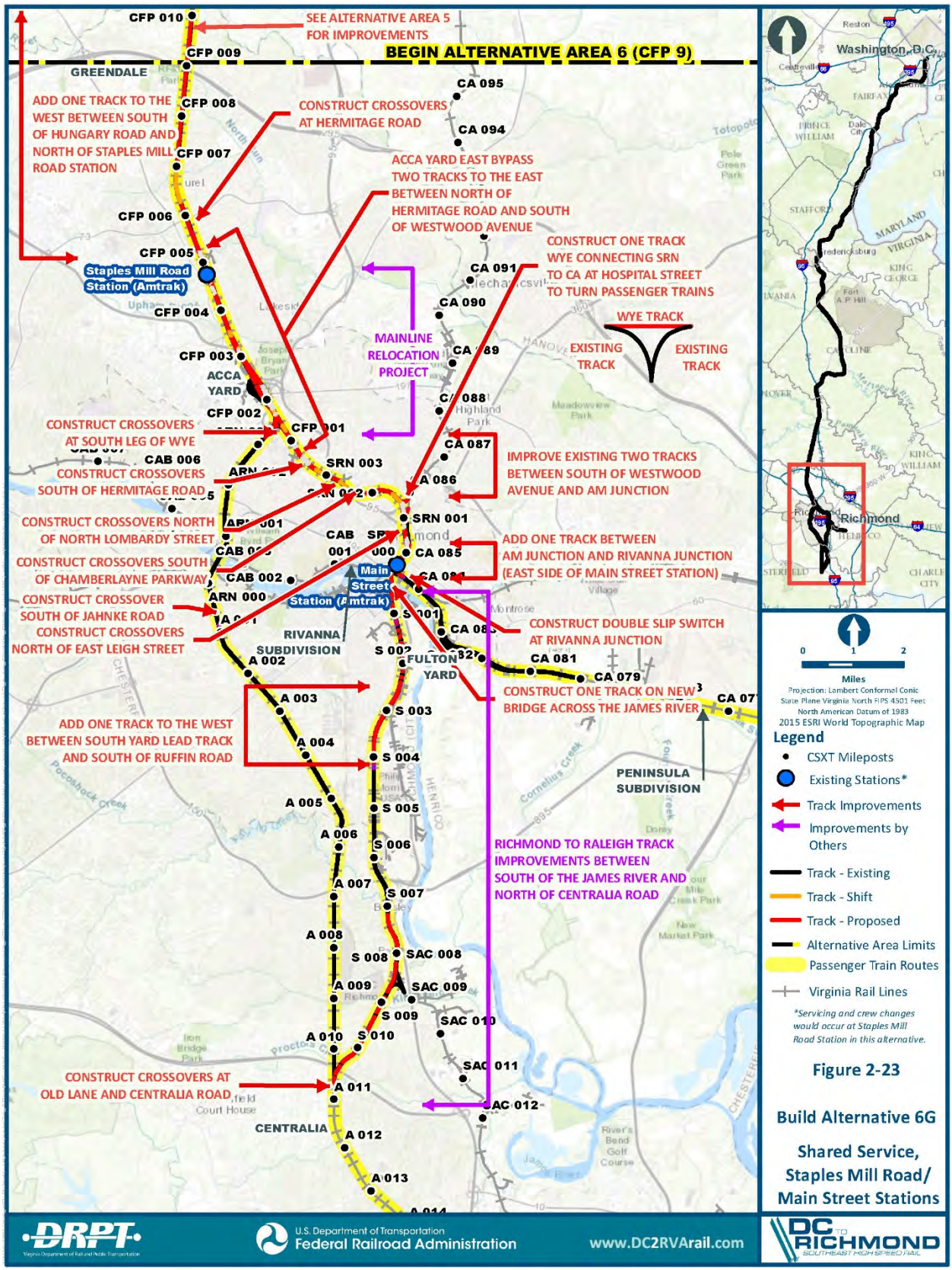

BEGIN ALTERNATIVE AREA 6 (CFP 9)
SEE ALTERNATIVE AREA 5 FOR IMPROVEMENTS
CFP 010
CFP 009
GREENDALE
CFP 008
CFP 007
CFP 006
CFP 005
CFP 004
CFP 003
CFP 002
ACCA YARD
CA 095
CA 094
CA 093
CA 092
CA 091
CA 090
CA 089
CA 088
CA 087
CA 086
CA 085
CA 084
CA 083
CA 082
CA 081
CA 079
CA 078
CA 07
CONSTRUCT CROSSOVERS AT HERMITAGE ROAD
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF HUNGARY ROAD AND NORTH OF STAPLES MILL ROAD STATION
Staples Mill Road Station (Amtrak) CLOSED
ACCA YARD EAST BYPASS
ADD TWO TRACKS TO THE EAST BETWEEN SOUTH OF HERMITAGE ROAD AND SOUTH OF BROAD STREET STATION
MAINLINE RELOCATION PROJECT
CONSTRUCT TWO-TRACK LOOP TO THE WEST BETWEEN NORTH BOULEVARD AND HERMITAGE ROAD
CONSTRUCT TWO-TRACK CONNECTION ALONG THE SOUTH LEG OF THE WYE
Broad Street Station (Amtrak)
CONSTRUCT CROSSOVERS NORTH OF EAST LEIGH STREET
IMPROVE EXISTING TWO-TRACKS BETWEEN SOUTH ACCA YARD AND AM JUNCTION
CAB 006
CAB 005
CAB 004
CAB 003
CAB 002
CAB
ARN 002
ARN 001
ARN 000
SRN 003
SRN 002
SRN 001
SRN 000
Main Street Station (Amtrak) CLOSED
ADD ONE TRACK BETWEEN AM JUNCTION AND RIVANNA JUNCTION (EAST SIDE OF MAIN STREET STATION)
CONSTRUCT DOUBLE SLIP SWITCH AT RIVANNA JUNCTION
CONSTRUCT CROSSOVER SOUTH OF JAHNKE ROAD
RIVANNA SUBDIVISION
FULTON YARD
ADD ONE TRACK TO THE EAST BETWEEN NORTH OF BASSETT AVENUE AND SOUTH OF TERMINAL AVENUE
PENINSULA SUBDIVISION
A 000
A 001
A 002
A 003
A 004
A 005
A 006
A 007
A 008
A 009
A 010
A 011
A 012
A 013
S 001
S 002
S 003
S 004
S 005
S 006
S 007
S 008
S 009
S 010
SAC 008
SAC 009
SAC 010
SAC 012
CONSTRUCT CROSSOVERS NORTH OF CASTLEWOOD ROAD
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF TERMINAL AVENUE AND SOUTH OF THURSTON ROAD
CONSTRUCT CROSSOVERS AT OLD LANE AND CENTRALIA ROAD
ADD ONE TRACK TO THE EAST BETWEEN SOUTH OF THURSTON ROAD AND NORTH OF CENTRALIA ROAD
CENTRALIA
Chesterfield Court House
Washington, D.C.
Richmond
Miles
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Proposed Stations
Track Improvements
Improvements by Others
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Passenger Train Routes
Virginia Rail Lines
Figure 2-19
Build Alternative 6C
Broad Street Station Only
DRPT
U.S. Department of Transportation Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND SOUTHEAST HIGH SPEED RAIL


SEE ALTERNATIVE AREA 5 FOR IMPROVEMENTS
BEGIN ALTERNATIVE AREA 6 (CFP 9)
GREENDALE
CFP 010
CFP 009
CFP 008
CFP 007
CFP 006
CFP 005
CFP 004
CFP 003
CFP 002
CFP 001
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF HUNGARY ROAD AND NORTH OF STAPLES MILL ROAD STATION
CONSTRUCT CROSSOVERS AT HERMITAGE ROAD
STAPLES MILL ROAD STATION (AMTRAK) CLOSED
MAINLINE RELOCATION PROJECT
ACCA YARD
CONSTRUCT CROSSOVERS AT SOUTH LEG OF WYE
CONSTRUCT CROSSOVERS SOUTH OF HERMITAGE ROAD
CONSTRUCT CROSSOVERS NORTH OF NORTH LOMBARDY STREET
CONSTRUCT CROSSOVERS SOUTH OF CHAMBERLAYNE PARKWAY
CONSTRUCT CROSSOVERS NORTH OF EAST LEIGH STREET
ADD ONE TRACK TO THE WEST BETWEEN SOUTH YARD LEAD TRACK AND SOUTH OF RUFFIN ROAD
ACCA YARD EAST BYPASS
ADD TWO TRACKS TO THE EAST BETWEEN SOUTH OF HERMITAGE ROAD AND SOUTH OF WESTWOOD AVENUE
CONSTRUCT ONE TRACK WYE CONNECTING SRN TO CA AT HOSPITAL STREET TO TURN PASSENGER TRAINS
WYE TRACK
EXISTING TRACK
EXISTING TRACK
ADD ONE TRACK AND IMPROVE EXISTING TWO-TRACKS BETWEEN SOUTH OF WESTWOOD AVENUE AND AM JUNCTION
ADD ONE TRACK BETWEEN AM JUNCTION AND RIVANNA JUNCTION (EAST SIDE OF MAIN STREET STATION)
CONSTRUCT DOUBLE SLIP SWITCH AT RIVANNA JUNCTION
CONSTRUCT ONE TRACK ON NEW BRIDGE ACROSS THE JAMES RIVER
RICHMOND TO RALEIGH TRACK IMPROVEMENTS BETWEEN SOUTH OF THE JAMES RIVER AND NORTH OF CENTRALIA ROAD
MAIN STREET STATION (AMTRAK)
RIVANNA SUBDIVISION
FULTON YARD
PENINSULA SUBDIVISION
CENTRALIA
Chesterfield Court House
CA 095
CA 094
CA 093
CA 091
CA 089
CA 087
CA 086
CA 085
CA 084
CA 078
SRN 001
SRN 003
ARN 003
CAB 007
CAB 006
CAB 004
A 000
A 001
A 002
A 003
A 004
A 005
A 006
A 007
A 008
A 009
A 010
A 011
A 012
A 013
S 001
S 002
S 003
S 004
S 005
S 006
S 007
S 008
S 009
S 010
SAC 008
SAC 012
Washington, D.C.
Richmond
Miles
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Track Improvements
Improvements by Others
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Passenger Train Routes
Virginia Rail Lines
Figure 2-20
Build Alternative 6D
Main Street Station Only
DRPT
U.S. Department of Transportation Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND SOUTHEAST HIGH SPEED RAIL


BEGIN ALTERNATIVE AREA 6 (CFP 9)
SEE ALTERNATIVE AREA 5 FOR IMPROVEMENTS
GREENDALE
CFP 010
CFP 009
CFP 008
CFP 007
CFP 006
CFP 005
CFP 004
CFP 003
CFP 002
CFP 001
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF HUNGARY ROAD AND SOUTH OF HERMITAGE ROAD
CONSTRUCT CROSSOVERS AT HERMITAGE ROAD
Staples Mill Road Station (Amtrak)
CONSTRUCT CROSSOVERS NORTH OF NORTH 5TH STREET
CONSTRUCT ONE TRACK WYE CONNECTING SRN TO CA AT HOSPITAL STREET TO TURN PASSENGER TRAINS
MAINLINE RELOCATION PROJECT
WYE TRACK
EXISTING TRACK
EXISTING TRACK
ACCA YARD
CONSTRUCT CROSSOVERS NORTH OF EAST LEIGH STREET
IMPROVE EXISTING TWO TRACKS BETWEEN SOUTH ACCA YARD AND AM JUNCTION
ADD ONE TRACK BETWEEN AM JUNCTION AND RIVANNA JUNCTION (EAST SIDE OF MAIN STREET STATION)
Main Street Station (Amtrak)
CONSTRUCT CROSSOVERS SOUTH OF JAHNKE ROAD
CONSTRUCT DOUBLE SLIP SWITCH AT RIVANNA JUNCTION
RIVANNA SUBDIVISION
FULTON YARD
ADD ONE TRACK TO THE EAST BETWEEN NORTH OF BASSETT AVENUE AND SOUTH OF TERMINAL AVENUE
PENINSULA SUBDIVISION
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF TERMINAL AVENUE AND SOUTH OF THURSTON ROAD
CONSTRUCT CROSSOVERS NORTH OF CASTLEWOOD ROAD
CONSTRUCT CROSSOVERS AT OLD LANE AND CENTRALIA ROAD
ADD ONE TRACK TO THE EAST BETWEEN SOUTH OF THURSTON ROAD AND NORTH OF CENTRALIA ROAD
CENTRALIA
Washington, D.C.
Richmond
Miles
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations*
Track Improvements
Improvements by Others
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Passenger Train Routes
Virginia Rail Lines
*Only Newport News and Richmond-terminating trains will use Main Street Station in this alternative.
Figure 2-21
Build Alternative 6E
Split Service, Staples Mill Road/ Main Street Stations
DRPT
U.S. Department of Transportation Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND SOUTHEAST HIGH SPEED RAIL


BEGIN ALTERNATIVE AREA 6 (CFP 9)
SEE ALTERNATIVE AREA 5 FOR IMPROVEMENTS
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF HUNGARY ROAD AND SOUTH OF HERMITAGE ROAD
CONSTRUCT CROSSOVERS NORTH OF HERMITAGE ROAD
ACCA YARD EAST BYPASS ADD TWO TRACKS TO THE EAST BETWEEN SOUTH OF HERMITAGE ROAD AND SOUTH OF WESTWOOD AVENUE
STAPLES MILL ROAD STATION (AMTRAK)
CONSTRUCT CROSSOVERS NORTH OF NORTH 5TH STREET
MAINLINE RELOCATION PROJECT
CONSTRUCT ONE TRACK WYE CONNECTING SRN TO CA AT HOSPITAL STREET TO TURN PASSENGER TRAINS
WYE TRACK
EXISTING TRACK
EXISTING TRACK
CONSTRUCT CROSSOVERS AT SOUTH LEG OF WYE
ADD ONE TRACK AND IMPROVE EXISTING TWO-TRACKS BETWEEN SOUTH OF WESTWOOD AVENUE AND AM JUNCTION
CONSTRUCT CROSSOVERS SOUTH OF HERMITAGE ROAD
ADD SECOND TRACK BETWEEN AM JUNCTION AND RIVANNA JUNCTION (EAST SIDE OF MAIN STREET STATION)
MAIN STREET STATION (AMTRAK)
CONSTRUCT CROSSOVERS NORTH OF NORTH LOMBARDY STREET
CONSTRUCT CROSSOVERS SOUTH OF CHAMBERLAYNE PARKWAY
CONSTRUCT DOUBLE SLIP SWITCH AT RIVANNA JUNCTION
RIVANNA SUBDIVISION
FULTON YARD
CONSTRUCT CROSSOVERS NORTH OF EAST LEIGH STREET
CONSTRUCT ONE TRACK ON NEW BRIDGE ACROSS THE JAMES RIVER
ADD ONE TRACK TO THE WEST BETWEEN SOUTH YARD LEAD TRACK AND SOUTH OF RUFFIN ROAD
PENINSULA SUBDIVISION
RICHMOND TO RALEIGH TRACK IMPROVEMENTS BETWEEN SOUTH OF THE JAMES RIVER AND NORTH OF CENTRALIA ROAD
CENTRALIA
Chesterfield Court House
Washington, D.C.
Richmond
Miles
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations
Track Improvements
Improvements by Others
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Passenger Train Routes
Virginia Rail Lines
Figure 2-22
Build Alternative 6F
Full Service, Staples Mill Road/ Main Street Stations
DRPT
U.S. Department of Transportation Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND SOUTHEAST HIGH SPEED RAIL


CFP 010
SEE ALTERNATIVE AREA 5 FOR IMPROVEMENTS
BEGIN ALTERNATIVE AREA 6 (CFP 9)
CFP 009
GREENDALE
CA 095
CFP 008
CONSTRUCT CROSSOVERS AT HERMITAGE ROAD
ADD ONE TRACK TO THE WEST BETWEEN SOUTH OF HUNGARY ROAD AND NORTH OF STAPLES MILL ROAD STATION
CA 094
CFP 007
ACCA YARD EAST BYPASS TWO TRACKS TO THE EAST BETWEEN NORTH OF HERMITAGE ROAD AND SOUTH OF WESTWOOD AVENUE
CFP 006
CONSTRUCT ONE TRACK WYE CONNECTING SRN TO CA AT HOSPITAL STREET TO TURN PASSENGER TRAINS
CFP 005
Staples Mill Road Station (Amtrak)
CA 091
CA 090
CFP 004
WYE TRACK
EXISTING TRACK
EXISTING TRACK
MAINLINE RELOCATION PROJECT
CFP 003
CA 089
ACCA YARD
CA 088
CFP 002
CONSTRUCT CROSSOVERS AT SOUTH LEG OF WYE
CFP 001
CA 087
CAB 006
SRN 003
IMPROVE EXISTING TWO TRACKS BETWEEN SOUTH OF WESTWOOD AVENUE AND AM JUNCTION
CONSTRUCT CROSSOVERS SOUTH OF HERMITAGE ROAD
A 086
SRN 001
CONSTRUCT CROSSOVERS NORTH OF NORTH LOMBARDY STREET
CAB 001
CA 085
ADD ONE TRACK BETWEEN AM JUNCTION AND RIVANNA JUNCTION (EAST SIDE OF MAIN STREET STATION)
CONSTRUCT CROSSOVERS SOUTH OF CHAMBERLAYNE PARKWAY
CAB 002
Main Street Station (Amtrak)
ARN 000
CONSTRUCT CROSSOVER SOUTH OF JAHNKE ROAD
CONSTRUCT CROSSOVERS NORTH OF EAST LEIGH STREET
CONSTRUCT DOUBLE SLIP SWITCH AT RIVANNA JUNCTION
RIVANNA SUBDIVISION
A 002
FULTON YARD
CA 081
CA 079
CONSTRUCT ONE TRACK ON NEW BRIDGE ACROSS THE JAMES RIVER
A 003
S 003
ADD ONE TRACK TO THE WEST BETWEEN SOUTH YARD LEAD TRACK AND SOUTH OF RUFFIN ROAD
A 004
S 004
PENINSULA SUBDIVISION
A 005
S 005
A 006
S 006
RICHMOND TO RALEIGH TRACK IMPROVEMENTS BETWEEN SOUTH OF THE JAMES RIVER AND NORTH OF CENTRALIA ROAD
A 007
S 007
A 008
S 008
SAC 008
A 009
SAC 009
S 009
SAC 010
A 010
S 010
SAC 011
CONSTRUCT CROSSOVERS AT OLD LANE AND CENTRALIA ROAD
A 011
SAC 012
CENTRALIA
A 012
A 013
A 014
Washington, D.C.
Richmond
Miles
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
2015 ESRI World Topographic Map
Legend
CSXT Mileposts
Existing Stations*
Track Improvements
Improvements by Others
Track - Existing
Track - Shift
Track - Proposed
Alternative Area Limits
Passenger Train Routes
Virginia Rail Lines
*Servicing and crew changes would occur at Staples Mill Road Station in this alternative.
Figure 2-23
Build Alternative 6G
Shared Service, Staples Mill Road/ Main Street Stations
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND

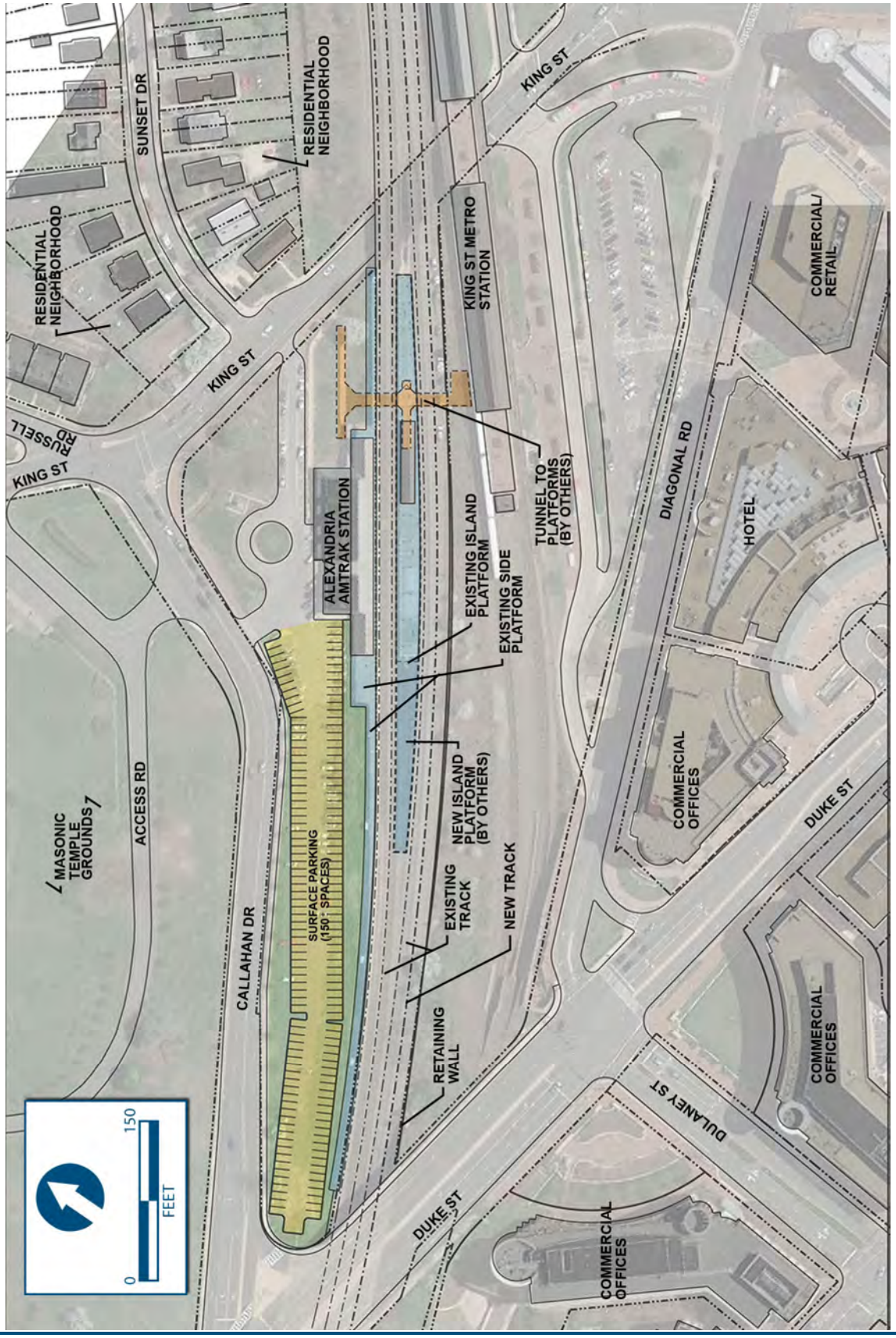


Figure 2-24: Alexandria Station Improvements for Build Alternative 2A

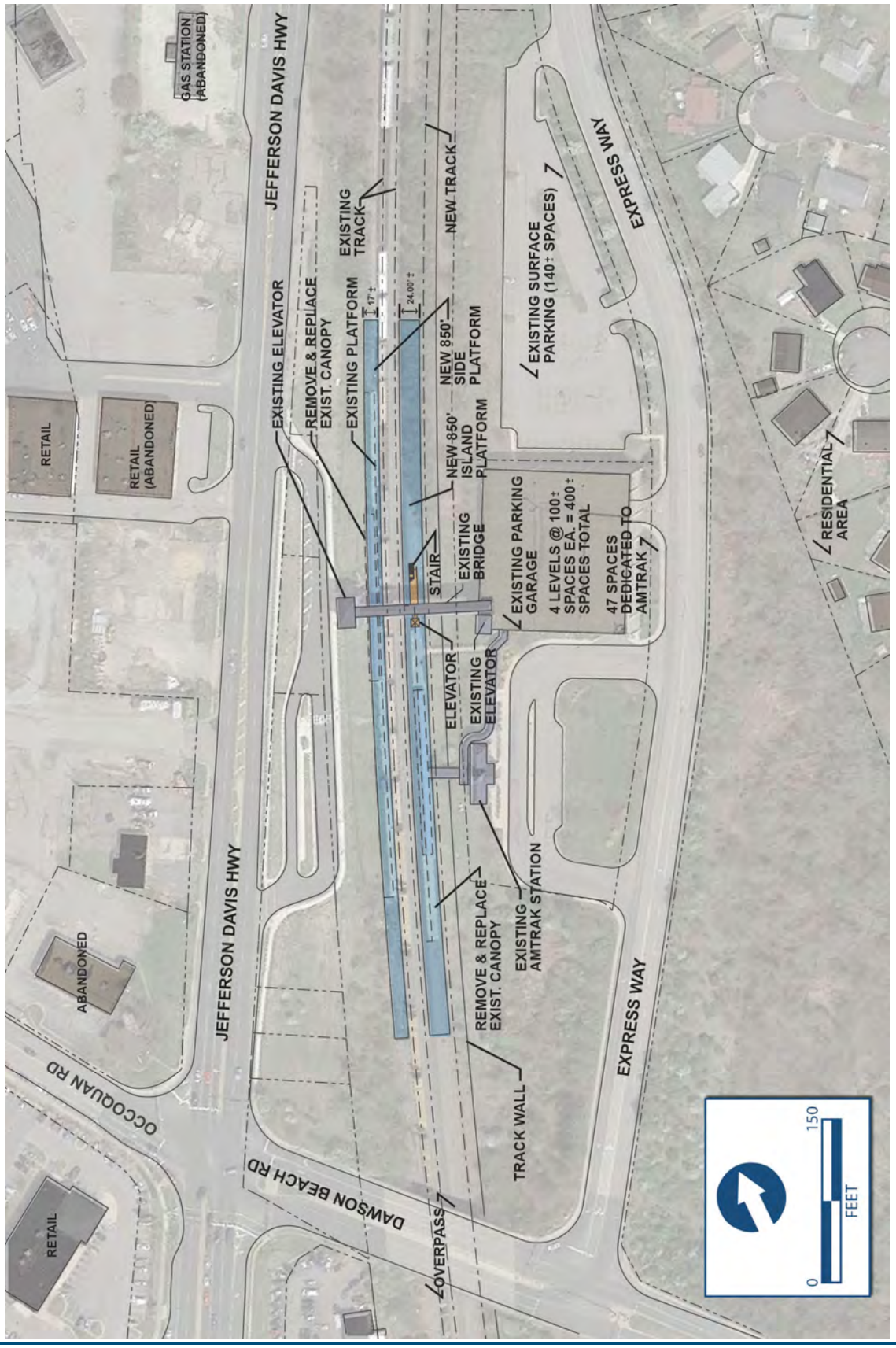


Figure 2-25: Woodbridge Station Improvements for Build Alternative 2A

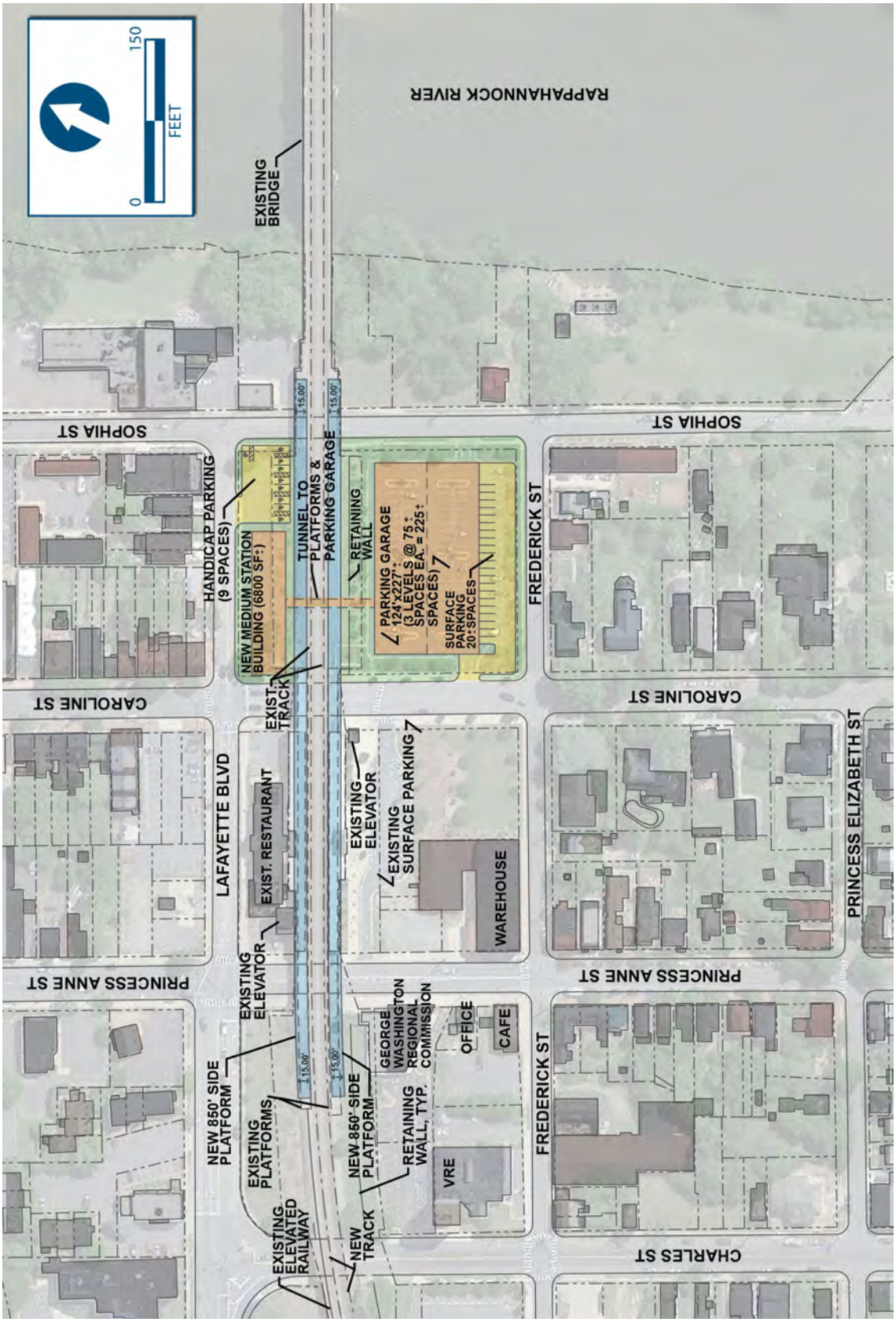


Figure 2-26: Fredericksburg Station Improvements for Build Alternatives 3A and 3C

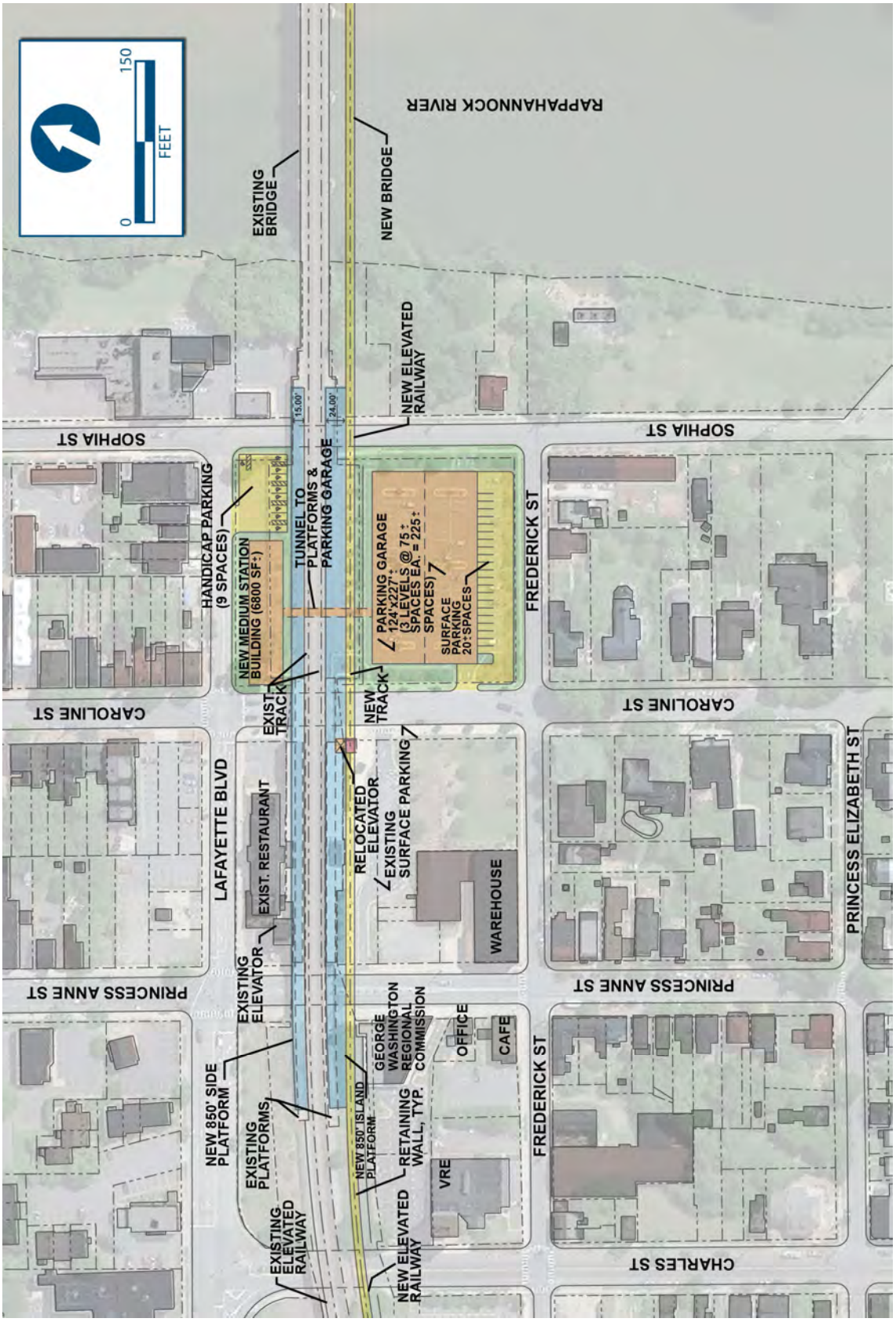


Figure 2-27: Fredericksburg Station Improvements for Build Alternative 3B

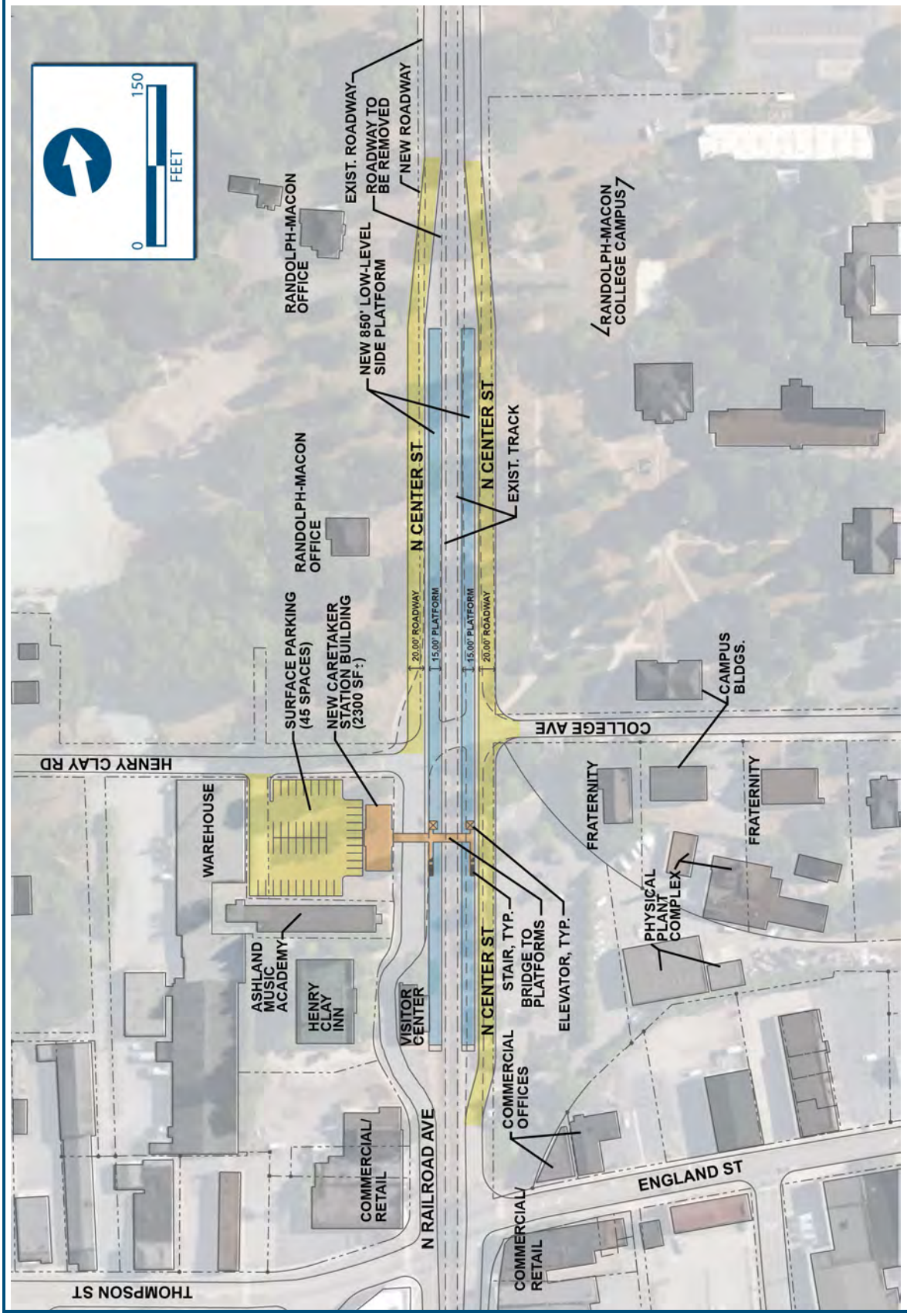


Figure 2-28A: Ashland Station Improvements for Build Alternatives 5A and 5C (Two-Track/850-Foot Platforms)

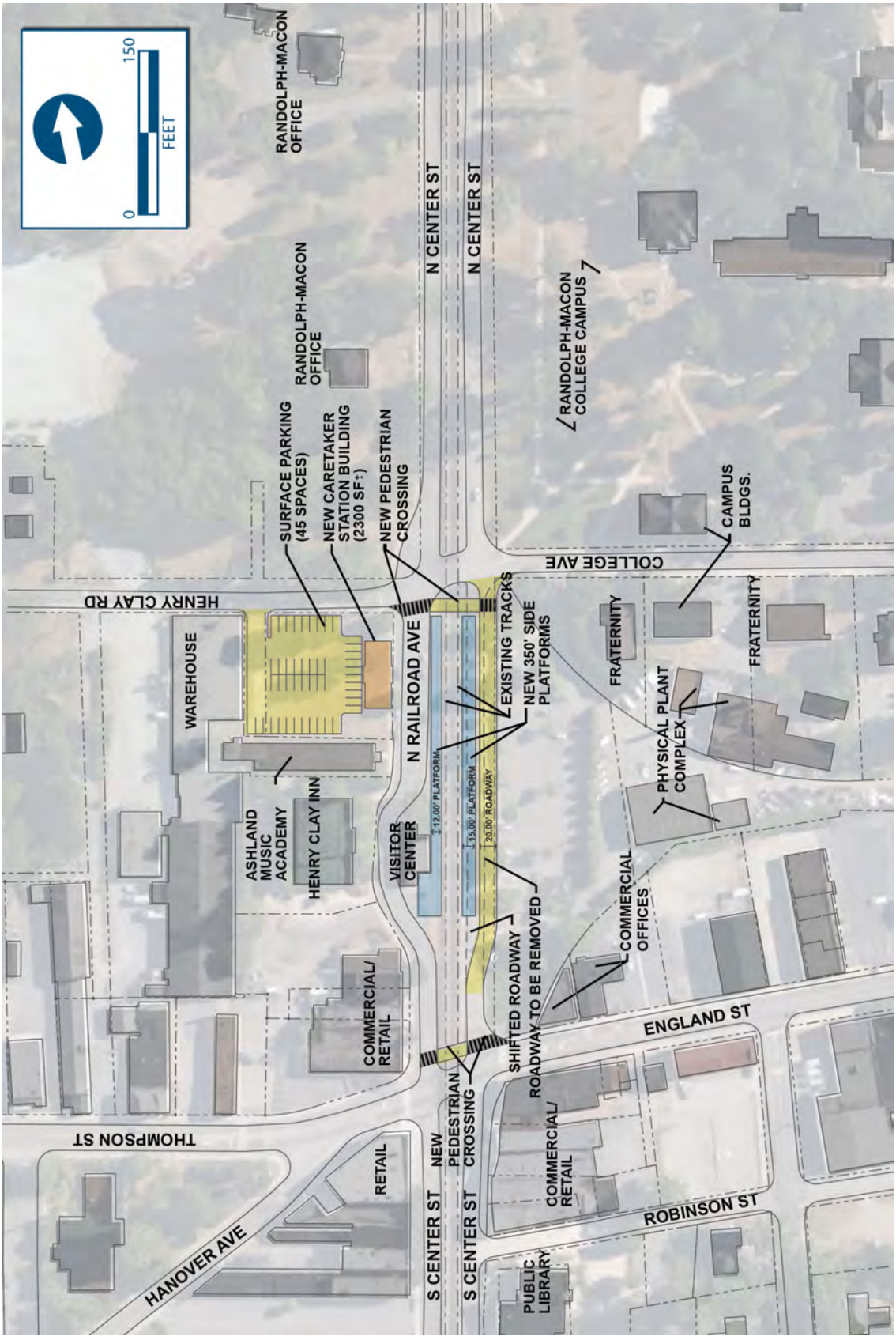


Figure 2-28B: Ashland Station Improvements for Build Alternatives 5A and 5C (Two-Track/350-Foot Platforms)

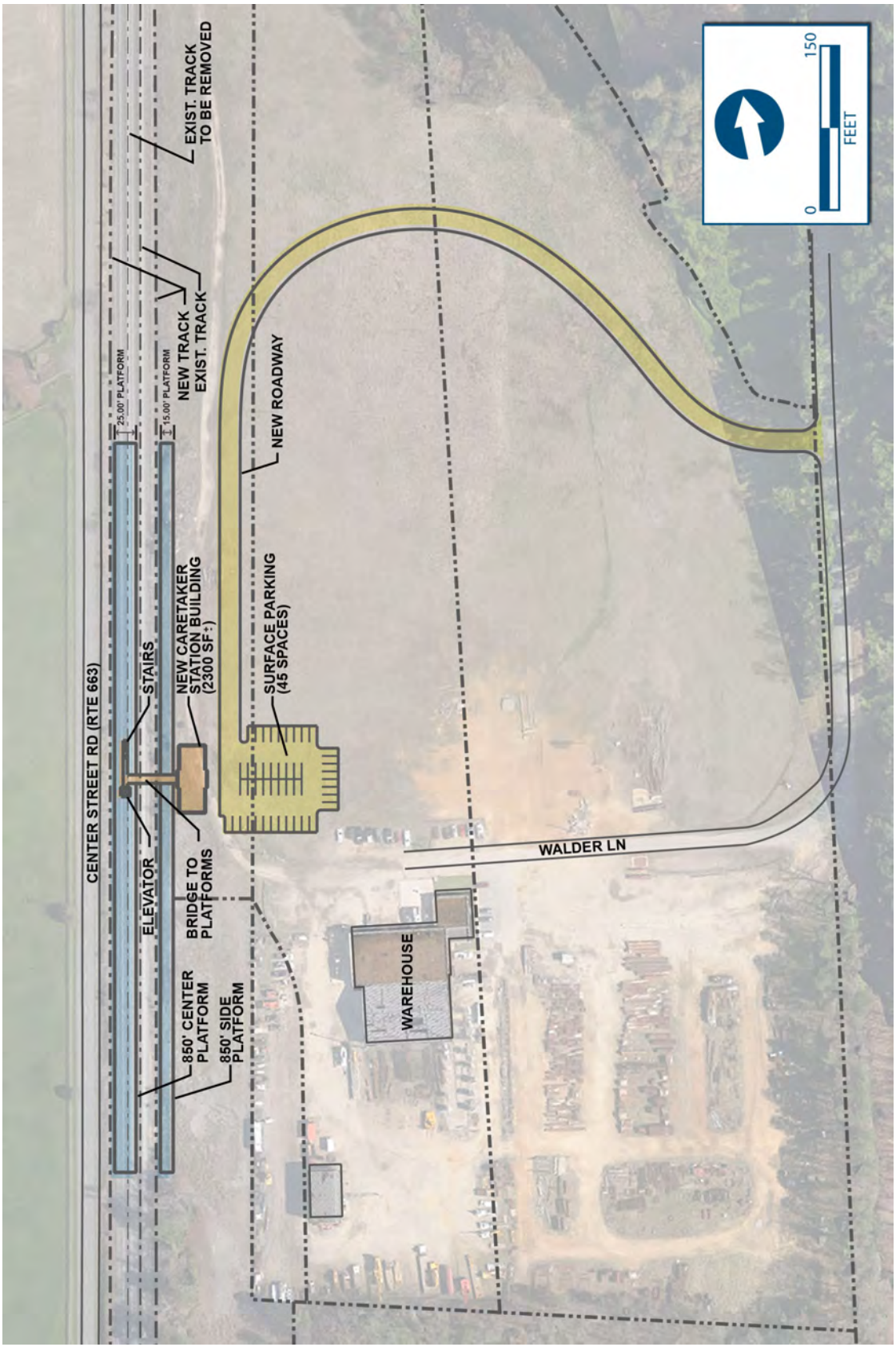


Figure 2-29: Ashcake Station Improvements for Build Alternatives 5A–Ashcake, 5B–Ashcake, 5C–Ashcake, and 5D–Ashcake

