III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL, AND HISTORIC FEATURES

C. Detail the nature, location, and ownership of each building that would have to be demolished or relocated if the project is built as proposed.

Response: During the initial review of the existing Rebuild Project transmission corridor right-of-way, the Company identified 71 unauthorized encroachments in the Rebuild Project right-of-way. The encroachments generally consisted of sheds or vehicles and equipment stored beneath the line. The encroachments will need to be addressed with the respective property owners as the Company continues to investigate the right-of-way.

The Company is not aware of any permanent residences encroaching within the right-of-way in Fauquier County, Spotsylvania County, or Caroline County. There is one permanent residence encroaching in the right-of-way in Stafford County. The Company will work with affected property owner to address any potential issues.

In support of the Rebuild Project, the Company will be reviewing the entire corridor width prior to construction and plans to address unauthorized encroachments and easement violations as appropriate.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL, AND HISTORIC FEATURES

D. Identify existing physical facilities that the line will parallel, if any, such as existing transmission lines, railroad tracks, highways, pipelines, etc. Describe the current use and physical appearance and characteristics of the existing ROW that would be paralleled, as well as the length of time the transmission ROW has been in use.

Response: The Rebuild Project will be constructed within an existing maintained transmission corridor right-of-way. A gas line parallels and is co-located within the existing right-of-way that contains Line #552 for approximately 4.7 miles leaving the Bristers Switching Station heading south. In addition, leaving Bristers Switching Station, there is a variable width right-of-way for a NOVEC transmission line, ranging in width from 60 to 100 feet, located along the western edge of the Rebuild Project area for approximately 3.1 miles. The gas line again parallels and is co-located with both Line #552 and Line #581 for approximately 17.2 miles from just south of existing Structure #552/214 to south of existing Structure #581/55. Line #198, a 115 kV transmission line, is also co-located with Line #581, for approximately 1.2 miles, as an underbuild on existing Structures #581/2 to #581/7. No major interstate highways or railroads are crossed by the existing lines. See Attachment II.A.2.

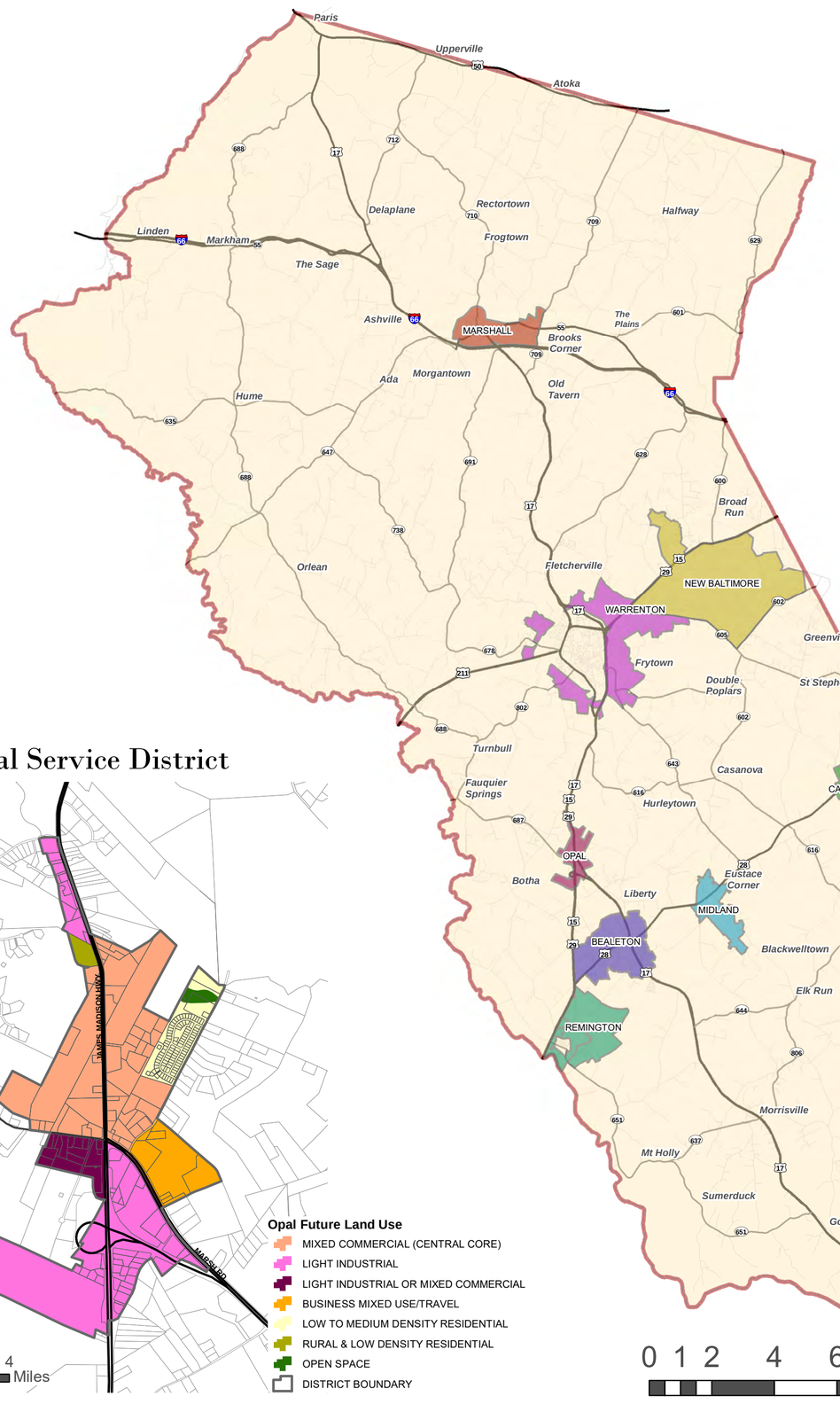
III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL, AND HISTORIC FEATURES

E. Indicate whether the Applicant has investigated land use plans in the areas of the proposed route and indicate how the building of the proposed line would affect any proposed land use.

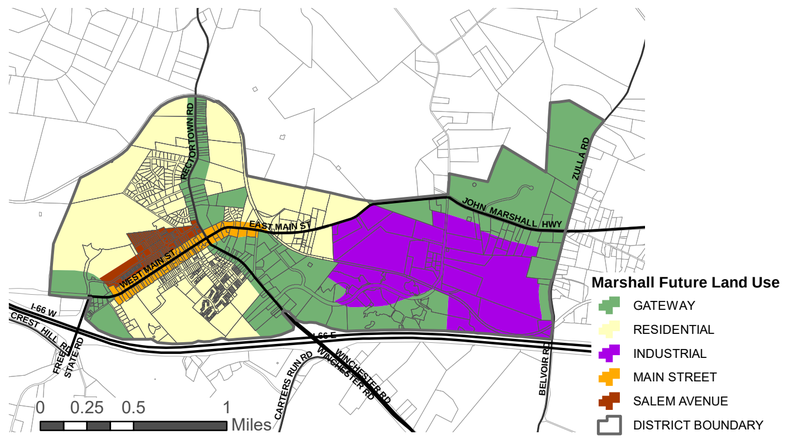
Response: The Company reviewed the *Comprehensive Plan for Fauquier County*, the *Comprehensive Plan for Stafford County*, the *Comprehensive Plan for Spotsylvania County*, and the *Comprehensive Plan for Caroline County* to evaluate the potential effect the Rebuild Project could have on future development. The placement and construction of electric transmission lines is not addressed within these plans. The Rebuild Project is located entirely within existing right-of-way or on Company-owned property and is not expected to affect land use. The Rebuild Project is not expected to impact the character of these localities as the transmission corridor has been in use for at least 53 years.

See Attachments III.E.1-4 for County land use maps.

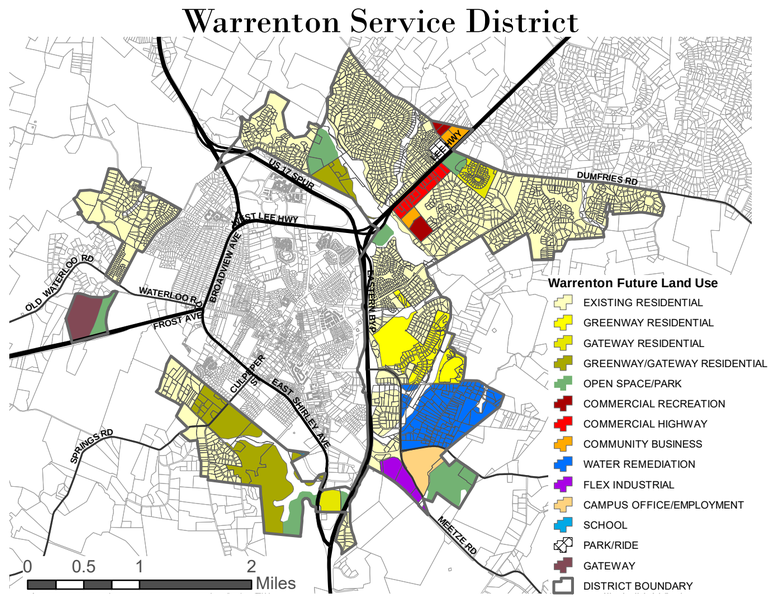
FAUQUIER COUNTY, VA
Service District Land Use Plans