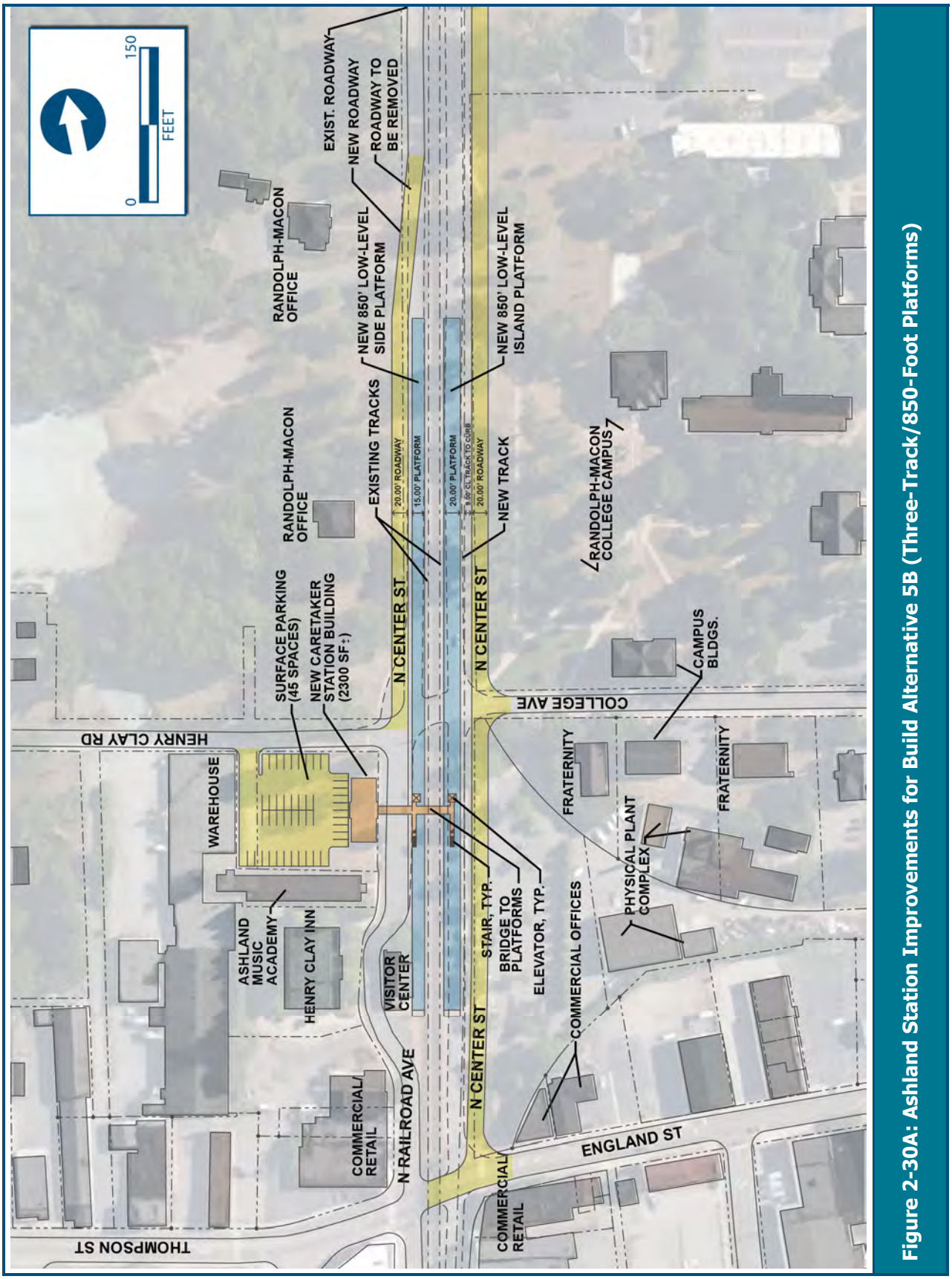


Figure 2-30A: Ashland Station Improvements for Build Alternative 5B (Three-Track/850-Foot Platforms)

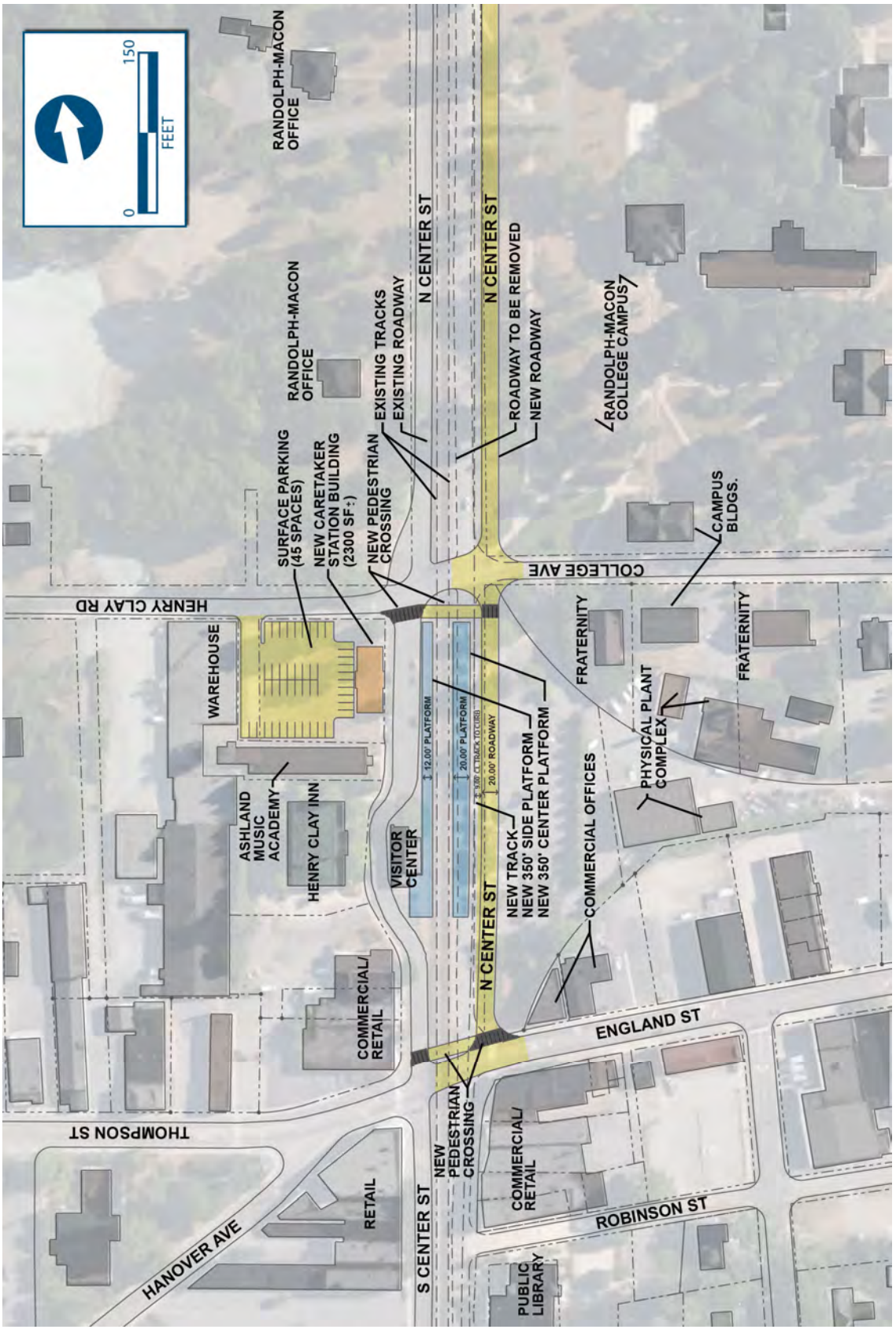


Figure 2-30B: Ashland Station Improvements for Build Alternative 5B (Three-Track/350-Foot Platforms)

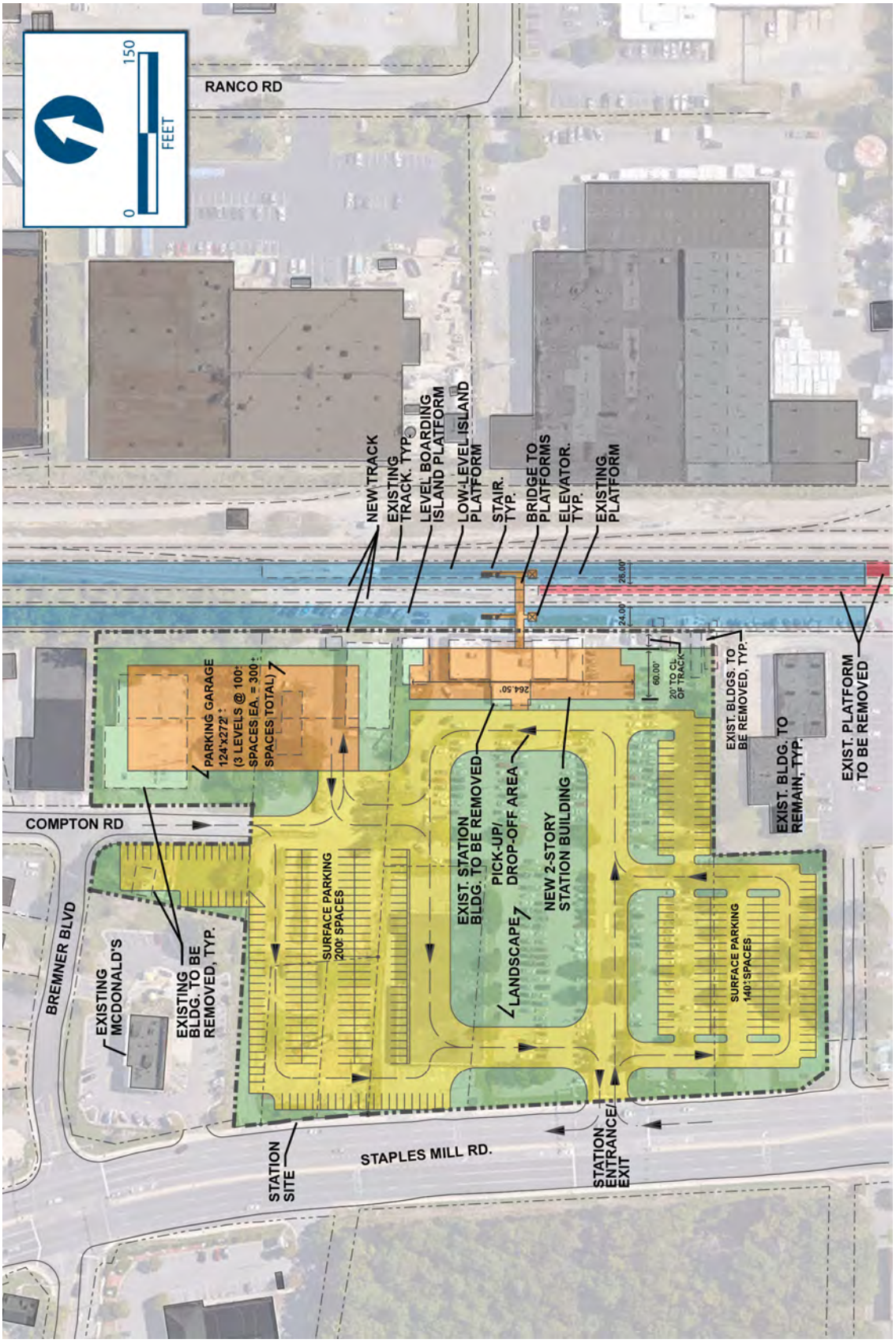


Figure 2-31: Staples Mill Road Station Improvements for Build Alternative 6A

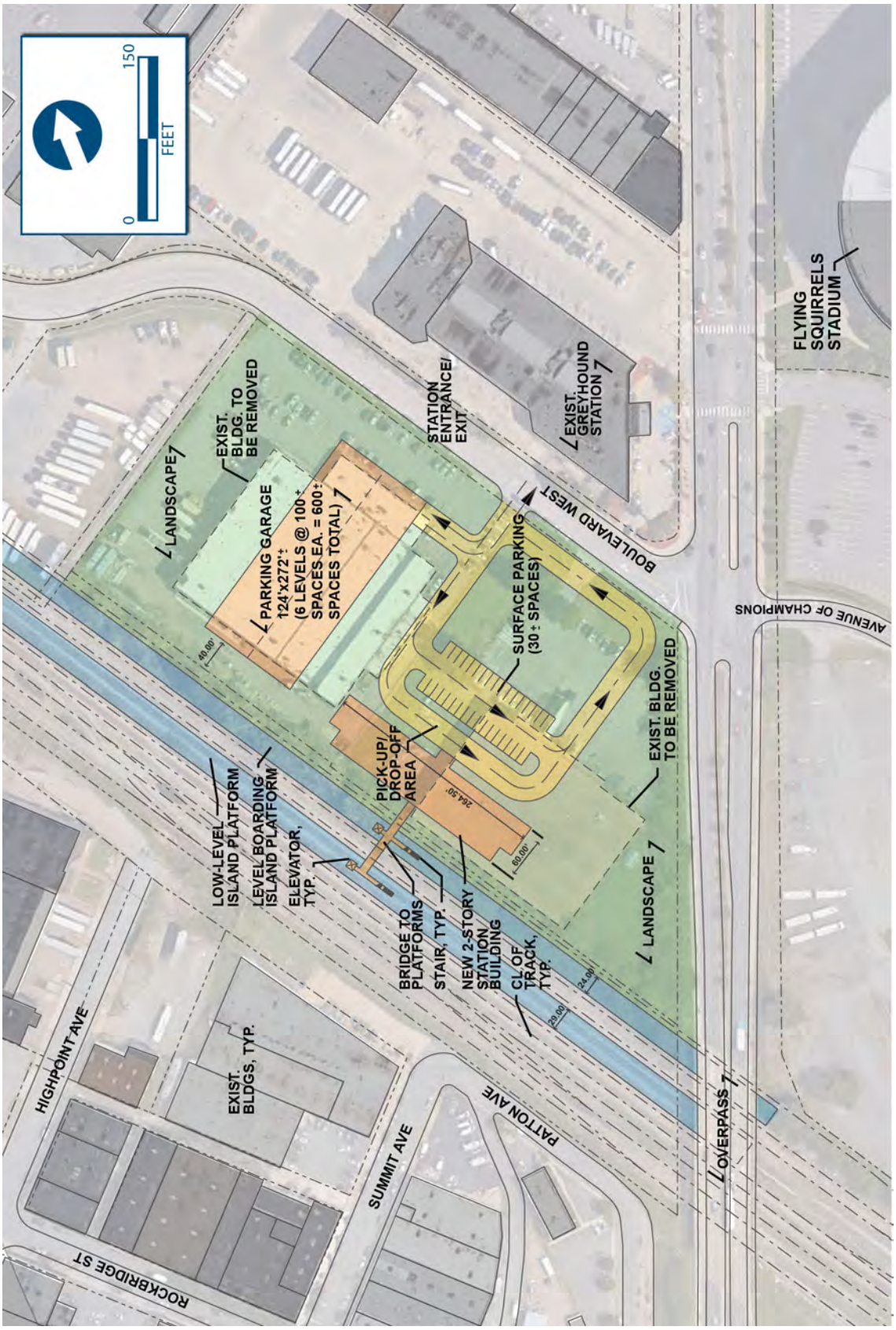


Figure 2-32: Boulevard Station Improvements for Build Alternatives 6B–A-Line and 6B–S-Line

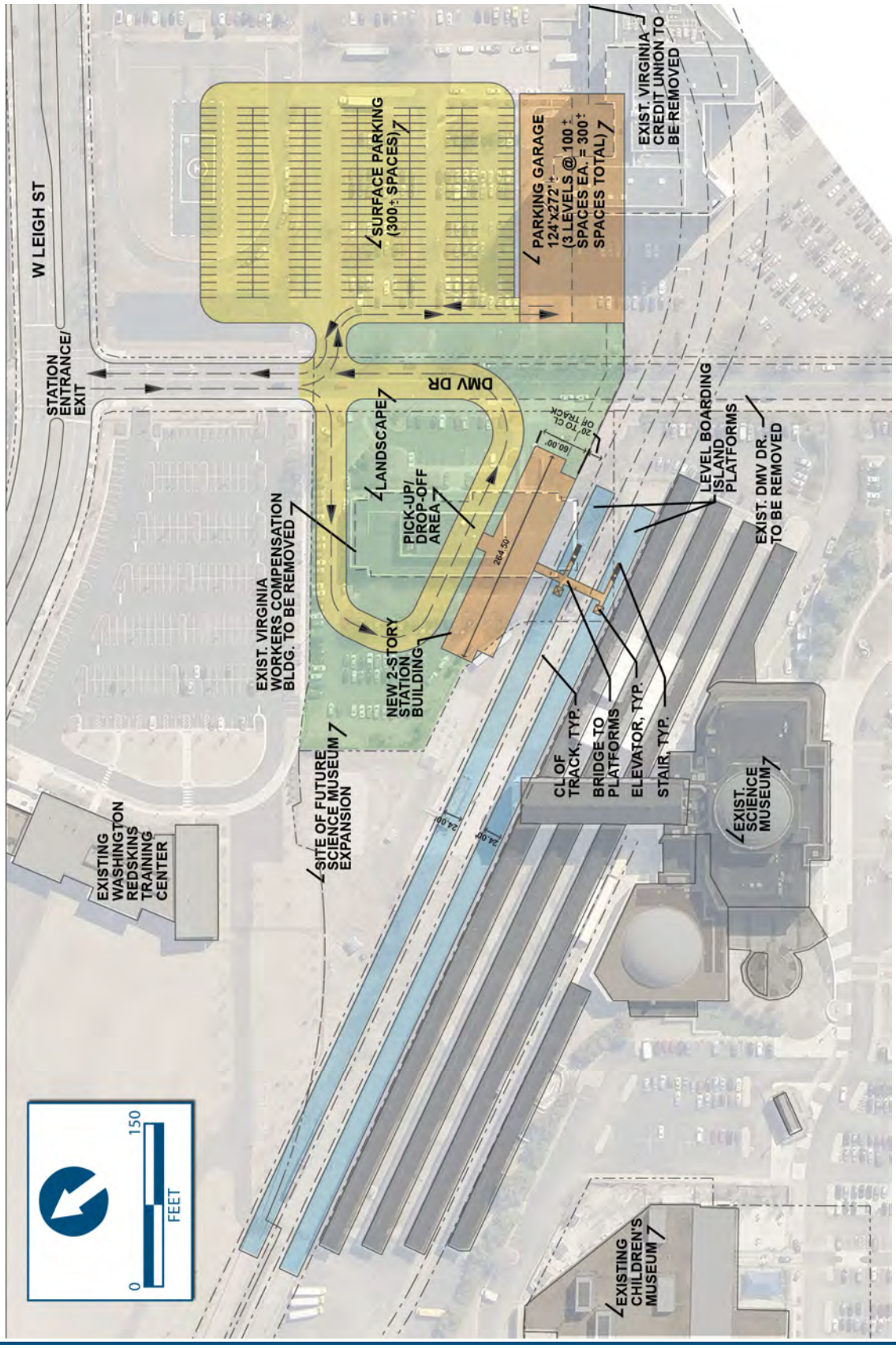


Figure 2-33: Broad Street Station Improvements for Build Alternative 6C

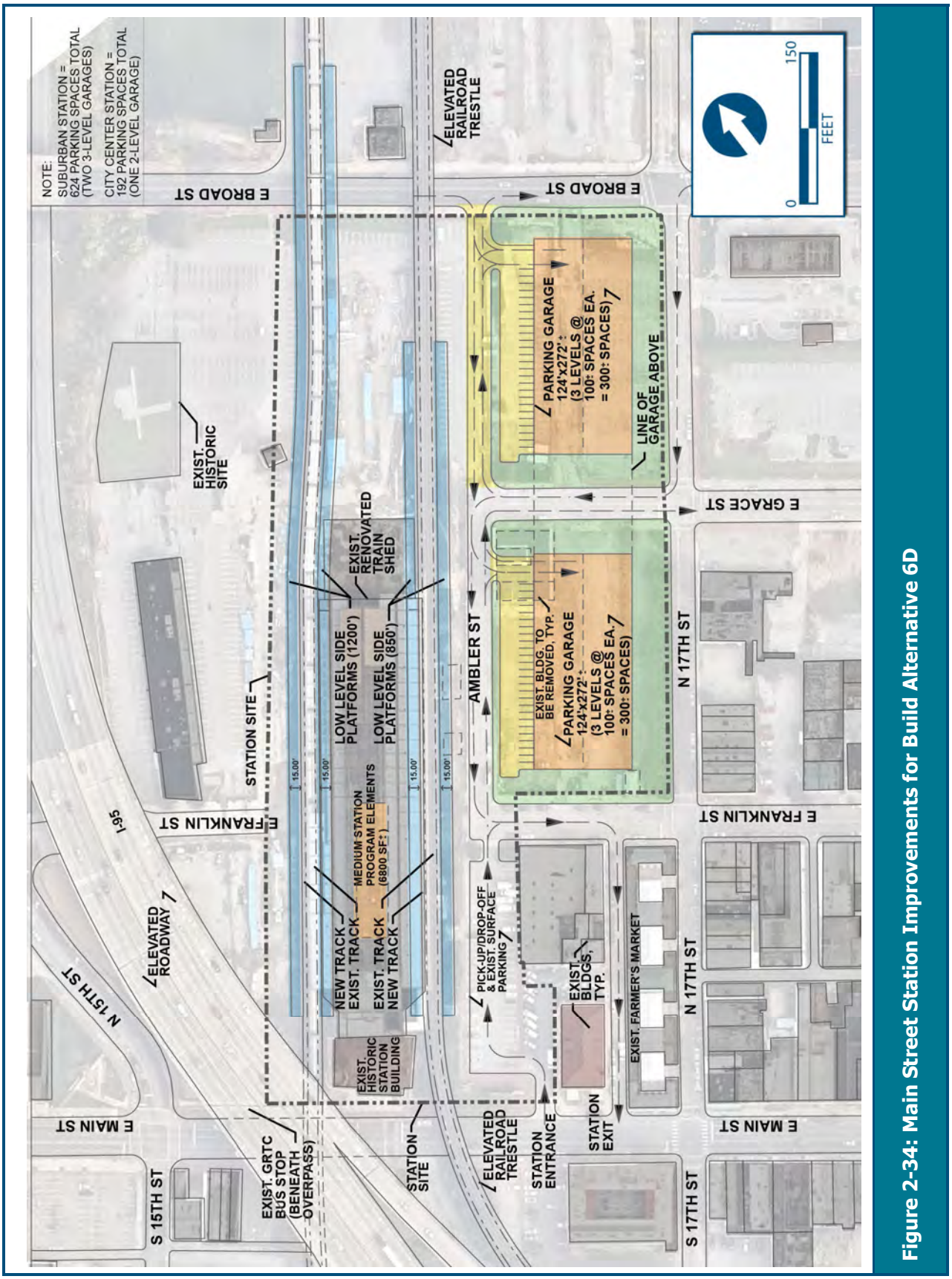


Figure 2-34: Main Street Station Improvements for Build Alternative 6D

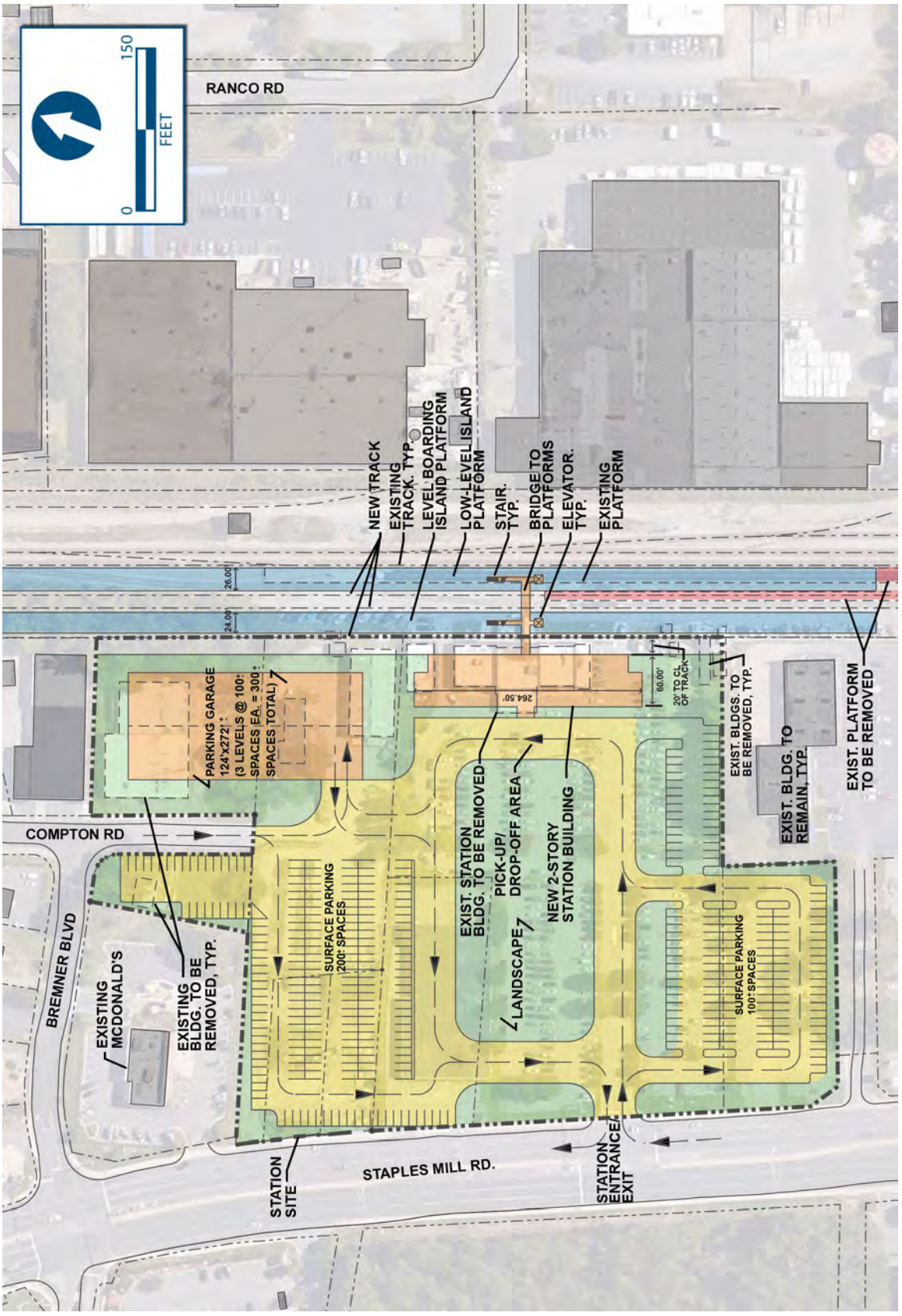


Figure 2-35: Staples Mill Road Station Improvements for Build Alternative 6E

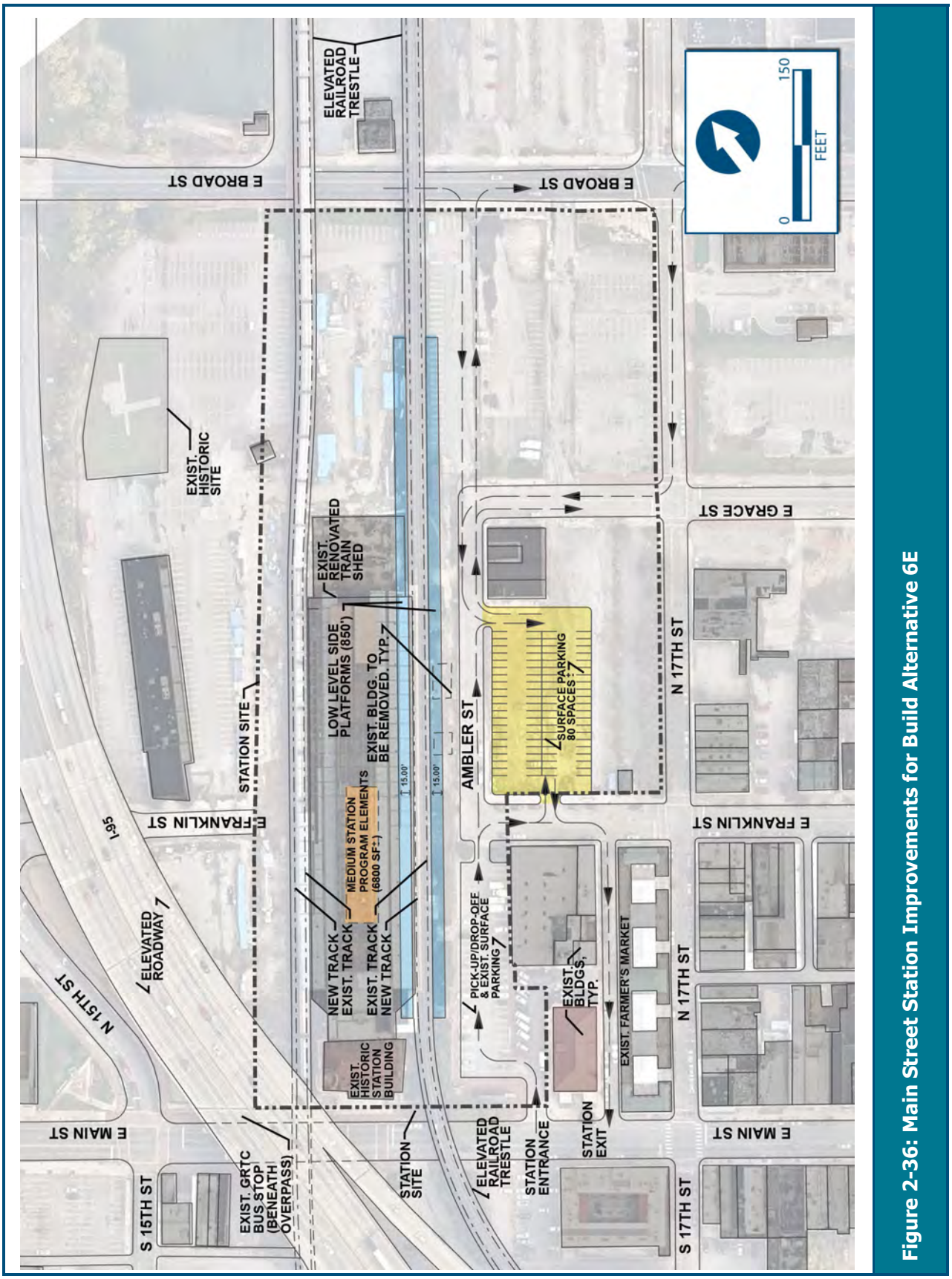


Figure 2-36: Main Street Station Improvements for Build Alternative 6E

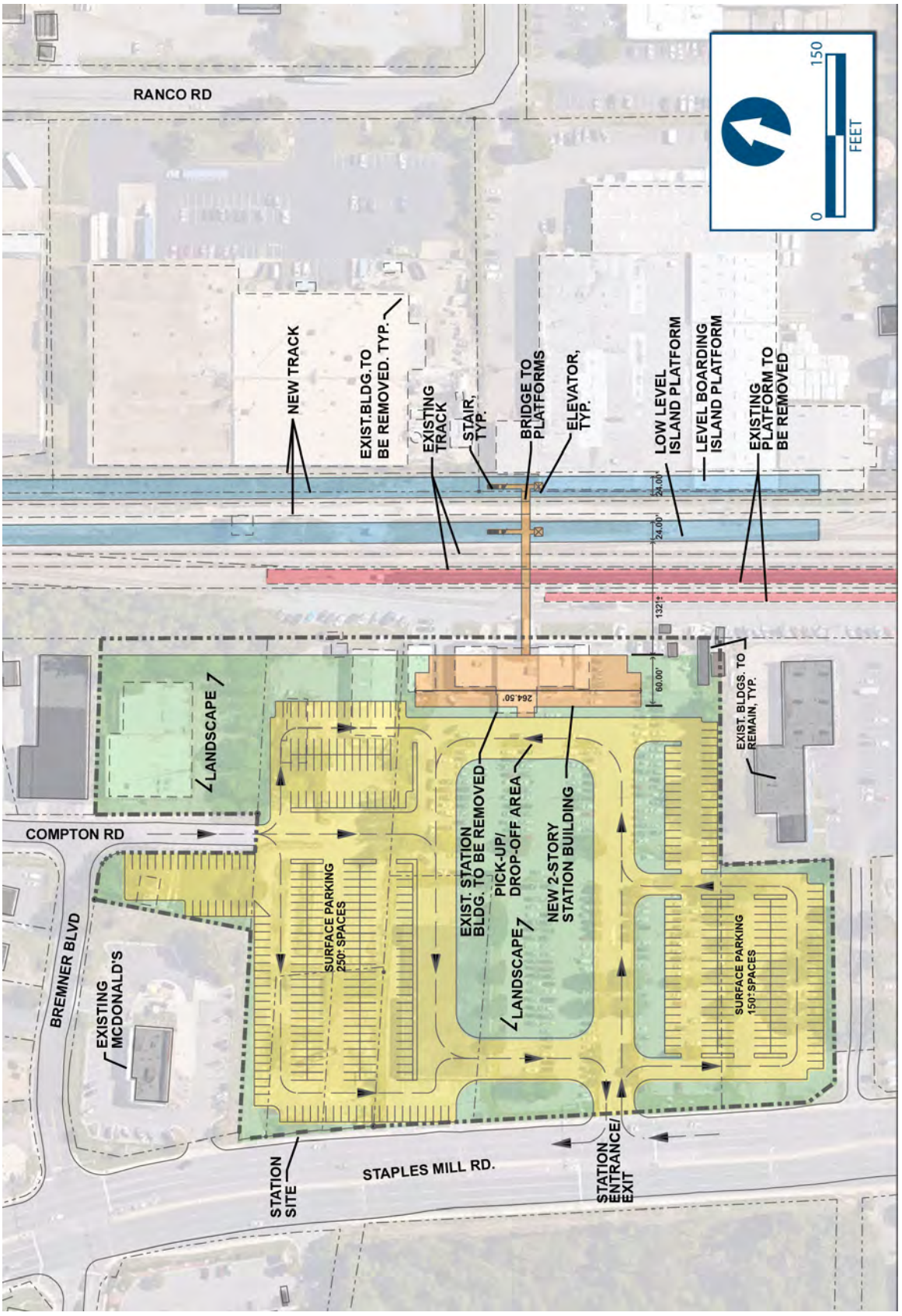


Figure 2-37: Staples Mill Road Station Improvements for Build Alternative 6F

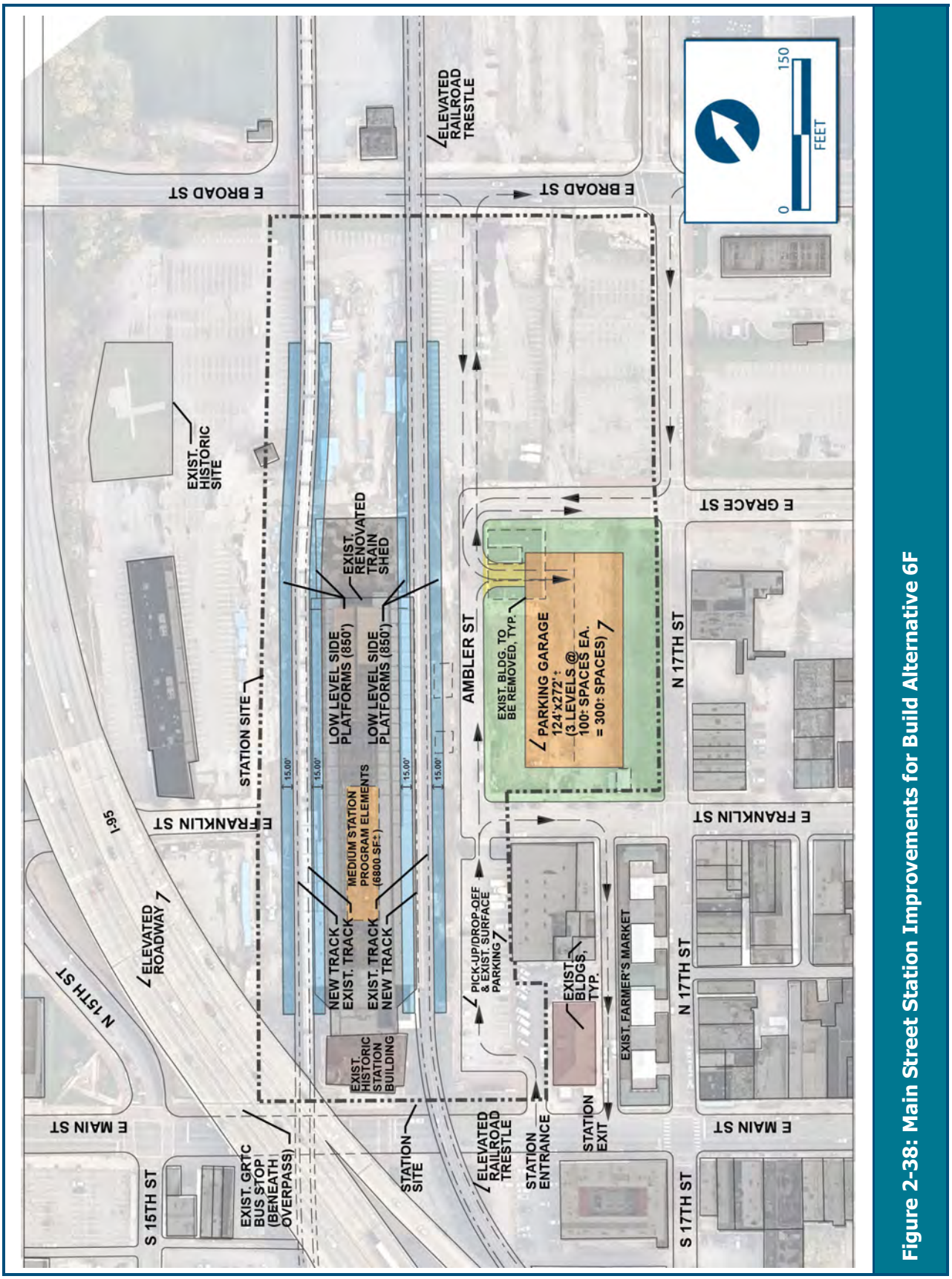


Figure 2-38: Main Street Station Improvements for Build Alternative 6F

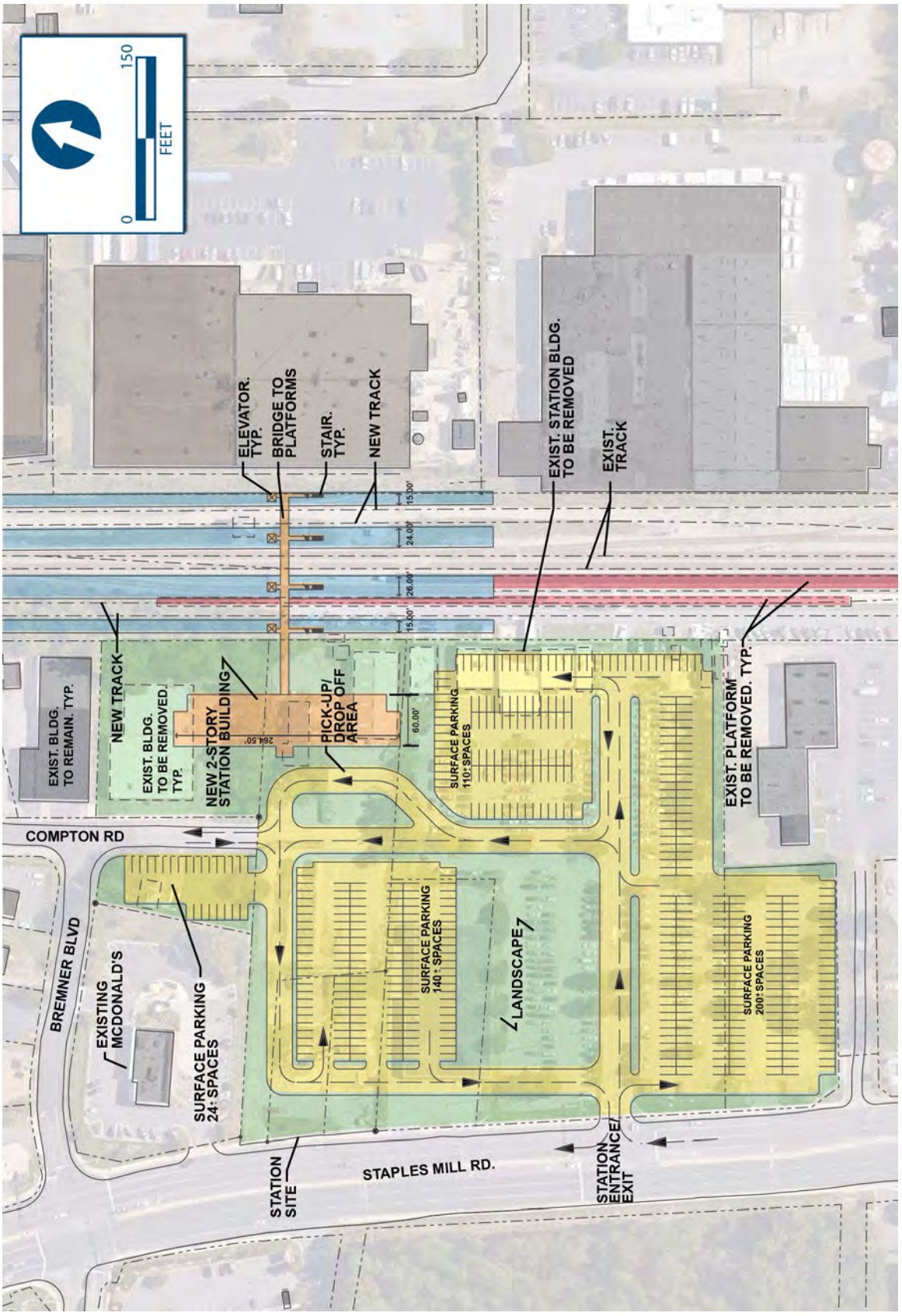


Figure 2-39: Staples Mill Road Station Improvements for Build Alternative 6G

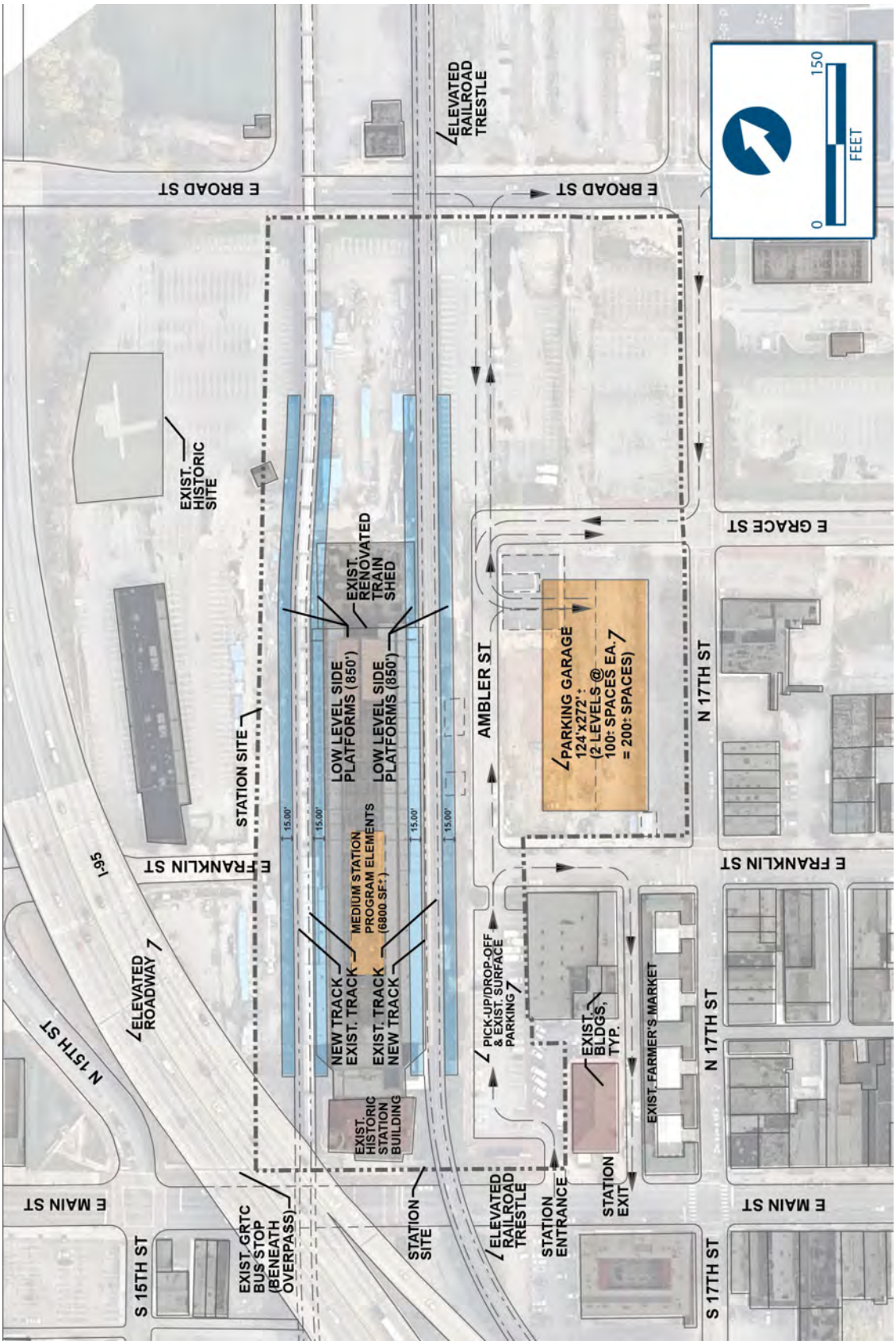


Figure 2-40: Main Street Station Improvements for Build Alternative 6G

3 AFFECTED ENVIRONMENT

Data and information on demographics, community facilities, emergency services, community characteristics, employment, income, and the local economy provide a baseline for analysis of potential impacts. These were compiled from aerial photos, local comprehensive and land use plans, the United States Census website (including the American Community Survey [ACS]), Geographic Information System (GIS) databases, city/county tax parcel databases, conceptual drawings/engineering, and field inspections.

3.1 EMPLOYMENT AND INCOME

Economic data, including employment, income, the industrial base, and the location of existing rail station locations, provide a baseline for analysis of potential impacts; these were compiled from local, regional, and national economic studies and databases, the Virginia Employment Commission (VEC), and preliminary design drawings. In particular, station locations and the potential economic effects to localities in the study area have been assessed.

The jurisdictions in the study area are all part of either the Washington-Arlington-Alexandria Metropolitan Statistical Area (MSA) or the Richmond MSA. Both MSAs are large regional employment centers. The Washington-Arlington-Alexandria MSA has an economy based primarily on the location of the nation's capital. The top 10 employers in late 2014 included federal agencies, individual jurisdictions and their respective school systems, and health care systems (VEC, 2015). The Richmond MSA has an economy based on the location of the state capital. The top 10 employers in late 2014 included Virginia Commonwealth University, federal agencies, health care agencies/systems, and individual jurisdictions (VEC, 2015).

Total employment, as reported by VEC, in Table 3-1 is the number of employees working within a particular local jurisdiction. This number varies widely within the study area. The Total Workers, as reported by the United States Census, is the number of people living in a particular local jurisdiction that are working. The workers do not necessarily work within their local jurisdiction of residence. The difference between the two numbers, employment, and workers is the workers in-commuting and out-commuting. Localities with more employment than workers (e.g., Arlington and Henrico counties, the city of Richmond) have a net gain of employees traveling to work within their limits. The unemployment rate in the jurisdictions in the study corridor ranges from a low of 2.7 percent in Arlington County to a high of 5.1 percent in the city of Fredericksburg.

Table 3-1: Employment Patterns

City/County	Total Employment, 2Q, 2015	Unemployment Rate, Jan. 2016
Arlington County	169,387	2.7%
City of Alexandria	96,300	3.2%
Fairfax County	587,782	3.4%
Prince William County	122,810	3.9%
Stafford County	41,358	4.2%
City of Fredericksburg	23,456	5.1%
Spotsylvania County	34,221	4.5%
Caroline County	5,585	4.9%
Hanover County	50,265	3.7%
Henrico County	184,823	4.0%
City of Richmond	149,147	4.9%
Chesterfield County	129,117	4.1%

Source: Community Profiles, Virginia Employment Commission, March 2016.

3.2 POPULATION CHARACTERISTICS

Data products from the United States Census Bureau were used for demographic information, primarily the 2009-2013 ACS. The study area traverses parts of 150 census tracts in Arlington County (2), the City of Alexandria (10), Fairfax County (13), Prince William County (11), Stafford County (10), the City of Fredericksburg (3), Spotsylvania County (4), Caroline County (6), Hanover County (12), Henrico County (17), the City of Richmond (51), and Chesterfield County (11). One tract contains no population data due to its location at Reagan National Airport. The demographic data of census tracts in the study area were examined to determine the presence of any potential Title VI populations, environmental justice populations, and any persons with Limited English Proficiency (LEP). The census data for each census tract were compared to the census data for the city/county of that particular tract. The population of minorities, persons with low-income, or persons with LEP within a particular census tract is identified as having a potential environmental justice population if it is greater than the value in its city/county. If a particular census tract has a percentage of the population of any of these groups above 50 percent, this has also been identified.

The total population in most of these jurisdictions has been increasing steadily for many years (Table 3-2). The City of Richmond is the only jurisdiction that has not experienced population growth in excess of 20 percent since 1990. Fairfax County is the most populous jurisdiction in the Commonwealth, and the jurisdictions in the study area, in total, represented more than 39 percent of the Commonwealth's population in 2015. The jurisdictions' populations are projected to experience a wide range of change, from a loss in Arlington County, to increases of more than 100 percent in Spotsylvania and Stafford counties (Table 3-3). Overall, the jurisdictions are projected to grow in population by more than 36 percent.

Table 3-2: Total Population Over Time

City/County	1990	2000	2010	2015	Change 1990-2015
Arlington County	170,936	189,453	207,627	234,678	37.29%
City of Alexandria	111,183	128,283	139,966	159,571	43.52%
Fairfax County	818,584	969,749	1,081,699	1,129,330	37.96%
Prince William County	215,686	280,813	402,002	443,463	105.61%
Stafford County	61,236	92,446	128,961	140,176	128.91%
City of Fredericksburg	19,027	19,279	24,286	26,969	41.74%
Spotsylvania County	57,403	90,395	122,397	128,998	124.72%
Caroline County	19,217	22,121	28,545	29,792	55.03%
Hanover County	63,306	86,320	99,863	104,013	64.30%
Henrico County	217,881	262,300	306,935	320,717	47.20%
City of Richmond	203,056	197,790	204,214	217,938	7.33%
Chesterfield County	209,274	259,903	316,236	333,450	59.34%
Study Area Total	2,166,789	2,598,852	3,062,731	3,269,095	50.87%

Source: U.S. Census Bureau: 1990, STF1; 2000, SF3; 2010, SF1; 2015, Weldon Cooper, 2016.

Table 3-3: Project Population Over Time

City/County	2015	2020	2030	2040	Change 2015-2040
Arlington County	234,678	206,896	201,699	197,065	-16.03%
City of Alexandria	159,571	145,116	147,706	149,195	-6.50%
Fairfax County	1,129,330	1,182,609	1,271,995	1,350,245	19.56%
Prince William County	443,463	487,768	573,535	659,301	48.67%
Stafford County	140,176	178,152	244,410	333,654	138.03%
City of Fredericksburg	26,969	26,647	28,383	29,917	10.93%
Spotsylvania County	128,998	166,236	223,917	299,632	132.28%
Caroline County	29,792	31,400	33,447	35,259	18.35%
Hanover County	104,013	118,135	139,000	162,475	56.21%
Henrico County	320,717	352,577	400,396	450,630	40.51%
City of Richmond	217,938	206,674	208,665	210,368	-3.47%
Chesterfield County	333,450	388,894	473,842	572,693	71.75%
Study Area Total	3,269,095	3,491,104	3,946,995	4,450,434	36.14%

Source: 2015, Weldon Cooper, 2016; 2020-2040, Weldon Cooper, 2012.

3.3 NEIGHBORHOODS AND COMMUNITIES

Communities vary from those in older, well-established cities and towns to high-growth suburban areas in the counties surrounding the Washington, D.C. and Richmond metropolitan areas. The existing CSXT rail line has been part of the counties, cities, and individual communities since the early 1800s, and it has been a stimulus to community growth and development. The Richmond, Fredericksburg, and Potomac (RF&P) Railroad Company was chartered in 1834 and included most of the existing CSXT corridor between Richmond and Washington, D.C. The communities have grown and developed around these rail lines.

3.3.1 Communities along the DC2RVA Corridor

Crystal City is the primary community adjacent to the DC2RVA corridor in **Arlington County**. It is a retail and residential community based partially on its excellent access to the transportation network, including the rail modes in the vicinity (Metro and Virginia Railway Express [VRE]) and to the roadway network.

In the **city of Alexandria**, several communities line the DC2RVA corridor, including Braddock, Rosemont, and Old Town Alexandria. The DC2RVA corridor turns to the west and travels through more commercial and industrial development before crossing into Fairfax County.

In **Fairfax County**, the area surrounding the DC2RVA corridor is primarily residential communities, including Mount Hebron Park, Monticello Woods, Maple Grove Estates, Franconia, Springfield Forest, Windsor Estates, Beverly Forest, Pohick Estates, Lorton, Harbor View, and Colchester. For most of these communities, the study area is either along an outer edge of residential development or part of commercial development within the community. In the case of Harbor View and Colchester, primary access is via Furnace Road. Furnace Road crosses under the DC2RVA corridor using a one-lane tunnel.

In **Prince William County**, the DC2RVA corridor is along the edge of residential neighborhoods, as well as within Marine Corps Base Quantico (MCBQ). Communities along the DC2RVA corridor include Belmont Bay, Marumsco Acres, Potomac View, Marumsco Woods, Featherstone Shores, Dawson Landing, Riverside Station, and Potomac Shores. Within MCBQ, the DC2RVA corridor is in forested areas, and the central base itself is at the mouth of Chopawamsic Creek. This creek is also the county line between Prince William and Stafford counties.

In **Stafford County**, primarily forested areas are along the DC2RVA corridor in the northern part of the county. Once south of Aquia Creek, communities that have extended toward the DC2RVA corridor include Aquia Beach, Aquia Bay Estates, Brittany Estates, and Potomac Run Farm. Between the existing VRE stations at Brooke and Leeland Road, the DC2RVA corridor continues to travel along the edges of residential development on local roads. South of the Leeland Road Station, development intensifies, and communities along the DC2RVA corridor include Northridge, Leeland Station, Mount Pleasant Estates, Heather Hills, Woodland, Bel Air, Lynwood, Clearview Heights, Dahlgren Junction, Debruyn, East Chatham Heights, Cedar Bluff, Ferry Farm, Argyle Heights, Tylerton, Little Falls, and Grandview.

In the **city of Fredericksburg**, the DC2RVA corridor passes through downtown and Hazel Hill at the existing Fredericksburg VRE station. South of Virginia Route 3, the DC2RVAcorridor is along the western edge of Mayfield. The neighborhood abuts the CSXT main line track and Fredericksburg rail yard. The community is primarily single-family residential units. The

DC2RVA corridor then passes through light industrial areas until it crosses into Spotsylvania County.

In **Spotsylvania County**, the communities that are along the DC2RVA corridor are characterized by sparse rural residential development within rural communities and forested areas. The communities include Hamilton Crossing at the intersection of Mine Road and Benchmark Road and Summit, where the existing CSXT rail line crosses Summit Crossing Road.

In **Caroline County**, the communities are very similar to those in Spotsylvania County — sparse rural residential development within rural communities and forested areas. These communities include Guinea, Woodford, Milford, Penola, and the southern end of Carmel Church along Jefferson Davis Highway.

In **Hanover County**, Doswell is along the DC2RVA corridor in the northern part of the county. Through the remainder of Hanover County, the communities include Ashland, where the rail corridor currently divides both the Town and Randolph-Macon College, Gwathmey, Kenwood, and Elmont.

In **Henrico County**, along the Elmont to Greendale and Greendale to South Acca yard (SAY)/West Acca Yard (WAY) sections, the communities are typically major residential developments and include Hunton, Glen Allen, Laurel Park, Boudar, Lakeside, and Dumbarton. Along the Rivanna Junction to Beulah-Peninsula subsection, the north side of the community of Oakland is separated from the section by Almond Creek and Bickerstaff Road. East of Oakland, the area along the section is either forested or industrial.

Within the **city of Richmond**, there are four separate Project sections. The communities along these sections are established urban residential areas. Along the WAY to Centralia–A-Line section, communities include Sauer's Gardens, Scott's Addition, Malvern Gardens, the Museum District, Colonial Place, Windsor Farms, Carillon, Westover Hills, Cedarhurst, Forest View, Westover, Woodhaven, Southwood, McGuire, Hickory Hill, Deerbourne, Cherry Gardens, Broad Rock, and Walmsley. Along the SAY/WAY to AM Junction (Hermitage Lead) section, communities include Scott's Addition, Newtowne West, Virginia Union University, Carver, Southern Barton Heights, and Gilpin. Along the AM Junction to Centralia–S-Line section, communities include Mosby, Union Hill, Downtown, Tobacco Row, Manchester, Blackwell, Oak Grove, Bellemeade, Windsor, Cullenwood, Davee Gardens, and Broad Rock. Along the Rivanna Junction to Beulah-Peninsula subsection, communities include Union Hill, Downtown, Tobacco Row, Shockoe Bottom, Chimborazo, Fulton, and Fulton Hill.

In **Chesterfield County**, the WAY to Centralia–A-Line section is along Ampthill Heights, the western side of the community of Ampt Hill, Drewrys Bluff, Beulah Village, and Centralia. Along the AM Junction to Centralia–S-Line section, the community of Ampt Hill is separated from the section by forested areas. The section is then along the eastern side of the communities of Bensley Village and Bellwood before turning and is on the western side of the community of Chimney Corner. The section then travels along the edge of Bellwood Manor until crossing VA Route 288 and terminates at the community of Centralia.

3.3.2 Community Safety and Access

FRA is the primary authorized agency for railway safety. The agency administers safety regulations (49 CFR 200-299) over all aspects of rail operations. Public safety is assessed based on the safety of passengers and employees on trains, in stations, and along the rail line, and

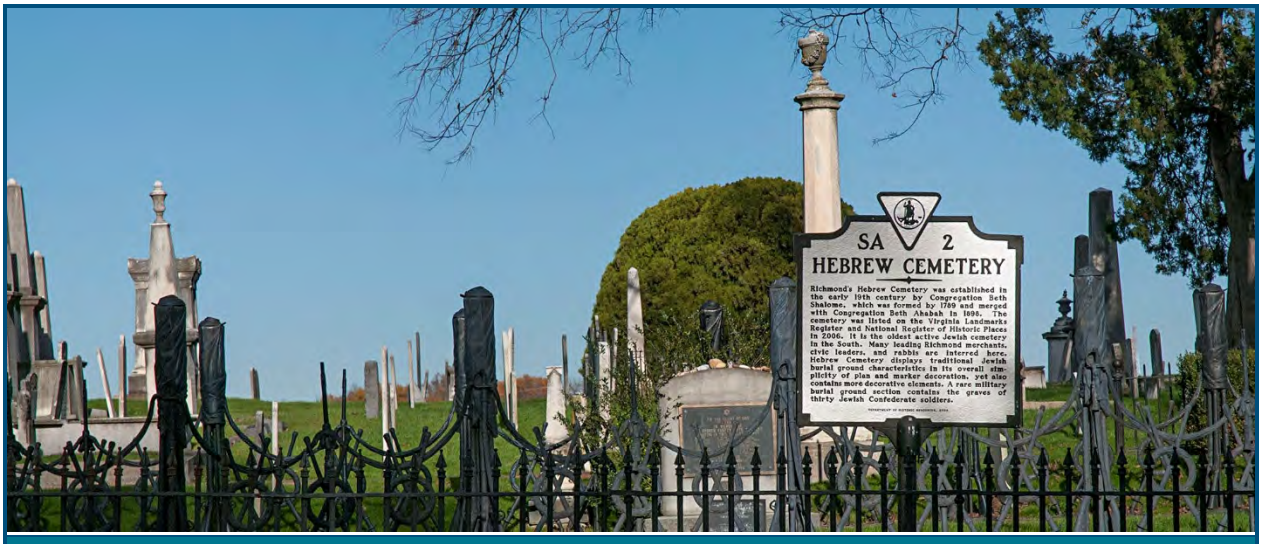
construction workers during construction of any approved rail improvements. Safety is also considered for any persons or vehicles at any rail facilities, access points to the rail right-of-way, or to the rail system itself (stations). Detailed rail operations safety and security information is available in the *System Safety Plan and System Security Plan*. Detailed grade crossing safety assessments are available in the *Transportation Technical Report*.

Within the individual communities, safety and security along the rail line encompasses physical access around the rail right-of-way, as well as the safety of residents and businesses due to rail operations (e.g., accidents, hazardous materials transport). As stated previously, the communities have grown and developed around the existing railroad right-of-way. This includes the roadway network, which has also developed around the railroad right-of-way and is used by residents, businesses, school transportation, and emergency services. CSXT has strict safety procedures, including extensive safety training and certification, regarding access to the right-of-way. Physical barriers are used in those parts of the DC2RVA corridor where those persons other than CSXT workers can easily access the right-of-way.

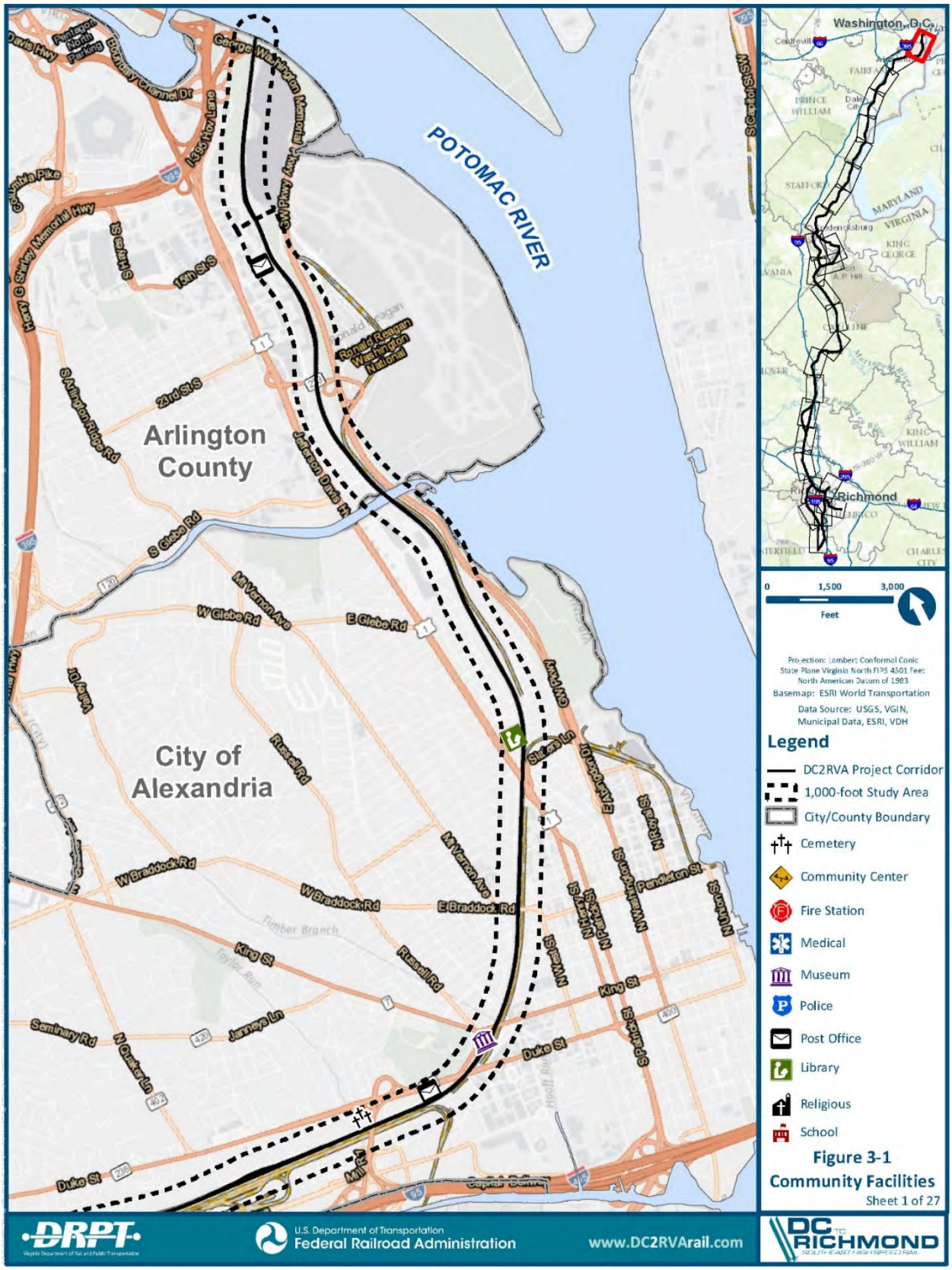
Crossings are divided into categories: public crossings are those on highways under the jurisdiction of and maintained by a public authority and open to the traveling public; private crossings are those on roadways privately owned and used only by the landowner or licensee; and pedestrian crossings are those used solely by pedestrians. There are 200 crossings with roadways in the DC2RVA corridor. Of these crossings, 160 are with public roads and 40 are with private roads. Crossings are either at grade (79) or grade separated (121). Private at-grade crossings are primarily residential, farm, or industrial. More detail about crossing safety appears in the *Transportation Technical Report*.

3.3.3 Community Facilities and Services

There is a wide range of community facilities located along the DC2RVA corridor, including schools, religious facilities, community centers, cemeteries, police and fire stations, libraries, post offices, and medical facilities, as shown on Figure 3-1. A tabulation of community facilities within 500 feet of the DC2RVA rail line is provided in Table 3-4. Existing land use is shown in Appendix A.



Hebrew Cemetery – Richmond, Virginia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Arlington County
City of Alexandria
Washington, D.C.
Richmond
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Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN, Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
Cemetery
Community Center
Fire Station
Medical
Museum
Police
Post Office
Library
Religious
School
Figure 3-1
Community Facilities
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U.S. Department of Transportation
Federal Railroad Administration
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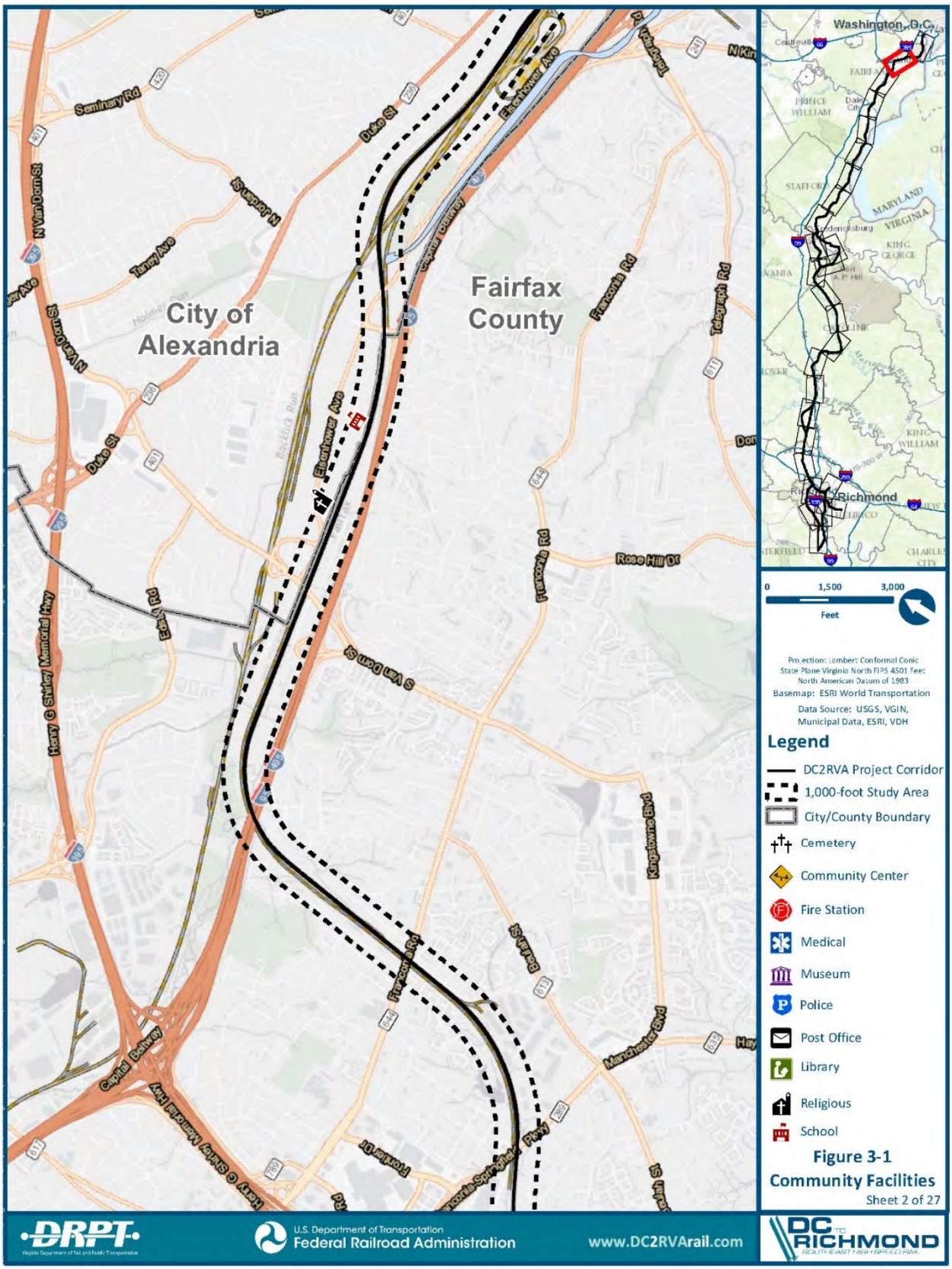
DC TO RICHMOND


City of Alexandria
Fairfax County
Washington, D.C.
Richmond
Seminary Rd
Duke St
Eisenhower Ave
Van Dorn St
Tarney Ave
Franconia Rd
Telegraph Rd
Rose Hill Dr
Kingstowne Blvd
Manchester Blvd
Capital Beltway
Harry G Shirley Memorial Hwy
Fairfax County Pkwy
Rolling Rd
Frontier Dr
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Feet
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North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN, Municipal Data, ESRI, VDH
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DC2RVA Project Corridor
1,000-foot Study Area
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Cemetery
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Fire Station
Medical
Museum
Police
Post Office
Library
Religious
School
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Community Facilities
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U.S. Department of Transportation
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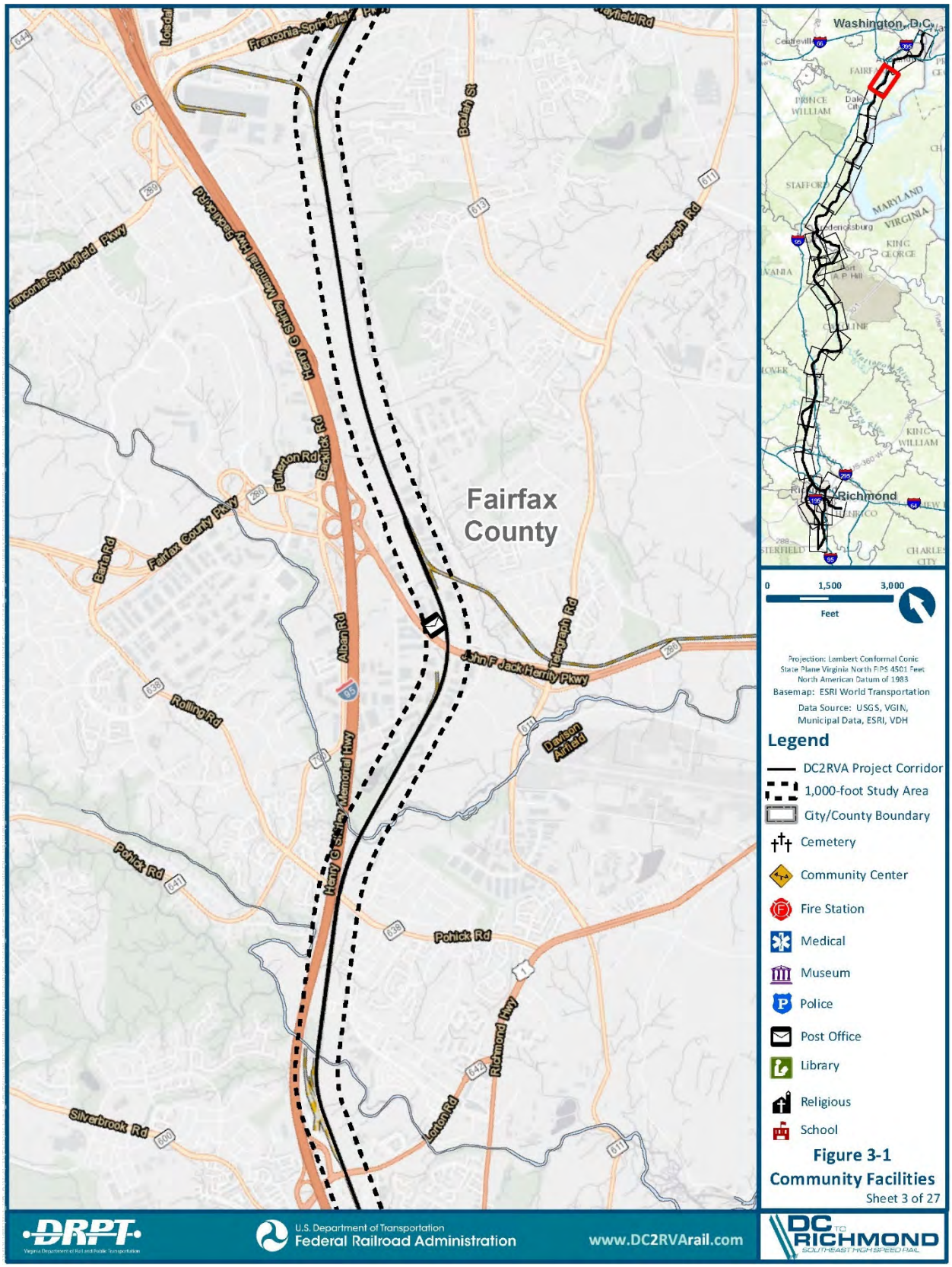
DC to RICHMOND


Fairfax County
Washington, D.C.
Richmond
Franconia-Springfield Pkwy
Fairfax County Pkwy
Backlick Rd
Fullerton Rd
Alban Rd
Telegraph Rd
John F Jack Herrity Pkwy
Rolling Rd
Pohick Rd
Silverbrook Rd
Lorton Rd
Richmond Hwy
Davison Airfield
Berlin St
Mayfield Rd
Henry G Shirley Memorial Hwy
0 1,500 3,000
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Basemap: ESRI World Transportation
Data Source: USGS, VGIN, Municipal Data, ESRI, VDH
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DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
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Fire Station
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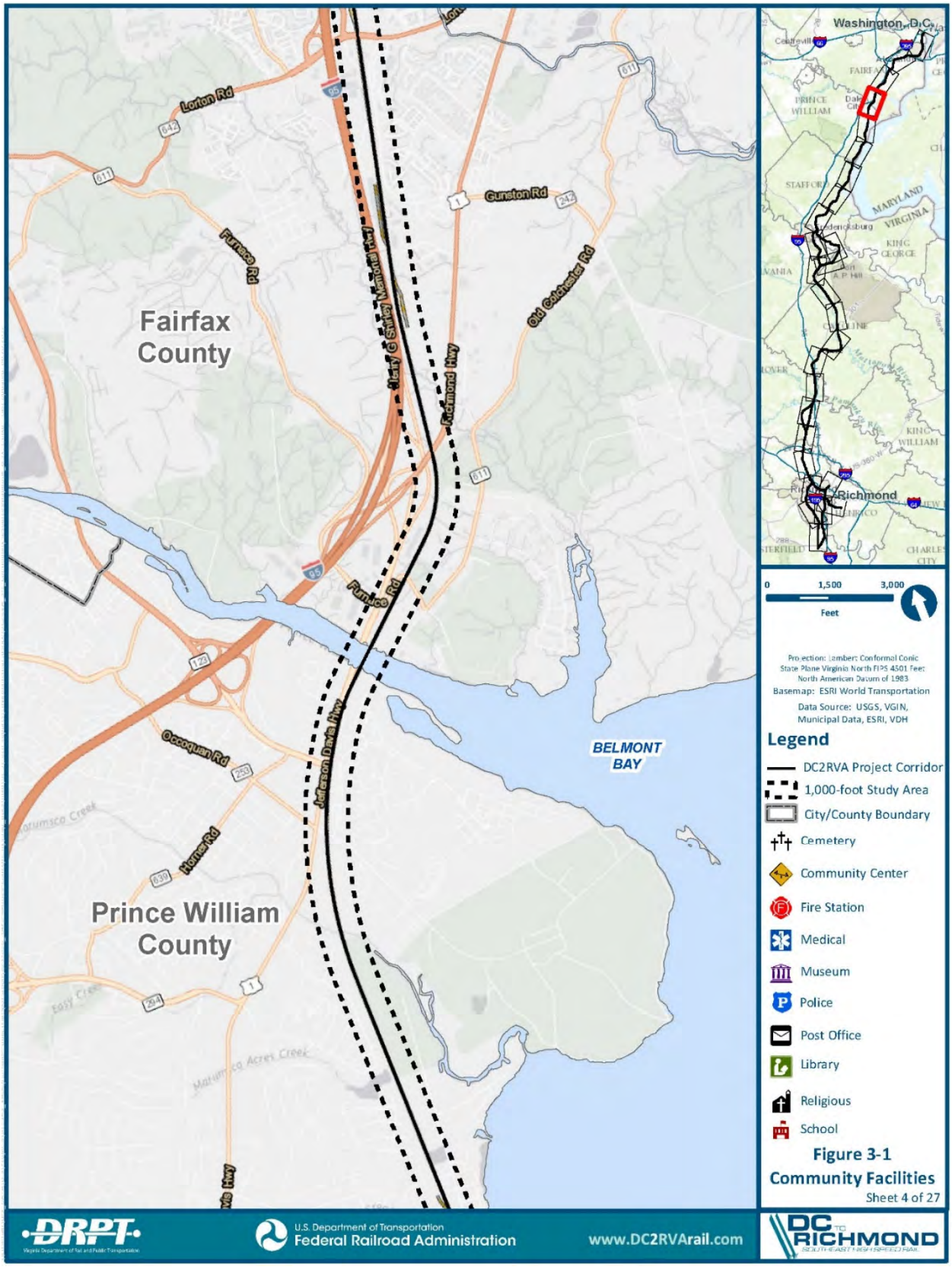
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


Fairfax County
Prince William County
BELMONT BAY
Lorton Rd
Furnace Rd
Gunston Rd
Old Colchester Rd
Richmond-Quantico Hwy
Occoquan Rd
Horner Rd
Jefferson Davis Hwy
Washington, D.C.
Richmond
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Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN, Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
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Fire Station
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Religious
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Figure 3-1
Community Facilities
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Federal Railroad Administration
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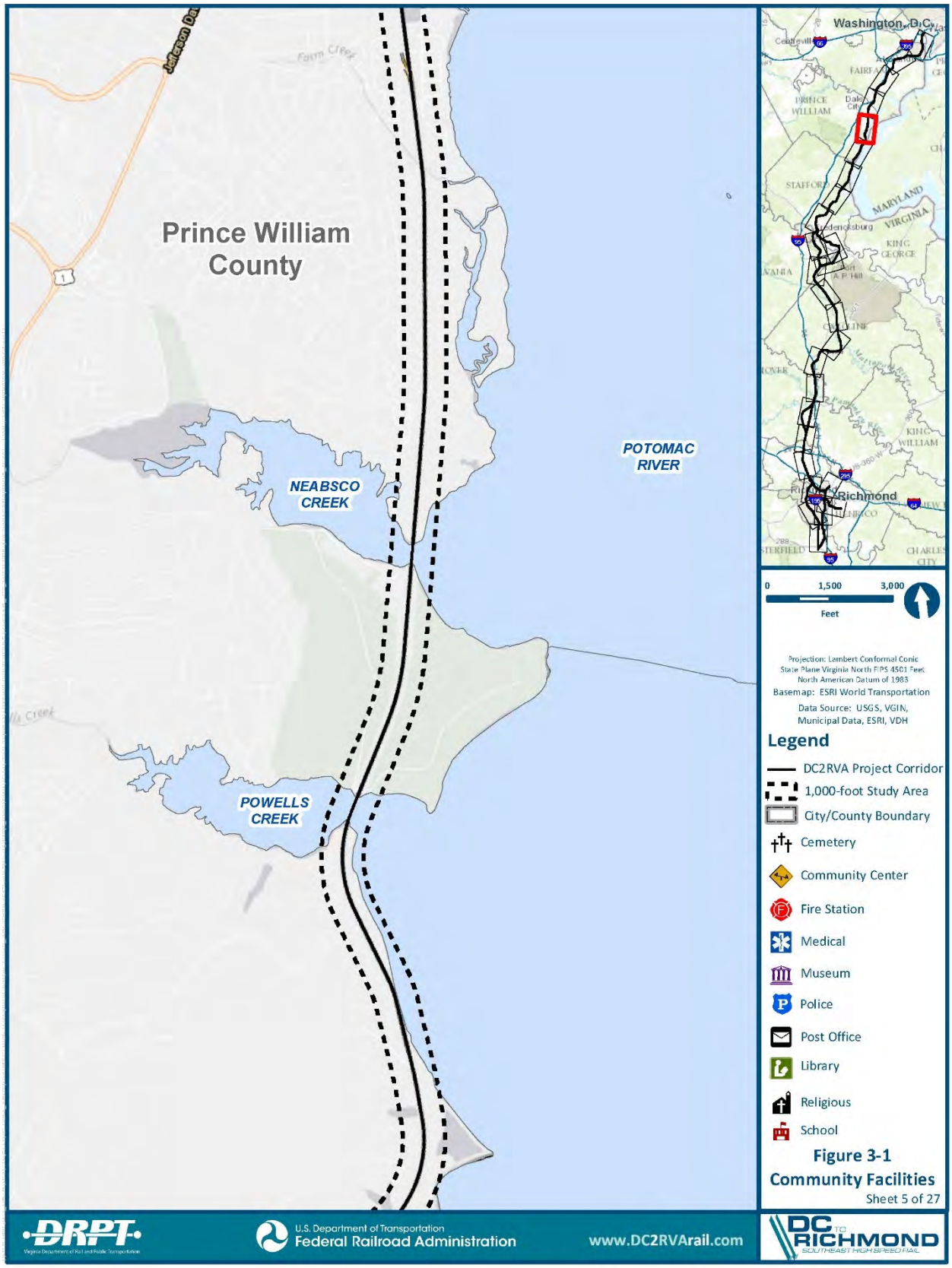
DC TO RICHMOND


Prince William County
POTOMAC RIVER
NEABSCO CREEK
POWELLS CREEK
Washington, D.C.
Richmond
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North American Datum of 1983
Basemap: ESRI World Transportation
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1,000-foot Study Area
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Community Facilities
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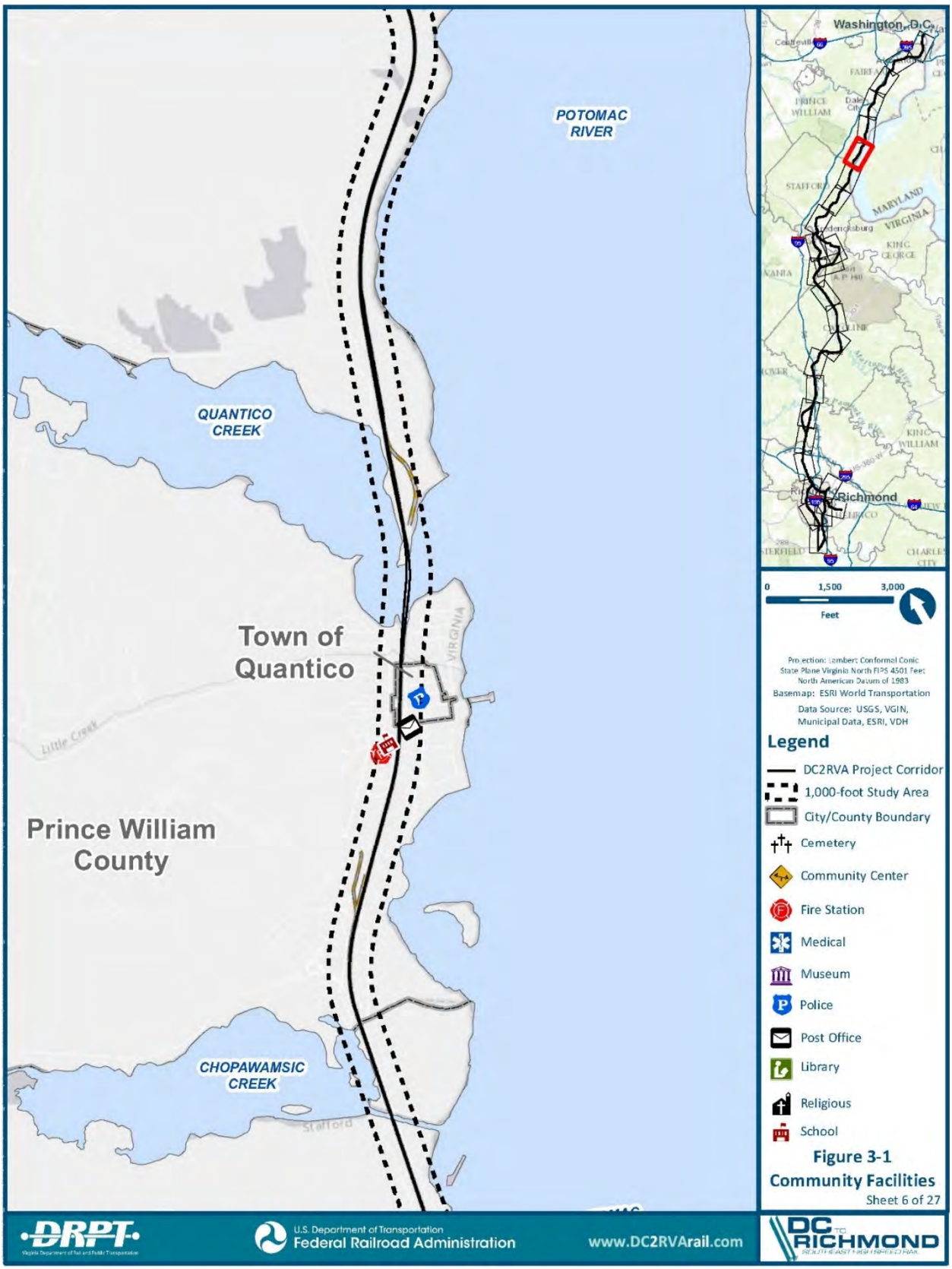
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


POTOMAC RIVER
QUANTICO CREEK
Town of Quantico
Prince William County
CHOPAWAMSIC CREEK
Little Creek
Stafford
Washington, D.C.
Richmond
MARYLAND
VIRGINIA
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North American Datum of 1983
Basemap: ESRI World Transportation
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DC2RVA Project Corridor
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Community Facilities
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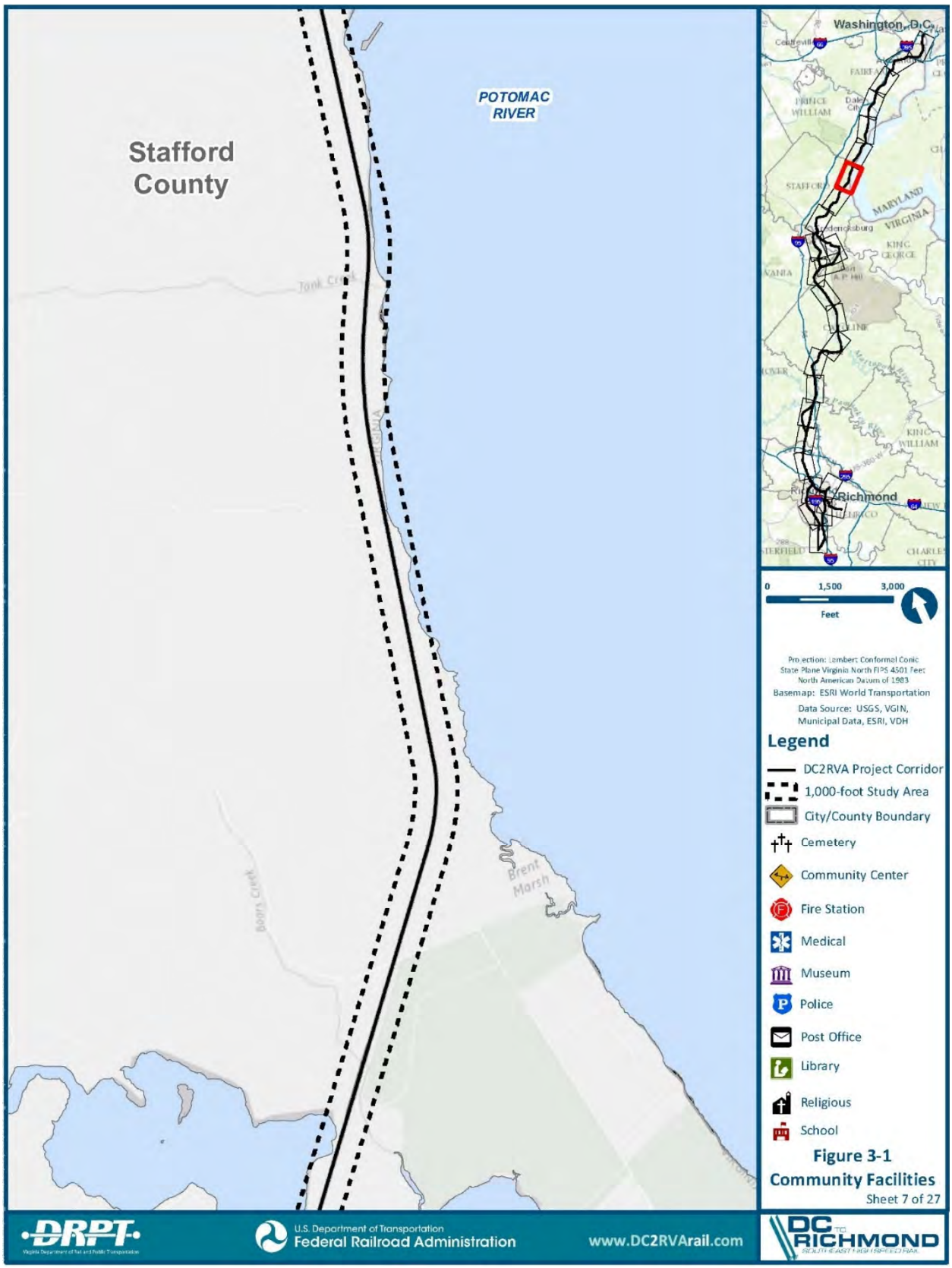
POTOMAC RIVER
Stafford County
Tank Creek
Boars Creek
Brent Marsh
Washington, D.C.
Fredericksburg
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Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
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DC2RVA Project Corridor
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Figure 3-1
Community Facilities
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U.S. Department of Transportation
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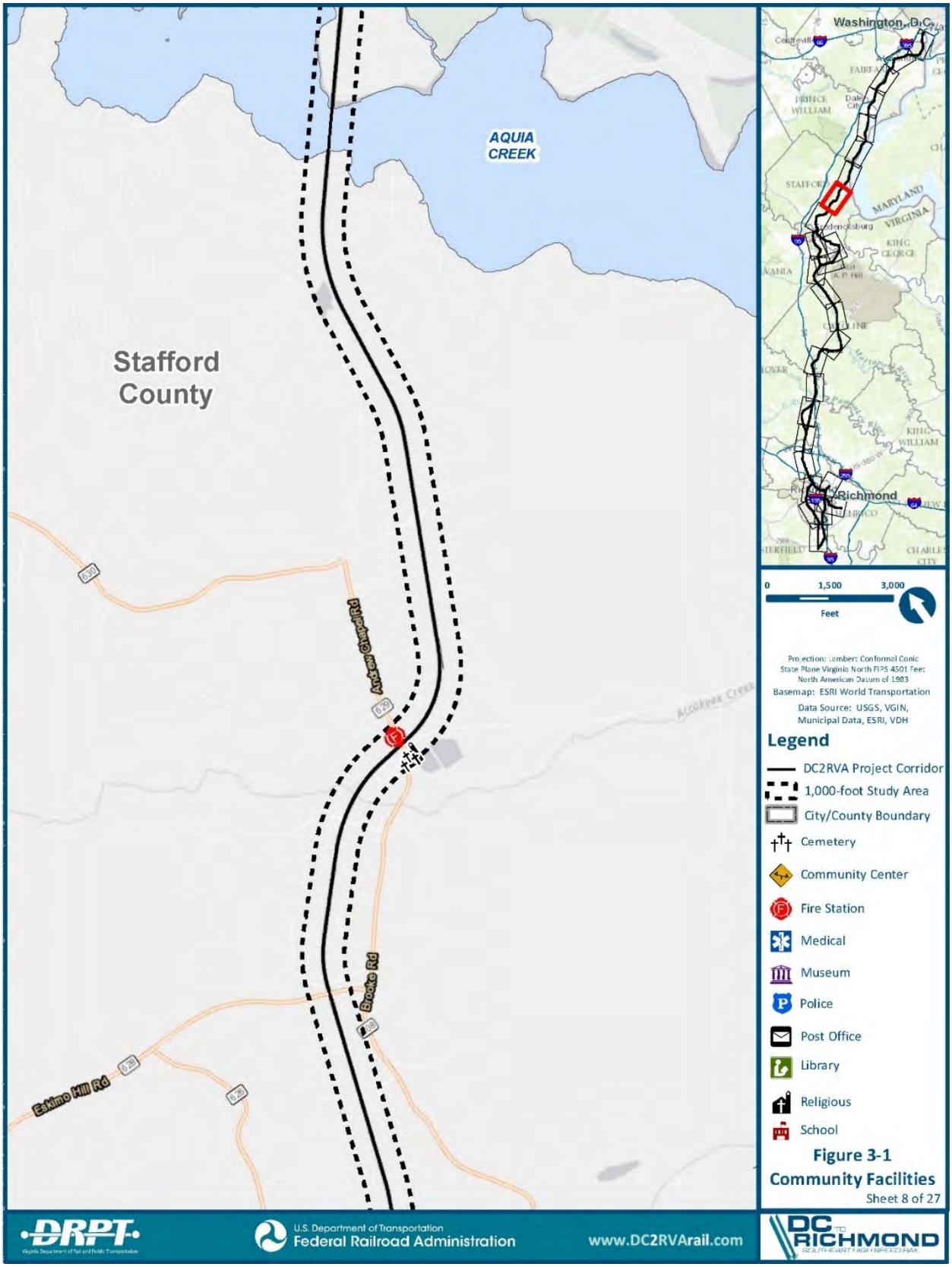
DC TO RICHMOND