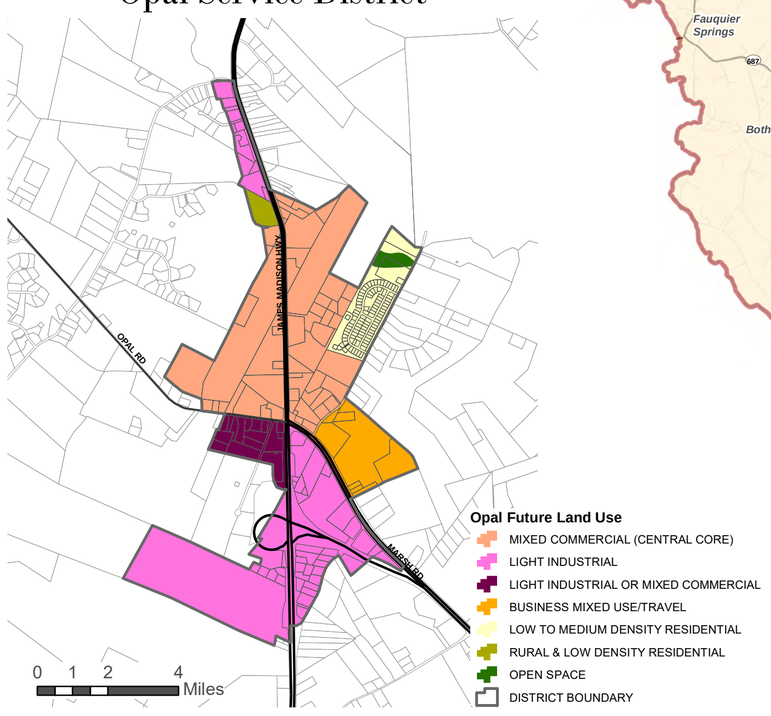
Marshall Service District



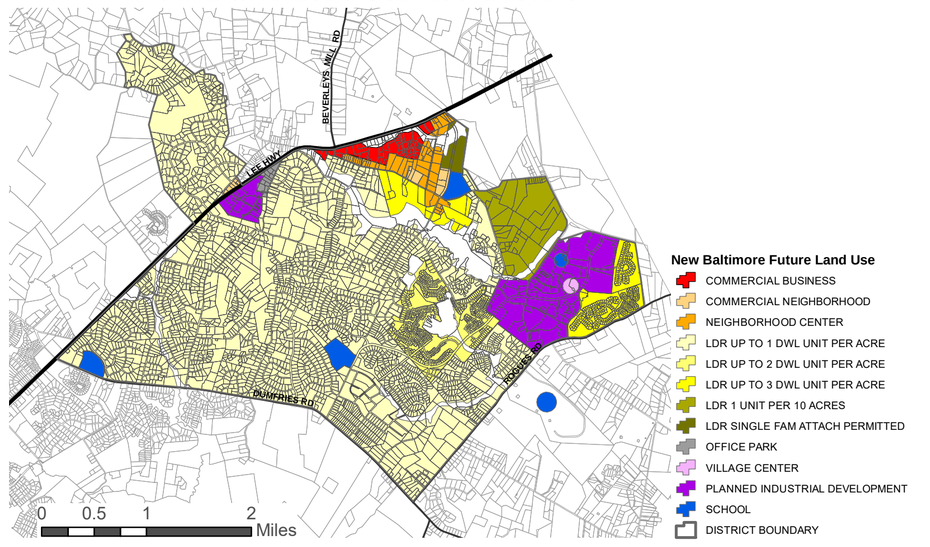
Warrenton Service District



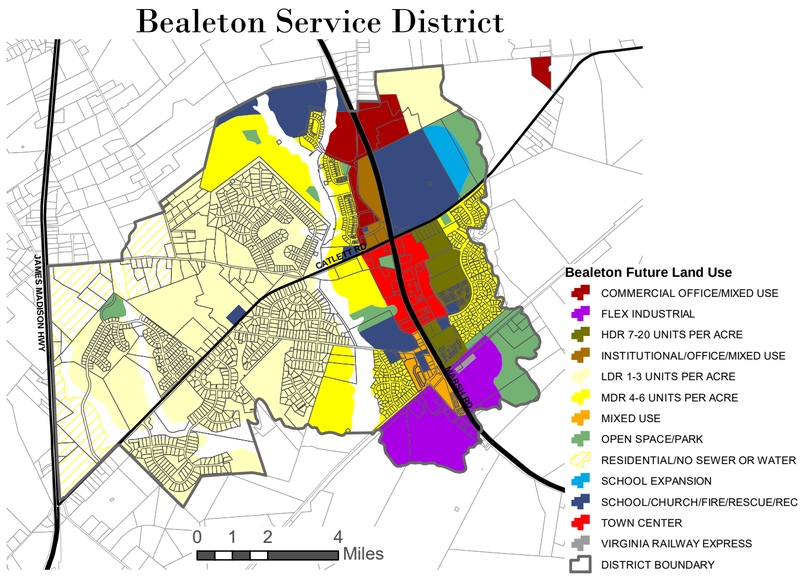
Opal Service District



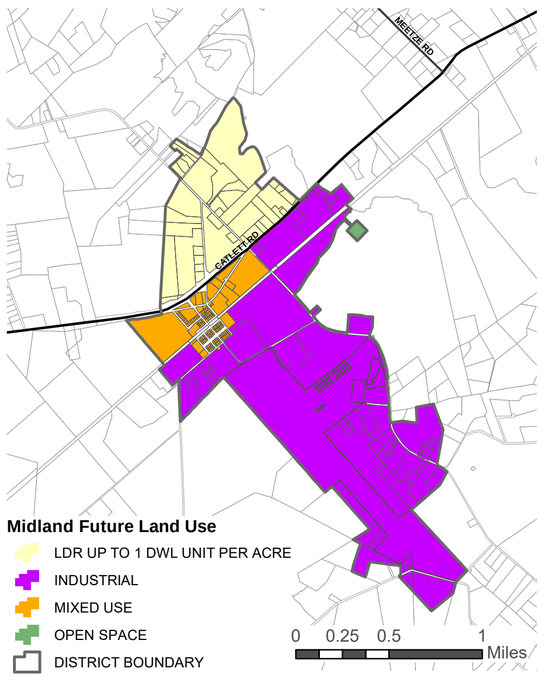
New Baltimore Service District



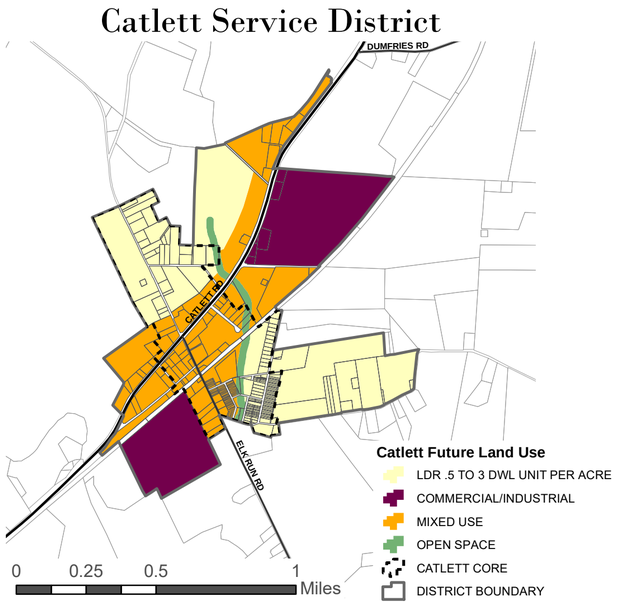
Bealeton Service District



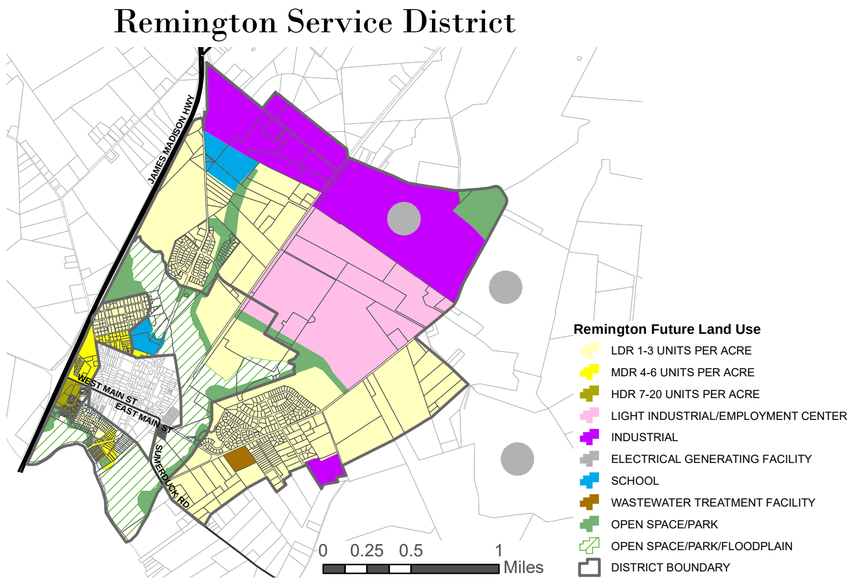
Midland Service District



Catlett Service District



Remington Service District



Fauquier County has eight individual Service Districts designed to accomodate the highest density residential, commercial, and industrial uses in the county. Service Districts are either currently served with public utilities or planned for the future provision of some type of public utilities form of public sewer, water or both.

Page Size: 24"x36"

Created by Fauquier County GIS Dept.
Date: 3/13/2018

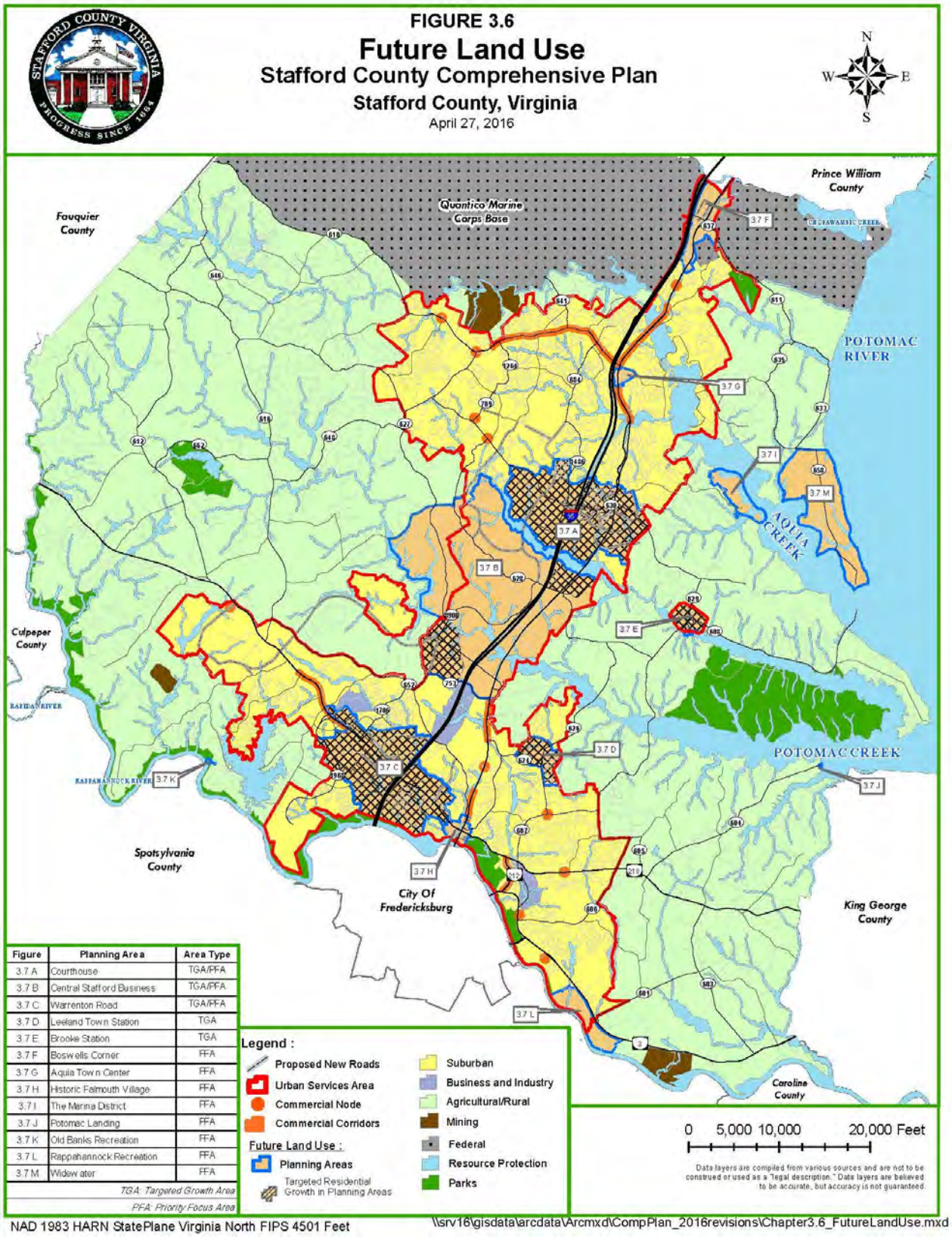
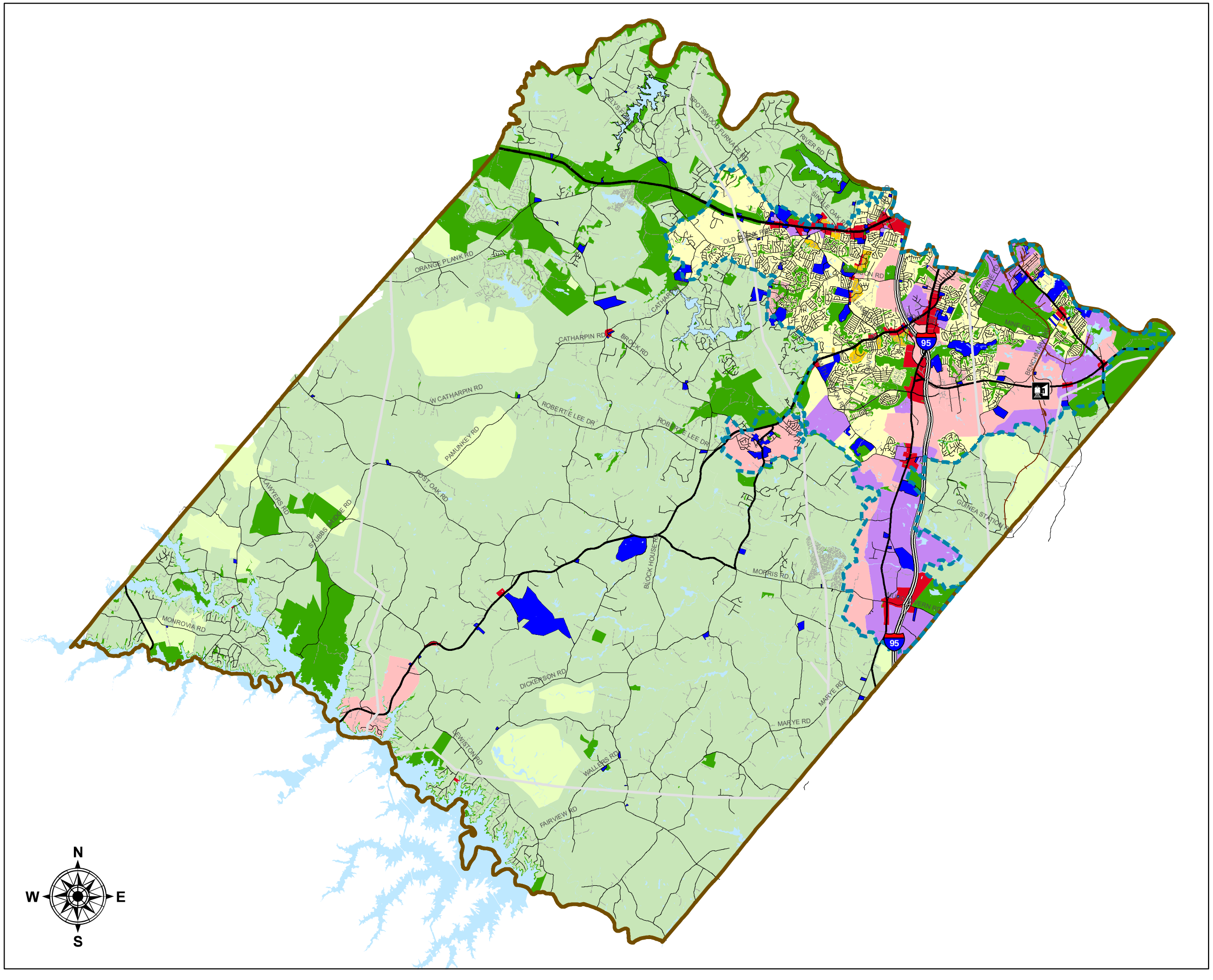


Figure	Planning Area	Area Type
3.7 A	Courthouse	TGA/PFA
3.7 B	Central Stafford Business	TGA/PFA
3.7 C	Warrenton Road	TGA/PFA
3.7 D	Leeland Town Station	TGA
3.7 E	Brooke Station	TGA
3.7 F	Boswells Corner	PFA
3.7 G	Aquia Town Center	PFA
3.7 H	Historic Falmouth Village	PFA
3.7 I	The Marina District	PFA
3.7 J	Potomac Landing	PFA
3.7 K	Old Banks Recreation	PFA
3.7 L	Rappahannock Recreation	PFA
3.7 M	Widewater	PFA