AQUIA CREEK
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Community Facilities
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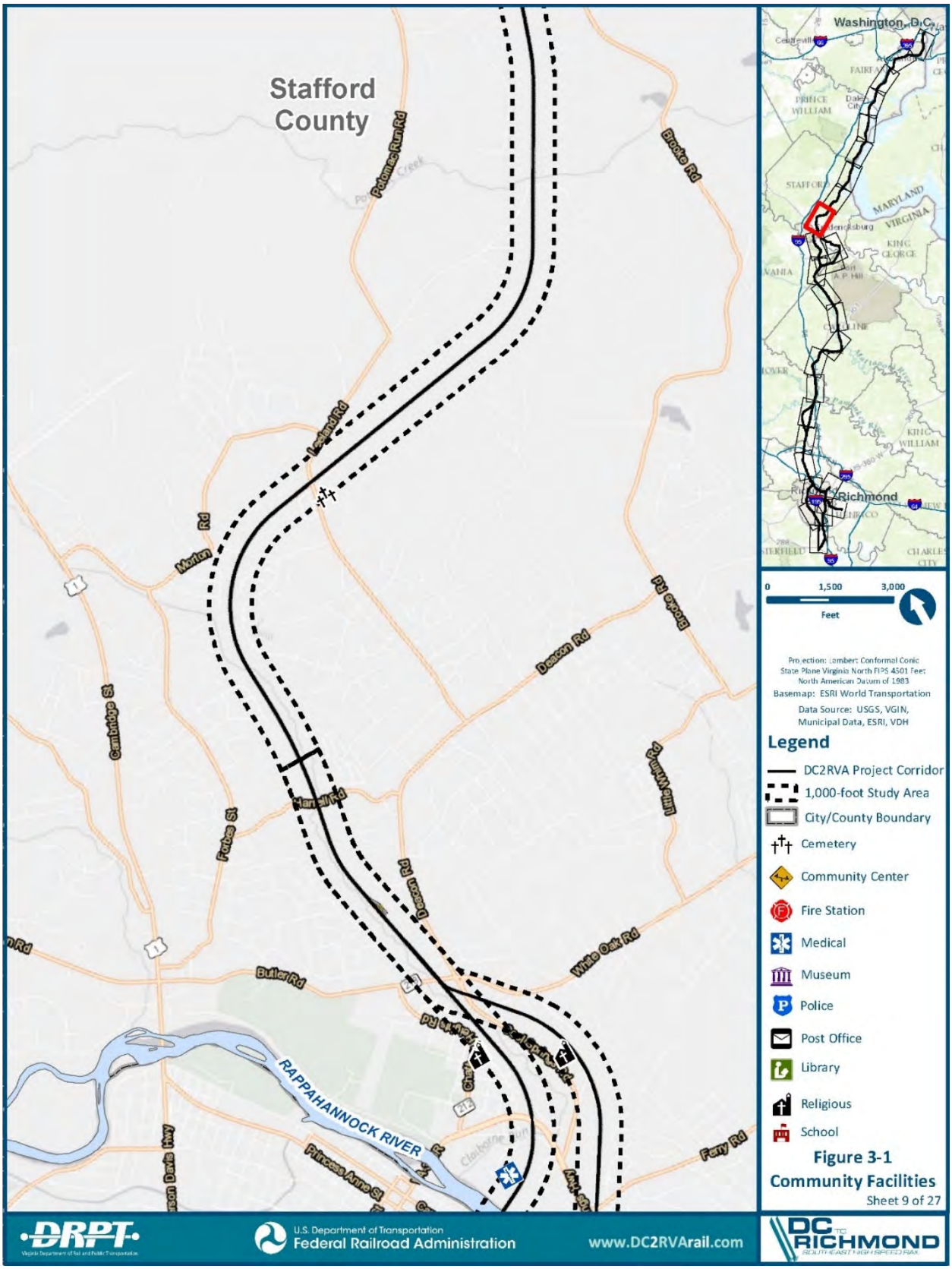
DC TO RICHMOND


Stafford County
Potomac Run Rd
Brooke Rd
Leeland Rd
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Forbes St
Deacon Rd
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White Oak Rd
Ferry Rd
RAPPAHANNOCK RIVER
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Basemap: ESRI World Transportation
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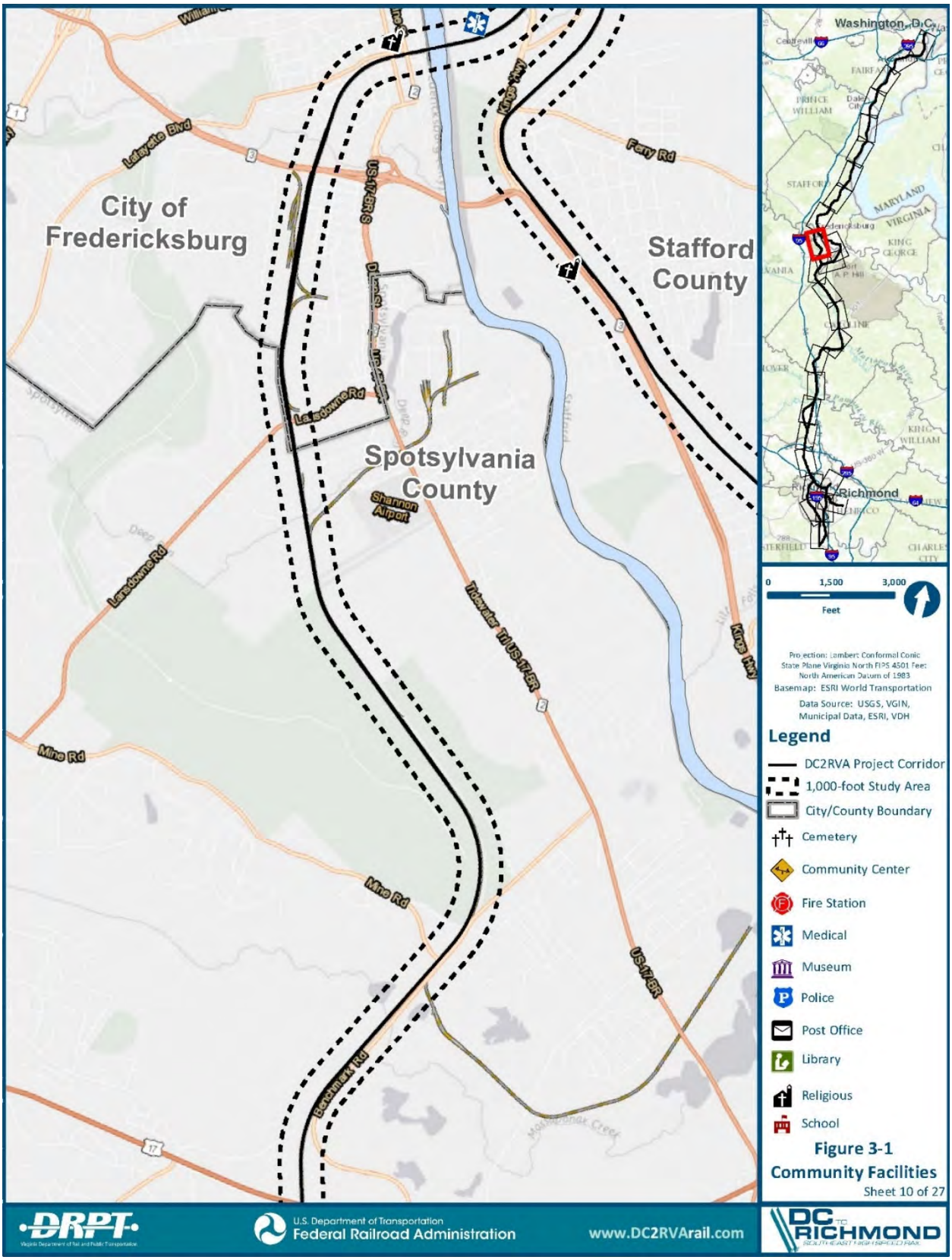
City of Fredericksburg
Stafford County
Spotsylvania County
Lafayette Blvd
Ferry Rd
Lansdowne Rd
Shannon Airport
Mine Rd
Jefferson Davis Hwy
Kings Hwy
Washington, D.C.
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North American Datum of 1983
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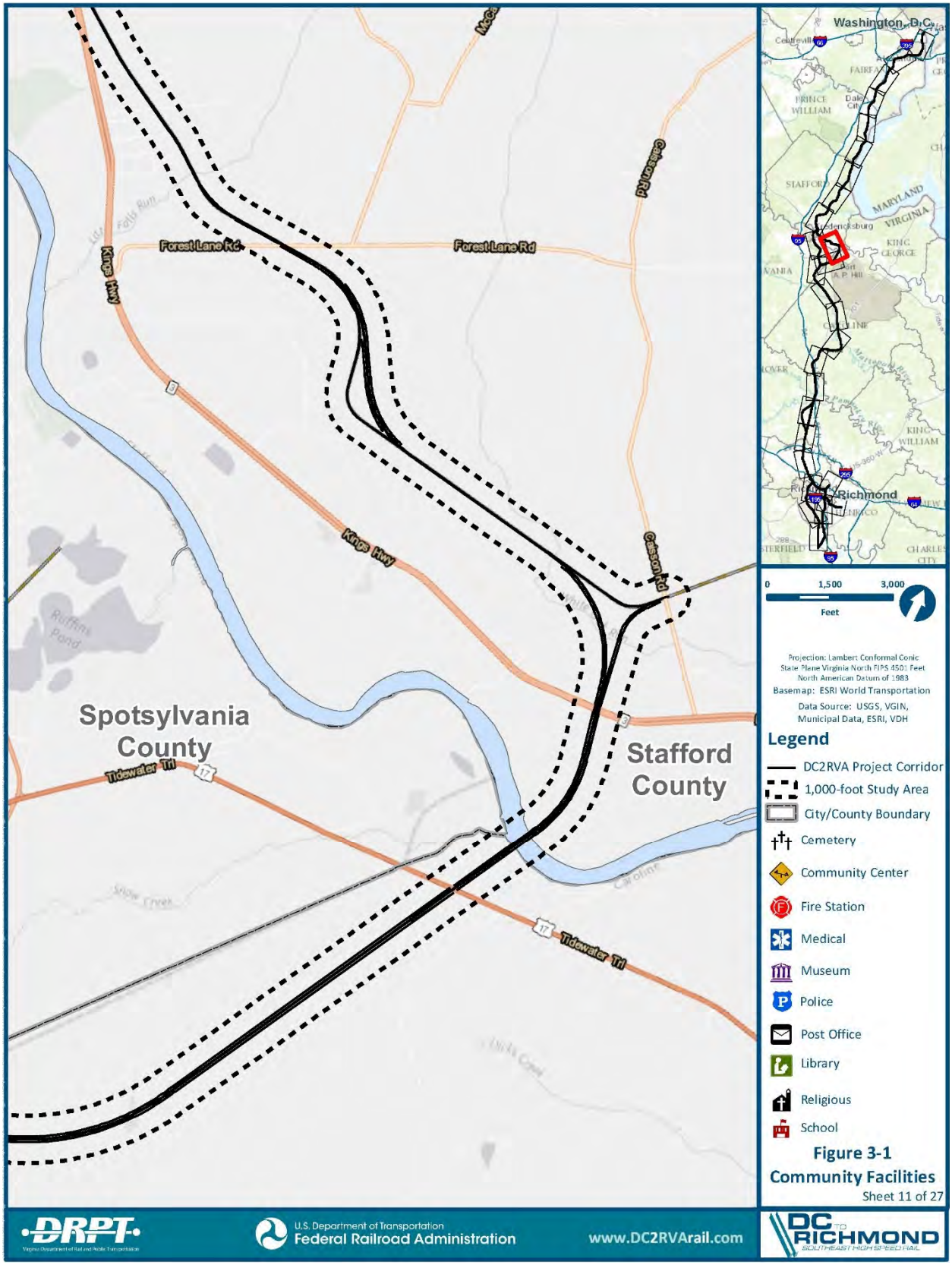
Forest Lane Rd
Forest Lane Rd
Gibson Rd
Kings Hwy
Kings Hwy
Gibson Rd
Spotsylvania County
Stafford County
Tidewater Trl
Tidewater Trl
Washington, D.C.
Richmond
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Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
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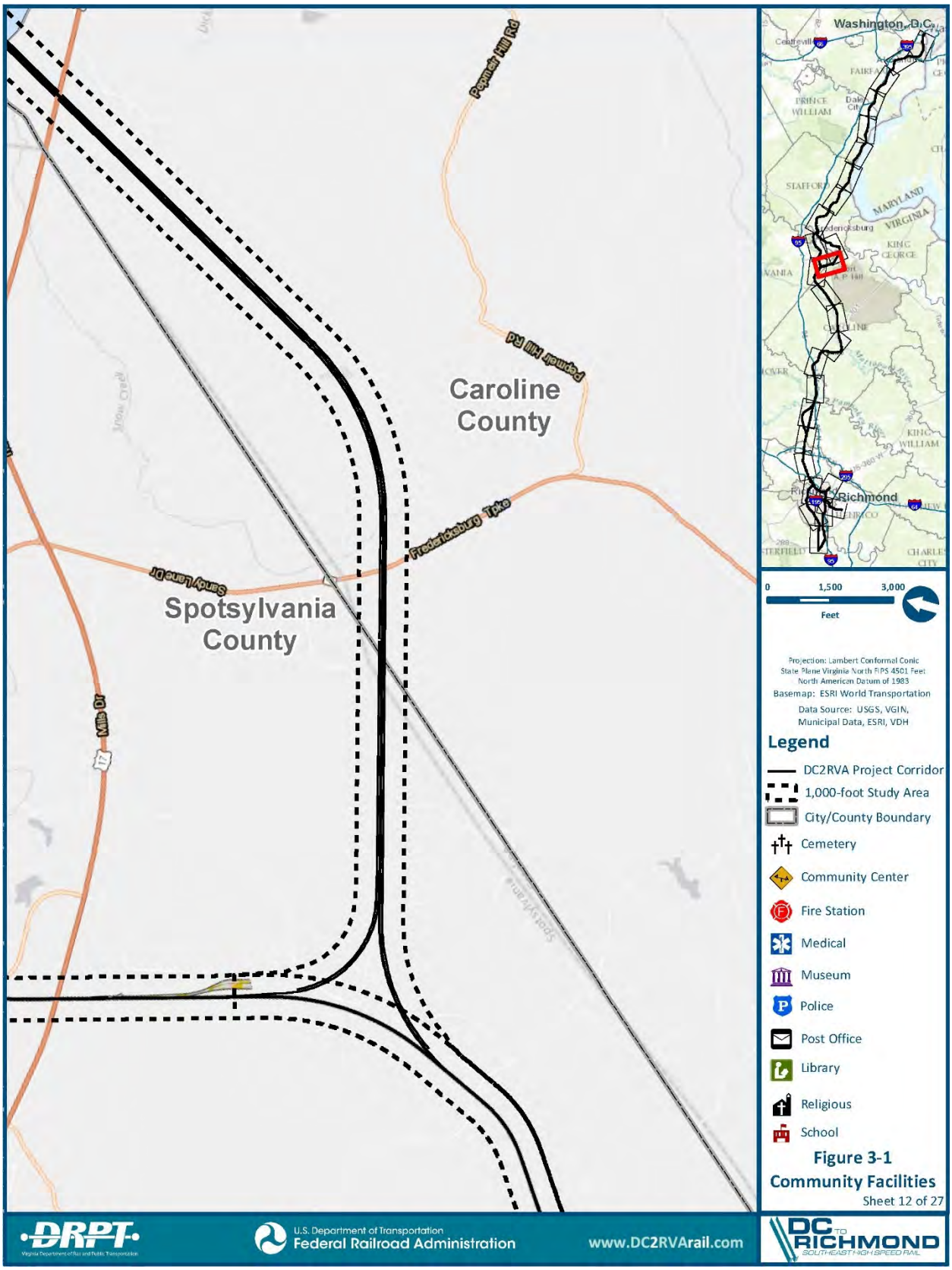
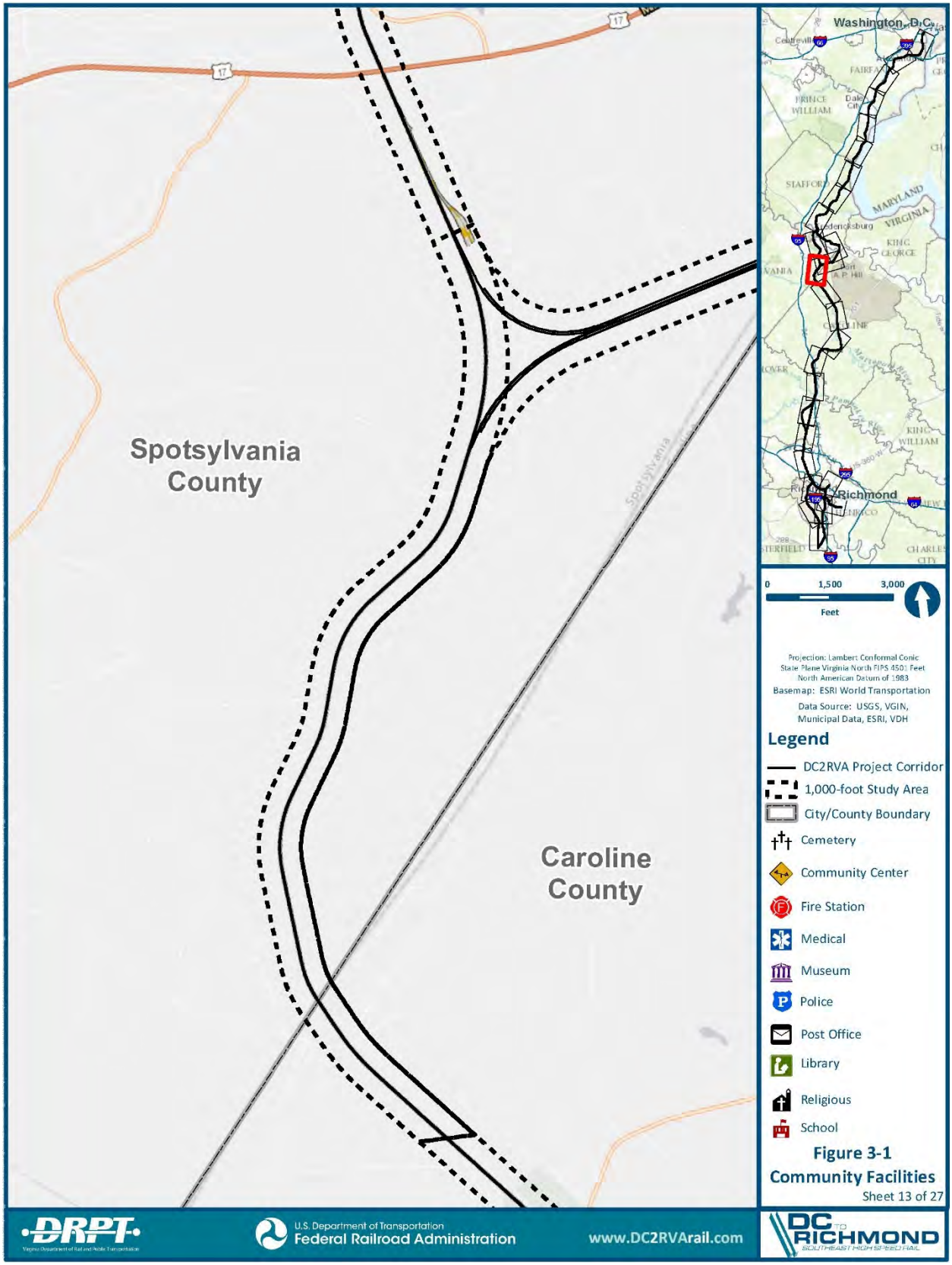
DC TO RICHMOND


Peppers Hill Rd
Peppers Hill Rd
Caroline County
Fredericksburg Tpke
Sandy Lane Dr
Spotsylvania County
Mills Dr
Washington, D.C.
Richmond
0
1,500
3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
Cemetery
Community Center
Fire Station
Medical
Museum
Police
Post Office
Library
Religious
School
Figure 3-1
Community Facilities
Sheet 12 of 27
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


Spotsylvania County
Caroline County
Washington, D.C.
Richmond
0
1,500
3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN, Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
Cemetery
Community Center
Fire Station
Medical
Museum
Police
Post Office
Library
Religious
School
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Community Facilities
Sheet 13 of 27
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND
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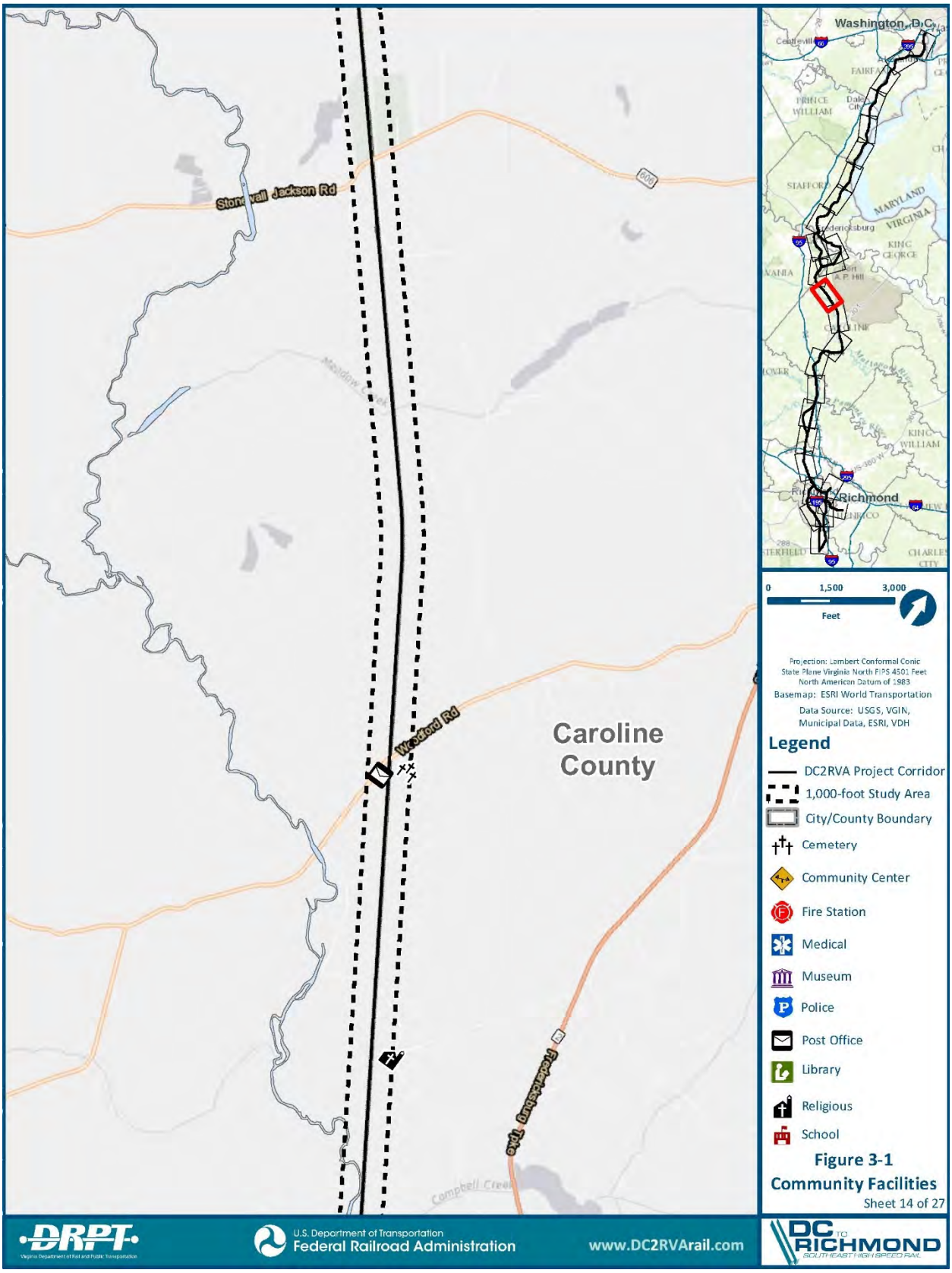
Stonewall Jackson Rd
Woodford Rd
Caroline County
Fredericksburg Pike
Washington, D.C.
Richmond
0
1,500
3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
Cemetery
Community Center
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Museum
Police
Post Office
Library
Religious
School
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DRPT
U.S. Department of Transportation
Federal Railroad Administration
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DC TO RICHMOND
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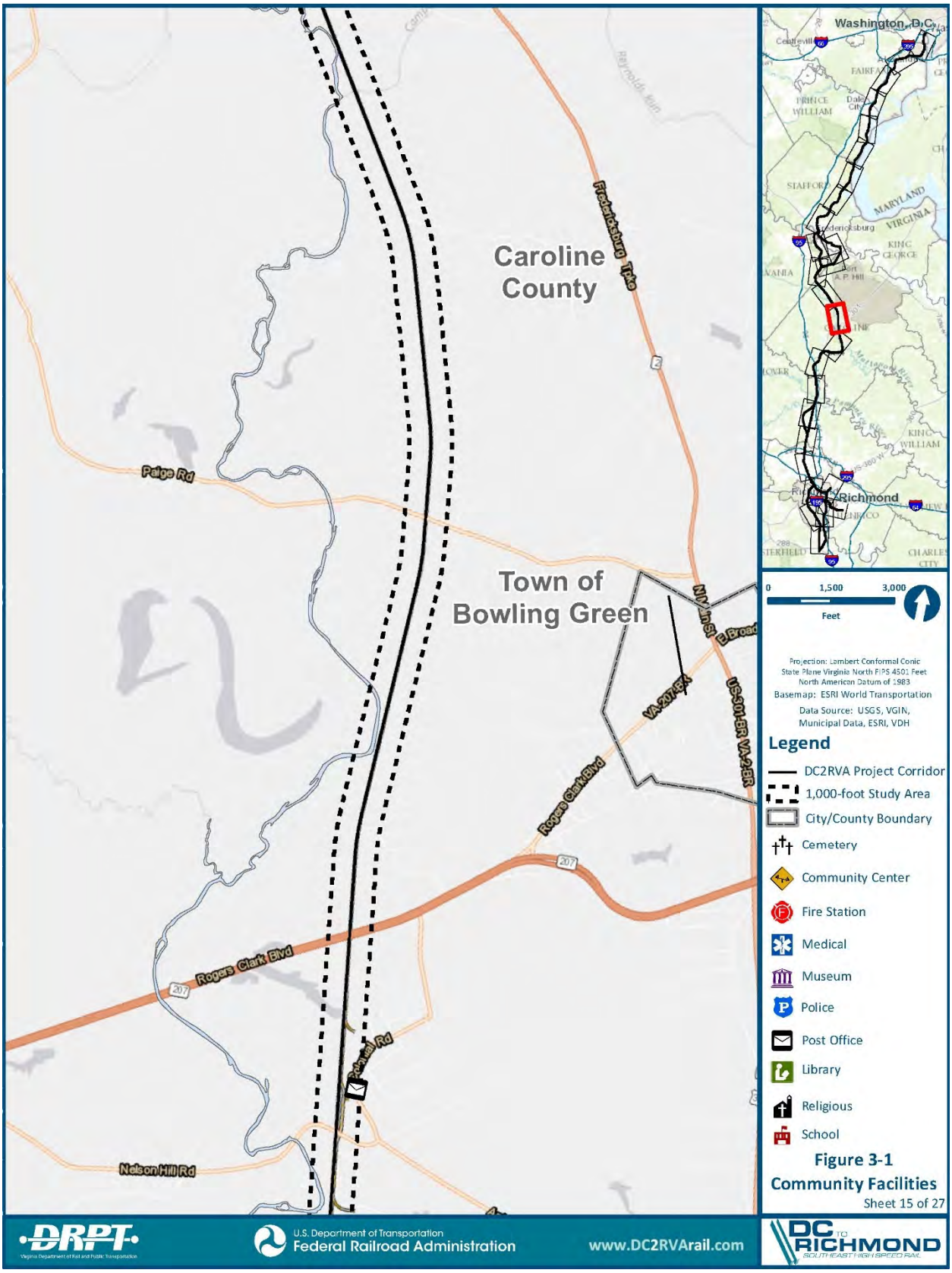
Caroline County
Town of Bowling Green
Fredericksburg Tpke
Paige Rd
Rogers Clark Blvd
Rogers Clark Blvd
Bethel Rd
Nelson Hill Rd
N Main St
E Broad
VA-207-BYP
US-301-BR VA-2-BR
207
2
Washington, D.C.
Richmond
0
1,500
3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
Cemetery
Community Center
Fire Station
Medical
Museum
Police
Post Office
Library
Religious
School
Figure 3-1
Community Facilities
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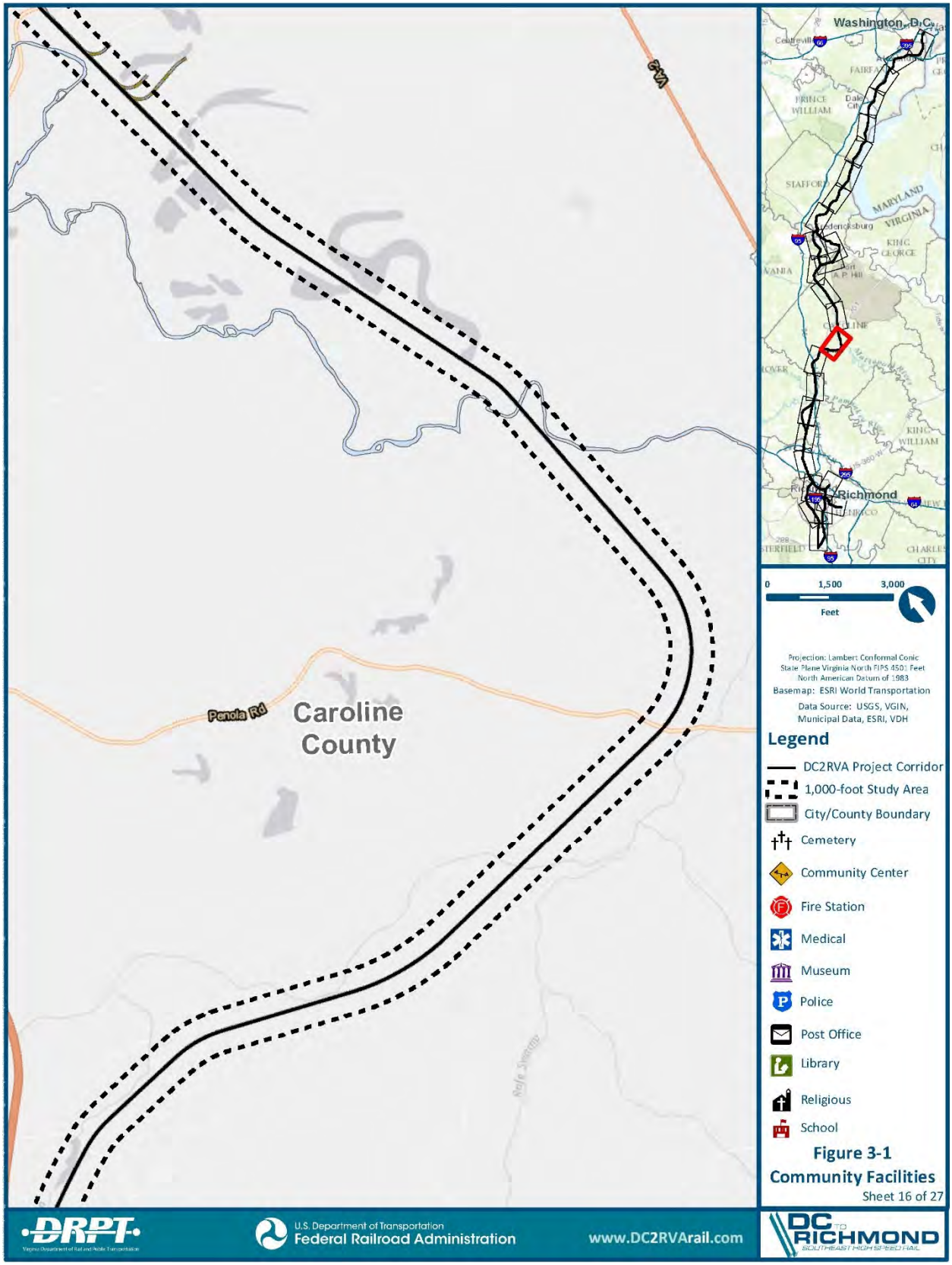
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


Washington, D.C.
Richmond
Penola Rd
Caroline
County
0
1,500
3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
Cemetery
Community Center
Fire Station
Medical
Museum
Police
Post Office
Library
Religious
School
Figure 3-1
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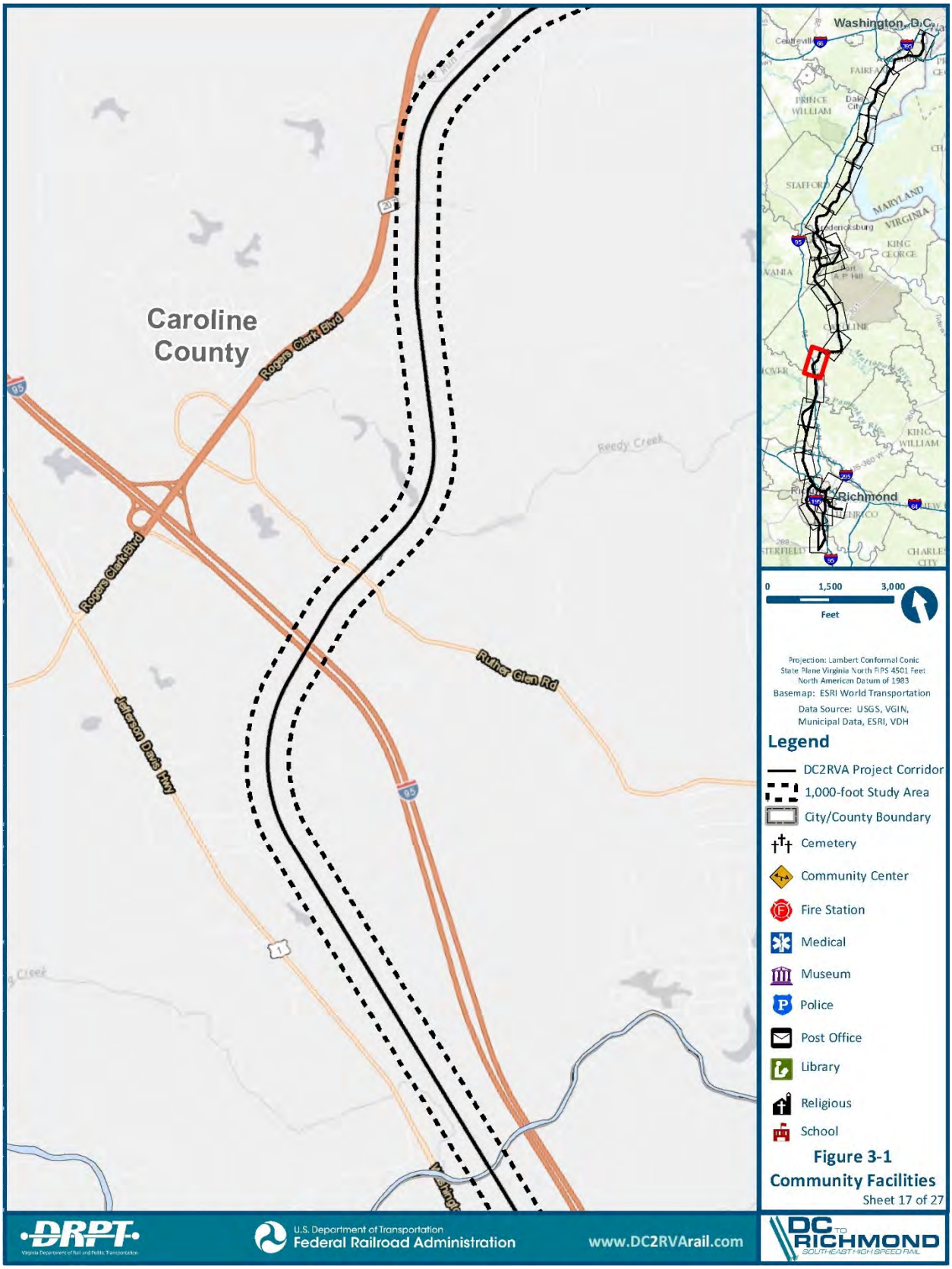
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND


Caroline County
Rogers Clark Blvd
Rogers Clark Blvd
Reedy Creek
Ruther Glen Rd
Jefferson Davis Hwy
Washington, D.C.
Richmond
0
1,500
3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
Cemetery
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Museum
Police
Post Office
Library
Religious
School
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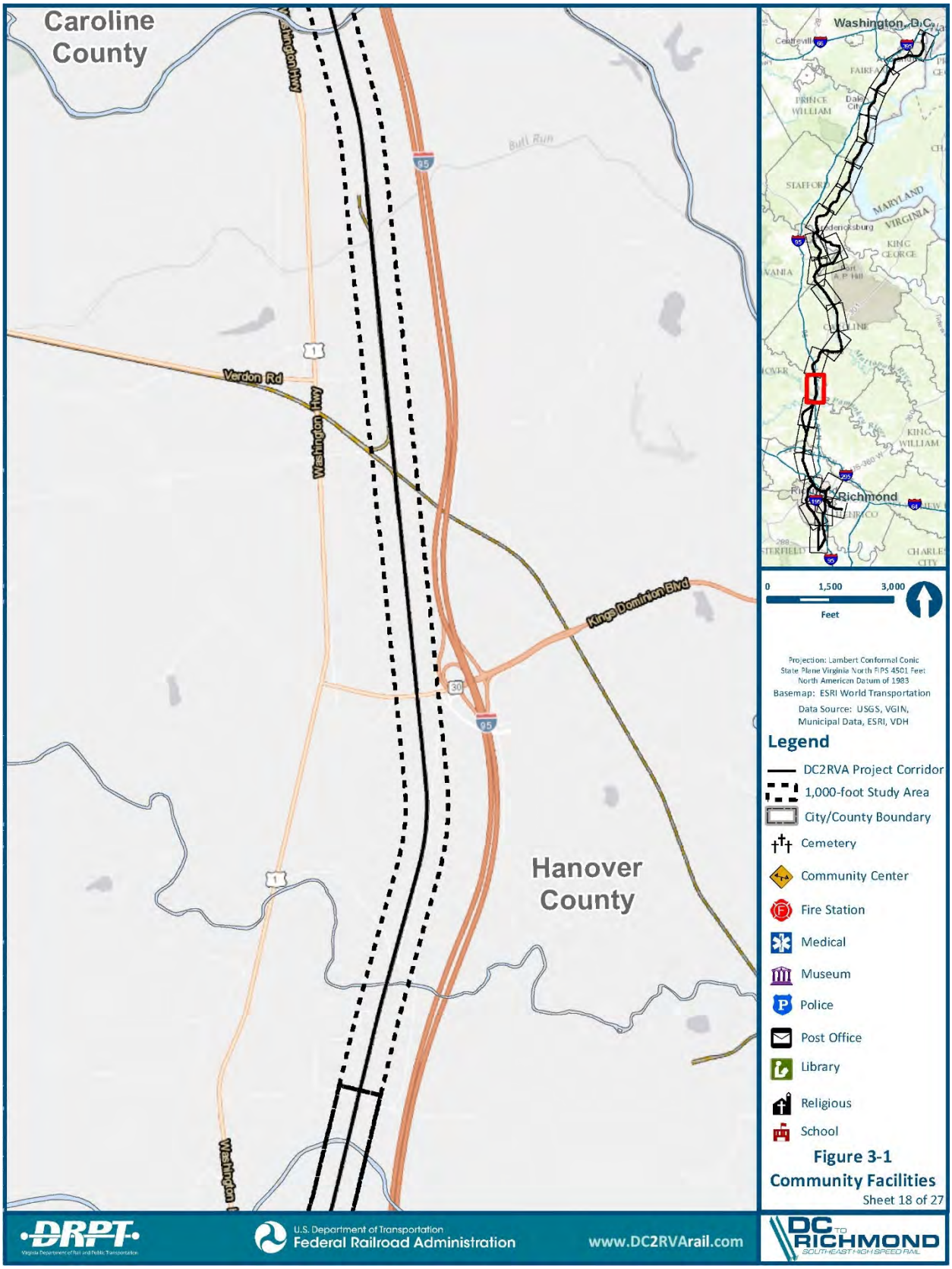
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


Caroline County
Hanover County
Verdon Rd
Washington Hwy
Kings Dominion Blvd
Bull Run
Washington D.C.
Richmond
0
1,500
3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
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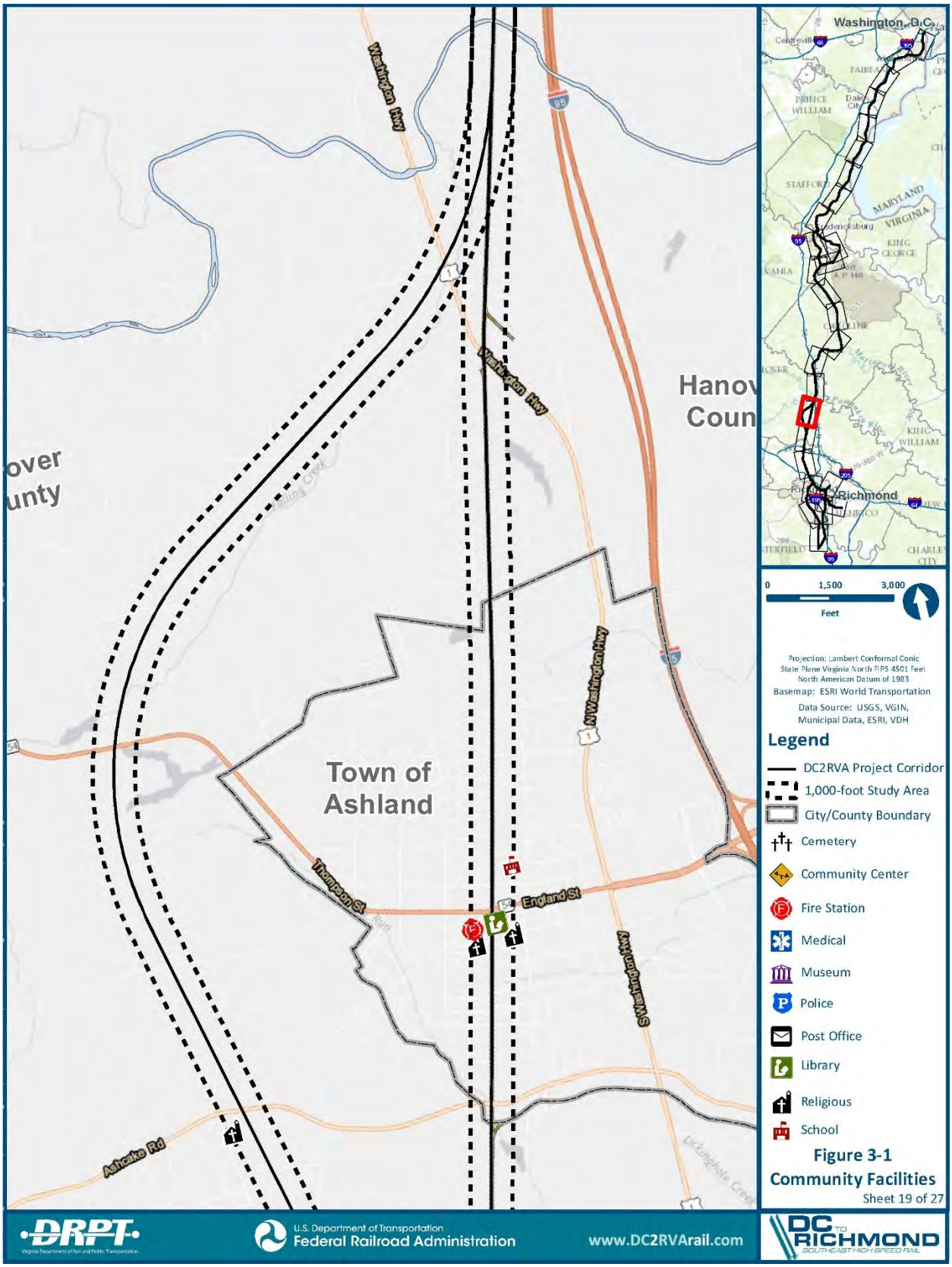
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