TGA: Targeted Growth Area
PFA: Priority Focus Area

Spotsylvania County Future Land Use



Legend

- Primary Development Boundary
- Water

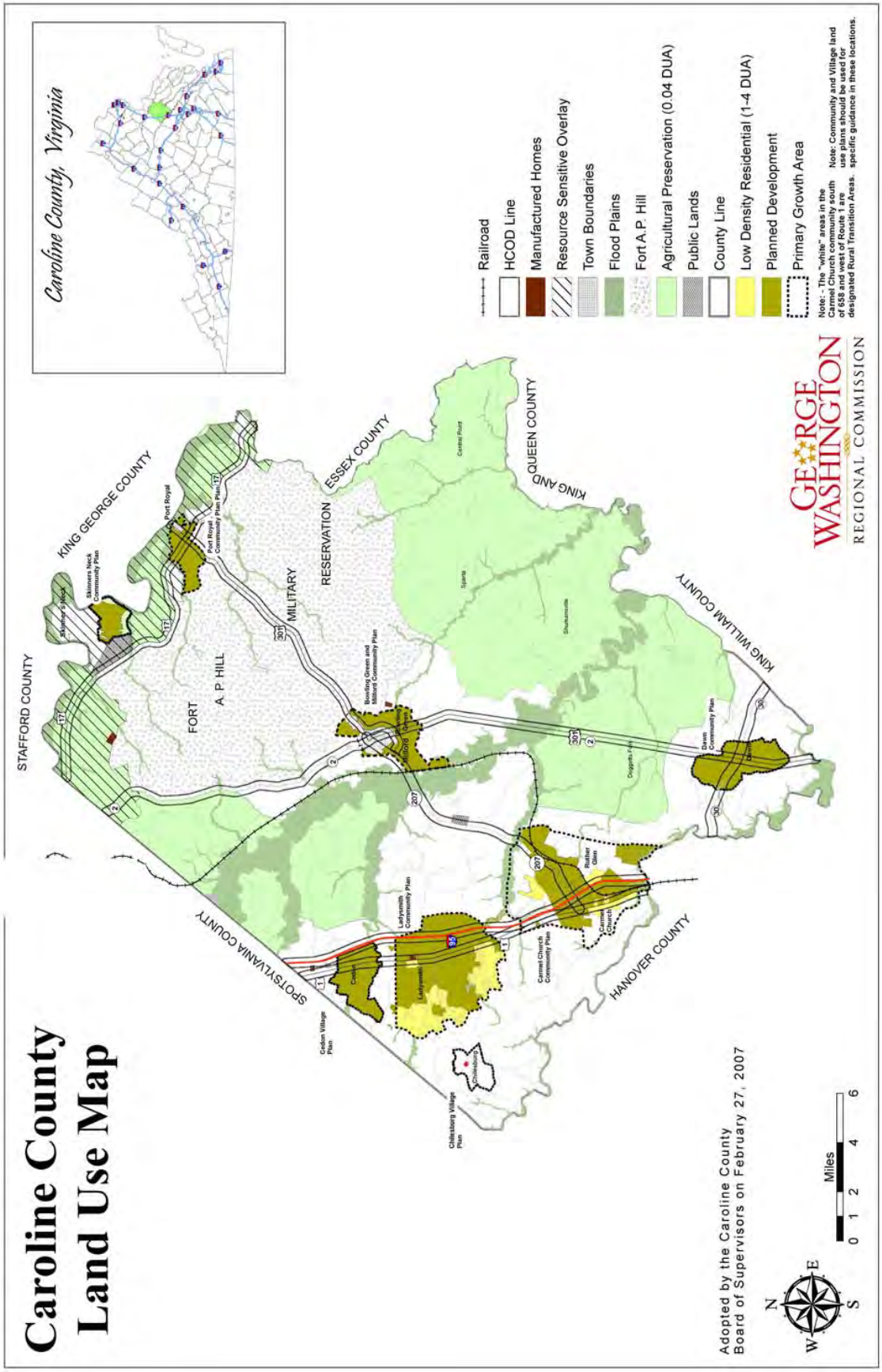
Land Use Designations

- Open Space
- Institutional
- Commercial Land Use
- Employment Centers
- Mixed Land Use
- High Density Residential Land Use
- Low Density Residential Land Use
- Rural Residential Land Use
- Agricultural and Forestal Land Use

0 1.25 2.5 5 Miles

1 inch = 2.7 miles

Map Approved: November 14, 2013


Caroline County Land Use Map
Caroline County, Virginia
Railroad
HCOD Line
Manufactured Homes
Resource Sensitive Overlay
Town Boundaries
Flood Plains
Fort A.P. Hill
Agricultural Preservation (0.04 DUA)
Public Lands
County Line
Low Density Residential (1-4 DUA)
Planned Development
Primary Growth Area
Note: - The "white" areas in the Carmel Church community south of 638 and west of Route 1 are designated Rural Transition Areas.
Note: Community and Village land use plans should be used for specific guidance in these locations.
STAFFORD COUNTY
KING GEORGE COUNTY
FORT A. P HILL MILITARY RESERVATION
ESSEX COUNTY
KING AND QUEEN COUNTY
KING WILLIAM COUNTY
SPOTSYLVANIA COUNTY
HANOVER COUNTY
Port Royal
Port Royal Community Plan
Skinners Neck Community Plan
Bowling Green and Milford Community Plan
Ladysmith Community Plan
Carmel Church Community Plan
Dawn Community Plan
Rutter Glen
Corbin Village Plan
Chilesburg Village Plan
Adopted by the Caroline County Board of Supervisors on February 27, 2007
Miles
0 1 2 4 6
N
S
E
W
GEORGE WASHINGTON
REGIONAL COMMISSION

Map 8-1

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL, AND HISTORIC FEATURES

F. Government Bodies

1. Indicate if the Applicant determined from the governing bodies of each county, city and town in which the proposed facilities will be located whether those bodies have designated the important farmlands within their jurisdictions, as required by § 3.2-205 B of the Code.

2. If so, and if any portion of the proposed facilities will be located on any such important farmland:

a. Include maps and other evidence showing the nature and extent of the impact on such farmlands;

b. Describe what alternatives exist to locating the proposed facilities on the affected farmlands, and why those alternatives are not suitable; and

c. Describe the Applicant's proposals to minimize the impact of the facilities on the affected farmland.

Response: Comprehensive Plans and County Ordinances were reviewed to determine whether the governing bodies of Fauquier, Stafford, Spotsylvania, and Caroline Counties have designated important farmlands within their jurisdiction under Va. Code § 3.2-205 B. Of these counties, only Fauquier and Spotsylvania Counties have such designations. No designations were identified for Stafford or Caroline Counties. The proposed Rebuild Project is not expected to impact important farmlands in any of the counties crossed as the Rebuild Project is being reconstructed within the existing corridor that has been in use for at least 53 years.

Fauquier County has designated 12 Agricultural and Forestal Districts within its jurisdiction under Va. Code § 3.2-205 B. These districts include approximately 81,600 acres (approximately 20% of the total area of the County).

Spotsylvania County currently has designated three Agricultural and Forestal Districts within their jurisdiction under Va. Code § 3.2-205 B, totaling 2,883 acres (approximately 1% of the total area of the County). The majority of the existing transmission line is within the rural residential land future use. A smaller section of the existing transmission line near the Chancellor Substation varies future use between rural residential land use, institutional land use, and mixed land use.

The construction of access roads and pads for structure erection may represent a temporary impact to farming operations that are occurring within the existing Company easement. The Company utilizes timber mats to access transmission

structures within agricultural fields to minimize the impact to the soil, thereby avoiding permanent impact to farmlands. Acquisition of additional right-of-way is not required as part of the proposed Rebuild Project; therefore, construction of electric transmission structures would not occur on agricultural land outside of the existing Company easements. The Company will work with landowners on final structure placement to minimize the effect of construction on farming operations occurring within Company easements.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL, AND HISTORIC FEATURES

G. Identify the following that lie within or adjacent to the proposed ROW:

1. **Any district, site, building, structure, or other object included in the National Register of Historic Places maintained by the U.S. Secretary of the Interior;**

2. **Any historic architectural, archeological, and cultural resources, such as historic landmarks, battlefields, sites, buildings, structures, districts or objects listed or determined eligible by the Virginia Department of Historic Resources ("DHR");**

3. **Any historic district designated by the governing body of any city or county;**

4. **Any state archaeological site or zone designated by the Director of the DHR, or its predecessor, and any site designated by a local archaeological commission, or similar body;**

5. **Any underwater historic assets designated by the DHR, or predecessor agency or board;**

6. **Any National Natural Landmark designated by the U.S. Secretary of the Interior;**

7. **Any area or feature included in the Virginia Registry of Natural Areas maintained by the Virginia Department of Conservation and Recreation ("DCR");**

8. **Any area accepted by the Director of the DCR for the Virginia Natural Area Preserves System;**

9. **Any conservation easement or open space easement qualifying under §§ 10.1-1009 – 1016, or §§ 10.1-1700 – 1705, of the Code (or a comparable prior or subsequent provision of the Code);**

10. **Any state scenic river;**

11. **Any lands owned by a municipality or school district; and**

12. **Any federal, state or local battlefield, park, forest, game or wildlife preserve, recreational area, or similar facility. Features, sites, and the like listed in 1 through 11 above need not be identified again.**

Response:

1. There are four resources listed on the NRHP within one mile of the Rebuild Project. The following resources are listed on the NRHP and located within one mile of the Rebuild Project centerline: the Tubal Furnace Archaeological Site (ID# 088-0074), the Rapidan Dam Canal of the Rappahannock Navigation (ID# 088-0137), the Spotsylvania Courthouse District (ID# 088-0142), and the Fredericksburg and Spotsylvania Battlefields National Military Park (ID# 111-0147). The table in Section II.A.11 provides the distances of each resource to the Rebuild Project centerline.
2. There are 13 resources within one mile of the Rebuild Project that have been listed or determined eligible by the VDHR. These resources include the following: Elk Run Historic District (ID# 030-5588), Hedgeman-Rappahannock Rural Historic District (ID# 030-5607), Berkwood (ID# 088-0015), Gayle House (ID# 088-0059), Whig Hill (ID# 088-0070), Ashley Farm (ID# 088-0220), Confederate Cemetery (ID# 088-0229), Rowe House (ID# 088-5129), Chancellorsville Battlefield (ID# 088-5180), Spotsylvania Court House Battlefield (ID# 088-5182), Fredericksburg and Gordonsville Railroad (ID# 088-5364), and Rappahannock Navigation System (Canal) (ID# 111-0134). The table in Section II.A.11 provides the distances of each resource to the Rebuild Project centerline.
3. The Spotsylvania Courthouse District designated by Spotsylvania County is within one mile of the Rebuild Project.
4. None.
5. None.
6. None.
7. None.
8. None.
9. There are 34 easements that are crossed by or within one mile of the Rebuild Project. See Attachment II.A.9.
10. The portion of the Rappahannock River crossed by the Rebuild Project is a designated scenic river. The Rebuild Project is not anticipated to impact the resource.
11. None.
12. None.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL, AND HISTORIC FEATURES

H. List any registered aeronautical facilities (airports, helipads) where the proposed route would place a structure or conductor within the federally-defined airspace of the facilities. Advise of contacts, and results of contacts, made with appropriate officials regarding the effect on the facilities' operations.

Response: The Federal Aviation Administration ("FAA") is responsible for overseeing air transportation in the United States. The FAA manages air traffic in the United States and evaluates physical objects that may affect the safety of aeronautical operations through an obstruction evaluation. The prime objective of the FAA in conducting an obstruction evaluation is to ensure the safety of air navigation and the efficient utilization of navigable airspace by aircraft.

The Company has reviewed the FAA's website[11] to identify airports within 10 miles of the proposed Rebuild Project. Based on this review, three FAA-restricted airports were identified:

- Warrenton-Fauquier Airport, 6.4 miles west of Bristers Switching Station;
- Shannon Airport, 7.6 miles east of Chancellor Substation; and
- Stafford Regional Airport, 11.9 miles northeast of Chancellor Substation.

One private airport/helipad is located within 10 miles of the proposed Rebuild Project:

- Heth Army Helicopter Airport, 12.3 miles northeast of Ladysmith Switching Station.

The Company will work with this private entity, as appropriate.

In a letter dated March 23, 2020, the Virginia Department of Aviation ("DOAv") stated that it does not appear as though any portion of the proposed Rebuild Project will be located within 20,000 linear feet of a public use airport. Therefore, unless any of the support structures or temporary cranes reach a height of 200 feet above ground level, no airspace case would be required by the FAA. See Attachment 2.N.3 of the DEQ Supplement. See also Section 2.N of the DEQ Supplement.

[11] *See* https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL, AND HISTORIC FEATURES

I. Advise of any scenic byways that are in close proximity to or that will be crossed by the proposed transmission line and describe what steps will be taken to mitigate any visual impacts on such byways. Describe typical mitigation techniques for other highways' crossings.

Response: The existing right-of-way to be used for the proposed Rebuild Project crosses Plank Road (State Route 3), which has been designated as a Virginia scenic road, as well as River Road (State Route 618), which is designated as a Virginia byway. The proposed Rebuild Project will be constructed within existing right-of-way to mitigate incremental impacts to these byways. Additionally, the Company will consult with VDOT to assess any impacts to the scenic byways.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL, AND HISTORIC FEATURES

J. Identify coordination with appropriate municipal, state, and federal agencies.

Response: As described in Sections III.B and V.D of the Appendix, the Company solicited feedback from Fauquier County, Stafford County, Spotsylvania County, and Caroline County. Below is a list of coordination efforts that have occurred with municipal, state, and federal agencies:

- In late February 2020, the Company began briefing regional elected officials and county staff on the Rebuild Project. These officials included Delegates Bobby Orrock and Mark Cole; Senators Jill Vogel, Richard Stuart, Bryce Reeves, and Ryan McDougle; Fauquier County Administrator Paul S. McCulla; Stafford County Administrator Thomas C. Foley; Stafford Legislative Affairs Officer Anthony Toigo; Stafford Board of Supervisors Gary Snellings; Spotsylvania County Administrator Ed Petrovitch; Spotsylvania Board of Supervisors David Ross, Barry Jet, Kevin Marshall, and Tom McLaughlin; and Caroline County Administrator Charles M. Culley, Jr.

- In March 2020, the Company solicited comments via letter from several federally recognized Native American tribes, including the Cheroenhaka (Nottoway) Indian Tribe, Chickahominy Indian Tribe, Chickahominy Indian Tribe Eastern Division, Mattaponi Tribe, Monacan Indian Nation, Nansemond Indian Nation, Nottoway Indian Tribe of Virginia, Pamunkey Indian Tribe, Patawomeck Indian Tribe of Virginia, Rappahannock Tribe, and Upper Mattaponi Indian Tribe. A copy of the letter template and overview map is attached as Attachment III.J.1.

- On April 21, 2020, the project team hosted an online meeting with Terry Clouthier of the Pamunkey Tribe to gain feedback on cultural and environmental concerns regarding the Rebuild Project.

March 17, 2020

Proposed Bristers-Ladysmith Electric Transmission Partial Rebuild Project

Dear _____:

At Dominion Energy, we are dedicated to finding the best solution for our long-term needs in the communities we serve. As a valued stakeholder with a vested interest in the community, we invite you to participate in the development of an electric transmission partial rebuild project along an existing transmission corridor.

After more than five decades of operation, weathering steel, lattice structures between our Bristers and Ladysmith substations located in Fauquier, Stafford, Spotsylvania, and Caroline counties need to be replaced in order to maintain reliability for our customers and bring facilities up to current standards. The 37-mile 500 kilovolt (kV) line is positioned within an existing corridor and requires no additional rights of way.

We are currently in the conceptual phase and are seeking input prior to submitting an application with the Virginia State Corporation Commission (SCC) in May 2020. Doing so allows us to hear any concerns you may have as we work to meet the project's needs. Enclosed is a project overview map to help in your review.

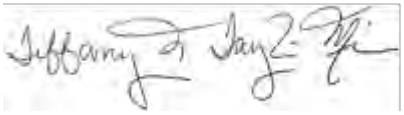
We are committed to purposeful and early inclusion of tribal communities in project communication processes. By reaching out early and encouraging meaningful conversation, we hope to keep tribal communities informed and engaged.

Please provide your comments by April 15, 2020, so we have adequate time to review and consider your comments in our project design and as part of our SCC application. We appreciate your assistance as we move through the planning process.

Due to the ongoing public health concerns resulting from the spread of the COVID-19 virus, also known as the coronavirus, we do not plan to host formal community open house events at this time. In lieu of our traditional in-person meetings, we encourage you to visit the project's dedicated webpage at DominionEnergy.com/bristers. On this page, you will find details on the need for the project, maps, and information on structural changes.

If you would like any additional information, have any questions or would like to set up a meeting to discuss the project, please do not hesitate to contact Ken Custalow, our Tribal Liason. He can be reached by sending an email to ken.custalow@dominionenergy.com or by calling 804-771-4103.

Sincerely,



Tiffany Taylor-Minor
Communications Consultant
The Electric Transmission Project Team

Enclosure: Project Overview Map

cc Ken Custalow

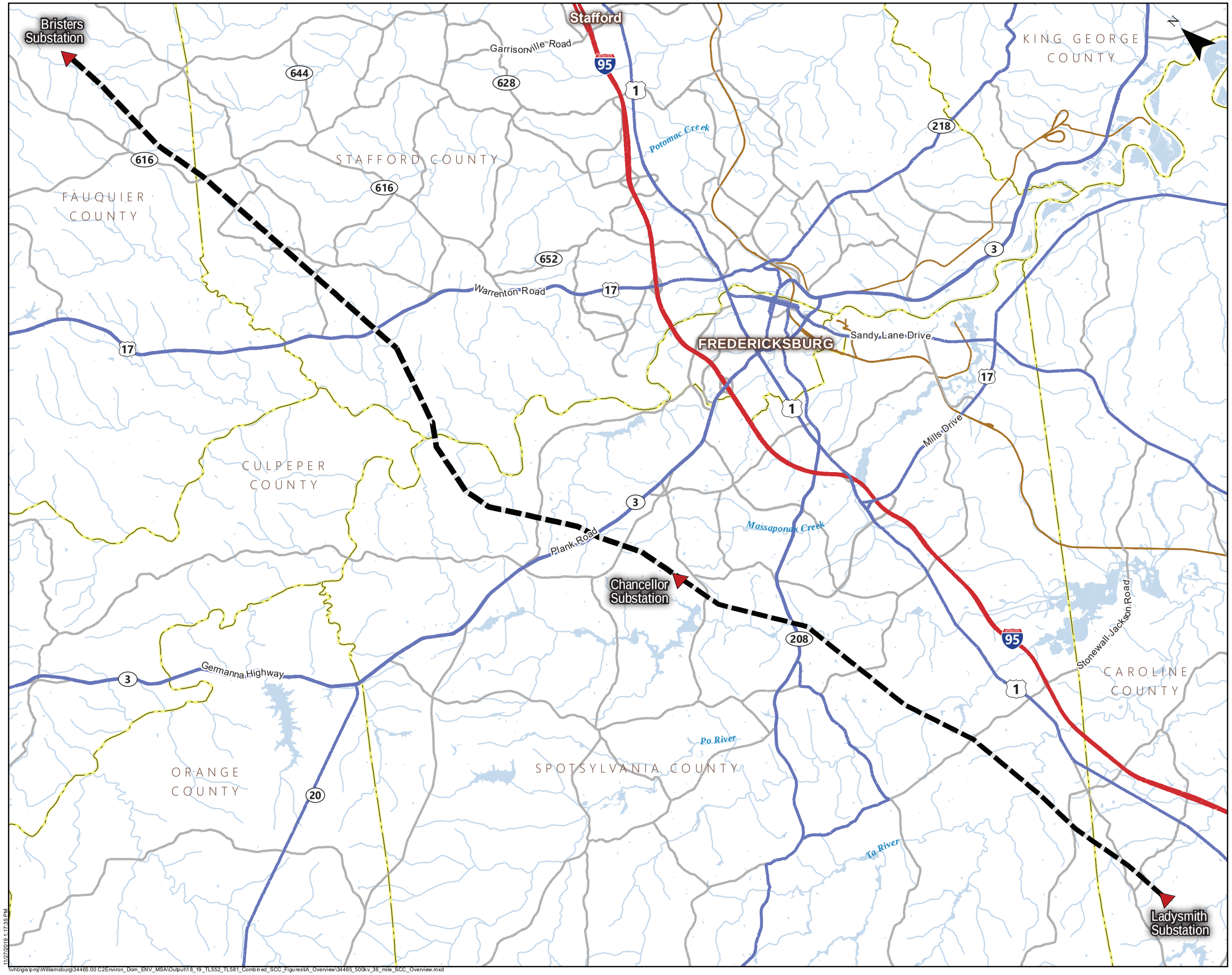


FIGURE 1.

Project Location Map

Bristers to Ladysmith 500 kV Rebuild

Fauquier
Counties, Virginia

Client:
Dominion Energy Virginia

DRAFT

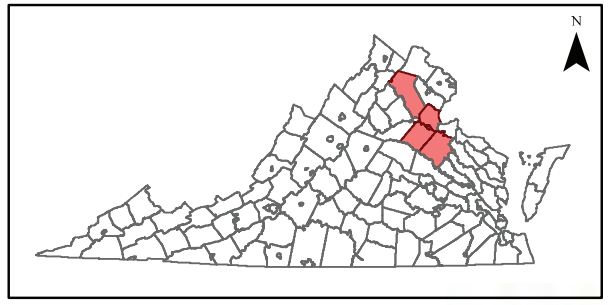
C2 Env Project:	Prepared By:	Date:
0073/0074	MKB	11/27/19

0 1.25 2.5 Miles
Scale is 1 in = 1.5 MI when printed at original size of 11x17

SITE DATA

- Existing Substations
- Existing Centerline
- County Boundary
- Limited Access Highway
- US and VA Primary Highways
- Local and Main Roads
- NHD Flowline
- NHD Waterbody

Notes:
1. Basemap Source: USGS The National Map/Oceans Map
2. Virginia Department of Transportation Road Centerline Data



vhb Dominion Energy C2 ENVIRONMENTAL

11/27/2019 1:17:35 PM
\\vhb\gis\proj\Williamsburg\34465.00 C2Environ_Dom_ENV_MSA\Output\18_19_TL552_TL581_Combined_SCC_Figures\IA_Overview\34465_500kv_36_mile_SCC_Overview.mxd

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL, AND HISTORIC FEATURES

K. Identify coordination with any non-governmental organizations or private citizen groups.

Response: In March 2020, the Company solicited comments via letter from the nongovernmental organizations identified below and several private citizens who owned a historic property from which our access was requested. A copy of the letter template and overview map is included as Attachment III.K.1. The Company solicited comments via a second letter in April 2020. A copy of the letter template and overview map, which was also sent to property owners, is included as Attachment III.K.2.

Name	Organization
Ms. Elizabeth S. Kostelny	Preservation Virginia
Mr. Thomas Gilmore	Civil War Trust
Mr. Jim Campi	Civil War Trust
Mr. Adam Gillenwater	Civil War Trust
Ms. Kym Hall	Colonial National Historical Park
Mr. Jack Gary	Council of Virginia Archaeologists
Ms. Leighton Powell	Scenic Virginia
Mr. Alexander Macaulay	Macaulay & Jamerson
Ms. Sharee Williamson	National Trust for Historic Preservation
Mr. Dan Holmes	Piedmont Environmental Council
Dr. Newby-Alexander	Norfolk State University
Ms. Ashely Atkins Spivey	Pamunkey Indian Museum and Cultural Center
Mr. Roger Kirchen	Virginia Department of Historic Resources
Ms. Adrienne Birge-Wilson	Virginia Department of Historic Resources
Mr. Dave Dutton	Dutton + Associates, LLC
Mr. Daniel John Walker	For: Rappahannock River Access
Mr. Eric Mink	Fredericksburg & Spotsylvania National Military Park (National Park Service)
Mr. Richard T. Young	Berkwood (historic property)
Ms. Elizabeth Gayle Garnett	Gayle House (historic property)
Mr. Patrick O'Neill	Wigg Hall (historic property)
Ms. Debbie Hawkins	Rowe House (historic property)

In a letter dated April 16, 2020, VOF requested that the Company consider materials that would minimize the visual impact of the Rebuild Project from STF-00430 by using chemically dulled galvanized steel for the towers and non-reflecting

or de-glared conductors. VOF also coordinated with the Nature Conservancy ("TNC"), a co-holder of easement SPT-02592. Both the VOF and TNC requested that the Company likewise consider the use of chemically dulled galvanized steel for the tower structures and non-reflecting or de-glared conductors in the Rebuild Project crossing SPT-02592. See Attachment 2.K.2 to the DEQ Supplement.

Additionally, on April 21, 2020, the project team hosted an online meeting with the Piedmont Environmental Council to discuss structure heights and finish, and regional environmental constraints related to the Rebuild Project. See Attachment 2.K.3 to the DEQ Supplement. Based on the feedback received to date, the Company has decided, for purposes of the Rebuild Project, to propose chemical dulling of the proposed galvanized structures, as well as de-glared conductors, for the Commission's consideration. This decision is limited strictly to this Rebuild Project based upon the information before the Company prior to filing. The Company will continue to consider relevant information in all of its transmission filings on a case by case basis going forward.

Attachment III.K.1

March 18, 2020

Proposed Bristers-Ladysmith Electric Transmission Partial Rebuild Project

Dear ____,

At Dominion Energy, we are dedicated to finding the best solution for our long-term needs in the communities we serve. As a valued stakeholder with a vested interest in the community, we invite you to participate in the development of an electric transmission partial rebuild project along an existing transmission corridor.

After more than five decades of operation, weathering steel, lattice structures between our Bristers and Ladysmith substations located in Fauquier, Stafford, Spotsylvania, and Caroline counties need to be replaced in order to maintain reliability for our customers and bring facilities up to current standards. The 37-mile 500 kilovolt (kV) line is positioned within an existing corridor and requires no additional rights of way.

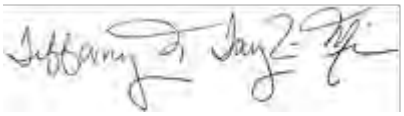
We are currently in the conceptual phase and are seeking input prior to submitting an application with the Virginia State Corporation Commission (SCC) in May 2020. Doing so allows us to hear any concerns you may have as we work to meet the project's needs. Enclosed is a project overview map to help in your review. Please feel free to notify other relevant organizations that may have an interest in the project area. For reference, other recipients of this letter include countywide and statewide historic, cultural, and scenic organizations, as well as Native American tribes.

Please provide your comments by April 15, 2020, so we have adequate time to review and consider your comments in our project design and as part of our SCC application. We appreciate your assistance as we move through the planning process.

Due to the ongoing public health concerns resulting from the spread of the COVID-19 virus, also known as the coronavirus, we do not plan to host formal community open house events at this time. In lieu of our traditional in-person meetings, we encourage you to visit the project's dedicated webpage at DominionEnergy.com/bristers. This page will provide details on the need for the project, maps, and information on structural changes.

If you would like any additional information, have any questions or would like to set up a meeting to discuss the project, please do not hesitate to contact me by sending an email to T.Taylor-Minor@dominionenergy.com or calling 804-771-4936.

Sincerely,



Tiffany Taylor-Minor
Communications Consultant
The Electric Transmission Project Team

Enclosure: Project Overview Map

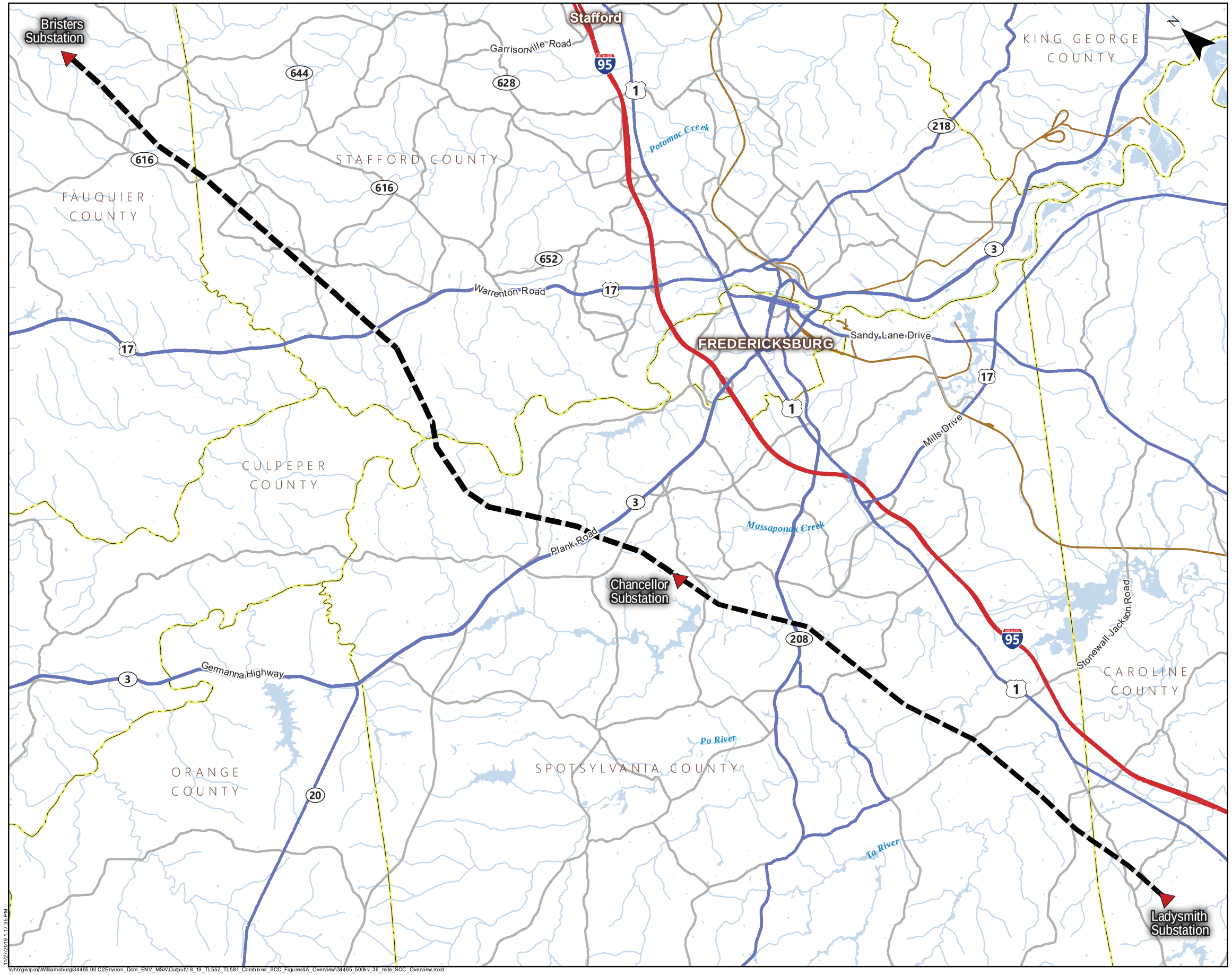


FIGURE 1.