Washington Hwy
Washington Hwy
Hanov
Coun
over
unty
Town of
Ashland
N Washington Hwy
S Washington Hwy
Thompson St
England St
Ashcake Rd
Washington, D.C.
Richmond
0
1,500
3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
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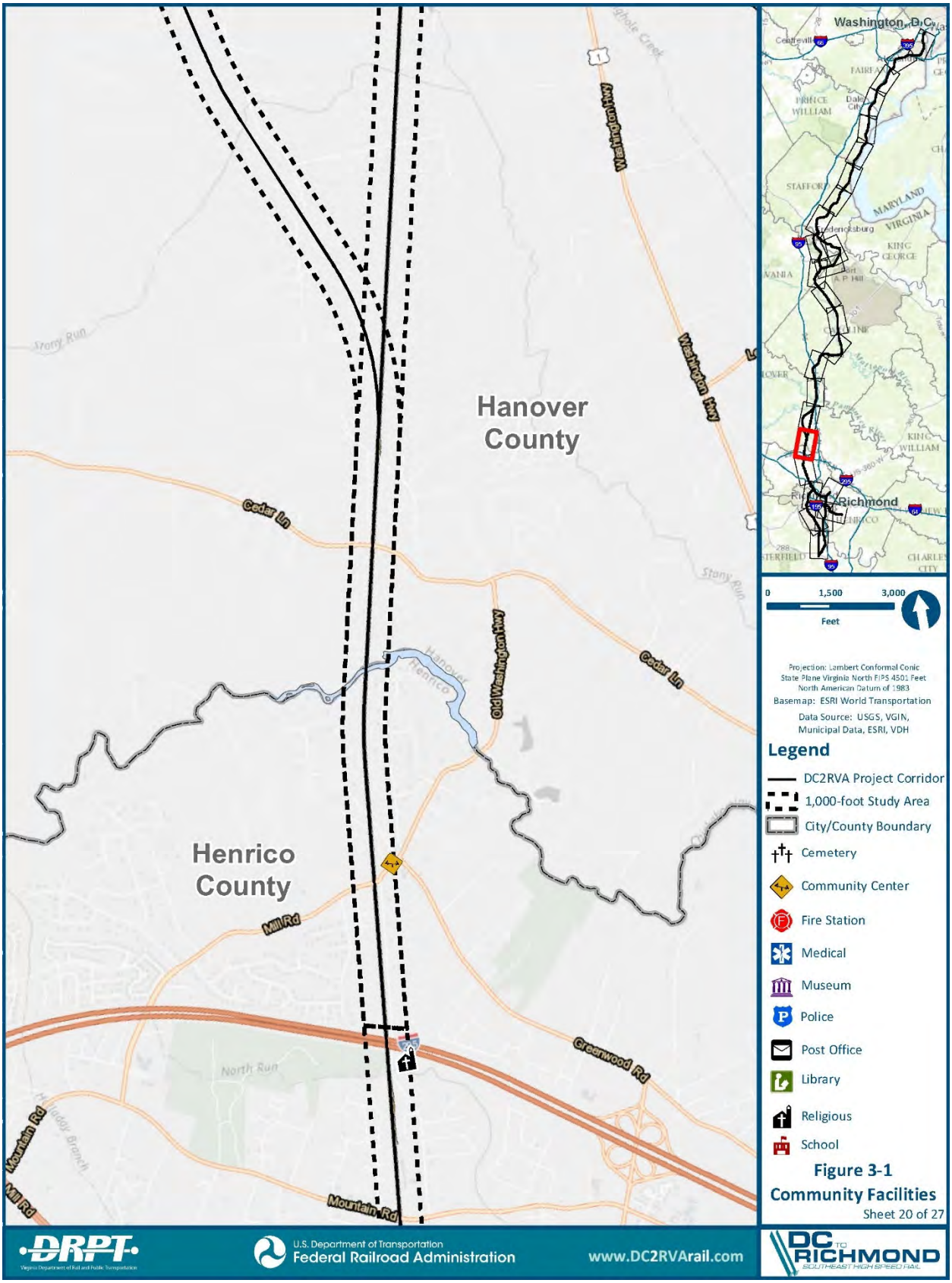
Community Facilities
Sheet 19 of 27
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


Hanover County
Henrico County
Washington Hwy
Old Washington Hwy
Cedar Ln
Mill Rd
Mountain Rd
Greenwood Rd
North Run
Stony Run
Washington, D.C.
Richmond
0
1,500
3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
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Cemetery
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Community Facilities
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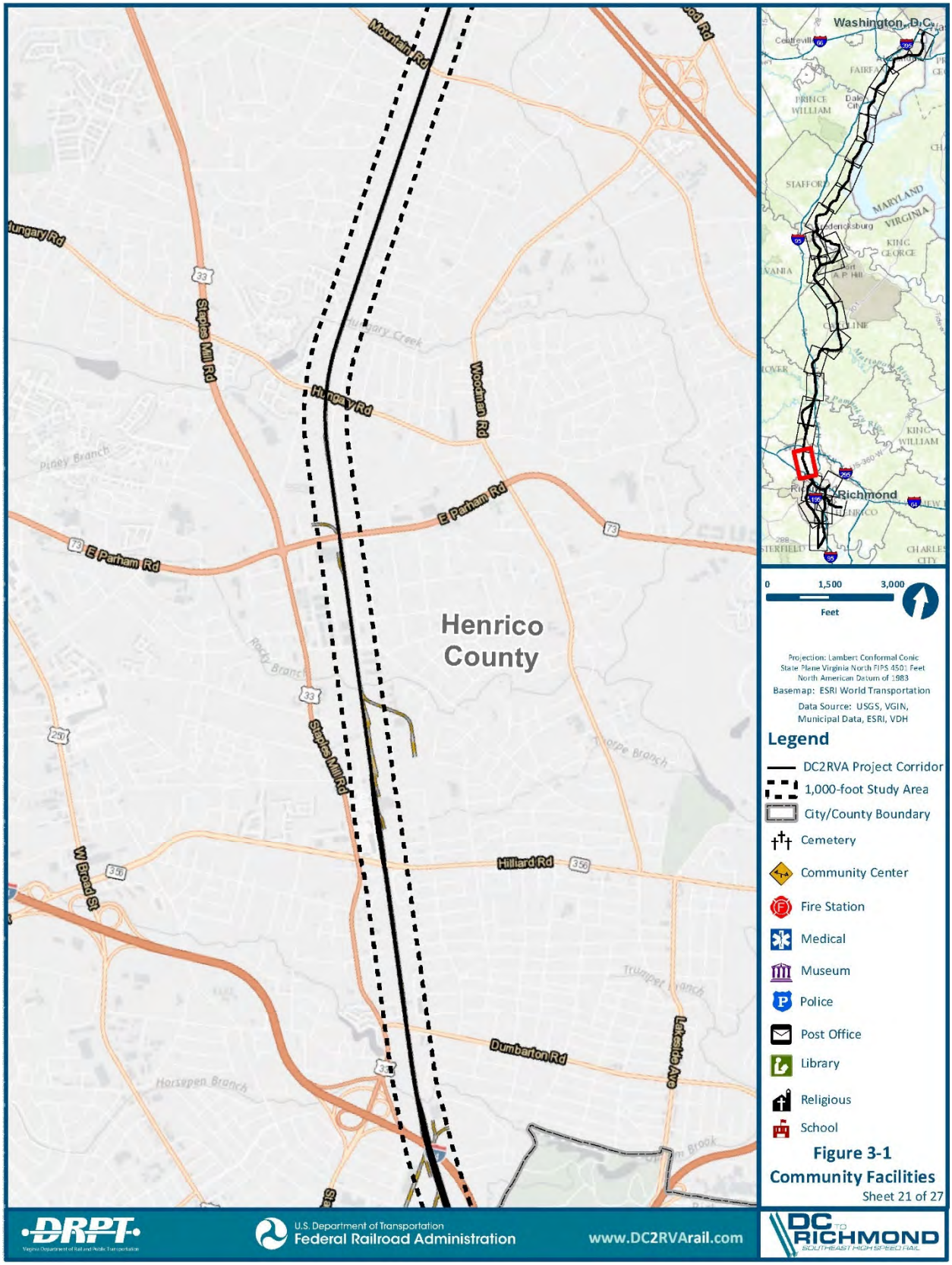
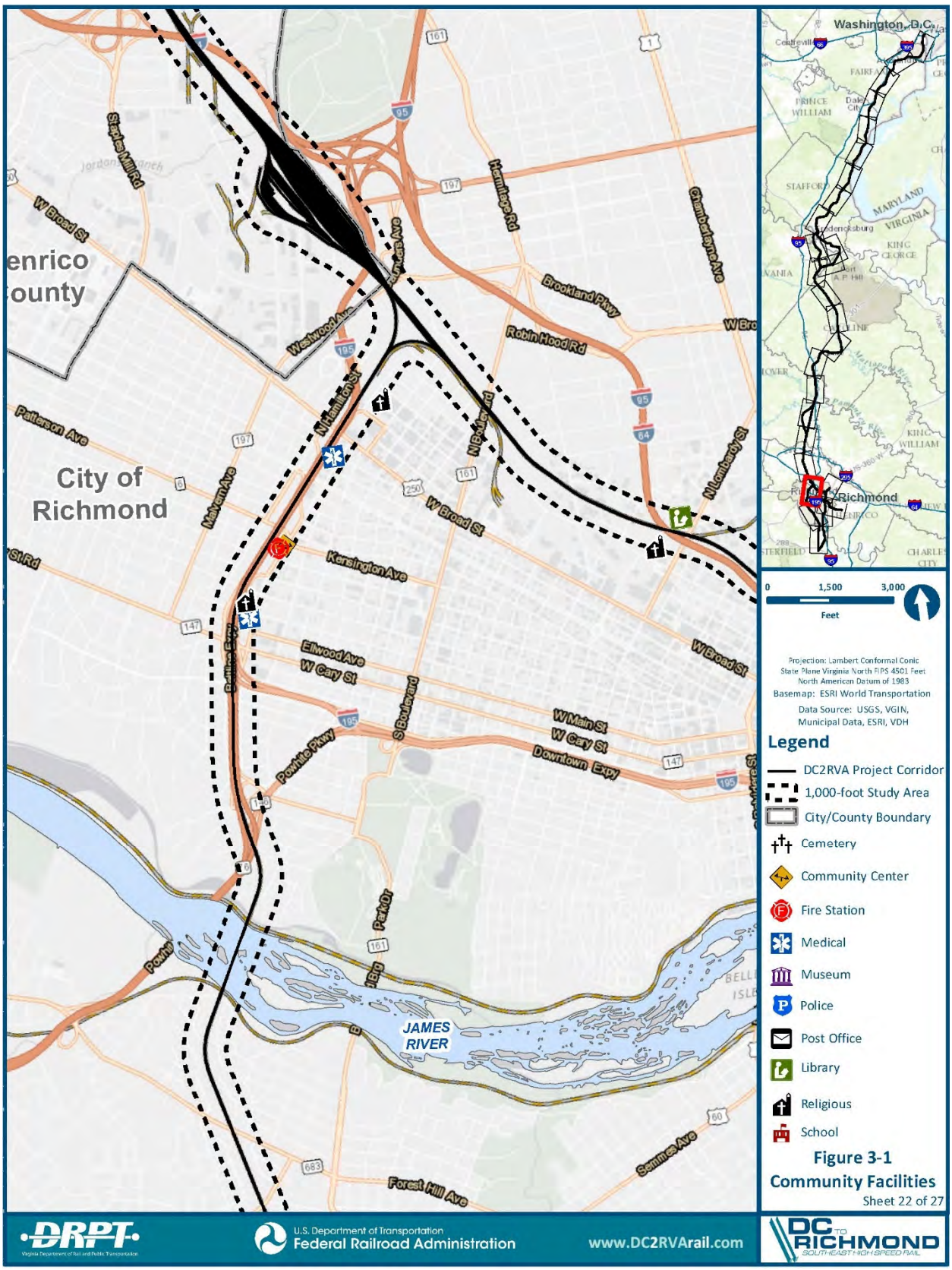
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


Mountain Rd
Staples Mill Rd
Hungary Rd
Woodman Rd
E Parham Rd
Henrico County
Hilliard Rd
W Broad St
Dumbarton Rd
Lakeside Ave
Staples Mill Rd
Washington, D.C.
Richmond
0
1,500
3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
Cemetery
Community Center
Fire Station
Medical
Museum
Police
Post Office
Library
Religious
School
Figure 3-1
Community Facilities
Sheet 21 of 27
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND


Washington, D.C.
Richmond
City of Richmond
enrico ounty
JAMES RIVER
W Broad St
Patterson Ave
Kensington Ave
Ellwood Ave
W Cary St
W Main St
Downtown Expy
Powhite Pkwy
Brookland Pkwy
Robin Hood Rd
Forest Hill Ave
Semmes Ave
Park Dr
Malvern Ave
Westwood Ave
Hermitage Rd
Chamberlayne Ave
N Lombardy St
S Boulevard
0 1,500 3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
Cemetery
Community Center
Fire Station
Medical
Museum
Police
Post Office
Library
Religious
School
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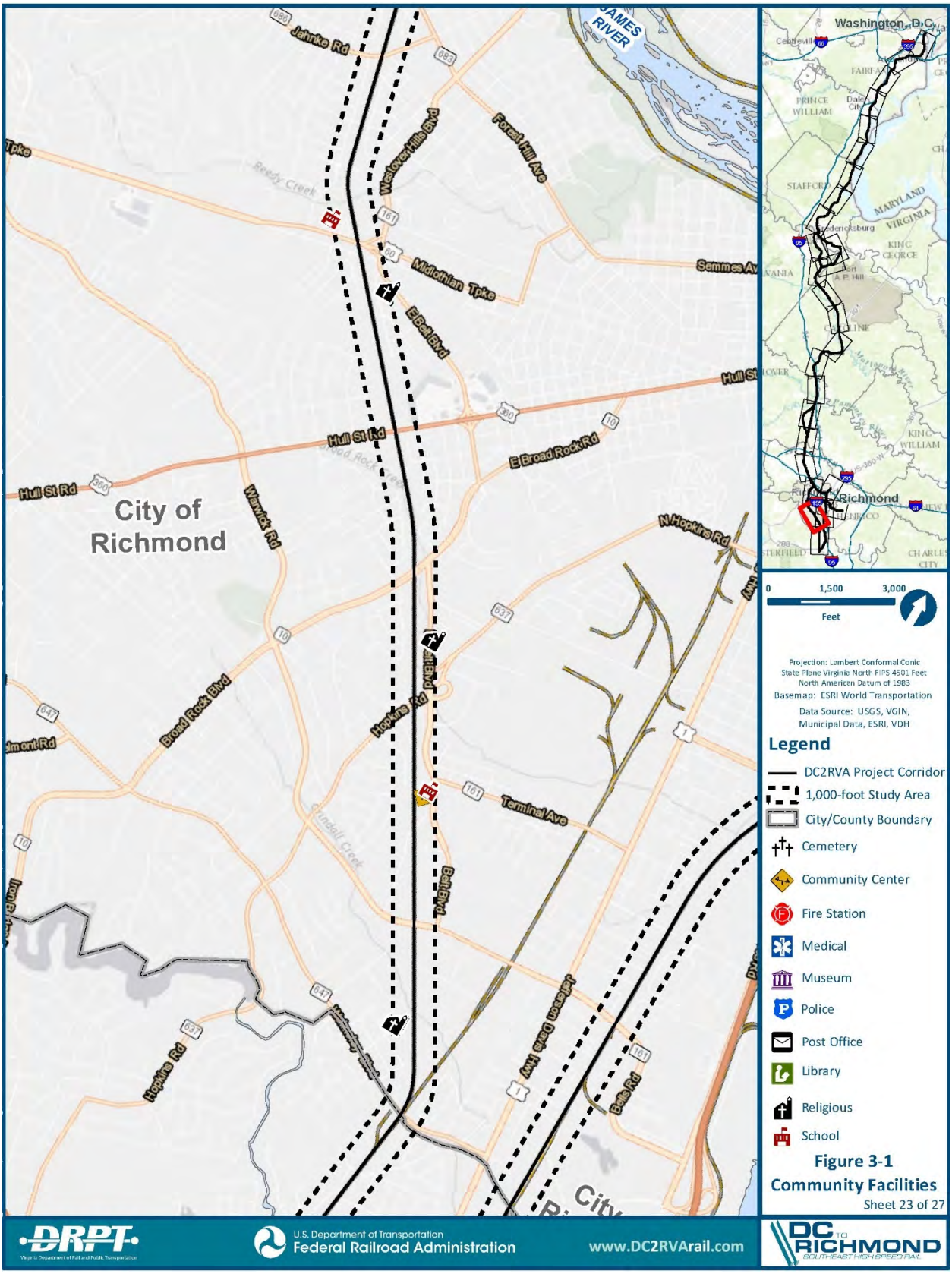
Sheet 22 of 27
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


City of Richmond
Jahnke Rd
Westover Hills Blvd
Forest Hill Ave
Midlothian Tpke
E Belt Blvd
Semmes Av
Hull St
Hull St Rd
E Broad Rock Rd
Warwick Rd
N Hopkins Rd
Broad Rock Blvd
Hopkins Rd
Terminal Ave
Belt Blvd
Jefferson Davis Hwy
Bells Rd
Washington, D.C.
Richmond
0 1,500 3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
Cemetery
Community Center
Fire Station
Medical
Museum
Police
Post Office
Library
Religious
School
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Community Facilities
Sheet 23 of 27
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND
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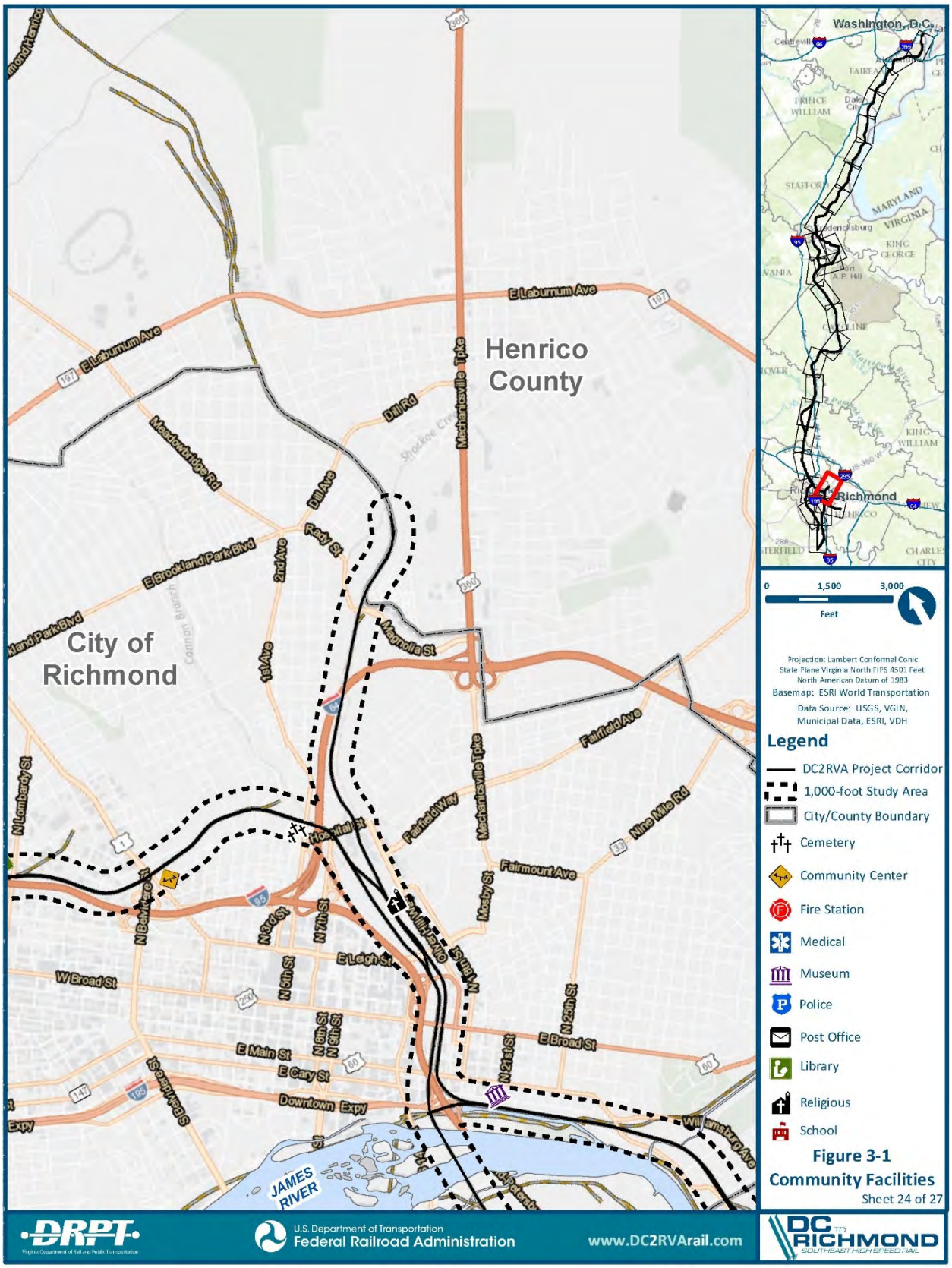
Henrico County
City of Richmond
E Laburnum Ave
Mechanicsville Tpke
Dill Rd
Meadowbridge Rd
Dill Ave
Rady St
E Brookland Park Blvd
2nd Ave
1st Ave
Magnolia St
Fairfield Ave
Fairfield Way
Nine Mile Rd
Fairmount Ave
Mosby St
Hospital St
N Lombardy St
N Belvidere St
N 3rd St
N 7th St
E Leigh St
W Broad St
N 5th St
N 6th St
N 8th St
N 25th St
E Broad St
E Main St
E Cary St
Downtown Expy
Shockoe Valley St
N 21st St
JAMES RIVER
Washington, D.C.
Richmond
0 1,500 3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
Cemetery
Community Center
Fire Station
Medical
Museum
Police
Post Office
Library
Religious
School
Figure 3-1
Community Facilities
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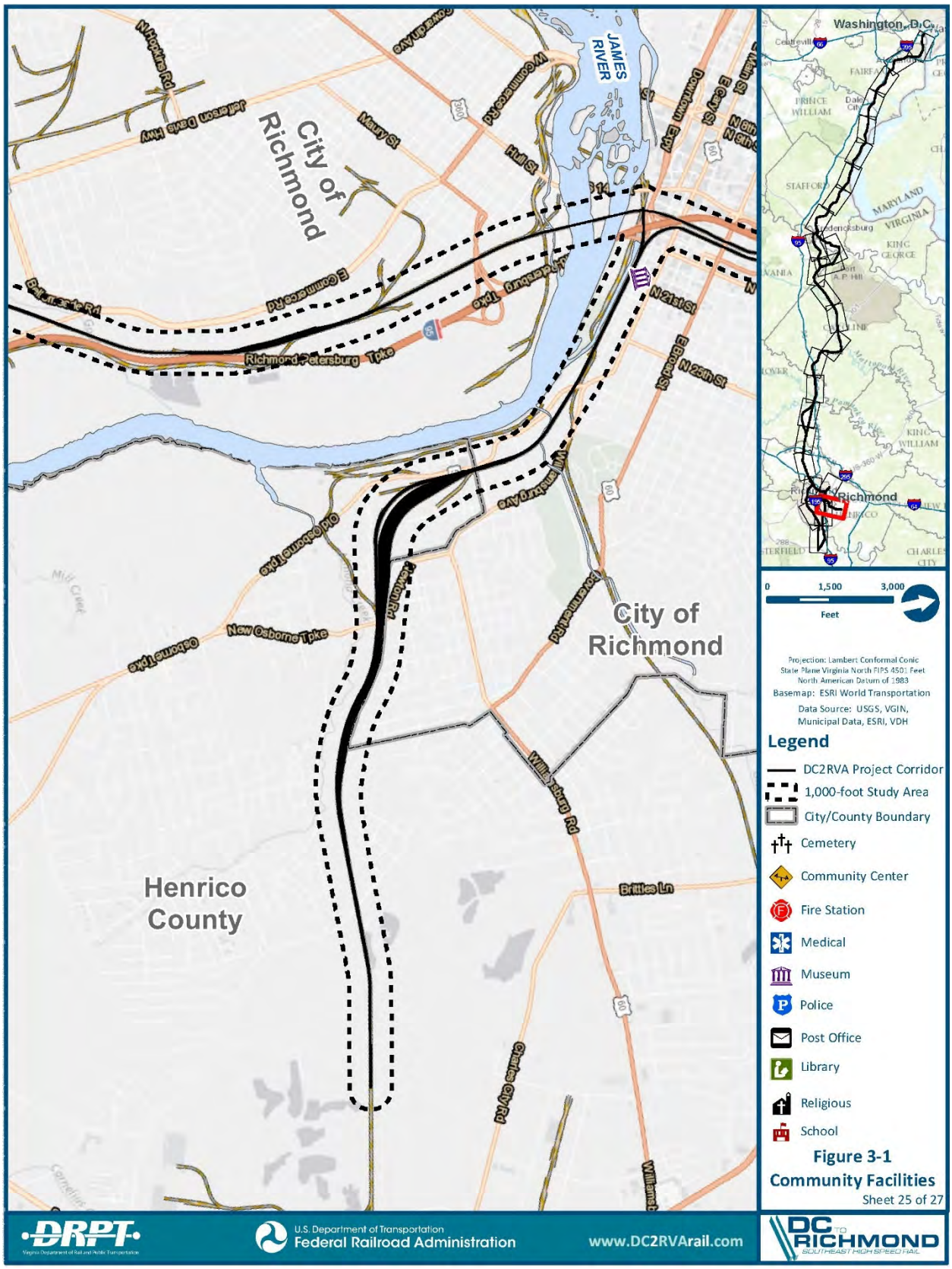
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


City of Richmond
Henrico County
JAMES RIVER
Jefferson Davis Hwy
Maury St
Hull St
Commerce Rd
Richmond-Petersburg Turpike
N 21st St
N 25th St
Mechanicsville Turpike
New Osborne Turpike
Osborne Turpike
Old Osborne Turpike
Williamsburg Rd
Brittles Ln
Charles City Rd
Washington, D.C.
Richmond
0 1,500 3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
Cemetery
Community Center
Fire Station
Medical
Museum
Police
Post Office
Library
Religious
School
Figure 3-1
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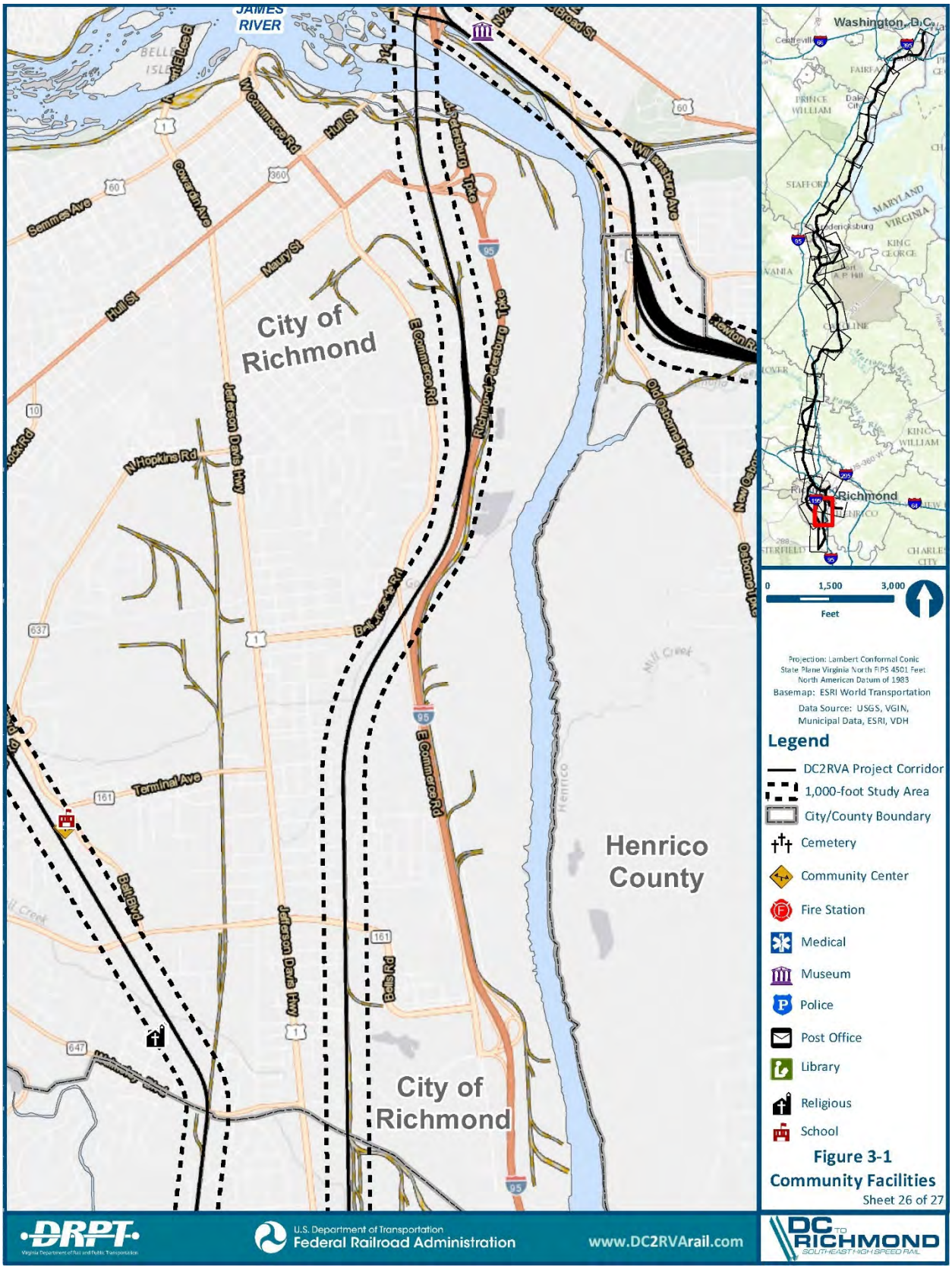
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


JAMES RIVER
City of Richmond
Henrico County
City of Richmond
Washington, D.C.
Richmond
0
1,500
3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
City/County Boundary
Cemetery
Community Center
Fire Station
Medical
Museum
Police
Post Office
Library
Religious
School
Figure 3-1
Community Facilities
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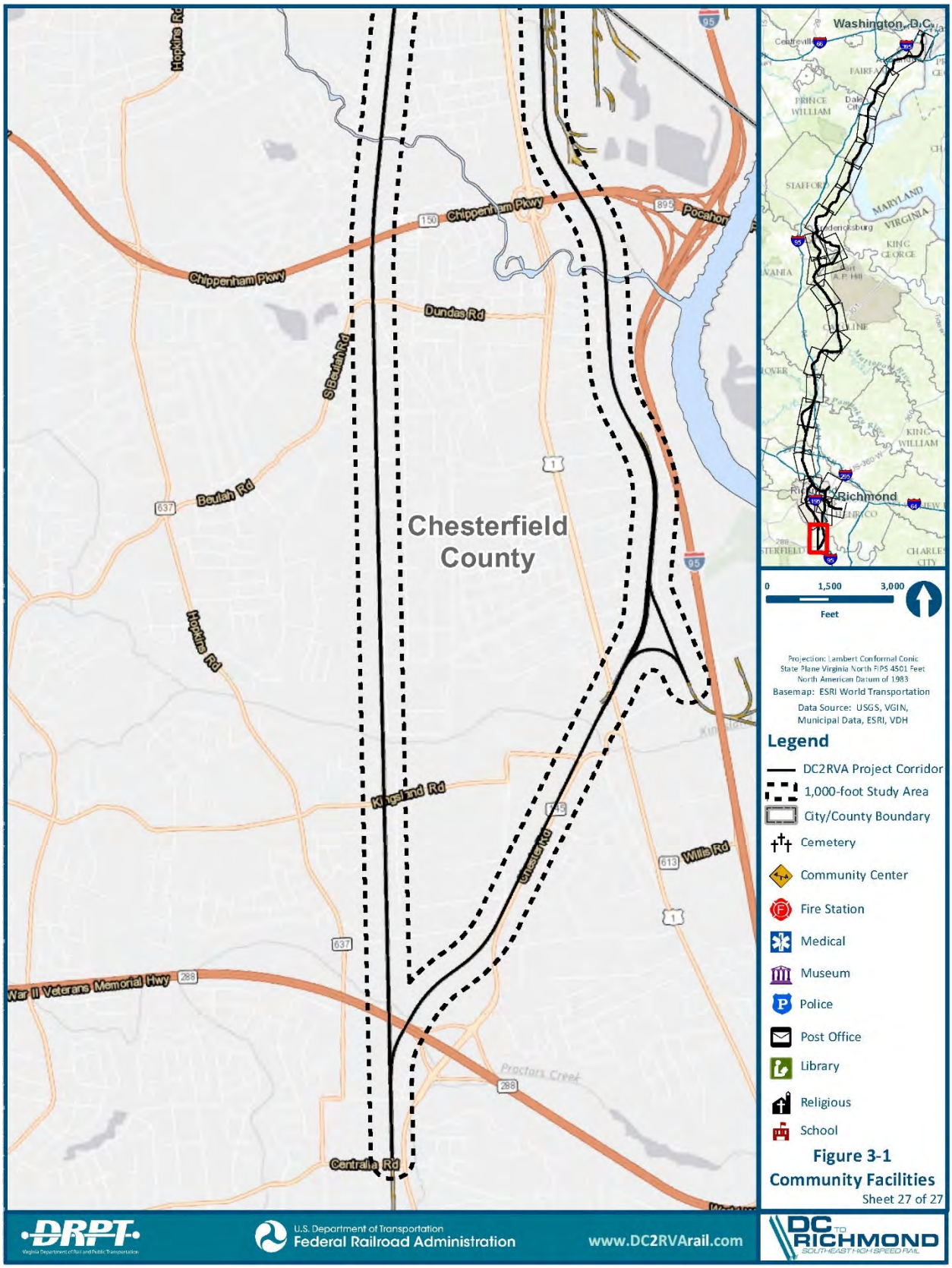
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL


Chesterfield County
Chippenham Pkwy
Chippenham Pkwy
Dundas Rd
Beulah Rd
Hopkins Rd
Hopkins Rd
Kingsland Rd
Willis Rd
Chesterfield
War II Veterans Memorial Hwy
Proctors Creek
Centralia Rd
Pocahontas
Washington, D.C.
Richmond
0
1,500
3,000
Feet
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: ESRI World Transportation
Data Source: USGS, VGIN,
Municipal Data, ESRI, VDH
Legend
DC2RVA Project Corridor
1,000-foot Study Area
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Museum
Police
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Library
Religious
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U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL

Table 3-4: Community Facilities

City/County	Cemetery	Fire Station	Medical Facility	Library	Police Station	Post Office	Religious Facility	School/ University	Community Center/ Museum
Arlington County	0	0	0	0	0	1	0	0	0
City of Alexandria	1	1	0	1	0	1	2	4	1
Fairfax County	0	0	0	0	0	0	0	0	0
Prince William County	1	2	0	0	1	1	1	1	1
Stafford County	2	1	1	0	0	0	4	1	0
City of Fredericksburg	0	0	0	0	0	0	4	1	0
Spotsylvania County	0	0	0	0	0	0	0	0	0
Caroline County	1	0	0	0	0	2	1	0	0
Hanover County	0	2	0	1	0	0	5	2	0
Henrico County	0	0	0	0	0	0	2	0	1
City of Richmond	3	1	3	1	2	0	13	10	5
Chesterfield County	0	0	0	0	0	0	0	2	0
Totals	8	7	4	3	3	5	32	21	8

Source: VDOT CEDAR data, 2016. City/County GIS databases. Virginia Department of Health, USGS, and ESRI databases. Field reviews, November, 2015 - May, 2016.

3.4 TITLE VI AND ENVIRONMENTAL JUSTICE

Title VI of the Civil Rights Act of 1964 states that "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Title VI bars intentional discrimination, as well as disparate impact discrimination (i.e., a neutral policy or practice that has an unequal impact on protected groups). Data collection to determine the presence of any Title VI groups has occurred as part of this Project.

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that each federal agency "shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." Minority persons include citizens or lawful permanent residents of the Unites States who are African-American, Hispanic or Latino, Asian-American, American Indian, or Native Alaskan. Low-income persons are defined as those whose median household income is below the United States Department of Health and Human Services (HHS) poverty guidelines.

EO 13166, *Improving Access to Services for Persons with Limited English Proficiency,* mandates that federal agencies "examine the services they provide, identify any need for services to those with limited English proficiency (LEP), and develop and implement a system to provide those services so LEP persons can have meaningful access to them" and "to ensure that the programs and activities that they [federal agencies] normally provide in English are accessible to LEP persons and thus do not discriminate on the basis of national origin in violation of Title VI of the Civil Rights Act of 1964, as amended, and its implementing regulations" (EO 13166). As part of EO 13166, the United States Department of Justice (DOJ) issued guidance for all federal agencies and departments on implementing the LEP regulations because of the connection between Title VI barring of discrimination based on national origin and EO 13166. The Council on Environmental Quality (CEQ) has compliance oversight regarding LEP regulations as part of NEPA compliance.

3.4.1 Methodology

Demographic data for the jurisdictions along the DC2RVA corridor were compiled to identify Title VI and low-income populations. As defined by Title VI and in the guidance for implementing EO 12898, minority populations include citizens or lawful permanent residents of the United States who, as defined by U.S. DOT Order 5610.2a, are:

- Black: A person having origins in any of the black racial groups of Africa;
- Hispanic or Latino: A person of Mexican, Puerto Rican, Cuban, Central, or South American or other Spanish culture or origin, regardless of race;
- Asian American: A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent;
- American Indian and Alaskan Native: A person having origins in any of the original people of North America or South America (including Central America) and who maintains cultural identification through tribal affiliation or community recognition; or
- Native Hawaiian and Other Pacific Islander: A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

The U.S. DOT defines low-income as "a person whose median household income is at or below the United States Department of Health and Human Services (HHS) poverty guidelines" (U.S. DOT, 5610.2[a]).

The U.S. DOT definition of a low-income population is "any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy, or activity" (U.S. DOT, 5610.2[a]).

The U.S. DOT definition of a minority population is "any readily identifiable groups of minority persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy, or activity" (U.S. DOT, 5610.2[a]).

3.4.2 Title VI and Environmental Justice Populations

The jurisdictions along the DC2RVA corridor have a wide range of demographic data (Table 3-5). Two jurisdictions — Prince William County and the City of Richmond — contain minority

populations that are more than 50 percent of the population. Low-income populations within the jurisdictions range from 5 to 25 percent. Persons with LEP range from a low of 1 percent in Caroline and Hanover counties to a high of more than 14 percent in Fairfax County. Persons with a disability range from 5 to 15 percent of the population.

Table 3-5: City/County Demographic Data in 2013

City/County	Minorities (%)	Low-Income (%)	Total LEP (%)*	Disabled (%)**
Arlington County	78,231 (36.41%)	16,899 (7.97%)	17,092 (8.44%)	10,939 (5.20%)
City of Alexandria	67,406 (46.91%)	11,980 (8.42%)	15,747 (11.82%)	9,013 (6.41%)
Fairfax County	507,651 (46.11%)	64,274 (5.89%)	150,041 (14.61%)	69,834 (6.42%)
Prince William County	217,574 (52.22%)	26,045 (6.34%)	45,533 (11.90%)	27,867 (6.84%)
Stafford County	43,431 (32.93%)	6,549 (5.12%)	5,051 (4.10%)	9,619 (7.67%)
City of Fredericksburg	10,331 (39.84%)	4,342 (18.57%)	1,145 (4.75%)	2,388 (9.30%)
Spotsylvania County	35,153 (28.28%)	9,383 (7.59%)	3,868 (3.33%)	12,901 (10.46%)
Caroline County	10,482 (36.45%)	3,444 (12.66%)	391 (1.45%)	3,831 (14.01%)
Hanover County	15,064 (15.01%)	5,019 (5.12%)	1,209 (1.27%)	10,187 (10.26%)
Henrico County	135,489 (43.52%)	32,877 (10.69%)	16,709 (5.74%)	30,749 (9.96%)
City of Richmond	125,893 (60.56%)	50,681 (25.61%)	8,834 (4.54%)	31,613 (15.40%)
Chesterfield County	112,981 (35.26%)	21,240 (6.74%)	12,601 (4.19%)	30,605 (9.64%)
Totals	**1,359,686 (43.48%)**	**252,733 (8.21%)**	**278,221 (9.54%)**	**249,546 (8.11%)**

Source: U.S. Census Bureau: 2009-2013 American Community Survey.

Note: * Limited English Proficiency is based on the population aged 5 years and over.

** Census disability is based on the civilian non-institutionalized population with a self-identified disability.

Individual census tracts (Table 3-6) were compared to the jurisdiction in which they are situated. Those census tracts with any groups greater than 50 percent of the population are highlighted in orange. Those tracts with groups greater than their respective city/county are highlighted in yellow. Any group with less than 50 persons is not displayed in accordance with United States Census Bureau guidance on privacy. The predominant language spoken by those persons who speak English less than very well is identified in Table 3-6. There is a wide spectrum of each demographic group. Minorities predominate in census tracts in Fairfax County, Prince William County, Henrico County, the city of Richmond, and Chesterfield County. Low-income persons predominate in Prince William County, Caroline County, Hanover County, the city of Richmond, and Chesterfield County. Persons with LEP predominate in Fairfax County, Prince William County, and Chesterfield County. Persons with a disability predominate in Henrico County, the city of Richmond, and Chesterfield County. Figure 3-2 also identifies the census tracts that are highlighted in Table 3-6.