Project Location Map

Bristers to Ladysmith 500 kV Rebuild

Fauquier
Counties, Virginia

Client:
Dominion Energy Virginia

DRAFT

C2 Env Project:	Prepared By:	Date:
0073/0074	MKB	11/27/19

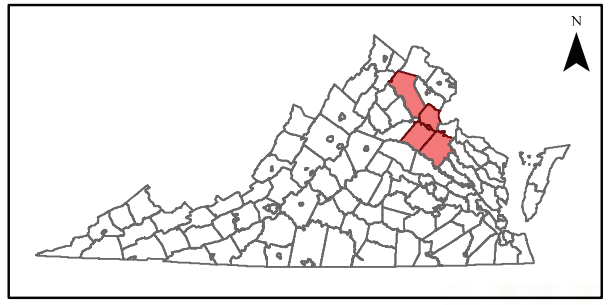
0 1.25 2.5 Miles

Scale is 1 in = 1.5 MI when printed at original size of 11x17

SITE DATA

- Existing Substations
- Existing Centerline
- County Boundary
- Limited Access Highway
- US and VA Primary Highways
- Local and Main Roads
- NHD Flowline
- NHD Waterbody

Notes:
1. Basemap Source: USGS The National Map/Oceans Map
2. Virginia Department of Transportation Road Centerline Data



vhb Dominion Energy C2 ENVIRONMENTAL

Dominion Energy Virginia Dominion Energy North Carolina
Electric Transmission
701 East Cary Street, Richmond, VA 23219
DominionEnergy.com

April 22, 2020

Proposed Bristers-Ladysmith Electric Transmission Partial Rebuild Project

Dear ___,

At Dominion Energy, we are dedicated to finding the best solution for our long-term needs in the communities we serve. As a valued stakeholder with a vested interest in the community, we invite you to participate in the development of an electric transmission partial rebuild project along an existing transmission corridor.

After more than five decades of operation, weathering steel, lattice structures between our Bristers and Ladysmith substations located in Fauquier, Stafford, Spotsylvania, and Caroline counties need to be replaced in order to maintain reliability for our customers and bring facilities up to current standards. The 37-mile 500 kilovolt (kV) line is positioned within an existing corridor and requires no additional rights of way.

We are currently in the conceptual phase and are seeking input prior to submitting an application with the Virginia State Corporation Commission (SCC) in May 2020. Doing so allows us to hear any concerns you may have as we work to meet the project's needs. Enclosed is a project overview map to help in your review.

In addition, we want to inform you that due to the ongoing public health concerns resulting from the spread of the coronavirus, we do not plan to host formal community open house events at this time. In lieu of our traditional in-person meetings, we encourage you to visit the project's dedicated webpage at DominionEnergy.com/bristers. This page will provide details on the need for the project, maps, and information on structural changes.

If you would like any additional information, have any questions or would like to set up a meeting to discuss the project, please do not hesitate to contact me by sending an email to T.Taylor-Minor@dominionenergy.com or calling 804-771-4936.

Sincerely,

Tiffany Taylor-Minor
Communications Consultant
The Electric Transmission Project Team

Enclosure: Project Overview Map

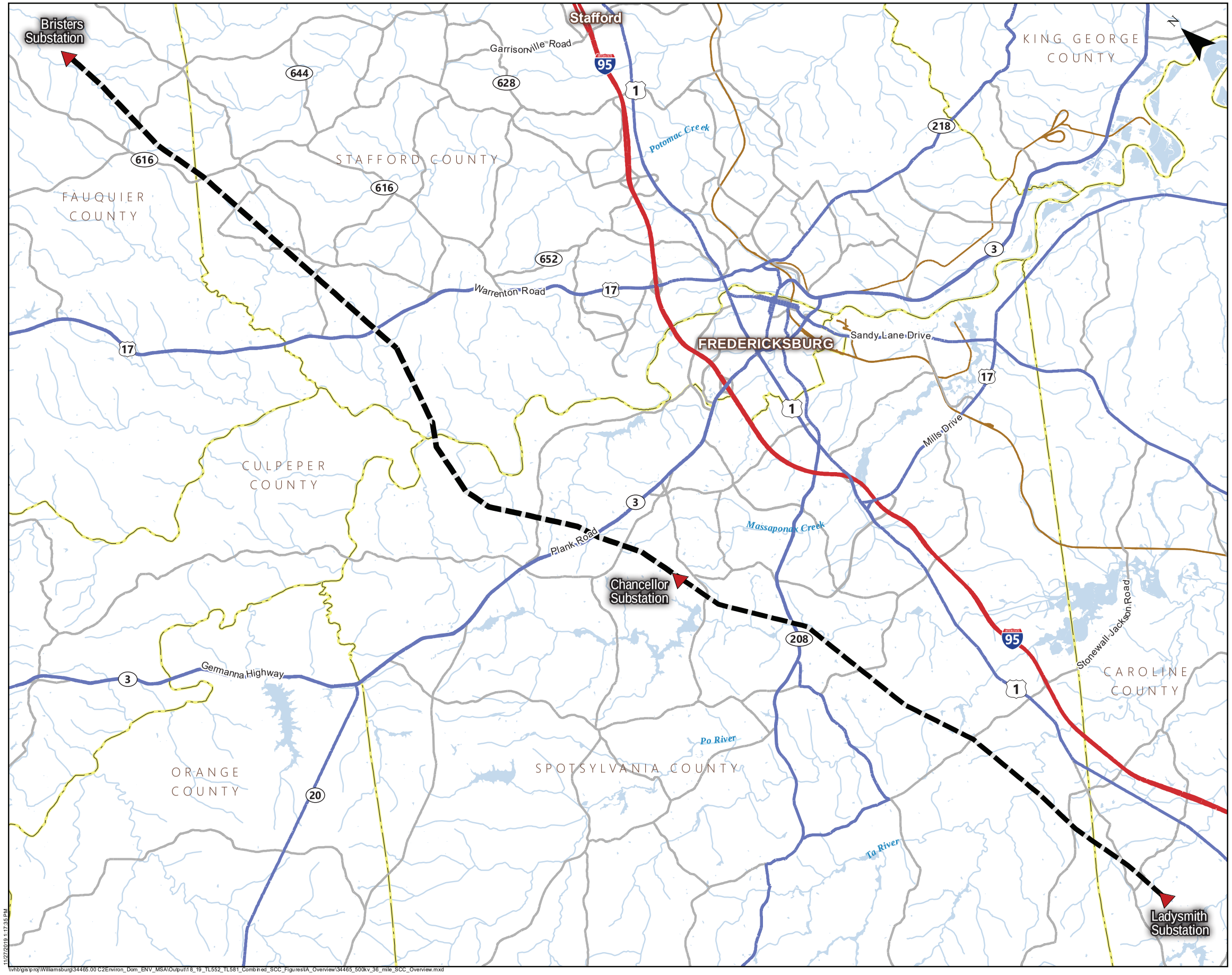


FIGURE 1.

Project Location Map

Bristers to Ladysmith 500 kV Rebuild

Fauquier
Counties, Virginia

Client:
Dominion Energy Virginia

DRAFT

C2 Env Project:	Prepared By:	Date:
0073/0074	MKB	11/27/19

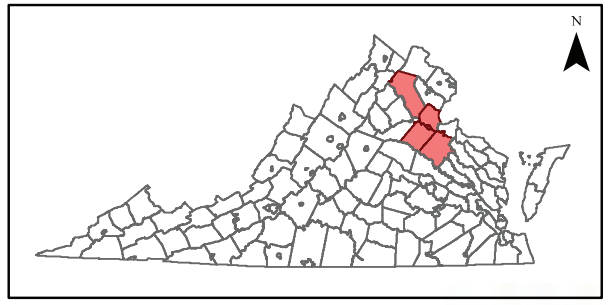
0 1.25 2.5 Miles

Scale is 1 in = 1.5 MI when printed at original size of 11x17

SITE DATA

- Existing Substations
- Existing Centerline
- County Boundary
- Limited Access Highway
- US and VA Primary Highways
- Local and Main Roads
- NHD Flowline
- NHD Waterbody

Notes:
1. Basemap Source: USGS The National Map/Oceans Map
2. Virginia Department of Transportation Road Centerline Data



vhb Dominion Energy C2 ENVIRONMENTAL

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL, AND HISTORIC FEATURES

L. Identify any environmental permits or special permissions anticipated to be needed.

Response: See table below.

Anticipated Permits

Activity	Permit	Agency/Organization
Impacts to wetlands and waters of the U.S.	Nationwide Permit 12[12]	U.S. Army Corps of Engineers
Impacts to wetlands and waters of the U.S.	Virginia Water Protection Permit	Virginia Department of Environmental Quality
Work within, over or under state subaqueous bottom	Subaqueous Bottom Permit	Virginia Marine Resources Commission
Discharge of Stormwater from Construction	Construction General Permit	Virginia Department of Environmental Quality
Work within VDOT right-of-way	Land Use Permit	Virginia Department of Transportation

[12] *See* n. 10.

IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS ("EMF")

A. Provide the calculated maximum electric and magnetic field levels that are expected to occur at the edge of the ROW. If the new transmission line is to be constructed on an existing electric transmission line ROW, provide the present levels as well as the maximum levels calculated at the edge of ROW after the new line is operational.

Response: Public exposure to magnetic fields is best estimated by field levels from power lines calculated at annual average loading. For any day of the year, the EMF levels associated with average conditions provide the best estimate of potential exposure. Maximum (peak) values are less relevant as they may occur for only a few minutes or hours each year.

This section describes the levels of EMF associated with the existing transmission line. EMF levels are provided for both historical (2019) and future (2024) annual average and maximum (peak) loading conditions.

Existing lines – Historical average loading

EMF levels were calculated for the existing lines at the ***historical average*** load condition (142 amps for Line #198, 478 amps for Line #552, and 545 amps for Line #581) and at an operating voltage of 120.75 and 525 kV when supported on the existing structures – see Attachments II.A.5.a, c, e, and g.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at an historical average load operating temperature.

EMF levels at the edge of the rights-of-way for the existing lines at the historical average loading:

	Western Edge		Eastern Edge	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
Attachment II.A.5.a	2.827	32.186	2.827	32.186
Attachment II.A.5.c	2.517	27.878	2.493	26.244
Attachment II.A.5.e	2.824	28.272	2.824	28.272
Attachment II.A.5.g	2.824	28.269	0.286	6.015

Existing lines – Historical peak loading

EMF levels were calculated for the existing line at the ***historical peak*** load condition (698 amps for Line #198, 1339 amps for Line #552, and 1433 amps for Line #581) and at an operating voltage of 120.75 and 525 kV when supported on the existing structures – see Attachments II.A.5. a, c, e, and g.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a historical peak load operating temperature.

EMF levels at the edge of the rights-of-way for the existing lines at the historical peak loading:

	Western Edge		**Eastern Edge**	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
Attachment II.A.5.a	2.822	85.416	2.822	85.416
Attachment II.A.5.c	2.541	83.444	2.515	75.804
Attachment II.A.5.e	2.820	79.832	2.820	79.832
Attachment II.A.5.g	2.820	79.821	0.282	16.873

Proposed Rebuild Project – Historical average loading

EMF levels were calculated for the proposed Rebuild Project at the ***historical average*** load condition (142 amps for Line #198, 478 amps for Line #552, and 545 amps for Line #581) and at an operating voltage of 120.75 and 525 kV when supported on the proposed Rebuild Project structures – see Attachments II.A.5.b, d, f, and h.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a historical average load operating temperature.

EMF levels at the edge of the rights-of-way for the proposed Rebuild Project at the historical average loading:

	Western Edge		Eastern Edge	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
Attachment II.A.5.b	2.458	23.627	2.458	23.642
Attachment II.A.5.d	2.965	28.811	2.919	26.839
Attachment II.A.5.f	2.460	20.727	2.460	20.740
Attachment II.A.5.h	2.459	20.725	0.348	5.414

Proposed Rebuild Project – Historical peak loading

EMF levels were calculated for the proposed Rebuild Project at the ***historical peak*** load condition (698 amps for Line #198, 1339 amps for Line #552, and 1433 amps for Line #581) and at an operating voltage of 120.75 and 525 kV when supported on the proposed Rebuild Project structures – see Attachments II.A.5. b, d, f, and h.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a historical peak load operating temperature.