Census tracts can have data that vary widely from other tracts based on their unique geographies. High populations in group quarters such as college dormitories, retirement communities, and correctional facilities, can affect data. For example, Census Tract 102.01 in Stafford County is

MCBQ. Census Tract 2007.01 in Alexandria is predominantly a rail yard and commercial properties. Some of the census tract boundaries are also along existing roadways (i.e., sides of the same street are in separate census tracts); therefore, they may not give the most accurate picture of a community. In several jurisdictions, the CSXT rail line is the boundary between census tracts

Table 3-6: Census Tract Demographic Data in 2013

Census Tract	Total Population	Minorities (%)	Low-Income (%)	Total LEP (%)* Language(s) Spoken	Disabled (%)**
Census Tract 1034.02, Arlington County	4,981	1,697 (34.07%)	229 (4.60%)	192 (3.97%)	239 (5.11%)
Census Tract 2004.03, City of Alexandria	1,401	647 (46.18%)	–	111 (8.40%)	99 (7.56%)
Census Tract 2006, City of Alexandria	5,092	3,211 (63.06%)	443 (8.70%)	909 (18.93%) Spanish (625) Chinese (138)	577 (11.40%)
Census Tract 2007.01, City of Alexandria	708	175 (24.72%)	–	–	–
Census Tract 2007.02, City of Alexandria	4,258	1,233 (28.96%)	181 (4.65%)	219 (5.30%)	151 (3.99%)
Census Tract 2008.02, City of Alexandria	3,015	1,228 (40.73%)	375 (12.44%)	163 (5.78%)	228 (7.56%)
Census Tract 2013, City of Alexandria	3,360	976 (29.05%)	291 (8.66%)	232 (7.55%)	260 (7.79%)
Census Tract 2015, City of Alexandria	3,744	504 (13.46%)	60 (1.75%)	54 (1.57%)	120 (3.54%)
Census Tract 2016, City of Alexandria	4,774	2,128 (44.57%)	1,072 (22.46%)	–	266 (5.75%)
Census Tract 2018.01, City of Alexandria	5,351	1,446 (27.02%)	228 (4.26%)	162 (3.17%)	211 (4.06%)
Census Tract 2019, City of Alexandria	1,576	249 (15.80%)	70 (4.44%)	–	105 (6.84%)
Census Tract 4201, Fairfax County	4,206	2,935 (69.78%)	772 (18.35%)	1,211 (32.22%) Spanish (513) Vietnamese (220)	314 (7.50%)
Census Tract 4202.01, Fairfax County	3,682	1,817 (49.35%)	103 (2.81%)	414 (12.01%)	232 (6.43%)
Census Tract 4202.02, Fairfax County	2,115	1,063 (50.26%)	108 (5.11%)	152 (7.56%)	98 (4.65%)
Census Tract 4202.03, Fairfax County	2,615	1,092 (41.76%)	183 (7.00%)	186 (7.48%)	191 (7.43%)
Census Tract 4203, Fairfax County	5,593	2,349 (42.00%)	119 (2.13%)	699 (13.31%)	377 (6.87%)
Census Tract 4210.01, Fairfax County	3,097	1,807 (58.35%)	147 (4.75%)	666 (23.92%) Spanish	201 (6.61%)
Census Tract 4210.02, Fairfax County	5,210	3,169 (60.83%)	401 (7.74%)	1,156 (23.60%) Spanish (409) Vietnamese (104)	351 (6.86%)
Census Tract 4211.01, Fairfax County	5,950	3,405 (57.23%)	72 (1.22%)	729 (13.21%)	189 (3.24%)

▶ *Continued* – Above 50%; Greater than respective jurisdiction. *(see end of table for detailed notes.)*

Table 3-6: Census Tract Demographic Data in 2013

Census Tract	Total Population	Minorities (%)	Low-Income (%)	Total LEP (%)* Language(s) Spoken	Disabled (%)**
Census Tract 4211.03, Fairfax County	5,004	1,726 (34.49%)	–	433 (9.30%)	183 (3.72%)
Census Tract 4220, Fairfax County	3,881	2,229 (57.43%)	192 (5.15%)	644 (17.83%) Spanish	356 (9.72%)
Census Tract 4221.01, Fairfax County	6,516	4,368 (67.03%)	236 (3.63%)	1,007 (17.20%) Spanish (360) Vietnamese (175)	298 (4.72%)
Census Tract 4221.02, Fairfax County	6,676	5,472 (81.97%)	165 (2.47%)	1,462 (24.07%) Spanish (518) Tagalog (202)	430 (6.52%)
Census Tract 4526, Fairfax County	5,849	3,532 (60.39%)	401 (6.90%)	1,291 (23.83%) Spanish	370 (6.50%)
Census Tract 9001, Prince William County	3,449	1,434 (41.58%)	178 (5.16%)	181 (5.58%)	253 (7.51%)
Census Tract 9002.01, Prince William County	1,922	1,329 (69.15%)	282 (14.76%)	503 (28.40%) Spanish	180 (9.65%)
Census Tract 9002.02, Prince William County	4,493	3,211 (71.47%)	576 (12.82%)	1,363 (32.16%) Spanish	423 (9.48%)
Census Tract 9002.03, Prince William County	4,431	3,651 (82.40%)	668 (15.08%)	822 (21.06%) Spanish	343 (7.86%)
Census Tract 9006, Prince William County	7,511	5,756 (76.63%)	1,924 (26.11%)	2,350 (35.04%) Spanish	367 (4.93%)
Census Tract 9007.01, Prince William County	5,553	4,046 (72.86%)	329 (5.92%)	475 (9.57%)	531 (9.75%)
Census Tract 9007.02, Prince William County	8,022	4,486 (55.92%)	535 (6.67%)	1,610 (22.23%) Spanish (1,226) Korean (118)	300 (3.80%)
Census Tract 9008.01, Prince William County	5,484	3,288 (59.96%)	159 (2.90%)	148 (2.87%)	299 (5.63%)
Census Tract 9008.02, Prince William County	6,773	5,730 (84.60%)	719 (10.62%)	625 (10.22%)	538 (8.09%)
Census Tract 9009.04, Prince William County	5,328	3,868 (72.60%)	415 (7.87%)	503 (9.98%)	282 (5.37%)
Census Tract 9011, Prince William County	6,994	2,496 (35.69%)	247 (5.12%)	290 (4.94%)	166 (4.24%)
Census Tract 101.05, Stafford County	7,507	2,839 (37.82%)	441 (5.87%)	628 (9.22%) Spanish	511 (7.02%)
Census Tract 101.06, Stafford County	3,178	240 (7.55%)	79 (2.56%)	–	293 (9.77%)
Census Tract 101.07, Stafford County	3,017	525 (17.40%)	100 (3.31%)	–	274 (9.26%)
Census Tract 102.01, Stafford County	2,315	883 (38.14%)	–	–	–
Census Tract 104.03, Stafford County	2,899	707 (24.39%)	116 (4.02%)	108 (3.96%)	261 (9.11%)

▶ *Continued* – Above 50%; Greater than respective jurisdiction. *(see end of table for detailed notes.)*

Table 3-6: Census Tract Demographic Data in 2013

Census Tract	Total Population	Minorities (%)	Low-Income (%)	Total LEP (%)* Language(s) Spoken	Disabled (%)**
Census Tract 104.04, Stafford County	6,289	1,806 (28.72%)	348 (5.57%)	92 (1.55%)	538 (8.75%)
Census Tract 104.05, Stafford County	6,350	1,722 (27.12%)	101 (1.59%)	64 (1.08%)	476 (7.65%)
Census Tract 104.06, Stafford County	3,086	1,030 (33.38%)	382 (12.42%)	56 (1.89%)	293 (9.62%)
Census Tract 105.02, Stafford County	4,381	626 (14.29%)	126 (2.93%)	57 (1.38%)	351 (8.21%)
Census Tract 105.04, Stafford County	1,584	142 (8.96%)	155 (9.83%)	–	249 (15.78%)
Census Tract 1, City of Fredericksburg	2,948	642 (21.78%)	345 (11.70%)	–	310 (10.53%)
Census Tract 3.02, City of Fredericksburg	4,849	1,618 (33.37%)	841 (17.34%)	156 (3.48%)	368 (7.75%)
Census Tract 4, City of Fredericksburg	2,935	1,838 (62.62%)	498 (17.43%)	–	478 (16.70%)
Census Tract 202.01, Spotsylvania County	5,640	2,129 (37.75%)	520 (9.22%)	325 (6.11%) Spanish	338 (5.99%)
Census Tract 202.02, Spotsylvania County	5,045	1,710 (33.89%)	218 (4.33%)	237 (5.07%) Spanish (112) Chinese (94)	523 (10.42%)
Census Tract 202.03, Spotsylvania County	4,882	1,707 (34.97%)	369 (7.56%)	162 (3.58%) Laotian (46) Korean (28)	600 (12.45%)
Census Tract 202.05, Spotsylvania County	4,297	1,541 (35.86%)	374 (8.73%)	124 (3.15%)	611 (14.22%)
Census Tract 301, Caroline County	4,617	1,683 (36.45%)	483 (13.97%)	148 (3.36%) Polish (62) Korean (55)	565 (16.34%)
Census Tract 302.01, Caroline County	2,447	824 (33.67%)	145 (5.96%)	–	323 (13.23%)
Census Tract 303, Caroline County	2,952	1,217 (41.23%)	394 (13.87%)	–	351 (12.38%)
Census Tract 304, Caroline County	1,654	339 (20.50%)	320 (19.35%)	–	344 (20.80%)
Census Tract 305, Caroline County	12,182	4,206 (34.53%)	1,531 (12.70%)	141 (1.24%)	1,457 (11.98%)
Census Tract 306, Caroline County	3,097	1,700 (54.89%)	335 (11.26%)	68 (2.34%) Persian	463 (15.57%)
Census Tract 3201, Hanover County	5,677	707 (12.45%)	627 (11.04%)	–	621 (10.94%)
Census Tract 3204, Hanover County	4,507	760 (16.86%)	456 (10.12%)	62 (1.46%) Spanish	520 (11.54%)
Census Tract 3205, Hanover County	3,200	208 (6.50%)	75 (2.36%)	–	348 (10.95%)

▶ *Continued* – Above 50%; Greater than respective jurisdiction. *(see end of table for detailed notes.)*

Table 3-6: Census Tract Demographic Data in 2013

Census Tract	Total Population	Minorities (%)	Low-Income (%)	Total LEP (%)* Language(s) Spoken	Disabled (%)**
Census Tract 3206.01, Hanover County	4,258	1,618 (38.00%)	273 (9.81%)	179 (4.31%) Korean	725 (17.73%)
Census Tract 3206.02, Hanover County	3,024	398 (13.16%)	225 (7.47%)	–	341 (11.30%)
Census Tract 3207.01, Hanover County	2,828	336 (11.88%)	78 (2.77%)	–	271 (9.60%)
Census Tract 3208.01, Hanover County	2,503	447 (17.86%)	236 (9.46%)	–	176 (7.03%)
Census Tract 3208.03, Hanover County	5,342	718 (13.44%)	177 (3.31%)	–	165 (3.10%)
Census Tract 3208.04, Hanover County	5,340	641 (12.00%)	–	–	346 (6.49%)
Census Tract 3208.05, Hanover County	2,912	267 (9.17%)	134 (4.61%)	–	263 (9.06%)
Census Tract 3209, Hanover County	7,863	1,099 (13.98%)	271 (3.45%)	159 (2.14%) Spanish	755 (9.61%)
Census Tract 3211, Hanover County	5,660	669 (11.82%)	269 (4.77%)	185 (3.55%) Spanish	582 (10.28%)
Census Tract 2004.06, Henrico County	9,236	2,660 (28.80%)	597 (6.59%)	358 (4.09%)	763 (8.43%)
Census Tract 2005.02, Henrico County	2,062	494 (23.96%)	206 (10.09%)	78 (3.96%)	244 (11.87%)
Census Tract 2005.03, Henrico County	3,919	776 (19.80%)	402 (10.49%)	64 (1.77%)	389 (10.14%)
Census Tract 2006, Henrico County	4,792	4,087 (33.41%)	804 (16.96%)	429 (9.48%) Spanish	475 (9.91%)
Census Tract 2007, Henrico County	3,911	3,841 (33.80%)	869 (23.97%)	–	884 (24.39%)
Census Tract 2008.01, Henrico County	2,983	2,750 (43.51%)	412 (13.81%)	154 (5.48%)	546 (18.30%)
Census Tract 2008.02, Henrico County	2,127	2,004 (46.83%)	200 (9.40%)	104 (5.20%)	242 (11.38%)
Census Tract 2008.04, Henrico County	5,828	5,102 (87.54%)	1,023 (17.71%)	355 (6.52%) Spanish	664 (11.41%)
Census Tract 2008.05, Henrico County	4,640	4,520 (97.41%)	2,258 (48.66%)	336 (8.21%) African (140) Native North American (134)	656 (14.14%)
Census Tract 2009.03, Henrico County	7,195	3,002 (41.72%)	376 (5.23%)	236 (3.58%)	601 (8.36%)
Census Tract 2009.04, Henrico County	6,820	4,712 (69.09%)	370 (5.43%)	284 (4.40%)	700 (10.27%)
Census Tract 2009.05, Henrico County	4,912	3,069 (62.48%)	766 (15.77%)	167 (3.69%)	778 (15.85%)
Census Tract 2009.06, Henrico County	4,422	1,097 (24.81%)	279 (6.31%)	142 (3.52%)	471 (10.65%)

▶ *Continued* – Above 50%; Greater than respective jurisdiction. (*see end of table for detailed notes.*)

Table 3-6: Census Tract Demographic Data in 2013

Census Tract	Total Population	Minorities (%)	Low-Income (%)	Total LEP (%)* Language(s) Spoken	Disabled (%)**
Census Tract 2010.01, Henrico County	6,151	5,478 (89.06%)	625 (10.17%)	98 (1.70%)	467 (7.62%)
Census Tract 2010.02, Henrico County	2,986	2,582 (86.47%)	420 (14.07%)	–	260 (8.71%)
Census Tract 2015.01, Henrico County	10,616	8,658 (81.56%)	1,814 (17.16%)	125 (1.26%)	943 (8.89%)
Census Tract 2016.02, Henrico County	4,727	2038 (43.11%)	253 (5.36%)	–	634 (13.48%)
Census Tract 102, City of Richmond	4,283	1,143 (26.69%)	467 (11.20%)	60 (1.51%)	851 (20.40%)
Census Tract 103, City of Richmond	1,771	1,727 (97.52%)	441 (24.90%)	–	196 (11.07%)
Census Tract 104.01, City of Richmond	3,207	1,139 (35.52%)	509 (15.96%)	–	558 (17.42%)
Census Tract 104.02, City of Richmond	2,917	1,126 (38.60%)	413 (15.37%)	113 (4.06%)	363 (12.93%)
Census Tract 105, City of Richmond	1,309	1,039 (79.37%)	167 (12.76%)	–	133 (10.16%)
Census Tract 106, City of Richmond	2,098	1,779 (84.80%)	201 (9.76%)	–	337 (16.37%)
Census Tract 107, City of Richmond	2,708	2,648 (97.78%)	608 (22.45%)	–	541 (19.98%)
Census Tract 108, City of Richmond	3,979	3,731 (93.77%)	947 (23.97%)	–	761 (19.34%)
Census Tract 109, City of Richmond	2,545	2,252 (88.49%)	543 (21.34%)	–	645 (25.34%)
Census Tract 110, City of Richmond	2,198	2,058 (93.63%)	526 (24.45%)	–	659 (30.42%)
Census Tract 111, City of Richmond	3,047	2,429 (79.72%)	798 (34.19%)	–	449 (14.76%)
Census Tract 201, City of Richmond	1,627	1,580 (97.11%)	1,110 (68.22%)	–	358 (22.15%)
Census Tract 204, City of Richmond	4,679	4,586 (98.01%)	1,807 (49.52%)	–	680 (18.64%)
Census Tract 205, City of Richmond	3,695	1,636 (44.28%)	1,115 (30.18%)	–	319 (8.67%)
Census Tract 208, City of Richmond	1,368	613 (44.81%)	142 (10.38%)	–	172 (12.57%)
Census Tract 211, City of Richmond	1,382	1,196 (86.54%)	301 (22.10%)	–	286 (20.69%)
Census Tract 212, City of Richmond	1,767	1,555 (88.00%)	227 (12.85%)	–	245 (13.87%)
Census Tract 301, City of Richmond	2,898	2,852 (98.41%)	2,080 (71.77%)	–	730 (25.28%)

▶ *Continued –* Above 50%; Greater than respective jurisdiction. *(see end of table for detailed notes.)*

Table 3-6: Census Tract Demographic Data in 2013

Census Tract	Total Population	Minorities (%)	Low-Income (%)	Total LEP (%)* Language(s) Spoken	Disabled (%)**
Census Tract 302, City of Richmond	2,512	1,219 (48.53%)	747 (37.80%)	–	316 (12.66%)
Census Tract 305, City of Richmond	3,295	1,776 (53.90%)	1,304 (43.32%)	212 (6.68%) Chinese	181 (5.60%)
Census Tract 402, City of Richmond	3,296	1,661 (50.39%)	1355 (45.70%)	83 (2.55%)	301 (9.13%)
Census Tract 403, City of Richmond	3,509	1,626 (46.34%)	403 (62.97%)	70 (1.99%)	110 (3.13%)
Census Tract 404, City of Richmond	3,717	1,045 (28.11%)	2,075 (56.77%)	–	414 (11.14%)
Census Tract 405, City of Richmond	3,367	508 (15.09%)	552 (16.48%)	–	365 (10.92%)
Census Tract 406, City of Richmond	1,756	259 (14.75%)	439 (25.00%)	–	233 (13.27%)
Census Tract 407, City of Richmond	2,687	662 (24.64%)	305 (11.44%)	135 (5.33%)	154 (5.78%)
Census Tract 408, City of Richmond	1,679	310 (18.46%)	286 (17.03%)	172 (10.51%) Spanish	176 (10.48%)
Census Tract 409, City of Richmond	2,708	482 (17.80%)	468 (17.35%)	51 (1.95%)	402 (14.93%)
Census Tract 410, City of Richmond	2,776	235 (8.47%)	263 (9.55%)	–	196 (7.12%)
Census Tract 411, City of Richmond	4,339	1,084 (24.98%)	1,496 (34.48%)	85 (2.00%)	315 (7.26%)
Census Tract 412, City of Richmond	1,309	251 (19.17%)	511 (39.04%)	–	86 (6.57%)
Census Tract 413, City of Richmond	2,952	2,322 (78.66%)	1,044 (35.37%)	108 (3.80%)	650 (22.02%)
Census Tract 414, City of Richmond	2,062	1,239 (60.09%)	402 (20.24%)	–	326 (16.41%)
Census Tract 416, City of Richmond	1,482	723 (48.79%)	175 (12.19%)	–	133 (8.97%)
Census Tract 501, City of Richmond	2,806	374 (13.33%)	289 (10.36%)	–	336 (12.05%)
Census Tract 502, City of Richmond	2,844	187 (6.58%)	129 (4.54%)	–	69 (2.43%)
Census Tract 503, City of Richmond	1,247	161 (12.91%)	86 (6.90%)	–	110 (8.87%)
Census Tract 506, City of Richmond	2,474	118 (4.77%)	63 (2.55%)	–	169 (6.83%)
Census Tract 602, City of Richmond	2,194	2,004 (91.34%)	627 (28.58%)	–	651 (29.67%)
Census Tract 604, City of Richmond	5,292	4,487 (84.79%)	1,993 (37.85%)	109 (2.18%)	1,322 (25.25%)

▶ *Continued* – Above 50%; Greater than respective jurisdiction. *(see end of table for detailed notes.)*

Table 3-6: Census Tract Demographic Data in 2013

Census Tract	Total Population	Minorities (%)	Low-Income (%)	Total LEP (%)* Language(s) Spoken	Disabled (%)**
Census Tract 605, City of Richmond	6,328	3,454 (54.58%)	955 (15.58%)	111 (1.85%)	1,367 (22.40%)
Census Tract 606, City of Richmond	2,374	346 (14.57%)	83 (3.50%)	60 (2.68%)	143 (6.02%)
Census Tract 607, City of Richmond	5,110	4,758 (93.11%)	2,548 (49.99%)	–	1,030 (20.16%)
Census Tract 608, City of Richmond	3,266	2,898 (88.73%)	983 (30.36%)	702 (24.38%) Spanish	528 (16.39%)
Census Tract 609, City of Richmond	1,633	1,289 (78.93%)	590 (36.13%)	357 (23.27%) Spanish	188 (12.05%)
Census Tract 610, City of Richmond	3,360	2,395 (71.28%)	1,151 (34.40%)	–	317 (9.47%)
Census Tract 706.01, City of Richmond	6,367	5,922 (93.01%)	2,344 (37.64%)	2,345 (43.32%) Spanish	987 (15.65%)
Census Tract 706.02, City of Richmond	2,432	2,034 (83.63%)	345 (14.22%)	135 (5.65%) Spanish	496 (20.39%)
Census Tract 709, City of Richmond	6,834	5,579 (81.64%)	2,035 (30.65%)	301 (4.70%) Spanish	1,403 (21.08%)
Census Tract 710.02, City of Richmond	3,390	2,805 (82.74%)	695 (20.50%)	405 (13.33%) Spanish (206) Korean (114)	624 (18.41%)
Census Tract 711, City of Richmond	4,866	2,528 (51.95%)	398 (7.41%)	126 (2.73%)	783 (16.12%)
Census Tract 1003, Chesterfield County	1,844	991 (53.74%)	302 (16.38%)	98 (5.69%) Spanish	337 (18.28%)
Census Tract 1004.04, Chesterfield County	2,500	1,726 (69.04%)	577 (23.28%)	874 (38.66%) Spanish	315 (12.60%)
Census Tract 1004.05, Chesterfield County	2,373	1,624 (68.44%)	735 (30.97%)	697 (32.74%) Spanish	257 (10.85%)
Census Tract 1004.06, Chesterfield County	1,301	1,003 (77.09%)	411 (31.59%)	–	146 (11.22%)
Census Tract 1004.07, Chesterfield County	2,731	1,101 (40.31%)	334 (12.23%)	110 (4.09%)	584 (21.38%)
Census Tract 1004.09, Chesterfield County	6,174	1,383 (22.40%)	591 (9.59%)	169 (2.88%)	479 (7.76%)
Census Tract 1008.04, Chesterfield County	4,413	2,850 (64.58%)	429 (9.73%)	336 (7.92%) Gujarati (119) Vietnamese (116)	494 (11.21%)
Census Tract 1008.06, Chesterfield County	3,525	2,568 (72.85%)	554 (15.95%)	332 (9.81%) Spanish	500 (14.21%)
Census Tract 1008.07, Chesterfield County	1,818	1,072 (58.97%)	78 (4.31%)	96 (5.96%) Spanish	224 (12.32%)
Census Tract 1008.15, Chesterfield County	4,098	1,484 (36.21%)	266 (6.50%)	134 (3.46%)	309 (7.63%)
Census Tract 1008.16, Chesterfield County	4,919	1,742 (35.41%)	224 (4.56%)	358 (7.92%) Spanish	615 (12.50%)

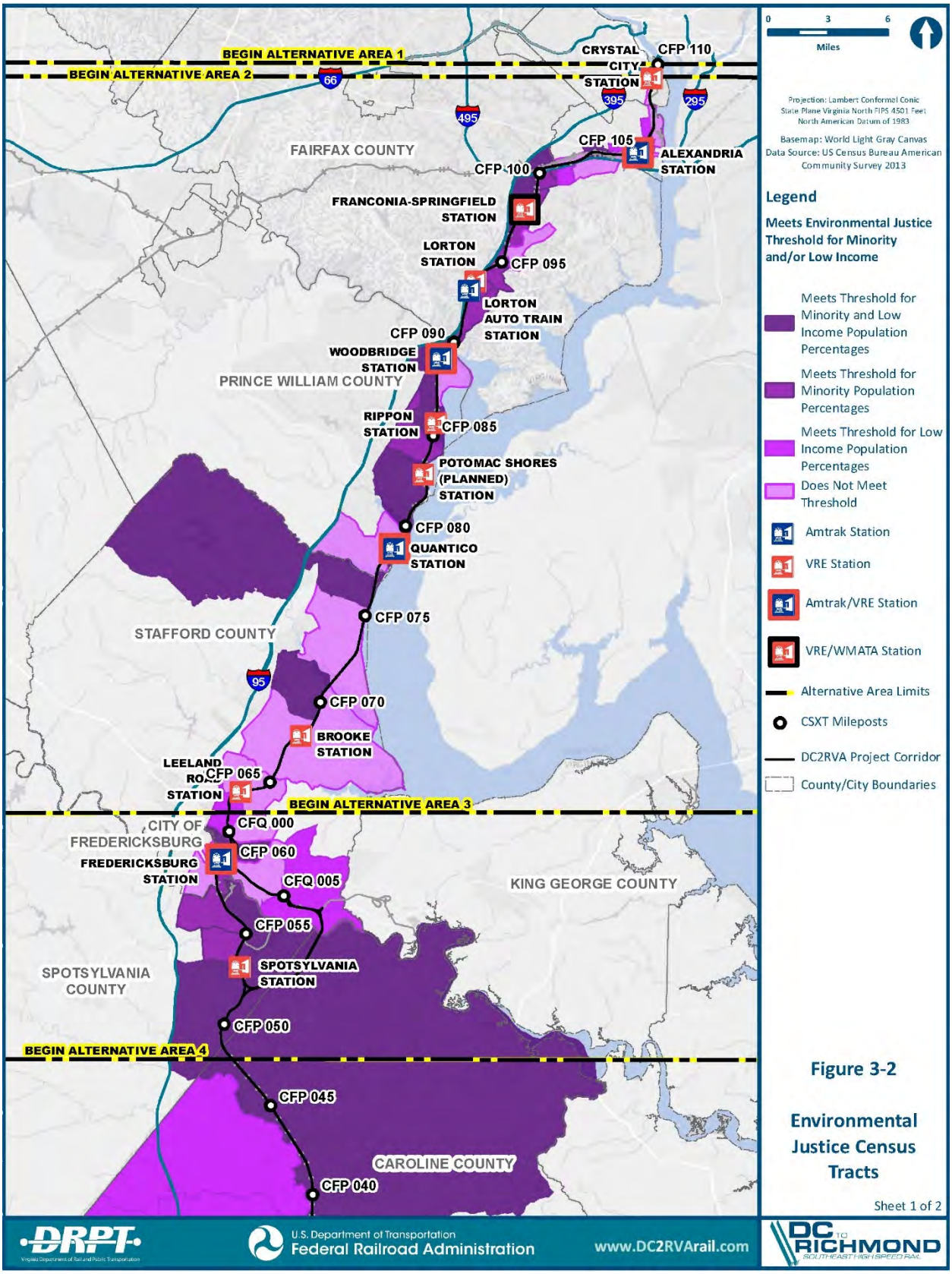
Source: U.S. Census Bureau: 2009-2013 American Community Survey.

Notes: Data for each demographic group are not mutually-exclusive and do not total 100.

* Based on the population aged 5 years and over. In most census tracts, more than one LEP language is spoken. Where applicable, the most common LEP language(s) is listed. For census tracts where two LEP languages are common, both languages are listed with their respective number of speakers.

** Census disability is based on the civilian non-institutionalized population with a self-identified disability.

Totals less than 50 persons not shown. Above 50%; Greater than respective jurisdiction.


BEGIN ALTERNATIVE AREA 1
BEGIN ALTERNATIVE AREA 2
BEGIN ALTERNATIVE AREA 3
BEGIN ALTERNATIVE AREA 4
CRYSTAL CITY STATION
CFP 110
ALEXANDRIA STATION
CFP 105
CFP 100
FRANCONIA-SPRINGFIELD STATION
LORTON STATION
CFP 095
LORTON AUTO TRAIN STATION
CFP 090
WOODBRIDGE STATION
RIPPON STATION
CFP 085
POTOMAC SHORES (PLANNED) STATION
CFP 080
QUANTICO STATION
CFP 075
CFP 070
BROOKE STATION
LEELAND ROAD STATION
CFP 065
CFQ 000
CFP 060
FREDERICKSBURG STATION
CFQ 005
CFP 055
SPOTSYLVANIA STATION
CFP 050
CFP 045
CFP 040
FAIRFAX COUNTY
PRINCE WILLIAM COUNTY
STAFFORD COUNTY
CITY OF FREDERICKSBURG
KING GEORGE COUNTY
SPOTSYLVANIA COUNTY
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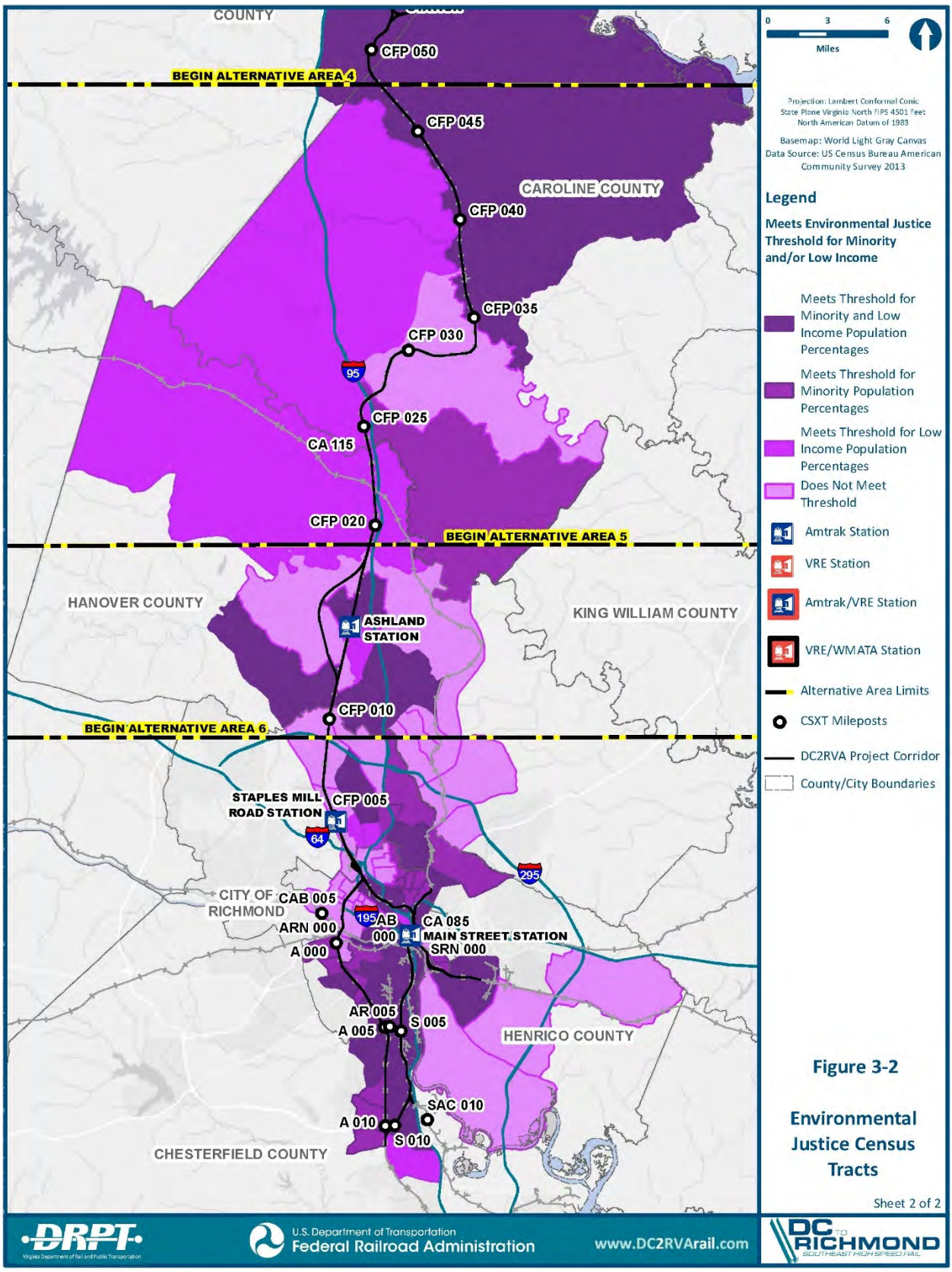
Basemap: World Light Gray Canvas
Data Source: US Census Bureau American Community Survey 2013
Legend
Meets Environmental Justice Threshold for Minority and/or Low Income
Meets Threshold for Minority and Low Income Population Percentages
Meets Threshold for Minority Population Percentages
Meets Threshold for Low Income Population Percentages
Does Not Meet Threshold
Amtrak Station
VRE Station
Amtrak/VRE Station
VRE/WMATA Station
Alternative Area Limits
CSXT Mileposts
DC2RVA Project Corridor
County/City Boundaries
Figure 3-2
Environmental Justice Census Tracts
Sheet 1 of 2
DRPT
U.S. Department of Transportation
Federal Railroad Administration
www.DC2RVArail.com
DC TO RICHMOND SOUTHEAST HIGH SPEED RAIL


COUNTY
CFP 050
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CFP 045
CAROLINE COUNTY
CFP 040
CFP 035
CFP 030
95
CFP 025
CA 115
CFP 020
BEGIN ALTERNATIVE AREA 5
HANOVER COUNTY
KING WILLIAM COUNTY
ASHLAND STATION
CFP 010
BEGIN ALTERNATIVE AREA 6
STAPLES MILL ROAD STATION
CFP 005
64
295
CITY OF RICHMOND
CAB 005
195
AB 000
CA 085
MAIN STREET STATION
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SRN 000
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Basemap: World Light Gray Canvas
Data Source: US Census Bureau American Community Survey 2013
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Meets Threshold for Minority Population Percentages
Meets Threshold for Low Income Population Percentages
Does Not Meet Threshold
Amtrak Station
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Alternative Area Limits
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DC2RVA Project Corridor
County/City Boundaries
Figure 3-2
Environmental Justice Census Tracts
Sheet 2 of 2
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4 ENVIRONMENTAL CONSEQUENCES

4.1 ECONOMIC EFFECTS

The Build Alternatives would have direct effects on economic activity through business/commercial relocations, as shown in Table 4-1.

Table 4-1: Commercial Relocations by Build Alternative

Area	Alternative	Stafford County		Hanover County	Henrico County	City of Richmond				Total
		O	GC	GC	GC	GC	S/W	M/A	O	
Area 3: Fredericksburg (Dahlgren Spur to Crossroads)	3B	1	0							1
	3C	0	1							1
Area 5: Ashland (Doswell to I-295)	5A			1						1
	5A–Ashcake			1						1
	5B			1						1
	5B–Ashcake			1						1
	5C			1						1
	5C–Ashcake			1						1
	5D–Ashcake			1						1
Area 6: Richmond (I-295 to Centralia)	6A				5	1	0	4	0	10
	6B–A-Line				5	2	4	7	0	18
	6B–S-Line				5	0	2	2	1	10
	6C				5	1	1	5	3	15
	6D				5	0	2	2	1	10
	6E				5	1	0	4	0	10
	6F				5	0	2	2	1	10
	6G				5	0	2	2	1	10

This table includes only the Build Alternatives with commercial relocations.

O=Other; GC=General Commercial; S/W=Storage/Warehousing; M/A=Manufacturing/Auto Repair

The nonresidential relocations were broken down into types of businesses with similar relocation/structural needs: general commercial, storage and warehousing, manufacturing, and other. The category "Other" includes an apartment building as well as a variety of government properties (city, county, or university-owned). The government properties include a Department of Motor Vehicles, Commonwealth of Virginia Workers' Compensation Department, and City of Richmond Department of Public Works properties. The general commercial businesses within the Build Alternatives include technical services, and entertainment services. The warehousing and storage facilities include food and container storage. The manufacturing facilities includes auto service and repair, and electrical manufacturing and repair.

In Alternative Area 5, the Town of Ashland could be adversely affected economically by Build Alternatives 5A, 5A–Ashcake, 5B, 5B–Ashcake, and 5D–Ashcake. There are few business relocations, due to these Build Alternatives, but the short-term effects of construction within town, particularly central downtown along Railroad Avenue and Center Street, could cause local businesses to suffer loss of commerce and, potentially, closure. In addition to the short-term effects of construction, Build Alternatives 5B, 5B–Ashcake, and 5D–Ashcake could close South Center Street between England Street and Maiden Street. Access to the businesses and residences would still be provided from other public rights-of-way. However, the long-term effects of the closure and change in access could also cause loss of commerce and potential closure of businesses. This in turn could cause negative effects on the economic vitality of downtown Ashland.

Based on the number of nonresidential relocations and the types of businesses potentially being relocated, adequate replacement properties would be available for relocation purposes. The acquisition of right-of-way and the relocation of displaced persons and businesses would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and 24 VAC 30 - 41. DRPT assures that relocation resources would be available to all displaced businesses and nonprofit entities without discrimination.

4.2 NEIGHBORHOOD AND COMMUNITY EFFECTS

4.2.1 Community Effects

DRPT assessed impacts to communities based on potential right-of-way acquisition of residences and community facilities, partial acquisitions of parcels, potential changes in community cohesion, changes in access to community facilities, and changes in access for emergency services.

More-detailed information on right-of-way acquisition and relocation can be found in Section 4.4, Title VI and Environmental Justice.

Effects based on changes to the transportation network are summarized in the next section and discussed in more detail in the *Transportation Technical Report*.

The No Build Alternative would not require any right-of-way acquisition or result in any neighborhood and community effects.

In Alternative Area 1 (Arlington), DRPT does not expect direct effects to communities from relocations and right-of-way acquisition. There are no relocations, and none of the Build Alternatives require more than 1.5 acres of right-of-way. There are no adverse effects to community facilities, access to these facilities, or access for emergency services.

In Alternative Area 2 (Northern Virginia), Build Alternative 2A would require two residential relocations in part of the Belmont Bay community along Railroad Avenue (Prince William County). Access to this community is currently through the condominiums at Belmont Bay and would not change under the Build Alternative 2A. DRPT has determined that there would be no adverse effects to community facilities, access to these facilities, or access for emergency services.

The community of Brooke (Stafford County) would be affected by Build Alternative 2A. Partial acquisition of residential property would occur due to an additional roadway connection north of and parallel to the CSXT line to continue to provide access to the street network for residents via Brooke Road and Andrew Chapel Road. DRPT has determined that access to and from the area for emergency services, school transportation, and religious facilities on Andrew Chapel Road would not be adversely affected by Build Alternative 2A. Additional effects to this community include partial acquisition of residential property around the Eskimo Hill Road crossing of the CSXT line.

In Alternative Area 3 (Fredericksburg), Build Alternatives 3A and 3B that pass through town would not require residential relocations, and only partial acquisition of primarily residential parcels would be required in the communities in this area. DRPT has determined that the Fredericksburg Bypass (Build Alternative 3C) would adversely affect the community of Little Falls (Stafford County). The adverse effects would be due to partial acquisition of residential parcels on Little Falls Road and Forest Lane Road, as well as an increase in the frequency of trains along the existing Dahlgren Spur. There are currently very few train movements on this line (one per day). Additional freight trains would use the bypass as part of future train operations. Existing crossings of these roads would be improved with median treatments to provide additional safety measures for residents.

The communities that would be affected by the Fredericksburg Bypass (Build Alternative 3C) include the residential development along Sandy Lane Drive, Swan Lane, Thornton Rolling Road, and Patriot Lane and the community of Summit (Spotsylvania County). As rural communities, they may not be as well defined as urban or suburban communities, but they would still be adversely affected by residential relocations. The Fredericksburg Bypass (Build Alternative 3C) would bisect the residential development along Thornton Rolling Road and Patriot Lane. Community cohesion could be adversely affected by this alternative None of these communities are currently on a rail line, and the introduction of a rail line and freight rail traffic would undoubtedly result in an adverse effect on this currently rural area. DRPT does not, however, anticipate adverse effects to community facilities, access to these facilities, or access for emergency services since roadway crossings along the new alignment bypass would be grade-separated.

In Alternative Area 4 (Central Virginia), to the east and south of Carmel Church and Patersons Corner, access to the residential development along Railroad Lane (Caroline County) would not be affected by Build Alternative 4A since only one low-volume roadway (Colemans Mill Road) would be closed. DRPT has determined that there would be no adverse effects to community facilities, access to these facilities, or access for emergency services.

In Alternative Area 5 (Ashland), within the Town of Ashland, the proximity of the community to the existing CSXT rail line makes adverse effects to the community difficult to avoid. The Build Alternatives that pass through town (Build Alternatives 5A, 5A–Ashcake, 5B, 5B–Ashcake, and 5D–Ashcake) would have similar effects on the community. There would be no residential relocations, one commercial relocation, and partial acquisitions of parcels. The communities affected include downtown Ashland, southern Ashland, Gwathmey, and Elmont.

The Ashland Bypass (Build Alternatives 5C and 5C–Ashcake) would result in 21 residential relocations, 1 community facility relocation (Calvary Pentecostal Tabernacle and camp), 2 commercial relocations, and partial acquisition of more than 50 parcels. The communities affected include Blunts Bridge Road, Independence Road, Ashcake Road and Wildwood Boulevard, and Elmont. As noted above, o community facility would be adversely affected, but DRPT does not expect any other adverse effects to community facilities, access to community facilities, or access for emergency services since roadway crossings along the new alignment bypass would be grade-separated.

Within Alternative Area 6 (Richmond), direct effects to communities from residential relocations would occur in Laurel Park in Henrico County and in McGuire in the City of Richmond. The Build Alternatives that use the A-Line between Acca Yard and Centralia (Build Alternatives 6A, 6B–A-Line, 6C, and 6E) would affect both communities through these residential relocations and the relocation of a church, the Rock Christian Center. The Build Alternatives that use the S-Line between Main Street Station and Centralia (Build Alternatives 6B–S-Line, 6D, 6F, and 6G) would only affect the community of Laurel Park. One community facility would be adversely affected, but no other adverse effects to community facilities, access to these facilities, or access for emergency services are expected.

4.2.2 Effects from Changes to the Transportation Network

Effects on communities from changes to the transportation network have been assessed based on physical changes to the roadway network and increased passenger rail service in the DC2RVA corridor. The methodology used to determine the proposed crossing improvements at each at-grade crossing is provided in the *Transportation Technical Report*. Types of crossing treatments were identified at each at-grade highway-rail crossing to improve safety and road and rail traffic flow. Most existing public at-grade crossings are proposed to remain at-grade with the addition of four-quadrant gates or gates with center median treatment; there are fewer locations with proposed grade separations and closures. New grade separations would reduce vehicular delay at those locations. DRPT evaluated all crossing improvement effects on connectivity and accessibility and completed a crossing closure diversion analysis to determine the effects the proposed roadway closures would have on traffic operations. Crossings proposed to be closed are typically lower volume roadways with nearby alternate new or existing access across the rail corridor, or were determined due to safety concerns and/or the requirements of the physical or operational infrastructure of the Project. All new crossings of roads as part of the Build Alternatives would be grade-separated, except for two new at-grade roadway crossings that are proposed as part of the station improvement designs for Build Alternative 6C. Additionally, some existing public at-grade crossings would be grade-separated which would reduce vehicular delay at those locations.

In Alternative Area 1 (Arlington), DRPT does not expect direct effects to the local transportation network as a result of construction of the proposed Project. because there are no at-grade crossings in this alternative area

In Alternative Area 2 (Northern Virginia), Build Alternative 2A would not change access to the communities of Harbor View and Colchester (Fairfax County), via Furnace Road, and would therefore not adversely affect these communities. The community of Brooke (Stafford County) would be affected by Build Alternative 2A. Mount Hope Church Road would be closed at the CSXT rail line, and an additional roadway connection would be added north of and parallel to

the CSXT line to provide access to the street network for residents via Brooke Road and Andrew Chapel Road. More detail appears in the *Transportation Technical Report*. DRPT has determined that access to and from the area for emergency services, school transportation, and the religious facilities in Brooke would not be adversely affected by Build Alternative 2A.

In Alternative Area 3 (Fredericksburg), DRPT expects that the Project will result in direct effects to the transportation network. The improved station at Fredericksburg would provide better access to the transportation network with a larger station building, additional parking, and improved handicapped parking., which are all positive effects. The end of Patriot Lane (Spotsylvania County) would also be acquired as part of right-of-way acquisition for the Fredericksburg Bypass (Build Alternative 3C). The roadway would terminate at the new wye junction required for joining the bypass to the main line.

In Alternative Area 4 (Central Virginia), the Colemans Mill Road (Caroline County) crossing of the CSXT rail line would be closed. under Build Alternative 4A. DRPT does not expect adverse effects to access for emergency response, school transportation, or the roadway network as a result of this road closure. The north side of Colemans Mill Road would continue to be accessed by Rogers Clark Boulevard. The south side would maintain access through Dry Bridge Road to Colemans Mill Road. Access to the eastern section of Railroad Lane (Caroline County) would remain in place under Build Alternative 4A.

In Alternative Area 5 (Ashland), closure of College Avenue/Henry Clay Street would occur under Build Alternatives 5A, 5B, and 5C. if the existing platforms at the Ashland Station were extended. DRPT expects that there would be no adverse effects to access to community facilities or for emergency response, school transportation, or access to the roadway network as a result of this road closure. West Vaughan Road would provide an alternative for emergency medical services and would be improved with a grade separation under the that pass through town (Build Alternatives 5A, 5A–Ashcake, 5B, 5B–Ashcake, and 5D–Ashcake). This would improve safety and emergency response time. The Volunteer Rescue Squad on Duncan Street would still have access to both sides of the rail line, as would the Ashland Police Department on England Street. Closure of Independence Road at West Patrick Henry Road would occur under the Ashland Bypass (Build Alternatives 5C and 5C–Ashcake). An alternate alignment that uses existing West Patrick Henry Road and Blanton Road would be less than 1 mile.

DRPT does, however, expect effects due to road closure in Ashland. Closure of the northbound portion of South Railroad Avenue between England Street and Maiden Lane, due to the addition of a third track, under Build Alternatives 5B, 5B–Ashcake, and 5D–Ashcake, would adversely affect the community of Ashland and, in particular, the community cohesion of the area of town south of England Street.

In Alternative Area 6 (Richmond), direct effects to the transportation network are expected as a result of construction of the Build Alternatives. The station improvements at Staples Mill would provide expanded mobility and better access to the transportation network with an expanded building, additional parking, and a designated pick-up and drop-off area., which would all be positive effects of the Project. Some at-grade roadway crossings would also be closed under the Build Alternative, which are summarized in the following paragraphs.

The Boulevard single-station alternative (Build Alternative 6B–S-Line) includes the closure of the Ownby Lane/Hermitage Road intersection in the Diamond/Newtowne West area to accommodate the Hermitage Road grade separation. The area is generally in commercial and

industrial uses. Access to Ownby Lane would still be available via Overbrook Road and Botetourt Street.

The Build Alternatives that use the A-Line between Acca Yard and Centralia (Build Alternatives 6A, 6B–A-Line, 6C, and 6E) include the closure of Bassett Avenue in Westover. Access to the east side of this crossing would still be available via Westover Hills Boulevard. Access to the west side of the crossing would still be available through Jahnke Road, which would be improved with four-quadrant gates to increase safety at the crossing.

The Build Alternatives that use the A-Line between Acca Yard and Centralia (Build Alternatives 6A, 6B–A-Line, 6C, and 6E) include the closure of t Terminal Avenue at-grade crossing in Hickory Hill. Access on the eastern side of Terminal Avenue is available via Belt Boulevard. Access on the western side of Terminal Avenue is available via Hopkins Road. A signal study of the intersection of Terminal Avenue and Hopkins Road would also occur under these alternatives.

The Build Alternatives that use the A-Line between Acca Yard and Centralia (Build Alternatives 6A, 6B–A-Line, 6C, and 6E) include the closure of Thurston Road in the community of Chimney Corner. Access to the western side of Thurston Road would still be available via Hopkins Road. Access to the eastern side of Thurston Road would still be available via Dorsey Road. Access to and from the community for emergency services and school transportation would not be adversely affected by the alternatives.

The Build Alternatives that use the S-Line between Main Street Station and Centralia (Build Alternatives 6B–S-Line, 6D, 6F, and 6G) include the closure of St James Street and North Second Street/Valley Road between the communities of Gilpin and Southern Barton Heights. Based on the proximity to and connections to the existing roadway network via North First Street and North Fifth Street, access to and from the communities for emergency services and school transportation would not be adversely affected by the alternatives.

The Build Alternatives that use the S-Line between Main Street Station and Centralia (Build Alternatives 6B–S-Line, 6D, 6F, and 6G) include the closure of the at-grade crossing at Dale Avenue/Trenton Avenue in the community of Ampthill Heights. It primarily provides access to the DuPont plant, and alternate access is available

The Build Alternatives that use the S-Line between Main Street Station and Centralia (Build Alternatives 6B–S-Line, 6D, 6F, and 6G) include the closure of Brinkley Road in Chimney Corner. Access to Brinkley Road would still be available via Dorsey Road and Thurston Road via Hopkins Road.

Old Lane in the community of Centralia would be closed under all Build Alternatives. Access to and from the community for school transportation would not be adversely affected by the alternatives. An increase in response time for emergency services could occur if the response were from Fire Station 17 in Centralia, but it would be less than a 5-minute increase. If the response were from Fire Station 1, there would be no difference in response time.

4.2.3 Community Facilities and Services

The No Build Alternative would have no direct effects on community facilities.

In Alternative Areas 1 through 4, the Build Alternatives would have no direct effects on community facilities.

In Alternative Area 5 (Ashland), one community facility, the Calvary Pentecostal Tabernacle camp in Hanover County, would be relocated due to Build Alternatives 5C and 5C–Ashcake. The facility would be relocated in a manner that would enable access to remain similar to the existing access.

Build Alternatives 5A, 5A–Ashcake, 5B, and 5B–Ashcake. would require a minor temporary easement of two parcels from the Gwathmey Baptist Church. The temporary easement would not affect activities at the church, and DRPT does not expect the temporary easement to have adverse effects to the church.