EMF levels at the edge of the rights-of-way for the proposed Rebuild Project at the historical peak loading:

	Western Edge		Eastern Edge	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
Attachment II.A.5.b	2.462	62.447	2.463	62.489
Attachment II.A.5.d	2.984	84.792	2.935	75.434
Attachment II.A.5.f	2.463	58.316	2.464	58.356
Attachment II.A.5.h	2.463	58.312	0.347	15.181

Proposed Rebuild Project – Projected average loading in 2024

EMF levels were calculated for the proposed Rebuild Project at the ***projected average*** load condition (153 amps for Line #198, 516 amps for Line #552, and 588 amps for Line #581) and at an operating voltage of 120.75 and 525 kV when supported on the proposed Rebuild Project structures – see Attachments II.A.5. b, d, f, and h.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a projected average load operating temperature.

EMF levels at the edge of the rights-of-way for the proposed Rebuild Project at the projected average loading:

	Western Edge		**Eastern Edge**	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
Attachment II.A.5.b	2.458	25.491	2.458	25.507
Attachment II.A.5.d	2.965	31.079	2.919	28.955
Attachment II.A.5.f	2.460	22.378	2.460	22.392
Attachment II.A.5.h	2.459	22.376	0.348	5.844

Proposed Rebuild Project – Projected Peak loading in 2024

EMF levels were calculated for the proposed Rebuild Project at the ***projected peak*** load condition (753 amps for Line #198, 1442 amps for Line #552, and 1549 amps for Line #581) and at an operating voltage of 120.75 and 525 kV when supported on the proposed Rebuild Project structures – see Attachments II.A.5. b, d, f, and h.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a projected peak load operating temperature.

EMF levels at the edge of the rights-of-way for the proposed Rebuild Project at the projected peak loading:

	Western Edge		**Eastern Edge**	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
Attachment II.A.5.b	2.463	67.569	2.464	67.615
Attachment II.A.5.d	2.988	91.725	2.938	81.535
Attachment II.A.5.f	2.464	62.854	2.465	62.896
Attachment II.A.5.h	2.464	62.848	0.347	16.352

IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS ("EMF")

B. If the Applicant is of the opinion that no significant health effects will result from the construction and operation of the line, describe in detail the reasons for that opinion and provide references or citations to supporting documentation.

Response: The conclusions of multidisciplinary scientific review panels assembled by national and international scientific agencies during the past two decades are the foundation of the Company's opinion that no adverse health effects will result from the operation of the proposed Rebuild Project. Each of these panels has evaluated the scientific research related to health and power-frequency EMF and provided conclusions that form the basis of guidance to governments and industries. The Company regularly monitors the recommendations of these expert panels to guide their approach to EMF.

Research on EMF and human health varies widely in approach. Some studies evaluate the effects of high, short-term EMF exposures not typically found in people's day-to-day lives on biological responses, while others evaluate the effects of common, lower EMF exposures found throughout communities. Studies also have evaluated the possibility of effects (e.g., cancer, neurodegenerative diseases, reproductive effects) of long-term exposure. Altogether, this research includes well over a hundred epidemiologic studies of people in their natural environment and many more laboratory studies of animals (*in vivo*) and isolated cells and tissues (*in vitro*). Standard scientific procedures, such as weight-of-evidence methods, were used by the expert panels assembled by agencies to identify, review, and summarize the results of this large and diverse research.

The reviews of EMF biological and health research have been conducted by numerous scientific and health agencies, including the European Health Risk Assessment Network on Electromagnetic Fields Exposure ("EFHRAN"), the International Commission on Non-Ionizing Radiation Protection ("ICNIRP"), the World Health Organization ("WHO"), the International Committee on Electromagnetic Safety ("ICES"), the Scientific Committee on Emerging and Newly Identified Health Risks ("SCENIHR") of the European Commission, and the Swedish Radiation Safety Authority ("SSM") [formerly the Swedish Radiation Protection Authority ("SSI")] (EFHRAN, 2010, 2012; ICNIRP, 2010; WHO, 2007; SCENIHR, 2009, 2015; SSM, 2015, 2016, 2018, 2019; ICES, 2019). The general scientific consensus of the agencies that have reviewed this research, relying on generally accepted scientific methods, is that the scientific evidence does not show that common sources of EMF in the environment, including transmission lines and other parts of the electric system, appliances, etc., are a cause of any adverse health effects. The WHO, for example, states on their website: "Based on a recent in-depth review of the scientific literature, the WHO concluded that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields" (WHO, 2020).

The most recent reviews on this topic include the 2015 report by SCENIHR and annual reviews published by SSM (e.g., for the years 2015, 2016, 2018, and 2019). These reports, similar to previous reviews, found that the scientific evidence does not confirm the existence of any adverse health effects caused by environmental or community exposure to EMF.

The WHO has recommended that countries adopt recognized international standards published the International Commission on Non-ionizing Radiation (ICNIRP) and the IEEE's International Committee on Electromagnetic Safety (ICES). Typical levels of EMF from Dominion's power lines outside its property and rights-of-way are far below the screening reference levels of EMF recommended for the general public and still lower than exposures equivalent to restrictions to limits on fields within the body (ICNIRP, 2010; ICES, 2019).

Thus, based on the conclusions of scientific reviews and the levels of EMF associated with the proposed Rebuild Project, the Company has determined that no adverse health effects are anticipated to result from the operation of the proposed Rebuild Project.

References

European Health Risk Assessment Network on Electromagnetic Fields Exposure (EFHRAN). Report on the Analysis of Risks Associated to Exposure to EMF: *In Vitro* and *In Vivo* (Animals) Studies. Milan, Italy: EFHRAN, 2010.

European Health Risk Assessment Network on Electromagnetic Fields Exposure (EFHRAN). Risk Analysis of Human Exposure to Electromagnetic Fields (Revised). Report D2 of the EFHRAN Project. Milan, Italy: EFHRAN, 2012.

International Commission on Non-ionizing Radiation Protection (ICNIRP). Guidelines for limiting exposure to time-varying electric and magnetic fields (1 Hz to 100 kHz). Health Phys 99: 818-36, 2010.

International Committee on Electromagnetic Safety (ICES). IEEE Standard for Safety Levels with Respect to Human Exposure to Electromagnetic Fields 0 to 300 GHz. IEEE Std C95.1-2019. New York, NY: IEEE, 2019.

Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR). Health Effects of Exposure to EMF. Brussels, Belgium: European Commission, 2009.

Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR). Opinion on Potential Health Effects of Exposure to Electromagnetic Fields (EMF). Brussels, Belgium: European Commission, 2015.

Swedish Radiation Safety Authority (SSM). Research 2015:19. Recent Research on EMF and Health Risk – Tenth report from SSM's Scientific Council on Electromagnetic Fields. Stockholm, Sweden: Swedish Radiation Safety Authority

(SSM), 2015.

Swedish Radiation Safety Authority (SSM). Research 2016:15. Recent Research on EMF and Health Risk – Eleventh report from SSM's Scientific Council on Electromagnetic Fields, 2016. Including Thirteen years of electromagnetic field research monitored by SSM's Scientific Council on EMF and health: How has the evidence changed over time? Stockholm, Sweden: Swedish Radiation Safety Authority (SSM), 2016.

Swedish Radiation Safety Authority (SSM). Research 2018:09. Recent Research on EMF and Health Risk – Twelfth report from SSM's Scientific Council on Electromagnetic Fields, 2017. Stockholm, Sweden: Swedish Radiation Safety Authority (SSM), 2018.

Swedish Radiation Safety Authority (SSM). Research 2019:08. Recent Research on EMF and Health Risk – Thirteenth Report from SSM's Scientific Council on Electromagnetic Fields, 2018. Stockholm, Sweden: Swedish Radiation Safety Authority (SSM), 2019.

World Health Organization (WHO). Environmental Health Criteria 238: Extremely Low Frequency (ELF) Fields. Geneva, Switzerland: World Health Organization, 2007.

World Health Organization (WHO). Electromagnetic fields (EMF). World Health Organization, 2020. http://www.who.int/peh-emf/about/WhatisEMF/en/index1.html (last accessed March 23, 2020).

IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS ("EMF")

C. Describe and cite any research studies on EMF the Applicant is aware of that meet the following criteria:

1. Became available for consideration since the completion of the Virginia Department of Health's most recent review of studies on EMF and its subsequent report to the Virginia General Assembly in compliance with 1985 Senate Joint Resolution No. 126;

2. Include findings regarding EMF that have not been reported previously and/or provide substantial additional insight into findings; and

3. Have been subjected to peer review.

Response: The Virginia Department of Health ("VDH") conducted its most recent review and issued its report on the scientific evidence on potential health effects of extremely low frequency ("ELF") EMF in 2000: "[T]he Virginia Department of Health is of the opinion that there is no conclusive and convincing evidence that exposure to extremely low frequency EMF emanated from nearby high voltage transmission lines is causally associated with an increased incidence of cancer or other detrimental health effects in humans."[13]

The continuing scientific research on EMF exposure and health has resulted in many peer-reviewed publications since 2000. The accumulating research results have been regularly and repeatedly reviewed and evaluated by national and international health, scientific, and government agencies. One of the most comprehensive and detailed reviews of the relevant scientific peer-reviewed literature was published by the WHO in 2007. The conclusion of the WHO, as currently expressed on its website, is consistent with the earlier VDH conclusions: "Based on a recent in-depth review of the scientific literature, the WHO concluded that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields."[14]

Research published in the peer-reviewed literature subsequent to the WHO report has been reviewed by several scientific organizations, including most notably:

- SCENIHR, a committee of the European Commission, that published its assessments in 2009 and 2015;

- The Swedish Radiation Safety Authority ("SSM"), formerly the Swedish Radiation Protection Authority ("SSI"), that has published annual reviews of the relevant peer-reviewed scientific literature since 2003, with its most recent

[13] *See* http://www.vdh.virginia.gov/content/uploads/sites/12/2016/02/highfinal.pdf.
[14] *See* http://www.who.int/peh-emf/about/WhatisEMF/en/index1.html.

review published in 2019; and,

- EFHRAN, that published its reviews in 2010 and 2012.

The above reviews provide detailed analyses and summaries of relevant recent peer-reviewed scientific publications. The conclusions of these reviews that the evidence overall does not confirm the existence of any adverse health effects due to exposure to EMF are consistent with the conclusions of the VDH and the WHO reports. With respect to the statistical association observed in some of the childhood leukemia epidemiologic studies, the most recent comprehensive review of the literature by SCENIHR, published in 2015, concluded that "no mechanisms have been identified and no support is existing [*sic*] from experimental studies that could explain these findings, which, together with shortcomings of the epidemiological studies prevent a causal interpretation" (SCENIHR, 2015, p. 16).

While research is continuing on multiple aspects of EMF exposure and health, many of the recent publications have focused on an epidemiologic assessment of the relationship between EMF exposure and childhood leukemia and neurodegenerative diseases. Of these, the following recent publications, published following the inclusion date (June 2014) for the SCENIHR (2015) report, provided additional evidence and contributed to clarification of previous findings. Overall, new research studies have not provided evidence to alter the previous conclusions of scientific and health organizations, including the WHO and SCENIHR.

Recent epidemiologic studies of EMF and childhood leukemia include:

- Bunch et al. (2015) assessed the potential association between residential proximity to high-voltage underground cables and development of childhood cancer in the United Kingdom largely using the same epidemiologic data as in a previously published study on overhead transmission lines (Bunch et al., 2014). No statistically significant associations or trends were reported with either distance to underground cables or calculated magnetic fields from underground cables for any type of childhood cancers.

- Pedersen et al. (2015) published a case-control study that investigated the potential association between residential proximity to power lines and childhood cancer in Denmark. The study included all cases of leukemia (n=1,536), central nervous system tumor, and malignant lymphoma (n=417) diagnosed before the age of 15 between 1968 and 2003 in Denmark, along with 9,129 healthy control children matched on sex and year of birth. Considering the entire study period, no statistically significant increases were reported for any of the childhood cancer types.

- Salvan et al. (2015) compared measured magnetic-field levels in the bedroom for 412 cases of childhood leukemia under the age of 10 and 587 healthy control children in Italy. Although the statistical power of the study was limited because of the small number of highly exposed subjects, no consistent statistical

associations or trends were reported between measured magnetic-field levels and the occurrence of leukemia among children in the study.

- Bunch et al. (2016) and Swanson and Bunch (2018) published additional analyses using data from an earlier study (Bunch et al., 2014). Bunch et al. (2016) reported that the association with distance to power lines observed in earlier years was linked to calendar year of birth or year of cancer diagnosis, rather than the age of the power lines. Swanson and Bunch (2018) re-analyzed data using finer exposure categories (e.g., cut-points of every 50-meter distance) and broader groupings of diagnosis date (e.g., 1960-1979, 1980-1999, and 2000-on) and reported no overall associations between exposure categories and childhood leukemia for the later time periods (1980 and on), and consistent pattern for time periods prior to 1980.

- Crespi et al. (2016) conducted a case-control epidemiologic study of childhood cancers and residential proximity to high-voltage power lines (60 kilovolts ["kV"] to 500 kV) in California. Childhood cancer cases, including 5,788 cases of leukemia and 3,308 cases of brain tumor, diagnosed under the age of 16 between 1986 and 2008, were identified from the California Cancer Registry. Controls, matched on age and sex, were selected from the California Birth Registry. Overall, no consistent statistically significant associations for leukemia or brain tumor and residential distance to power lines were reported .

- Kheifets et al. (2017) assessed the relationship between calculated magnetic-field levels from power lines and development of childhood leukemia within the same study population evaluated in Crespi et al. (2016). In the main analyses, which included 4,824 cases of leukemia and 4,782 controls matched on age and sex, the authors reported no consistent patterns, or statistically significant associations between calculated magnetic-field levels and childhood leukemia development. Similar results were reported in subgroup and sensitivity analyses. In two subsequent studies (Amoon et al., 2018a, 2019), the potential impact of residential mobility (i.e., moving residences between birth and diagnosis) on the associations reported in Crespi et al. (2016) and Kheifets et al. (2017) were examined. Amoon et al. (2019) concluded that while uncontrolled confounding by residential mobility had some impact on the association between EMF exposure and childhood leukemia, it was unlikely to be the primary driving force behind the previously reported associations.

- Amoon et al. (2018b) conducted a pooled analysis of 29,049 cases and 68,231 controls from 11 epidemiologic studies of childhood leukemia and residential distance from high-voltage power lines. The authors reported no statistically-significant association between childhood leukemia and proximity to transmission lines of any voltage. Among subgroup analyses, the reported associations were slightly stronger for leukemia cases diagnosed before 5 years of age and in study periods prior to 1980. Adjustment for various potential confounders (e.g., socioeconomic status, dwelling type, residential mobility) had little effect on the estimated associations.

- Kyriakopoulou et al. (2018) assessed the association between childhood acute leukemia and parental occupational exposure to social contacts, chemicals, and electromagnetic fields. The study was conducted at a major pediatric hospital in Greece and included 108 cases and 108 controls matched for age, gender, and ethnicity. Statistically non-significant associations were observed between paternal exposure to magnetic fields and childhood acute leukemia for any of the exposure periods examined (1 year before conception; during pregnancy; during breastfeeding; and from birth until diagnosis); maternal exposure was not assessed due to the limited sample size. No associations were observed between childhood acute leukemia and exposure to social contacts or chemicals.

- Auger et al. (2019) examined the relationship between exposure to EMF during pregnancy and risk of childhood cancer in a cohort of 784,000 children born in Quebéc. Exposure was defined using residential distance to the nearest high-voltage transmission line or transformer station. The authors reported statistically non-significant associations between proximity to transformer stations and any cancer, hematopoietic cancer, or solid tumors. No associations were reported with distance to transmission lines.

- Crespi et al. (2019) investigated the relationship between childhood leukemia and distance from high-voltage lines and calculated magnetic-field exposure, separately and combined, within the California study population previously analyzed in Crespi et al. (2016) and Kheifets et al. (2017). The authors reported that neither close proximity to high-voltage lines nor exposure to calculated magnetic fields alone were associated with childhood leukemia; an association was observed only for those participants who were both close to high-voltage lines (< 50 meters) and had high calculated magnetic fields (≥ 0.4 microtesla [i.e., 4 milligauss]). No associations were observed with low-voltage power lines (< 200 kV).

- Talibov et al. (2019) conducted a pooled analysis of 9,723 cases and 17,099 controls from 11 epidemiologic studies to examine the relationship between parental occupational exposure to magnetic fields and childhood leukemia. No statistically significant association was found between either paternal or maternal exposure and leukemia (overall or by subtype). No associations were observed in the meta-analyses.

Recent epidemiologic studies of EMF and neurodegenerative diseases include:

- Seelen et al. (2014) conducted a population-based case-control study in the Netherlands and included 1,139 cases diagnosed with amyotrophic lateral sclerosis ("ALS") between 2006 and 2013 and 2,864 frequency-matched controls. The shortest distance from the case' and control residences to the nearest high-voltage power line (50 kV to 380 kV) was determined by geocoding. No statistically significant associations between residential proximity to power lines with voltages of either 50 to 150 kV or 220 to 380 kV

and ALS were reported.

- Sorahan and Mohammed (2014) analyzed mortality from neurodegenerative diseases in a cohort of approximately 73,000 electricity supply workers in the United Kingdom. Cumulative occupational exposure to magnetic-fields was calculated for each worker in the cohort based on their job titles and job locations. Death certificates were used to identify deaths from neurodegenerative diseases. No associations or trends for any of the included neurodegenerative diseases (Alzheimer's disease, Parkinson's disease, and ALS) were observed with various measures of calculated magnetic fields.

- Koeman et al. (2015, 2017) analyzed data from the Netherlands Cohort Study of approximately 120,000 men and women who were enrolled in the cohort in 1986 and followed up until 2003. Lifetime occupational history, obtained through questionnaires, and job-exposure matrices on ELF magnetic fields and other occupational exposures were used to assign exposure to study subjects. Based on 1,552 deaths from vascular dementia, the researchers reported a statistically not significant association of vascular dementia with estimated exposure to metals, chlorinated solvents, and ELF magnetic fields. However, because no exposure-response relationship for cumulative exposure was observed and because magnetic fields and solvent exposures were highly correlated with exposure to metals, the authors attributed the association with ELF magnetic fields and solvents to confounding by exposure to metals (Koeman et al., 2015). Based on a total of 136 deaths from ALS among the cohort members, the authors reported a statistically significant, approximately two-fold association with ELF magnetic fields in the highest exposure category. This association, however, was no longer statistically significant when adjusted for exposure to insecticides (Koeman et al., 2017).

- Fischer et al. (2015) conducted a population-based case-control study that included 4,709 cases of ALS diagnosed between 1990 and 2010 in Sweden and 23,335 controls matched to cases on year of birth and sex. The study subjects' occupational exposures to ELF magnetic fields and electric shocks were classified based on their occupations, as recorded in the censuses and corresponding job-exposure matrices. Overall, neither magnetic fields nor electric shocks were related to ALS.

- Vergara et al. (2015) conducted a mortality case-control study of occupational exposure to electric shock and magnetic fields and ALS. They analyzed data on 5,886 deaths due to ALS and over 58,000 deaths from other causes in the United States between 1991 and 1999. Information on occupation was obtained from death certificates and job-exposure matrices were used to categorize exposure to electric shocks and magnetic fields. Occupations classified as "electric occupations" were moderately associated with ALS. The authors reported no consistent associations for ALS, however, with either electric shocks or magnetic fields, and they concluded that their findings did not support the hypothesis that exposure to either electric shocks or magnetic fields

explained the observed association of ALS with "electric occupations."

- Pedersen et al. (2017) investigated the occurrence of central nervous system diseases among approximately 32,000 male Danish electric power company workers. Cases were identified through the national patient registry between 1982 and 2010. Exposure to ELF magnetic fields was determined for each worker based on their job titles and area of work. A statistically significant increase was reported for dementia in the high exposure category when compared to the general population, but no exposure-response pattern was identified, and no similar increase was reported in the internal comparisons among the workers. No other statistically significant increases among workers were reported for the incidence of Alzheimer's disease, Parkinson's disease, motor neuron disease, multiple sclerosis, or epilepsy, when compared to the general population, or when incidence among workers was analyzed across estimated exposure levels.

- Vinceti et al. (2017) examined the association between ALS and calculated magnetic-field levels from high-voltage power lines in Italy. The authors included 703 ALS cases and 2,737 controls; exposure was assessed based on residential proximity to high-voltage power lines. No statistically significant associations were reported and no exposure-response trend was observed. Similar results were reported in subgroup analyses by age, calendar period of disease diagnosis, and study area.

- Checkoway et al. (2018) investigated the association between Parkinsonism[15] and occupational exposure to magnetic fields and several other agents (endotoxins, solvents, shift work) among 800 female textile workers in Shanghai. Exposure to magnetic fields was assessed based on the participants' work histories. The authors reported no statistically significant associations between Parkinsonism and occupational exposure to any of the agents under study, including magnetic fields.

- Jalilian et al. (2018) conducted a meta-analysis of 20 epidemiologic studies of occupational exposure to magnetic fields and Alzheimer's disease. The authors reported a moderate, statistically significant overall association; however, they noted substantial heterogeneity among studies and evidence for publication bias.

- Gervasi et al. (2019) assessed the relationship between residential distance to overhead power lines in Italy and risk of Alzheimer's dementia and Parkinson's disease. The authors included 9,835 cases of Alzheimer's dementia and 6,810 cases of Parkinson's disease; controls were matched by sex, year of birth, and municipality of residence. A weak, statistically non-significant association was

[15] Parkinsonism is defined by Checkoway et al. (2018) as "*a syndrome whose cardinal clinical features are bradykinesia, rest tremor, muscle rigidity, and postural instability. Parkinson disease is the most common neurodegenerative form of [parkinsonism]"* (p. 887).

observed between residences within 50 meters of overhead power lines and both Alzheimer's dementia and Parkinson's disease, compared to distances of over 600 meters.

- Peters et al. (2019) examined the relationship between ALS and occupational exposure to both magnetic fields and electric shock in a pooled study of data from three European countries. The study included 1,323 ALS cases and 2,704 controls matched for sex, age, and geographic location; exposure was assessed based on occupational title and defined as low (background), medium, or high. Statistically significant associations were observed between ALS and ever having been exposed above background levels to either magnetic fields or electric shocks; however, no clear exposure-response trends were observed with exposure duration or cumulative exposure. The authors also noted significant heterogeneity in risk by study location.

- Huss et al. (2018) conducted a meta-analysis of 20 epidemiologic studies of ALS and occupational exposure to magnetic fields. The authors reported a weak overall association; a slightly stronger association was observed in a subset analysis of six studies with full occupational histories available. The authors noted substantial heterogeneity among studies, evidence for publication bias, and a lack of a clear exposure-response relationship between exposure and ALS.

- Röösli and Jalilian (2018) performed a meta-analysis using data from five epidemiologic studies examining residential exposure to magnetic fields and ALS. A statistically non-significant negative association was reported between ALS and the highest exposed group, where exposure was defined based on distance from power lines or calculated magnetic-field level.

References

Amoon AT, Oksuzyan S, Crespi CM, Arah OA, Cockburn M, Vergara X, Kheifets L. Residential mobility and childhood leukemia. Environ Res 164: 459-466, 2018a.

Amoon AT, Crespi CM, Ahlbom A, Bhatnagar M, Bray I, Bunch KJ, Clavel J, Feychting M, Hemon D, Johansen C, Kreis C, Malagoli C, Marquant F, Pedersen C, Raaschou-Nielsen O, Röösli M, Spycher BD, Sudan M, Swanson J, Tittarelli A, Tuck DM, Tynes T, Vergara X, Vinceti M, Wunsch-Filho V, Kheifets L. Proximity to overhead power lines and childhood leukaemia: an international pooled analysis. Br J Cancer 119: 364-373, 2018b.

Amoon AT, Arah OA, Kheifets L. The sensitivity of reported effects of EMF on childhood leukemia to uncontrolled confounding by residential mobility: a hybrid simulation study and an empirical analysis using CAPS data. Cancer Causes Control 30: 901-908, 2019.

Auger N, Bilodeau-Bertrand M, Marcoux S, Kosatsky T. Residential exposure to electromagnetic fields during pregnancy and risk of child cancer: A longitudinal cohort study. Environ Res 176: 108524, 2019.

Bunch KJ, Keegan TJ, Swanson J, Vincent TJ, Murphy MF. Residential distance at birth from overhead high-voltage power lines: childhood cancer risk in Britain 1962-2008. Br J Cancer 110: 1402-1408, 2014.

Bunch KJ, Swanson J, Vincent TJ, Murphy MF. Magnetic fields and childhood cancer: an epidemiological investigation of the effects of high-voltage underground cables. J Radiol Prot 35: 695-705, 2015.

Bunch KJ, Swanson J, Vincent TJ, Murphy MF. Epidemiological study of power lines and childhood cancer in the UK: further analyses. J Radiol Prot 36: 437-455, 2016.

Checkoway H, Ilango S, Li W, Ray RM, Tanner CM, Hu SC, Wang X, Nielsen S, Gao DL, Thomas DB. Occupational exposures and parkinsonism among Shanghai women textile workers. Am J Ind Med 61: 886-892, 2018.

Crespi CM, Vergara XP, Hooper C, Oksuzyan S, Wu S, Cockburn M, Kheifets L. Childhood leukaemia and distance from power lines in California: a population-based case-control study. Br J Cancer 115: 122-128, 2016.

Crespi CM, Swanson J, Vergara XP, Kheifets L. Childhood leukemia risk in the California Power Line Study: Magnetic fields versus distance from power lines. Environ Res 171: 530-535, 2019.

European Health Risk Assessment Network on Electromagnetic Fields Exposure (EFHRAN). Report on the Analysis of Risks Associated to Exposure to EMF: *In Vitro* and *In Vivo* (Animals) Studies. Milan, Italy: EFHRAN, 2010.

European Health Risk Assessment Network on Electromagnetic Fields Exposure (EFHRAN). Risk Analysis of Human Exposure to Electromagnetic Fields (Revised). Report D2 of the EFHRAN Project. Milan, Italy: EFHRAN, 2012.

Fischer H, Kheifets L, Huss A, Peters TL, Vermeulen R, Ye W, Fang F, Wiebert P, Vergara XP, Feychting M. Occupational Exposure to Electric Shocks and Magnetic Fields and Amyotrophic Lateral Sclerosis in Sweden. Epidemiology 26: 824-830, 2015.

Gervasi F, Murtas R, Decarli A, Giampiero Russo A. Residential distance from high-voltage overhead power lines and risk of Alzheimer's dementia and Parkinson's disease: a population-based case-control study in a metropolitan area of Northern Italy. Int J Epidemiol, 2019.

Huss A, Peters S, Vermeulen R. Occupational exposure to extremely low-frequency magnetic fields and the risk of ALS: A systematic review and meta-

analysis. Bioelectromagnetics 39: 156-163, 2018.

Jalilian H, Teshnizi SH, Röösli M, Neghab M. Occupational exposure to extremely low frequency magnetic fields and risk of Alzheimer disease: A systematic review and meta-analysis. Neurotoxicology 69: 242-252, 2018.

Kheifets L, Crespi CM, Hooper C, Cockburn M, Amoon AT, Vergara XP. Residential magnetic fields exposure and childhood leukemia: a population-based case-control study in California. Cancer Causes Control 28: 1117-1123, 2017.

Koeman T, Schouten LJ, van den Brandt PA, Slottje P, Huss A, Peters S, Kromhout H, Vermeulen R. Occupational exposures and risk of dementia-related mortality in the prospective Netherlands Cohort Study. Am J Ind Med 58: 625-635, 2015.

Koeman T, Slottje P, Schouten LJ, Peters S, Huss A, Veldink JH, Kromhout H, van den Brandt PA, Vermeulen R. Occupational exposure and amyotrophic lateral sclerosis in a prospective cohort. Occup Environ Med 74: 578-585, 2017.

Kyriakopoulou A, Meimeti E, Moisoglou I, Psarrou A, Provatopoulou X, Dounias G. Parental Occupational Exposures and Risk of Childhood Acute Leukemia. Mater Sociomed 30: 209-214, 2018.