All Build Alternatives would require a temporary easement from Patrick Henry Branch of the YMCA in Ashland due to alignment changes along Ashcake Road. DRPT does not expect the temporary easement to have adverse effects to the facility.

In Alternative Area 6 (Richmond), the Build Alternatives that use the A-Line between Acca Yard and Centralia (Build Alternatives 6A, 6B–A-Line, 6C, and 6E) would require the relocation of the Rock Christian Center as a part of the grade separation of the intersection of Broad Rock Boulevard and the CSXT rail line. The facility would be relocated in a manner that would enable access to remain similar to the existing access. In addition, partial acquisition of the parcel containing Hunter Holmes McGuire Veterans Affairs Medical Center would also occur in this location. The partial acquisition of this parcel is minor in nature (0.10 acre) and would not affect the functioning of the center.

4.3 RIGHT-OF-WAY AND RELOCATIONS

The acquisition of right-of-way and the relocation of displacees would take place in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C 4601). Data and information were collected on social demographics and potential relocations, including individual tax parcel data, within the Build Alternatives. This information was compiled from city/county tax parcel databases, United States Geological Survey (USGS) mapping, aerial photos, the United States Census website, GIS databases, conceptual drawings/engineering, and field inspections. All field inspections were conducted from within public right-of-way. Given that potential property effects are only being estimated at this time, local citizens/property owners were not contacted for any data to determine family size, household size, property value, owner/renter status, or any other demographic information. Similarly, individual businesses potentially subject to relocation were not contacted to determine their number of employees. These data were estimated using the sources noted above.

Potential relocations were determined based on overlaying the estimated Limits of Disturbance (LOD) of the Build Alternatives on county/city tax parcel digital data through the use of GIS (Table 4-2). The individual parcel data were then compiled, and the area that may be acquired with implementation of a Build Alternative was computed. Potential relocations were identified as residential (individuals/families), community facilities, and commercial. The relocations can be classified as total acquisitions or partial acquisitions:

- **Total Acquisition**: This occurs when the primary improvement (house, business, nonprofit, or farm) is within the right-of-way or access to the parcel is removed and cannot be restored. The owner is compensated for the fair market value of the entire parcel and provided relocation assistance.

- **Partial Acquisition**: This occurs when a portion of a parcel is acquired and that portion does not include a primary improvement. The owner is compensated for the fair market value of the portion of their parcel and minor improvements that would be acquired.

This document represents a preliminary examination of the potential relocations; therefore, direct contact with individual residents, landowners, and business owners did not occur. Coordination with affected property owners will begin with the Public Hearing and continue into the final design process. Social and economic characteristics of the displaced population are based on United States Census data from the 2009-2013 American Community Survey (ACS) and from the National Center for Education Statistics.

Residential relocations by Build Alternative are detailed in Table 4-2. The No Build Alternative requires no residential relocations. Specific communities within which these relocations occur were discussed in Section 4.11.2.1.

In Alternative Area 1 (Arlington), Build Alternatives 1A, 1B, and 1C would have no residential relocations.

In Alternative Area 2 (Northern Virginia), the single Build Alternative 2A would have two residential relocations.

In Alternative Area 3 (Fredericksburg), the Fredericksburg Bypass (Build Alternative 3C) would have 19 residential relocations.

In Alternative Area 4 (Central Virginia), the single Build Alternative 4A would have no residential relocations.

In Alternative Area 5 (Ashland), the Ashland Bypass (Build Alternatives 5C and 5C–Ashcake) would have 21 residential relocations. These alternatives would relocate one community facility, the Calvary Pentecostal Tabernacle camp in Hanover County. This facility would be relocated due to severing the parcel and lack of access to the remaining part of the parcel.

In Alternative Area 6 (Richmond), residential relocations would occur under all Build Alternatives. The Build Alternatives that use the A-Line between Acca Yard and Centralia (Build Alternatives 6A, 6B–A-Line, and 6E) would have 12 relocations. Build Alternative 6C, which also uses the A-Line, has 12 single-family residence relocations and an apartment building relocation with 100 units. The Build Alternatives that use the S-Line between Main Street Station and Centralia (Build Alternatives 6B–S-Line, 6D, 6F, and 6G) would have seven relocations.

Right-of-way acquisitions may be further minimized as design progresses. Easements may be used in lieu of acquiring new right-of-way for some properties. Temporary easements may also be needed on adjacent property to gain access to the existing rail line and right-of-way during construction activities and for construction staging. If necessary, these temporary easements could be obtained for a short duration, and the land would be returned to its original condition before easement lease termination.

Table 4-2: Residential Relocations by Build Alternative

Alternative Area	Alternative	City/County												
		Arlington County	City of Alexandria	Fairfax County	Prince William County	Stafford County	City of Fredericksburg	Spotsylvania County	Caroline County	Hanover County	Henrico County	City of Richmond	Chesterfield County	Total
Area 1: Arlington (Long Bridge Approach)	1A	0												0
	1B	0												0
	1C	0												0
Area 2: Northern Virginia (Long Bridge to Dahlgren Spur)	2A		0	0	2	0								2
Area 3: Fredericksburg (Dahlgren Spur to Crossroads)	3A					0	0	0						0
	3B					0	0	0						0
	3C					1		18	0					19
Area 4: Central Virginia (Crossroads to Doswell)	4A								0	0				0
Area 5: Ashland (Doswell to I-295)	5A									0				0
	5A–Ashcake									0				0
	5B									0				0
	5B–Ashcake									0				0
	5C									21				21
	5C–Ashcake									21				21
	5D–Ashcake									0				0
Area 6: Richmond (I-295 to Centralia)	6A										7	5	0	12
	6B–A-Line										7	5	0	12
	6B–S-Line										7	0	0	7
	6C										7	105	0	112
	6D										7	0	0	7
	6E										7	5	0	12
	6F										7	0	0	7
	6G										7	0	0	7

Source: City/County Tax Assessment Databases. Preliminary Engineering Limits of Disturbance, HDR, 2016.

DRPT has the ability and, if necessary, is willing to provide housing of last resort, including the purchase of land or dwellings; repair of existing dwellings to meet decent, safe, and sanitary conditions; relocation or remodeling of dwellings purchased by DRPT; or construction of new dwellings. DRPT assures that all displaced families and individuals would be relocated to suitable replacement housing, and that all replacement housing would be fair housing available to all persons without regard to race, color, religion, sex, or national origin and would be within the financial means of the displacees. Each person would be given enough time to negotiate for and obtain possession of replacement housing. No residential occupants would be required to move from property needed for the Build Alternatives until comparable decent, safe, and sanitary replacement dwellings have been made available to them.

The acquisition of right-of-way and the relocation of displacees would be in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Assurance is given that relocation resources would be available to all residential, business, farm, and nonprofit displacees without discrimination.

4.4 TITLE VI AND ENVIRONMENTAL JUSTICE

The environmental justice analysis is based on whether the percentage of minority or low-income populations within a census tract impacted by an alternative is greater than the percentage of minority or low-income populations within that census tract's county. For example, Fairfax County has a minority population of 46.11 percent. If the percentage of minority population in a census tract in Fairfax County is higher than 46.11 percent, the tract has the potential to contain an environmental justice population. Instead of a regional population across the entire corridor, this method provides a more accurate representation of potential environmental justice populations in diverse areas such as the DC2RVA corridor. Data and information from other sources, such as free and reduced school lunch programs and the public involvement process, have also been used to refine the identification of potential environmental justice communities not identified by United States Census data. The number of relocations, changes in community cohesion, relocations of community facilities, changes of access to these facilities, changes in response times for emergency services, and noise and vibration effects are all examined to assess effects. The trigger for an environmental justice effect is defined as "disproportionately high and adverse human health or environmental effects" (EO 12898). These effects are then compared to impacts in those census tracts that do not meet the thresholds for environmental justice populations.

The U.S. DOT definition of Adverse Effects is "the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to: bodily impairment, infirmity, illness or death; air, noise, and water pollution and soil contamination; destruction or disruption of man-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community's economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms, or nonprofit organizations; increased traffic congestion, isolation, exclusion or separation of minority or low-income individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of, benefits of DOT programs, policies, or activities" (U.S. DOT, 5610.2[a]).

The U.S. DOT definition of disproportionately high and adverse effect on minority and low-income populations is an Adverse Effect that:

- "is predominately borne by a minority population and/or a low-income population, or
- will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population" (U.S. DOT, 5610.2[a]).

4.4.1 Corridor-Wide Impacts

The No Build Alternative requires no right-of-way acquisition; therefore, it requires no relocations and has no direct adverse impacts to Title VI or environmental justice populations. Under the No Build Alternative, beneficial impacts also would not be realized. Congestion and lack of mobility would continue to affect individuals and communities. These problems also would continue to impact businesses and economic activity along the DC2RVA corridor, which would, in turn, result in additional impacts to individuals and communities.

Under all Build Alternatives, more-frequent and more-reliable intercity passenger rail service in the DC2RVA corridor would provide better access and mobility to all communities and populations, including environmental justice populations. Access to a wider geographic area for educational, medical, and employment opportunities would be improved as well.

4.4.2 Community-Level Impacts

United States Census information and preliminary relocation data was supplemented with information from public involvement activities for this Project and from federal education statistical information, and regional and local agency planning information on communities.

4.4.2.1 Relocations and Displacements

Seven of the Build Alternatives that significantly alter the natural or railroad operating environments on the Fredericksburg Bypass (Build Alternative 3C), Ashland Bypass (Build Alternatives 5C and 5C–Ashcake), or CSXT A-Line in the City of Richmond (Build Alternatives 6A, 6B–A-Line, 6C, and 6E) have the potential to impact six census tracts with low-income and minority populations, out of a total of 10 census tracts with residential relocations. (Table 4-3 and Figure 4-1) Implementation of a Build Alternative would impact communities with environmental justice populations by requiring the acquisition of right-of-way and the displacement of residences. DRPT considers displacements to be adverse effects.

In addition to the poverty information that appears in Chapter 3, median household income data appears in Table 4-3. The Title 1 status of schools within a particular census tract also appears in Table 4-3. Median household income can appear to be high for the individual census tracts. This is due to the use of the median of all household income. For example, the city of Richmond has over 25 percent of the population in poverty, but the median household income is $40,496, which could be perceived as not in poverty. The use of the Title 1 school information balances this data to give a more complete picture of the area. When 40 percent or more students of a particular school are eligible for free and reduced-price school meals and apply for the meal program, the school can apply for Federal funding for school programs through what is still called "Title 1",

originally from Title 1 of the 1965 Elementary and Secondary Education Act. Some schools have more than 40 percent of students eligible but do not have a program. Elementary schools have the smallest attendance zones and a tighter geographic area of analysis; therefore, these schools were used for Title 1 school identification. The school zones for the residential relocations were identified and then the Title 1 status of a particular school was researched through the National Center for Education Statistics.

In Alternative Area 3 (Fredericksburg), the Fredericksburg Bypass (Build Alternative 3C) has the potential for disproportionately high and adverse effects on potential environmental justice populations. All 19 residential relocations would occur in census tracts that have low-income populations, and 18 would occur in a census tract with low-income and minority populations. In the latter tract, in Spotsylvania County, the elementary school that students in the area are zoned for, Cedar Forest, is also a Title 1 school based on the high percentage of students that receive free and reduced-price lunches.

In Alternative Area 5 (Ashland), the Ashland Bypass (Build Alternatives 5C and 5C–Ashcake) does not have the potential for disproportionately high and adverse effects on environmental justice populations. Of the 21 residential relocations, only five would occur in a census tract that has high low-income and minority populations.

In Alternative Area 6 (Richmond), three of the four Build Alternatives that use the A-Line between Acca Yard and Centralia (Build Alternatives 6A, 6B–A-Line, and 6E) would have five residential relocations that occur in census tracts with high minority populations (Table 4-3). However, this is not disproportionate since seven potential residential relocations would also occur with these alternatives in census tracts with lower proportions of the population that are low-income or minority. The fourth Build Alternative that uses the A-Line (Build Alternative 6C) would have 112 relocations, 105 of which would be in census tracts with high minority or low-income populations. DRPT has, therefore, determined that Build Alternative 6C has the potential for disproportionately high and adverse effects on potential environmental justice populations. The Build Alternative 6C relocations include a 100-unit apartment building.

The potential impacts to environmental justice populations could be avoided and/or minimized by using a Build Alternative that does not have relocations occurring in a census tract with high percentages of low-income and minority populations.

4.4.2.2 Noise and Vibration

The Build Alternatives were also analyzed to determine any disproportionate and adverse noise and vibration effects to environmental justice populations. The potential noise receptors that were assessed for this analysis were residential receptors and other places for sleeping (Category 2) and were those receptors with moderate and severe impacts. A full discussion of noise impacts appears in the *Noise and Vibration Technical Report*.

In Alternative Area 1 (Arlington), there are no affected noise receptors.

In Alternative Area 2 (Northern Virginia), there are more than 700 noise receptors affected by the single Build Alternative 2A. Fifty-five (55) percent of these noise receptors occur in census tracts with a high proportion of minority and low-income populations in the communities of Springfield Forest, Lorton, Colchester, Marumsco Acres, Marumsco Woods, and Leeland. This Build Alternative would not have a disproportionately high and adverse effect on potential environmental justice populations in these communities.

Table 4-3: Residential Relocations by Environmental Justice Census Tracts

Alternative Area	Alternative	City/County										
		Prince William County	Stafford County	Spotsylvania County	Hanover County		Henrico County		City of Richmond			
		Tract 9001	Tract 105.04	Tract 202.05	Tract 3205	Tract 3204	Tract 2005.03	Tract 2009.06	Tract 402	Tract 706.02	Tract 710.02	Total
Area 2: Northern Virginia (Long Bridge to Dahlgren Spur)	2A	2										2
Area 3: Fredericksburg (Dahlgren Spur to Crossroads)	3C		1	18								19
Area 5: Ashland (Doswell to I-295)	5C				16	5						21
	5C–Ashcake				16	5						21
Area 6: Richmond (I-295 to Centralia)	6A						3	4	0	4	1	12
	6B–A-Line						3	4	0	4	1	12
	6B–S-Line						3	4	0	0	0	7
	6C						3	4	100*	4	1	112
	6D						3	4	0	0	0	7
	6E						3	4	0	4	1	12
	6F						3	4	0	0	0	7
	6G						3	4	0	0	0	7
% Minorities in City/County		52	33	28	15		44		61			
% Minorities in Census Tract		42	9	36	7	17	20	25	50	84	83	
% Low-Income in City/County		6	5	8	5		11		26			
% Low-Income in Census Tract		5	10	9	2	10	10	6	46	14	21	
Median Household Income in City/ County		$98,071	$97,110	$78,345	$75,070		$61,048		$40,496			
Median Household Income in Census Tract		$112,143	$75,025	$91,917	$77,054	$71,350	$55,625	$72,297	$30,802	$48,047	$31,767	
Title I Elementary School		Yes	No	Yes	No**	Yes	Yes	Yes	No	Yes	Yes	

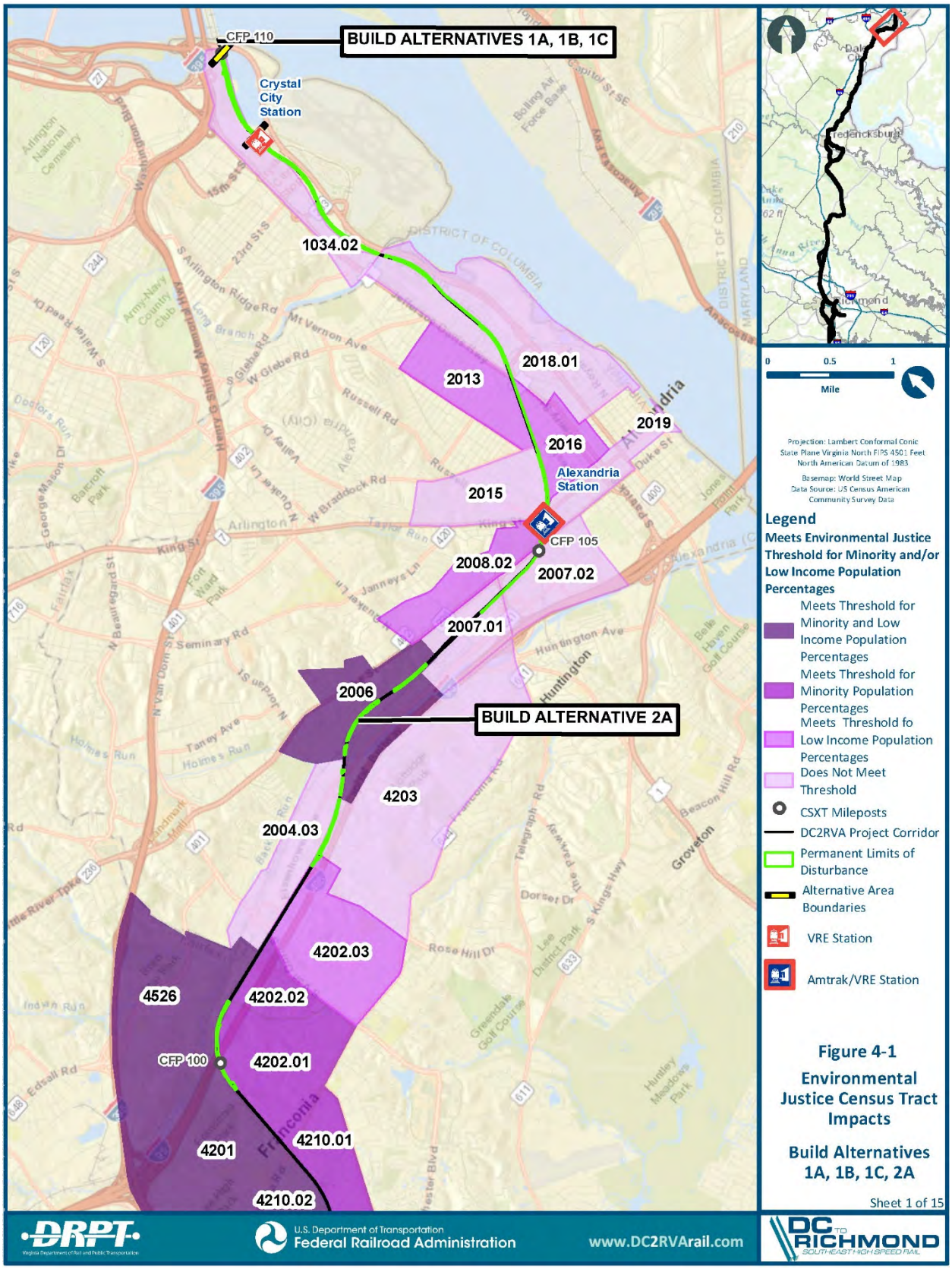
Source: U.S. Census, American Community Survey 2009-2013. National Center for Education Statistics, School Year 2014-2015.
Notes: Above 50%; greater than respective jurisdiction. *This is an apartment building with 100 units. No** = The elementary school that the residences are zoned for does not have a Title I program but does have enough children attending (>40%) to qualify the school for a program. Build Alternatives 1A, 1B, 1C, 3A, 3B, 4A, 5A, 5A–Ashcake, 5B, 5B–Ashcake, and 5D–Ashcake have no residential relocations and therefore do not appear in this table.

In Alternative Area 3 (Fredericksburg), there are less than 100 noise receptors affected by Build Alternatives 3A and 3B; however, 88 percent of these occur in census tracts with a high proportion of minority and low-income populations. These occur in the communities of Mayfield, Hazel Hill, Patriot Lane, Summit, and Claiborne Crossing. This would be a disproportionately high and adverse effect on potential environmental justice populations in these communities. There are almost 4,000 noise receptors affected by the Fredericksburg Bypass (Build Alternative 3C), primarily due to the addition of freight trains along the new bypass. Forty-five (45) percent of these noise receptors occur in census tracts with a high proportion of minority and low-income populations. The affected receptors occur throughout the entire bypass, not just clustered in one community. This alternative would not have a disproportionate effect on environmental justice populations. Mitigation for these effects could include noise barriers for affected receptors; however, detailed recommendations for noise mitigation will be developed during the final design process.

In Alternative Area 4 (Central Virginia), there are less than 100 noise receptors affected by the single Build Alternative 4A. Seventy-nine (79) percent of these occur in census tracts with a high proportion of minority and low-income populations in the communities of Claiborne, Woodford, Milford, Penola, and Doswell. This would be a disproportionately high and adverse effect on potential environmental justice populations in these communities.

In Alternative Area 5 (Ashland), there are almost 160 noise receptors affected by Build Alternatives that pass through town (Build Alternatives 5A, 5A–Ashcake, 5B, 5B–Ashcake, and 5D–Ashcake); however, 80 percent of these occur in census tracts with a high proportion of minority and low-income populations. These occur in the communities of downtown Ashland, Gwathmey, and Elmont. There are more than 300 noise receptors affected by the Ashland Bypass (Build Alternatives 5C and 5C–Ashcake). Forty-six (46) percent of these occur in census tracts with a high proportion of minority and low-income populations; therefore, the Ashland Bypass (Build Alternatives 5C and 5C–Ashcake) would not have a disproportionately high and adverse impact on potential environmental justice populations. The Build Alternatives that pass through town (Build Alternatives5A, 5A–Ashcake, 5B, 5B–Ashcake, and 5D–Ashcake) would have a disproportionately high and adverse effect on potential environmental justice populations in these communities.

In Alternative Area 6 (Richmond), noise receptors affected by the Build Alternatives range from approximately 310 to 440. The Build Alternatives that use the A-Line between Acca Yard and Centralia (Build Alternatives 6A, 6B–A-Line, 6C, and 6E) affect approximately 400 noise receptors on the A-line; 30 percent of these occur in census tracts with a high proportion of minority and low-income populations in the communities of Cedarhurst, Forest View, Belt Center, and Chimney Corner. Three of the four Build Alternatives that use the S-Line between Main Street Station and Centralia (Build Alternatives 6B–S-Line, 6D, and 6F) affect approximately 440 noise receptors on the S-line; 54 percent of these occur in census tracts with a high proportion of minority and low-income populations in the communities of Newtowne West, Chamberlayne, Gilpin, Davee Gardens, and Bellwood. The fourth Build Alternative that uses the S-Line (Build Alternative 6G) affects approximately 310 noise receptors. Thirty-five (35) percent of these occur in census tracts with a high proportion of minority and low-income populations, and they occur in the communities previously listed for both the A-Line and the S-Line. None of the Build Alternatives in Alternative Area 6 would have a disproportionately high and adverse effect on potential environmental justice populations in these communities.


CFP 110
BUILD ALTERNATIVES 1A, 1B, 1C
Crystal City Station
1034.02
2018.01
2013
2019
2016
Alexandria Station
2015
CFP 105
2008.02
2007.02
2007.01
2006
BUILD ALTERNATIVE 2A
4203
2004.03
4202.03
4526
4202.02
CFP 100
4202.01
4201
4210.01
4210.02
Fredericksburg
Richmond
0 0.5 1
Mile
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North American Datum of 1983
Basemap: World Street Map
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Legend
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Meets Threshold for Minority and Low Income Population Percentages
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Meets Threshold fo Low Income Population Percentages
Does Not Meet Threshold
CSXT Mileposts
DC2RVA Project Corridor
Permanent Limits of Disturbance
Alternative Area Boundaries
VRE Station
Amtrak/VRE Station
Figure 4-1
Environmental Justice Census Tract Impacts
Build Alternatives 1A, 1B, 1C, 2A
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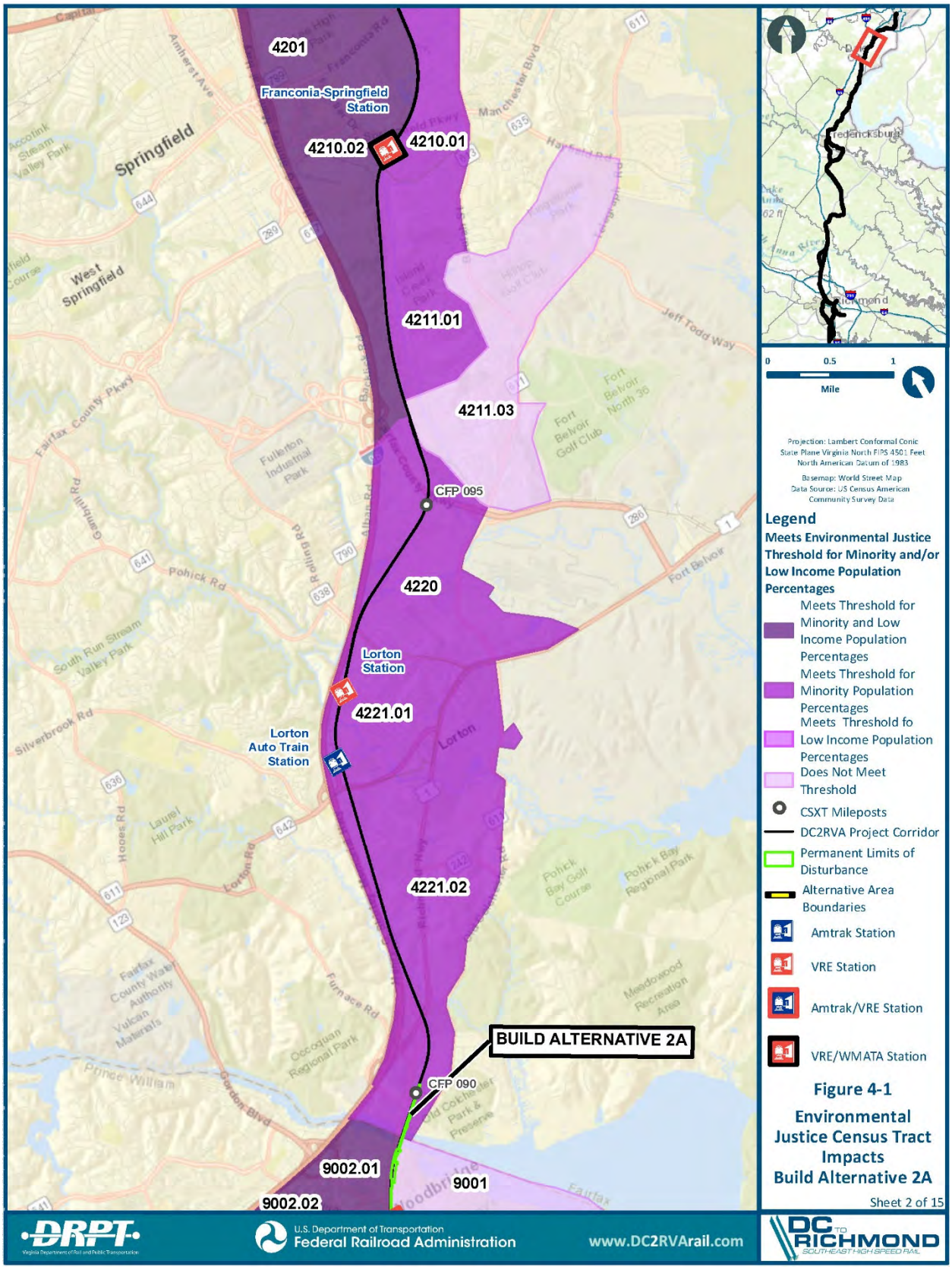
4201
Franconia-Springfield Station
4210.02
4210.01
4211.01
4211.03
CFP 095
4220
Lorton Station
4221.01
Lorton Auto Train Station
4221.02
BUILD ALTERNATIVE 2A
CFP 090
9002.01
9001
9002.02
Springfield
West Springfield
Fullerton Industrial Park
Fort Belvoir North 36
Fort Belvoir Golf Club
Fort Belvoir
Pohick Rd
Lorton
Pohick Bay Golf Course
Pohick Bay Regional Park
Meadowood Recreation Area
Occoquan Regional Park
Laurel Hill Park
South Run Stream Valley Park
Silverbrook Rd
Furnace Rd
Gordon Blvd
Fairfax County Pkwy
Jeff Todd Way
Manchester Blvd
Fredericksburg
Richmond
0 0.5 1
Mile
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Meets Threshold fo Low Income Population Percentages
Does Not Meet Threshold
CSXT Mileposts
DC2RVA Project Corridor
Permanent Limits of Disturbance
Alternative Area Boundaries
Amtrak Station
VRE Station
Amtrak/VRE Station
VRE/WMATA Station
Figure 4-1
Environmental Justice Census Tract Impacts
Build Alternative 2A
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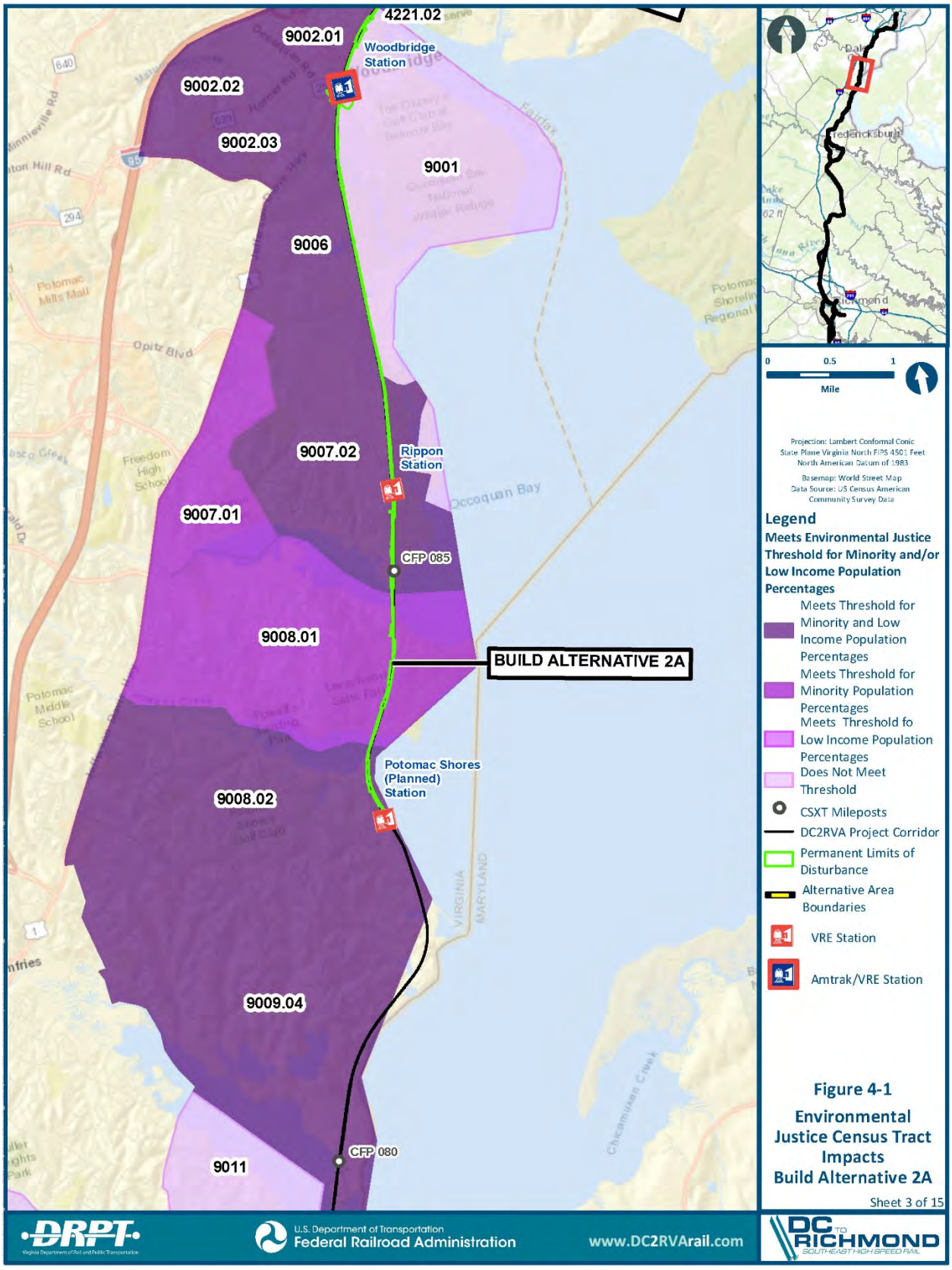
4221.02
9002.01
Woodbridge Station
9002.02
9002.03
9001
9006
9007.02
Rippon Station
9007.01
CFP 085
9008.01
BUILD ALTERNATIVE 2A
Potomac Shores (Planned) Station
9008.02
9009.04
CFP 080
9011
Occoquan Bay
Potomac Mills Mall
Opitz Blvd
Freedom High School
Potomac Middle School
VIRGINIA
MARYLAND
Fredericksburg
Richmond
0 0.5 1
Mile
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State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
Basemap: World Street Map
Data Source: US Census American Community Survey Data
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Does Not Meet Threshold
CSXT Mileposts
DC2RVA Project Corridor
Permanent Limits of Disturbance
Alternative Area Boundaries
VRE Station
Amtrak/VRE Station
Figure 4-1
Environmental Justice Census Tract Impacts Build Alternative 2A
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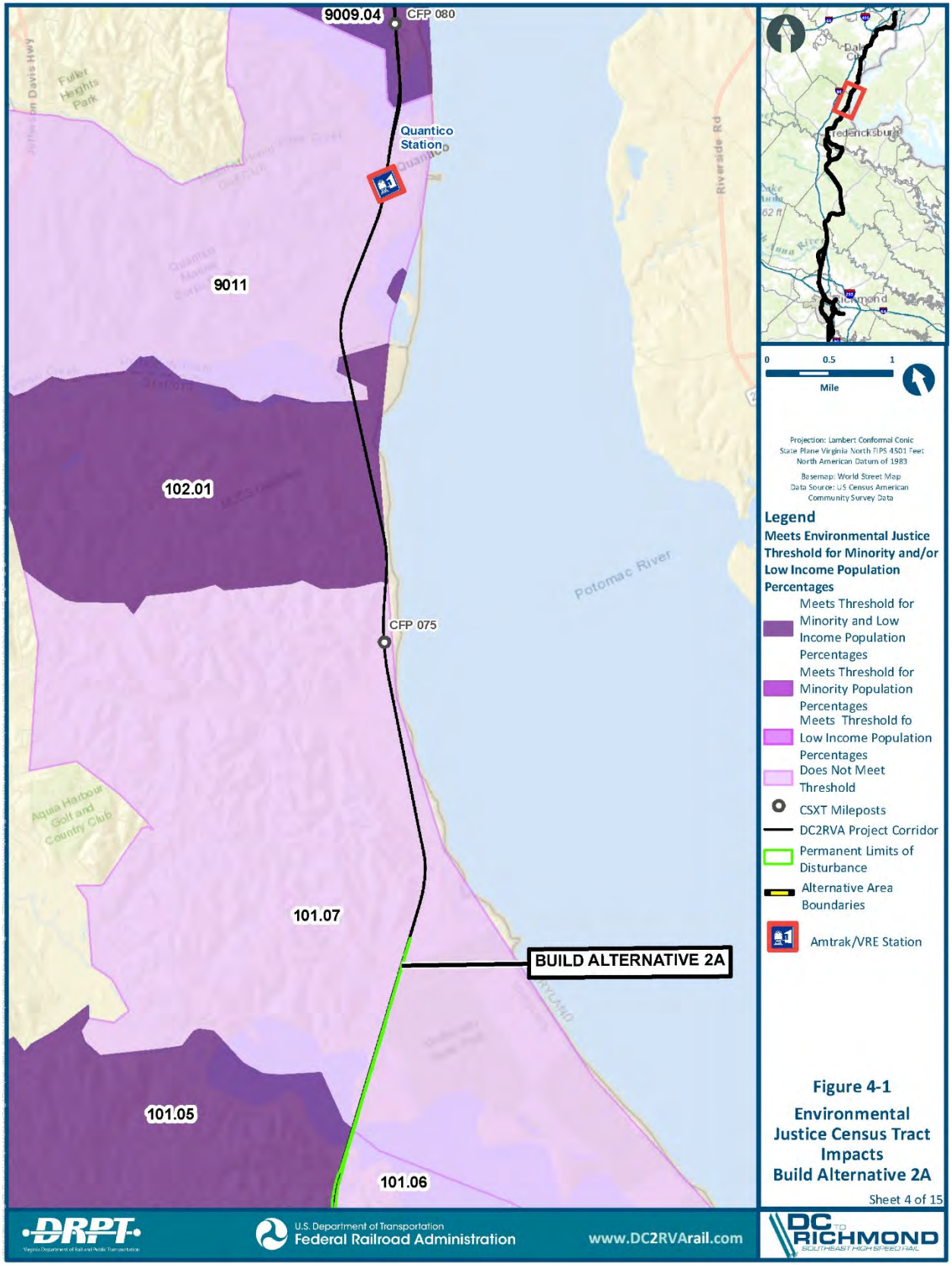
9009.04
CFP 080
Quantico Station
9011
102.01
CFP 075
101.07
101.05
101.06
BUILD ALTERNATIVE 2A
Potomac River
Riverside Rd
Fuller Heights Park
Aquia Harbour Golf and Country Club
Fredericksburg
Richmond
0
0.5
1
Mile
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Does Not Meet Threshold
CSXT Mileposts
DC2RVA Project Corridor
Permanent Limits of Disturbance
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Amtrak/VRE Station
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Environmental Justice Census Tract Impacts
Build Alternative 2A
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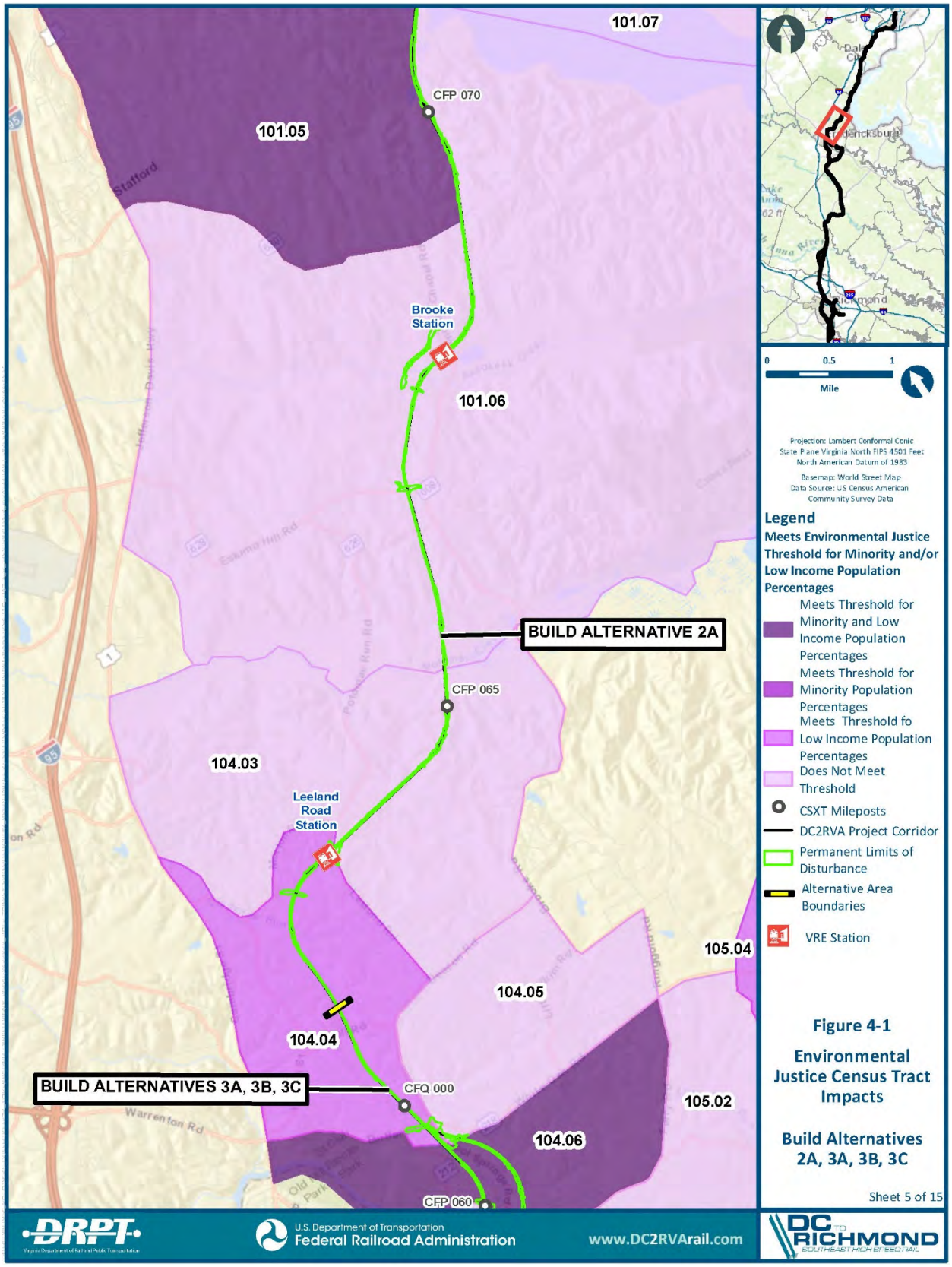
101.07
101.05
CFP 070
Brooke Station
101.06
BUILD ALTERNATIVE 2A
CFP 065
104.03
Leeland Road Station
105.04
104.05
104.04
BUILD ALTERNATIVES 3A, 3B, 3C
CFQ 000
105.02
104.06
CFP 060
Fredericksburg
Richmond
0 0.5 1
Mile
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CSXT Mileposts
DC2RVA Project Corridor
Permanent Limits of Disturbance
Alternative Area Boundaries
VRE Station
Figure 4-1
Environmental Justice Census Tract Impacts
Build Alternatives 2A, 3A, 3B, 3C
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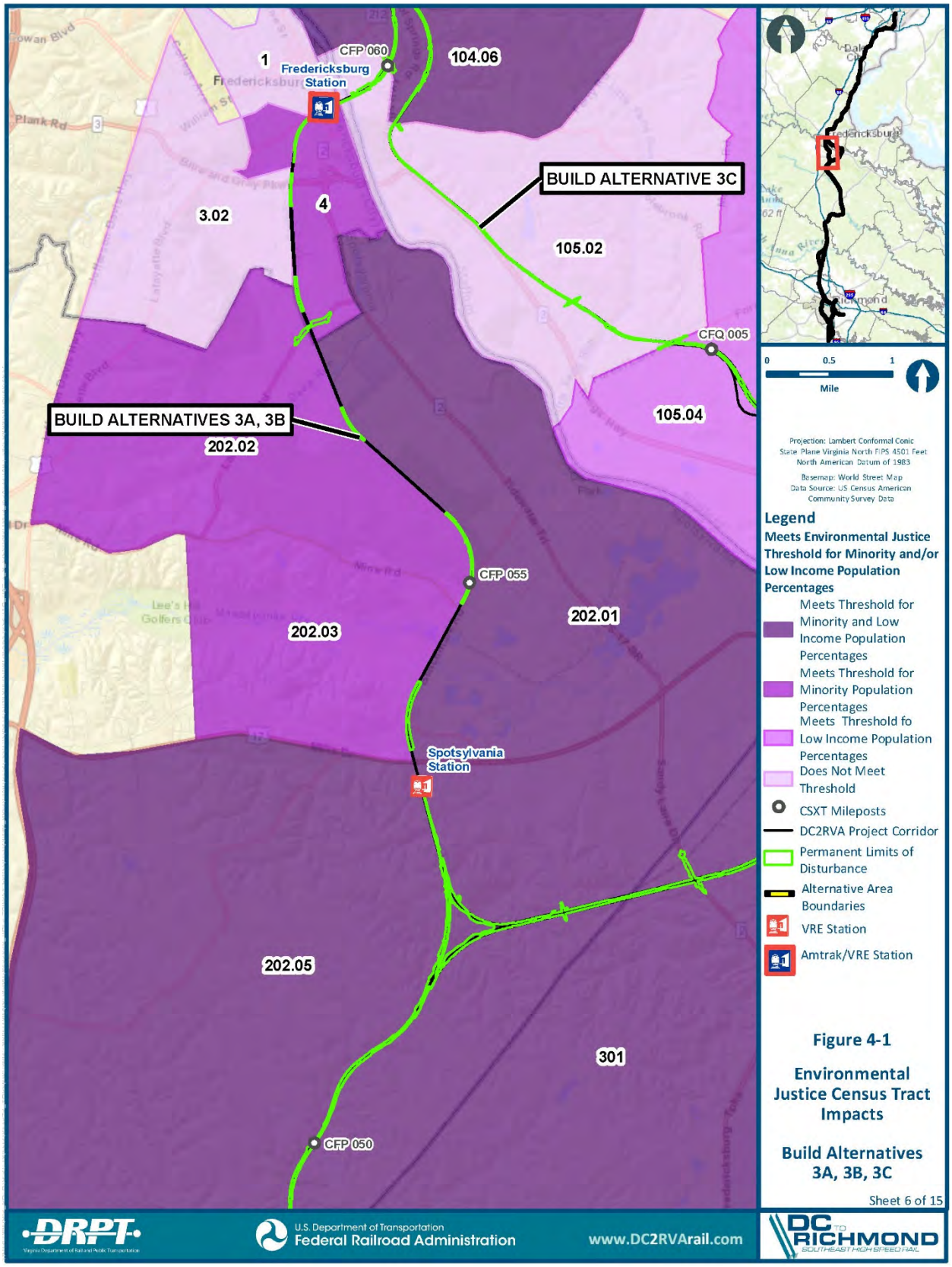
CFP 060
Fredericksburg Station
1
104.06
BUILD ALTERNATIVE 3C
3.02
4
105.02
CFQ 005
BUILD ALTERNATIVES 3A, 3B
202.02
105.04
CFP 055
202.01
202.03
Spotsylvania Station
202.05
301
CFP 050
0
0.5
1
Mile
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Figure 4-1
Environmental Justice Census Tract Impacts
Build Alternatives 3A, 3B, 3C
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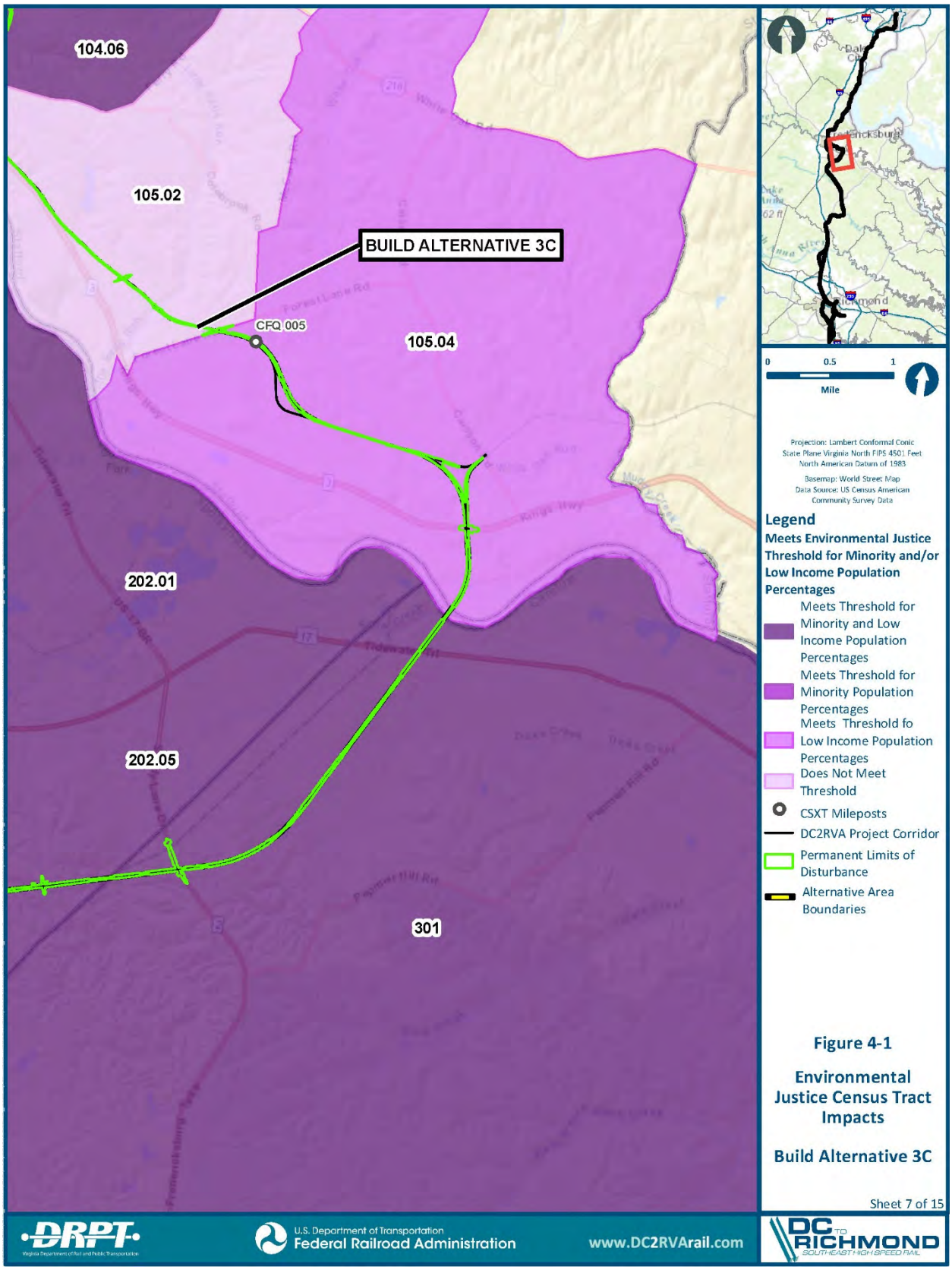
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105.02
BUILD ALTERNATIVE 3C
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Build Alternative 3C
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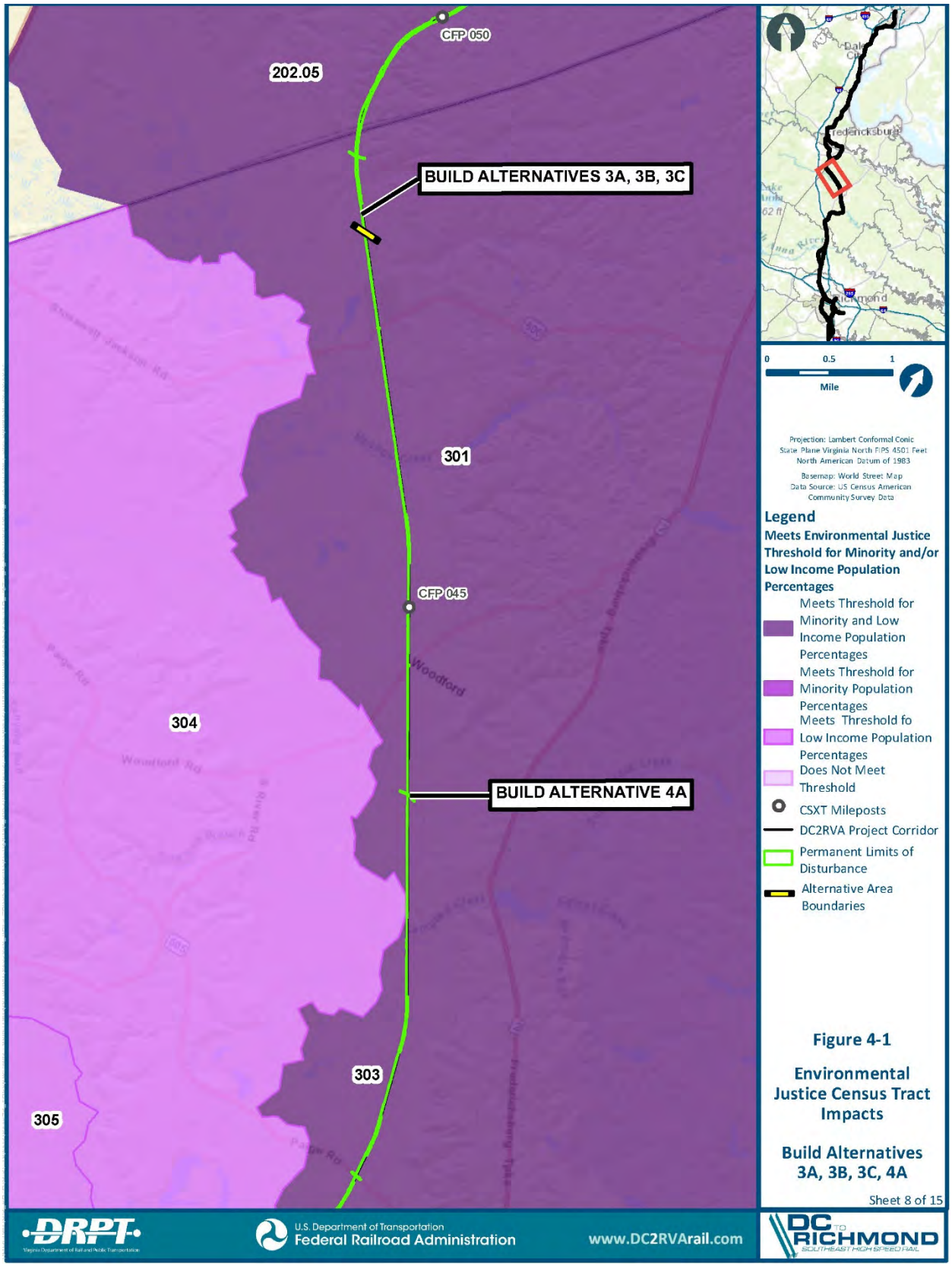
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304
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303
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Fredericksburg
Richmond
0
0.5
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Environmental Justice Census Tract Impacts
Build Alternatives 3A, 3B, 3C, 4A
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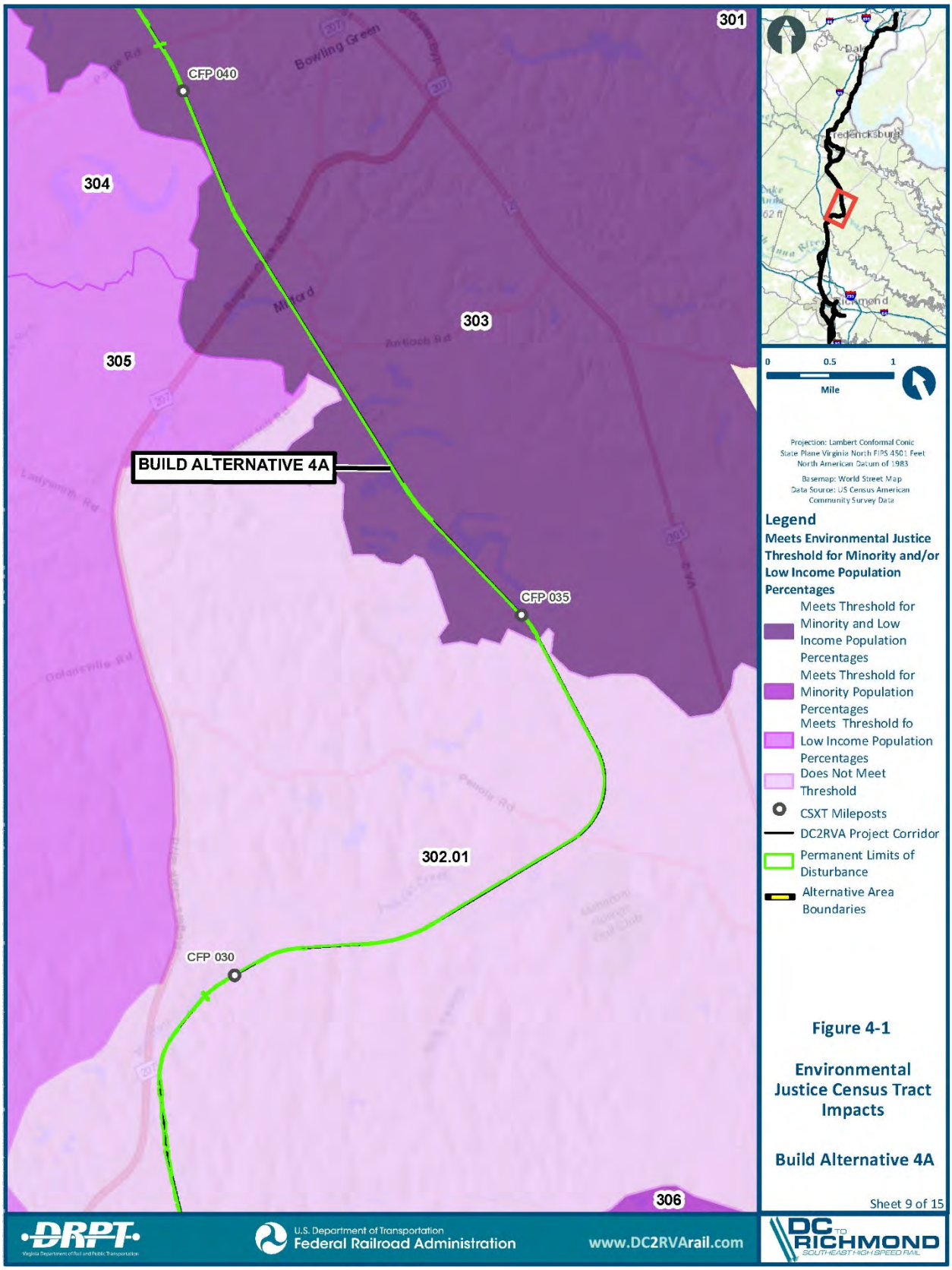
301
CFP 040
Bowling Green
304
303
305
BUILD ALTERNATIVE 4A
CFP 035
302.01
CFP 030
306
Fredericksburg
Richmond
0
0.5
1
Mile
Projection: Lambert Conformal Conic
State Plane Virginia North FIPS 4501 Feet
North American Datum of 1983
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Data Source: US Census American
Community Survey Data
Legend
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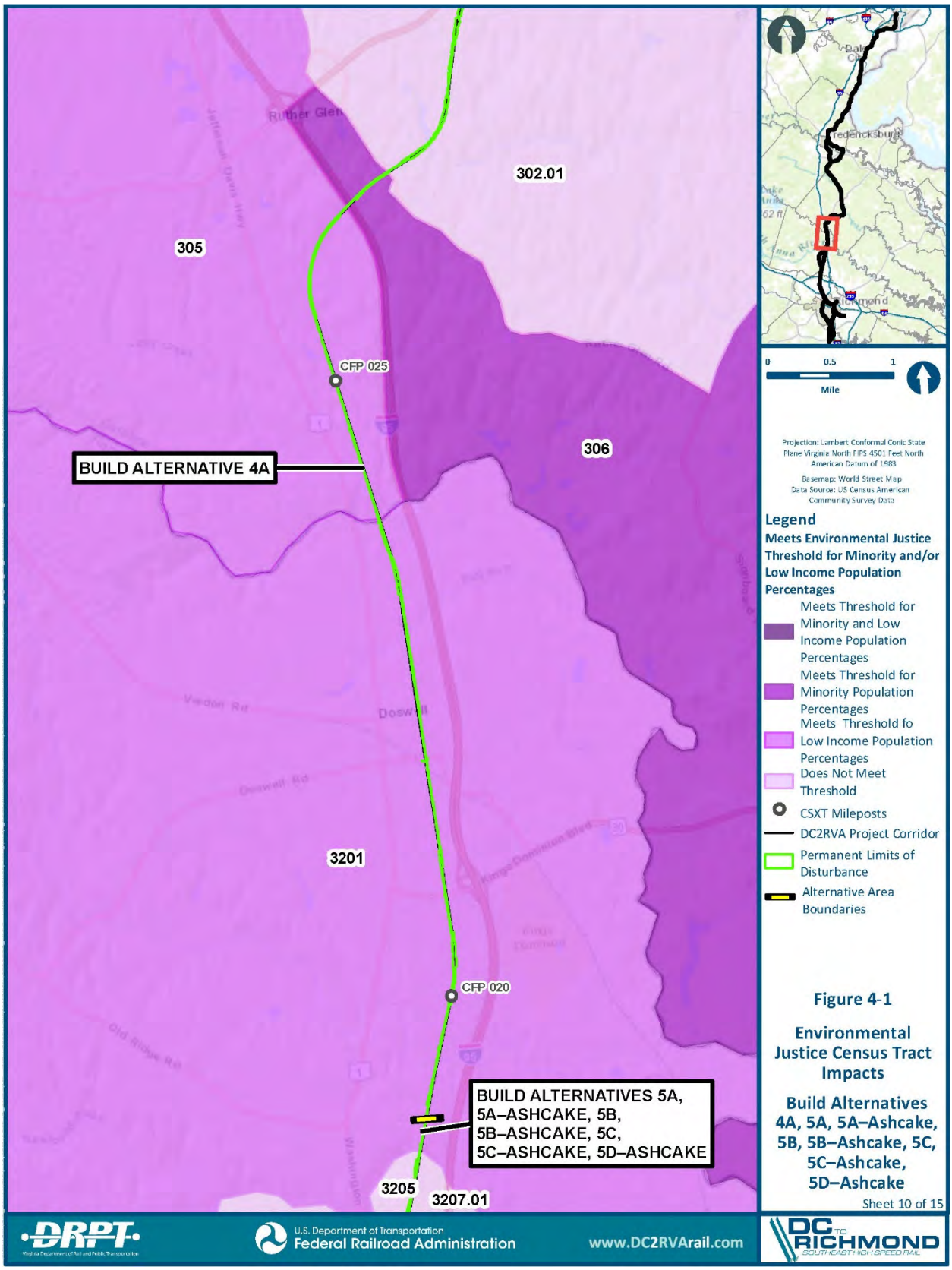
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BUILD ALTERNATIVE 4A
BUILD ALTERNATIVES 5A, 5A–ASHCAKE, 5B, 5B–ASHCAKE, 5C, 5C–ASHCAKE, 5D–ASHCAKE
Ruther Glen
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Projection: Lambert Conformal Conic State Plane Virginia North FIPS 4501 Feet North American Datum of 1983
Basemap: World Street Map
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CSXT Mileposts
DC2RVA Project Corridor
Permanent Limits of Disturbance
Alternative Area Boundaries
Figure 4-1
Environmental Justice Census Tract Impacts
Build Alternatives 4A, 5A, 5A–Ashcake, 5B, 5B–Ashcake, 5C, 5C–Ashcake, 5D–Ashcake
Sheet 10 of 15
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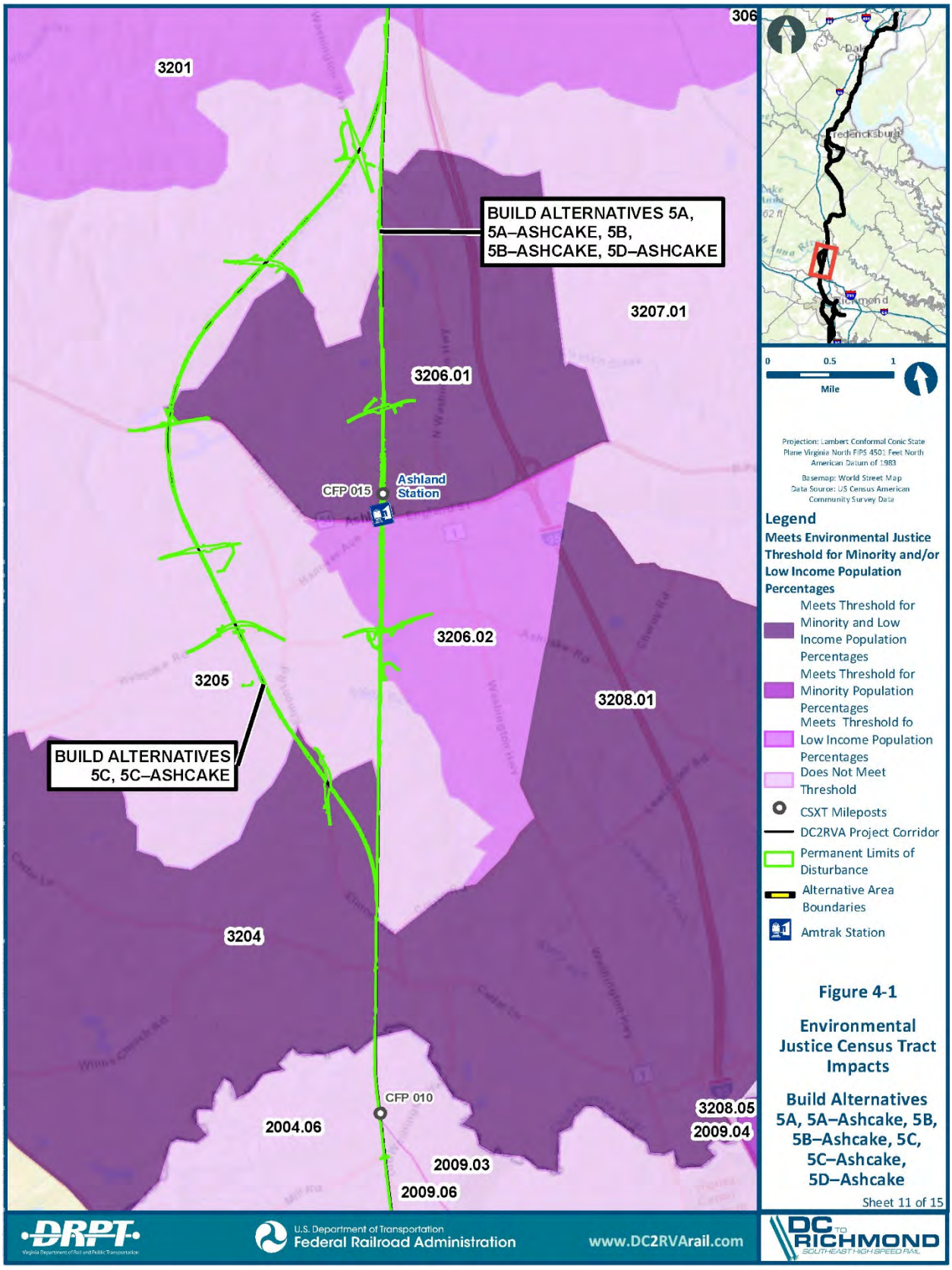
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3206.01
CFP 015
Ashland Station
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BUILD ALTERNATIVES 5C, 5C–ASHCAKE
3204
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Permanent Limits of Disturbance
Alternative Area Boundaries
Amtrak Station
Figure 4-1
Environmental Justice Census Tract Impacts
Build Alternatives 5A, 5A–Ashcake, 5B, 5B–Ashcake, 5C, 5C–Ashcake, 5D–Ashcake
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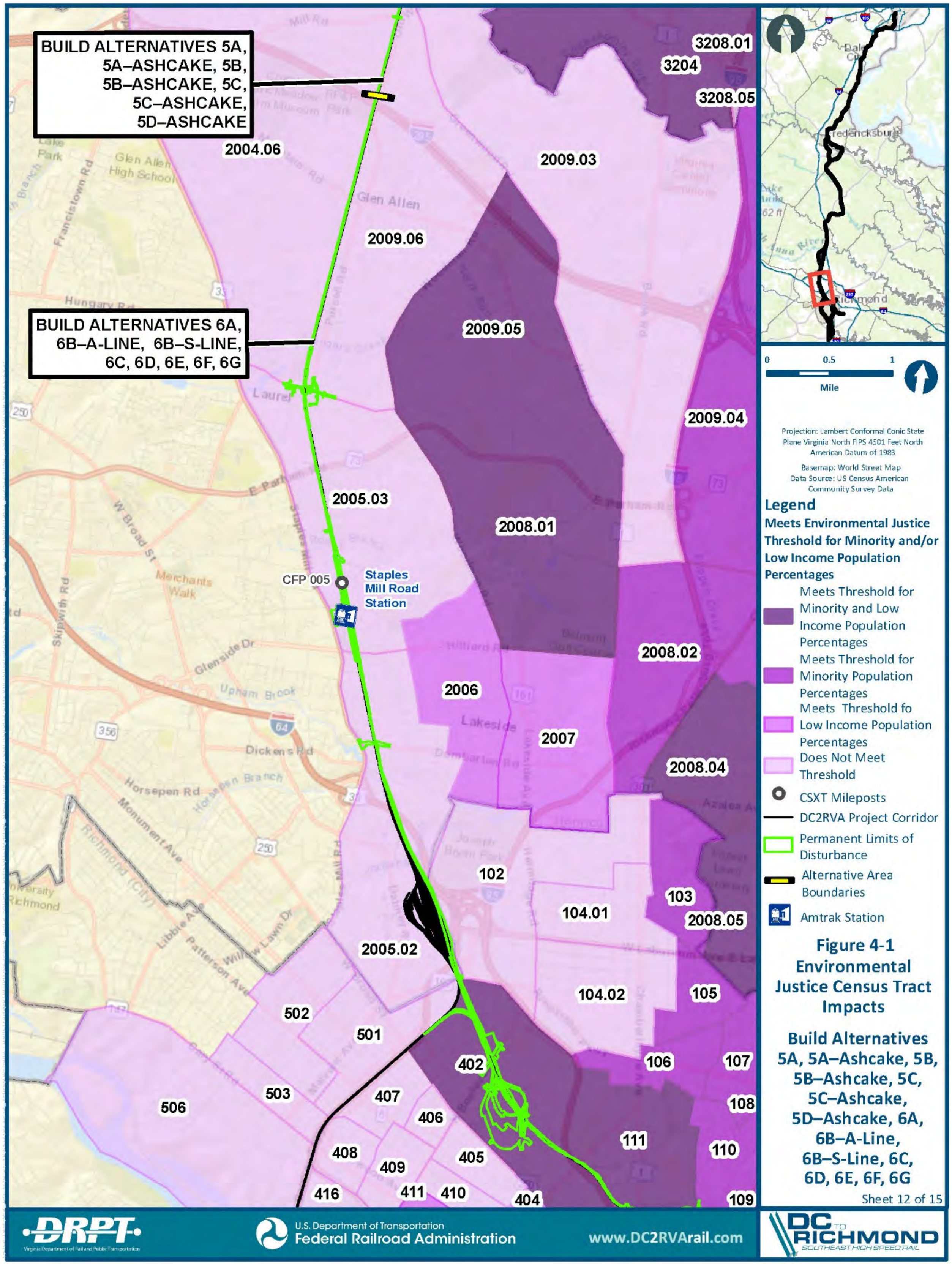
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BUILD ALTERNATIVES 6A, 6B–A-LINE, 6B–S-LINE, 6C, 6D, 6E, 6F, 6G
CFP 005
Staples Mill Road Station
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2009.03
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CSXT Mileposts
DC2RVA Project Corridor
Permanent Limits of Disturbance
Alternative Area Boundaries
Amtrak Station
Figure 4-1 Environmental Justice Census Tract Impacts
Build Alternatives 5A, 5A–Ashcake, 5B, 5B–Ashcake, 5C, 5C–Ashcake, 5D–Ashcake, 6A, 6B–A-Line, 6B–S-Line, 6C, 6D, 6E, 6F, 6G
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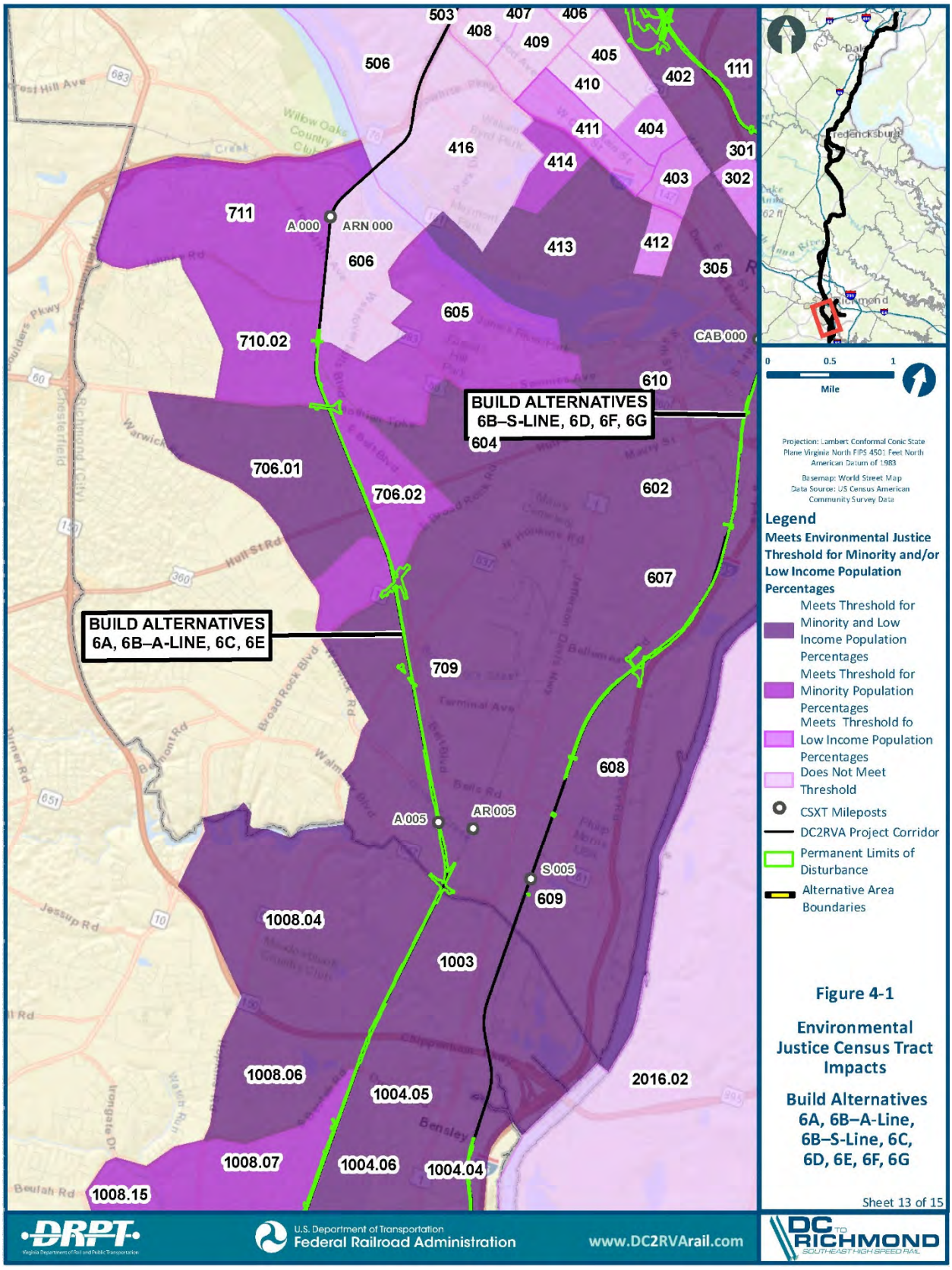
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CAB 000
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BUILD ALTERNATIVES
6B–S-LINE, 6D, 6F, 6G
604
706.01
706.02
602
607
BUILD ALTERNATIVES
6A, 6B–A-LINE, 6C, 6E
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A 005
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S 005
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Figure 4-1
Environmental Justice Census Tract Impacts
Build Alternatives 6A, 6B–A-Line, 6B–S-Line, 6C, 6D, 6E, 6F, 6G
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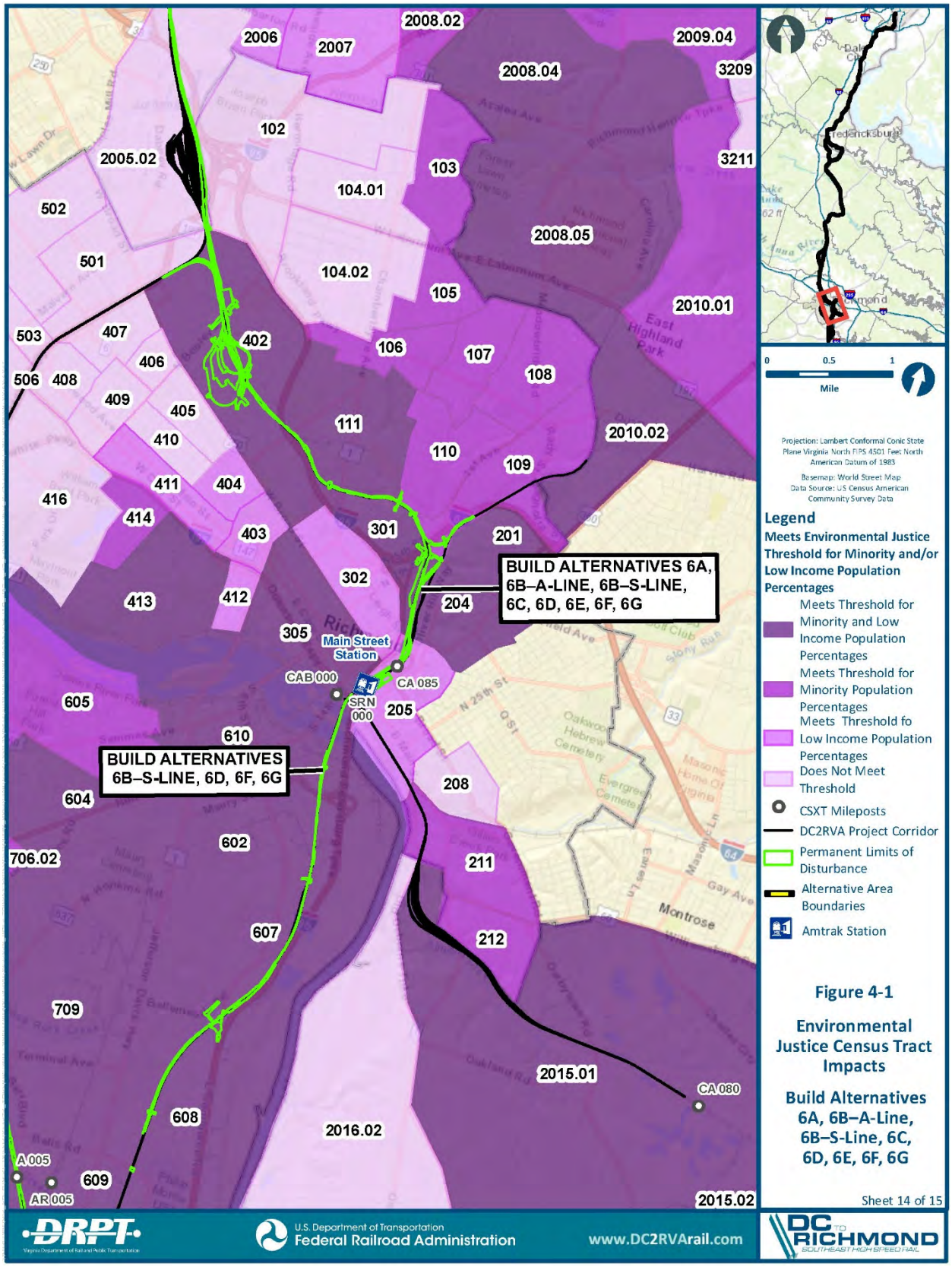
DC TO RICHMOND
SOUTHEAST HIGH SPEED RAIL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BUILD ALTERNATIVES 6A, 6B–A-LINE, 6B–S-LINE, 6C, 6D, 6E, 6F, 6G
302
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Main Street Station
CAB 000
CA 085
SRN 000
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BUILD ALTERNATIVES 6B–S-LINE, 6D, 6F, 6G
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Projection: Lambert Conformal Conic State Plane Virginia North FIPS 4501 Feet North American Datum of 1983
Basemap: World Street Map
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Amtrak Station
Figure 4-1
Environmental Justice Census Tract Impacts
Build Alternatives 6A, 6B–A-Line, 6B–S-Line, 6C, 6D, 6E, 6F, 6G
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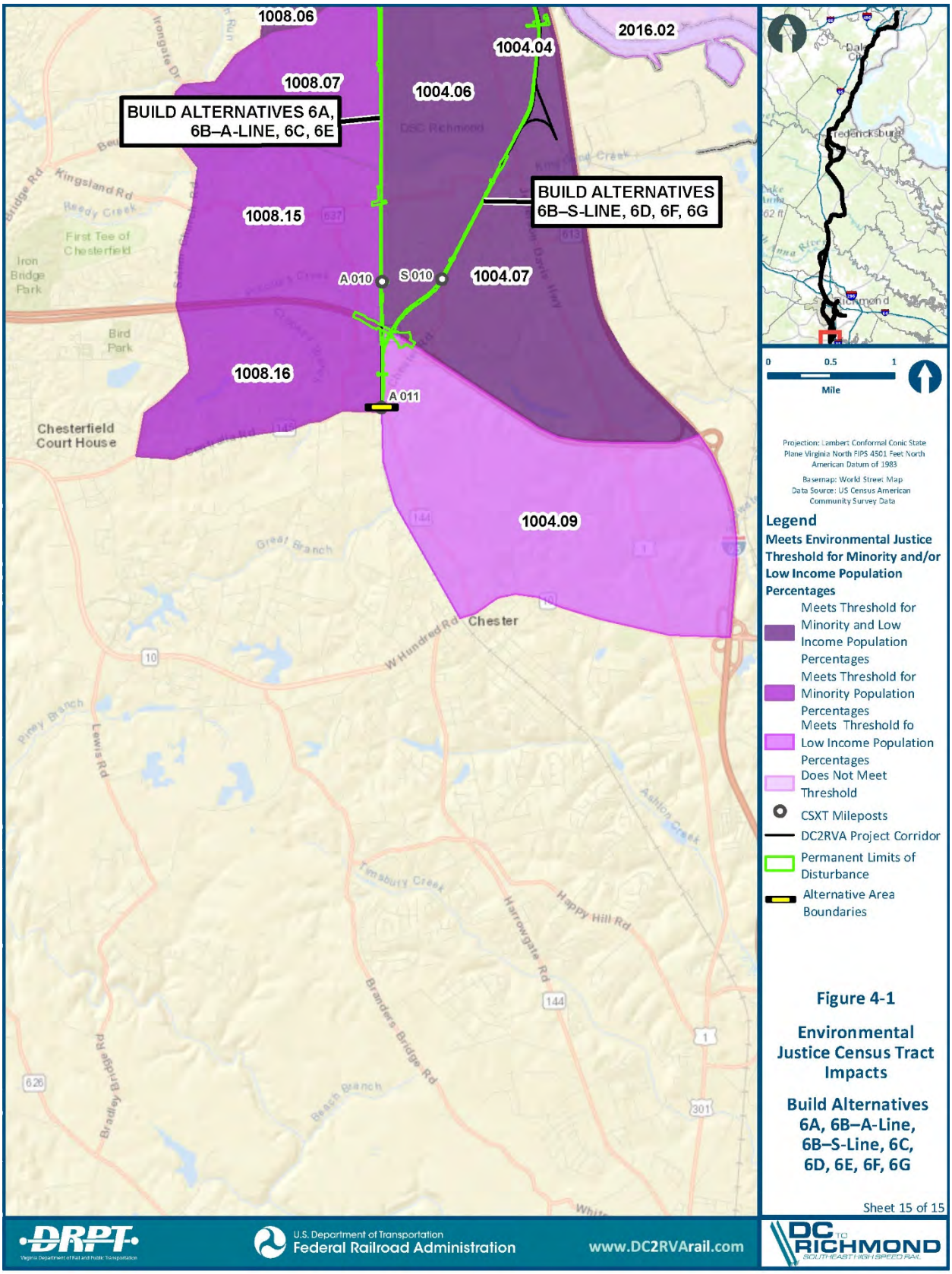
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BUILD ALTERNATIVES 6A, 6B–A-LINE, 6C, 6E
BUILD ALTERNATIVES 6B–S-LINE, 6D, 6F, 6G
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Chesterfield Court House
Chester
Kingsland Rd
Reedy Creek
First Tee of Chesterfield
Iron Bridge Park
Bird Park
Great Branch
W Hundred Rd
Piney Branch
Lewis Rd
Timsbury Creek
Happy Hill Rd
Harrowgate Rd
Brandons Bridge Rd
Bradley Bridge Rd
Beach Branch
Ashton Creek
Fredericksburg
Richmond
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Projection: Lambert Conformal Conic State Plane Virginia North FIPS 4501 Feet North American Datum of 1983
Basemap: World Street Map
Data Source: US Census American Community Survey Data
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Environmental Justice Census Tract Impacts
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4.5 PUBLIC SAFETY AND SECURITY

Each at-grade highway–rail crossing was analyzed to determine which safety mechanisms or treatments would be proposed as part of the Build Alternatives. These treatments include grade separation, closure/consolidation, four-quadrant gates, median treatment, other treatment, or no action. All roadways that would be retained across the Fredericksburg Bypass (Build Alternative 3C) and the Ashland Bypass (Build Alternatives 5C and 5C–Ashcake) would be grade-separated. There would be two new at-grade crossings under the single-station alternative in Richmond at Broad Street (Build Alternative 6C). The Project would improve safety of the private at-grade crossings with either locking gates or signalized four-quadrant gates and would improve safety at the pedestrian at-grade crossings.

Safety of the existing public at-grade crossings in the DC2RVA corridor would be improved as part of the Build Alternatives (*Transportation Technical Report*).

5 SUMMARY OF IMPACTS

Table 5-1 presents a summary of the potential socio-economic impacts for each of the build alternatives.

In Areas 1 and 2 (Arlington and Northern Virginia), the build alternatives would have minimal direct adverse social and economic impacts.

In Area 3 (Fredericksburg), Build Alternatives 3A and 3B would have few direct adverse social and economic impacts. Build Alternative 3C would have 19 residential relocations in two census tracts with potentially disproportionate relocation effects on environmental justice populations.

In Area 4 (Central Virginia), Build Alternative 4A would have minimal direct adverse social and economic impacts.

In Area 5 (Ashland), Build Alternatives 5A, 5A–Ashcake, 5B, 5B–Ashcake, and 5D–Ashcake would have similar direct social and economic effects; these effects would be less than those under Build Alternatives 5C and 5c–Ashcake. Build Alternatives 5C and 5C–Ashcake would have direct effects to communities outside of town and removed from existing rail traffic.

In Area 6 (Richmond), Build Alternatives 6A, 6B–A-Line, 6C, and 6E have similar social impacts, with 6B–A-Line and 6C having the greatest economic impacts due to relocations. Build Alternatives 6B–S-Line, 6D, 6F, and 6G have less social and economic impacts.

Table 5-1: Summary of Impacts within Build Alternatives

Area	Alternative	Residential Relocations	Business Relocations	Community Facility Relocations	Census Tracts with Residential Relocations and Potential EJ Populations
Area 1: Arlington (Long Bridge Approach)	1A	0	0	0	0
	1B	0	0	0	0
	1C	0	0	0	0
Area 2: Northern Virginia	2A	2	0	0	0
Area 3: Fredericksburg (Dahlgren Spur to Crossroads)	3A	0	0	0	0
	3B	0	1	0	0
	3C	19	2	0	2

▶ *Continued*

Table 5-1: Summary of Impacts within Build Alternatives

Area	Alternative	Residential Relocations	Business Relocations	Community Facility Relocations	Census Tracts with Residential Relocations and Potential EJ Populations
Area 4: Central Virginia (Crossroads to Doswell)	4A	0	0	0	0
Area 5: Ashland (Doswell to I-295)	5A	0	1	0	0
	5A–Ashcake	0	1	0	0
	5B	0	1	0	0
	5B–Ashcake	0	1	0	0
	5C	21	1	1	1
	5C–Ashcake	21	1	1	1
	5D–Ashcake	0	1	0	0
Area 6: Richmond (I-295 to Centralia)	6A	12	10	1	2
	6B–A-Line	12	18	1	2
	6B–S-Line	7	10	0	0
	6C	112	15	1	3
	6D	7	10	0	0
	6E	12	10	1	2
	6F	7	10	0	0
	6G	7	10	0	0

Source: City and County Land Use GIS databases, Limits of Disturbance, HDR, 2016.

6 MITIGATION

6.1 ECONOMIC IMPACTS

The build alternatives would have direct effects on economic activity through business/commercial relocations. The acquisition of right-of-way and the relocation of displaced businesses and government properties would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Assurance is given that relocation resources would be available to all business and nonprofit displacees without discrimination. Right-of-way acquisitions may be further minimized as design progresses. Easements may be used in lieu of acquiring new right-of-way for some properties. Temporary easements may also be needed on adjacent property to gain access to the existing rail line and right-of-way during construction activities and for construction staging. If necessary, these temporary easements could be obtained for a short duration, and the land would be returned to its original condition prior to easement lease termination

6.2 COMMUNITY COHESION

There are several communities expected to have community cohesion affected by a build alternative (Table 6-1). Except for the relocation of Calvary Pentecostal Tabernacle camp in Ashland and the Rock Christian Center in McGuire, all the build alternatives have no adverse effects to community facilities, access to these facilities, or access for emergency services. Nevertheless, a dedicated point-of-contact or ombudsman could be available for community concerns and issues throughout the remaining project process, most particularly during construction. This could address issues such as maintenance of existing school routes and emergency services response, access to community facilities, relocation issues, and any other environmental issues that arise during the remaining process and that affect the communities.

6.3 RIGHT-OF-WAY AND RELOCATIONS

DRPT has the ability and, if necessary, is willing to provide housing of last resort, including the purchase of land or dwellings; repair of existing dwellings to meet decent, safe, and sanitary conditions; relocation or remodeling of dwellings purchased by DRPT; or construction of new dwellings. Assurance is given that all displaced families and individuals would be relocated to suitable replacement housing, and that all replacement housing would be fair housing available to all persons without regard to race, color, religion, sex, or national origin and would be within the financial means of the displacees. Each person would be given sufficient time to negotiate for and obtain possession of replacement housing. No residential occupants would be required to move from property needed for the build alternatives until comparable decent, safe, and sanitary replacement dwellings have been made available to them.

Table 6-1: Community Cohesion Effects

Area	Alternative	Communities Affected
Area 1: Arlington (Long Bridge Approach)	1A, 1B, 1C	None
Area 2: Northern Virginia (Long Bridge to Dahlgren Spur)	2A	Brooke, Eskimo Hill Road
Area 3: Fredericksburg (Dahlgren Spur to Crossroads)	3A	None
	3B	None
	3C	Little Falls, Sandy Lane Drive, Swan Lane, Thornton Rolling Road, Patriot Lane
Area 4: Central Virginia (Crossroads to Doswell)	4A	None
Area 5: Ashland (Doswell to I-295)	5A	Ashland, Gwathmey, Elmont
	5A–Ashcake	Ashland, Gwathmey, Elmont
	5B	Ashland, Gwathmey, Elmont
	5B–Ashcake	Ashland, Gwathmey, Elmont
	5C	Ashland, Gwathmey, Elmont, Blunts Bridge Road, Independence Road, Ashcake Road/Wildwood Boulevard
	5C–Ashcake	Ashland, Gwathmey, Elmont, Blunts Bridge Road, Independence Road, Ashcake Road/Wildwood Boulevard
	5D–Ashcake	Ashland, Gwathmey, Elmont
Area 6: Richmond (I-295 to Centralia)	6A	Laurel Park, McGuire
	6B–A-Line	Laurel Park, McGuire
	6B–S-Line	Laurel Park
	6C	Laurel Park, McGuire
	6D	Laurel Park
	6E	Laurel Park, McGuire
	6F	Laurel Park
	6G	Laurel Park

The acquisition of right-of-way and the relocation of displacees would be in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Assurance is given that relocation resources would be available to all residential, business, farm, and nonprofit displacees without discrimination.

6.4 TITLE VI AND ENVIRONMENTAL JUSTICE

The primary effects on Title VI and environmental justice populations are through residential relocations. Build Alternatives 3C, 5C, 5C–Ashcake, 6A, 6B–A-Line, 6C, and 6E have the potential to impact six census tracts with low-income and minority populations, out of a total of ten census

tracts with residential relocations. The majority of effects to potential environmental justice populations occurs in Spotsylvania and Hanover counties in Areas 3 and 5 and the city of Richmond in Area 6. In all these areas, there are other build alternatives which would result in avoiding the potentially disproportionate high and adverse effects on environmental justice populations. In addition, public outreach has been integral to the project since the Project kick-off in the Fall of 2014 (Chapter 6 of the Draft EIS). DRPT launched a dedicated project website and social media accounts in October 2014. Newspaper and on-line advertising was in both English and Spanish for the project kick-off and all subsequent public outreach milestones and events. Public outreach has included public meetings, a project mailing list, newsletters, small group information meetings, and a continued presence on social media (i.e., project website, twitter, facebook). In a manner similar to community cohesion, a dedicated point-of-contact or ombudsman could be available for concerns and issues related to the environmental justice populations throughout the remaining project process.

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A EXISTING LAND USE MAPS