Pedersen C, Johansen C, Schüz J, Olsen JH, Raaschou-Nielsen O. Residential exposure to extremely low-frequency magnetic fields and risk of childhood leukaemia, CNS tumour and lymphoma in Denmark. Br J Cancer 113: 1370-1374, 2015.

Pedersen C, Poulsen AH, Rod NH, Frei P, Hansen J, Grell K, Raaschou-Nielsen O, Schüz J, Johansen C. Occupational exposure to extremely low-frequency magnetic fields and risk for central nervous system disease: an update of a Danish cohort study among utility workers. Int Arch Occup Environ Health 90: 619-628, 2017.

Peters S, Visser AE, D'Ovidio F, Beghi E, Chio A, Logroscino G, Hardiman O, Kromhout H, Huss A, Veldink J, Vermeulen R, van den Berg LH. Associations of Electric Shock and Extremely Low-Frequency Magnetic Field Exposure With the Risk of Amyotrophic Lateral Sclerosis. Am J Epidemiol 188: 796-805, 2019.

Röösli M and Jalilian H. A meta-analysis on residential exposure to magnetic fields and the risk of amyotrophic lateral sclerosis. Rev Environ Health 33: 295-299, 2018.

Salvan A, Ranucci A, Lagorio S, Magnani C. Childhood leukemia and 50 Hz magnetic fields: findings from the Italian SETIL case-control study. Int J Environ Res Public Health 12: 2184-2204, 2015.

Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR). Health Effects of Exposure to EMF. Brussels, Belgium: European Commission,

2009.

Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR). Opinion on Potential Health Effects of Exposure to Electromagnetic Fields (EMF). Brussels, Belgium: European Commission, 2015.

Seelen M, Vermeulen RC, van Dillen LS, van der Kooi AJ, Huss A, de Visser M, van den Berg LH, Veldink JH. Residential exposure to extremely low frequency electromagnetic fields and the risk of ALS. Neurology 83: 1767-1769, 2014.

Sorahan T and Mohammed N. Neurodegenerative disease and magnetic field exposure in UK electricity supply workers. Occup Med (Lond) 64: 454-460, 2014.

Swanson J and Bunch KJ. Reanalysis of risks of childhood leukaemia with distance from overhead power lines in the UK. J Radiol Prot 38: N30-N35, 2018.

Swedish Radiation Safety Authority (SSM). Research 2019:08. Recent Research on EMF and Health Risk – Thirteenth Report from SSM's Scientific Council on Electromagnetic Fields, 2018. Stockholm, Sweden: Swedish Radiation Safety Authority (SSM), 2019.

Talibov M, Olsson A, Bailey H, Erdmann F, Metayer C, Magnani C, Petridou E, Auvinen A, Spector L, Clavel J, Roman E, Dockerty J, Nikkila A, Lohi O, Kang A, Psaltopoulou T, Miligi L, Vila J, Cardis E, Schüz J. Parental occupational exposure to low-frequency magnetic fields and risk of leukaemia in the offspring: findings from the Childhood Leukaemia International Consortium (CLIC). Occup Environ Med 76:746-753, 2019.

Vergara X, Mezei G, Kheifets L. Case-control study of occupational exposure to electric shocks and magnetic fields and mortality from amyotrophic lateral sclerosis in the US, 1991-1999. J Expo Sci Environ Epidemiol 25: 65-71, 2015.

Vinceti M, Malagoli C, Fabbi S, Kheifets L, Violi F, Poli M, Caldara S, Sesti D, Violanti S, Zanichelli P, Notari B, Fava R, Arena A, Calzolari R, Filippini T, Iacuzio L, Arcolin E, Mandrioli J, Fini N, Odone A, Signorelli C, Patti F, Zappia M, Pietrini V, Oleari P, Teggi S, Ghermandi G, Dimartino A, Ledda C, Mauceri C, Sciacca S, Fiore M, Ferrante M. Magnetic fields exposure from high-voltage power lines and risk of amyotrophic lateral sclerosis in two Italian populations. Amyotroph Lateral Scler Frontotemporal Degener 18: 583-589, 2017.

World Health Organization (WHO). Environmental Health Criteria 238: Extremely Low Frequency (ELF) Fields. Geneva, Switzerland: World Health Organization, 2007.

V. NOTICE

A. Furnish a proposed route description to be used for public notice purposes. Provide a map of suitable scale showing the route of the proposed project. For all routes that the Applicant proposed to be noticed, provide minimum, maximum and average structure heights.

Response: A map showing the existing route to be used for the proposed Rebuild Project is provided as Attachment V.A. A written description of the route is as follows:

The proposed route for the proposed Rebuild Project is approximately 36.7 miles of existing transmission line corridor currently occupied by the existing 500 kV transmission Lines #552 and #581. From the Bristers Switching Station property, the route heads generally south for approximately 4.5 miles in Fauquier County and continues south into Stafford County. The line generally continues in a south-southeast direction for approximately 9.4 miles through Stafford County before entering Spotsylvania County. The line then continues in a southerly direction for approximately 7.7 miles in Spotsylvania County before terminating at the Chancellor Substation. The line continues generally south for another 13.2 miles in Spotsylvania County. The line continues south for 1.9 miles in Caroline County before terminating at the Ladysmith Switching Station.

The Rebuild Project crosses the following roads (North to South) in Fauquier County: Aquia Road (Route 610) and Beaver Dam Road.

The Rebuild Project crosses the following roads (North to South) in Stafford County: Bristersburg Road/Poplar Road (Route 616), Skyline Drive (Route 615), Spotted Tavern Road (Route 614), Stonehouse Road (Route 612), Storck Road (Route 691), Cascade Lane, Richland Road (Route 649), Warrenton Road (Route 17), Kestral Court, Avocet Way, Gold Mine Road, and Richards Ferry Road (Route 752).

The Rebuild Project crosses the following roads (North to South) in Spotsylvania County: Riverview Drive, Gold Mine Court, Spotswood Furnace Road (Route 620), US Ford Road (Route 616), Twelfth Corps Drive, River Road (Route 618), Trench Court, Ashley Farms Drive, Hermitage Drive, Plank Road (Route 3), Stonehenge Drive, Sterling Drive, Heathrow Drive, Old Plank Road (Route 610), McGinty Road, Chancellor Road (Route 674), North River Landing, Gordon Road (Route 627), Courthouse Road (Route 208), Godwin Drive, Gunnery Hill Road, Massaponax Church Road (608), Hickory Ridge Road (Route 632), Eastridge Way, Mohawk Court, Morris Road (Route 606), Kleineidam Way, Sunset Road (Route 645), Martins Ridge Road, Adamson Lane, Marye Road (Route 605), Ni River Landing, Gordon Road (Route 627), Ni S Lane, Courthouse Road (Route 208), Gunnery Hill Road, Massaponax Church Road (Route 608), Hickory Ridge Road (Route 632), Berkshire Lane, Eastridge Way, Wampanoas Lane, Spotsylvania Courthouse, Tonto Drive, Altamaha Lane, Winniwah Lane, Mohawk Circle, Morris Road (Route 606), Kleineidam Way, Sunset Road (Route 645), Grace Hill,

Adamson Lane, Marye Road (Route 605), and Riley Lane.

The Rebuild Project crosses the following roads (North to South) in Caroline County: Countyline Church Road (Route 603) and Cedon Road (Route 661).

For the overall Rebuild Project, the minimum structure height is approximately 100 feet, the maximum structure height is approximately 159 feet, and the average structure height is approximately 133 feet, based on preliminary conceptual design, not including foundation reveal and subject to change based on final engineering design.

Project Overview Map

Bristers to Ladysmith 500 kV Rebuild

Fauquier
Counties, Virginia

Client:
Dominion Energy Virginia

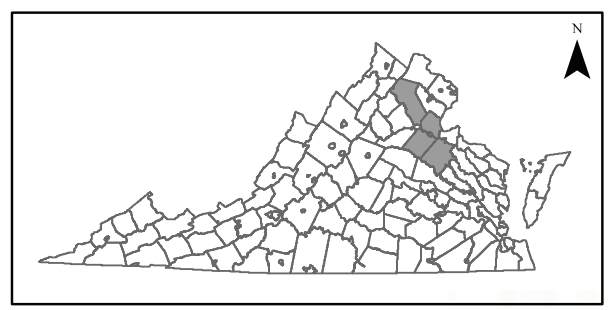
C2 Env Project:	Prepared By:	Date:
0073/0074	MKB	01/28/20

0 1.25 2.5 Miles
Scale is 1 in = 1.5 MI when printed at original size of 11x17

SITE DATA

- Existing Substations/Switching Stations
- Existing Centerline
- County Boundary
- Limited Access Highway
- US and VA Primary Highways
- Local and Main Roads
- NHD Flowline
- NHD Waterbody

Notes:
1. Basemap Source: USGS The National Map/Oceans Map
2. Virginia Department of Transportation Road Centerline Data



vhb Dominion Energy C2 ENVIRONMENTAL

\\vhb\gis\proj\Williamsburg\34465.00 C2Environ_Dom_ENV_MSA\Output\18_19_TL552_TL581_Combined_SCC_Figures\A_Overview\34465_500kv_36_mile_SCC_Overview.mxd 1/27/2019 1:30:05 PM

V. NOTICE

B. List Applicant offices where members of the public may inspect the application. If applicable, provide a link to website(s) where the application may be found.

Response: The application is available for public inspection at the following link: www.dominionenergy.com/bristers.

V. NOTICE

C. List all federal, state, and local agencies and/or officials that may reasonably be expected to have an interest in the proposed construction and to whom the Applicant has furnished or will furnish a copy of the application.

Response: The following agency representatives may reasonably be expected to have an interest in the proposed Rebuild Project. Instead of furnishing a copy of the Application to these parties, the Company has sent a letter noting the availability of the Application for the proposed Rebuild Project on the Company's website.

Ms. Bettina Rayfield, Manager
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, 6th Floor
Richmond, Virginia 23219

Ms. Trisha Beasley
Department of Environmental Quality
Wetlands Protection Program
13901 Crown Court
Woodbridge, VA 22193

Ms. Michelle Henicheck, PWS
Senior Wetland Ecologist
Department of Environmental Quality
P.O. Box 1105
Richmond, VA 23218

Ms. Robbie Rhur
Department of Conservation and Recreation
600 East Main Street, 17th Floor
Richmond, Virginia 23219

Ms. S. Rene Hypes, Project Review Coordinator
Department of Conservation and Recreation
Division of Natural Heritage
600 East Main Street, 24th Floor
Richmond, Virginia 23219

Ms. Amy M. Ewing, Biologist
Virginia Department of Games and Inland Fisheries
7870 Villa Park, Suite 400
Henrico, Virginia 23228

Mr. Keith Tignor
Endangered Species Coordinator
Virginia Department of Agriculture and Consumer Affairs
102 Governor Street
Richmond, Virginia 23219

Mr. Roger Kirchen, Director
Department of Historic Resources
Review and Compliance Division
2801 Kensington Avenue
Richmond, Virginia 23221

Mr. Greg Evans
Assistant Director for Forestland Conservation Office
Virginia Department of Forestry
900 Natural Resources Drive, Suite 800
Charlottesville, Virginia 22903

Mr. Tony Watkinson
Habitat Management Division
Virginia Marine Resources Commission
380 Fenwick Road
Hampton, Virginia 23651

Mr. Troy Andersen
US Fish and Wildlife Service
Ecological Services Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061

Ms. Silvia Gazzera
U.S. Army Corps of Engineers
Norfolk District, Northern Division
9100 Arboretum Parkway, Suite 235
Richmond, VA 23236

Mr. Scott Denny
Airport Services Division
Virginia Department of Aviation
5702 Gulfstream Road
Richmond, Virginia 23250

Ms. Martha Little, Deputy Director
Virginia Outdoors Foundation
600 East Main Street, Suite 402
Richmond, Virginia 23219

Ms. Marcie Parker, P.E.
District Engineer, Fredericksburg District
Virginia Department of Transportation
87 Deacon Road
Fredericksburg, VA 22405

Mr. John D. Lynch, P.E.
District Engineer, Culpeper District
1601 Orange Road
Culpeper, VA 22701

Mr. Paul S. McCulla
Fauquier County Administrator
10 Hotel Street, Ste 204
Warrenton, VA 20186

Mr. Thomas C. Foley
Stafford County Administrator
1300 Courthouse Road
3rd Floor
Stafford, VA 22554

Mr. Ed Petrovitch
Spotsylvania County Administrator
9104 Courthouse Road
Spotsylvania, VA 22553

Mr. Charles M. McCulley, Jr.
Caroline County Administrator
P.O. Box 447
Bowling Green, VA 22427

V. NOTICE

D. If the application is for a transmission line with a voltage of 138 kV or greater, provide a statement and any associated correspondence indicating that prior to the filing of the application with the SCC the Applicant has notified the chief administrative officer of every locality in which it plans to undertake construction of the proposed line of its intention to file such an application, and that the Applicant gave the locality a reasonable opportunity for consultation about the proposed line (similar to the requirements of § 15.2-2202 of the Code for electric transmission lines of 150 kV or more).

Response: In accordance with Va. Code § 15.2-2202 E, letters dated March 19, 2020, were sent to Mr. Paul S. McCulla, County Administrator in Fauquier County; Mr. Thomas C. Foley, County Administrator in Stafford County; Mr. Ed Petrovitch, County Administrator in Spotsylvania County; and Mr. Charles M. McCulley, Jr., County Administrator in Caroline County, advising of the Company's intention to file this Application and inviting the counties to consult with the Company about the proposed Rebuild Project. These letters are included as Attachments V.D.1-V.D.4.

Dominion Energy Virginia
10900 Nuckols Rd, 4th Floor
Glen Allen, VA 23060
DominionEnergy.com

March 19, 2020

VIA EMAIL

Mr. Paul S. McCulla
Fauquier County Administrator
10 Hotel Street, Ste 204
Warrenton, VA 20186

Reference: Dominion Energy Virginia's Proposed Bristers to Ladysmith 500kV Transmission Line Rebuild, Fauquier, Stafford, Spotsylvania and Caroline Counties, Virginia Notice Pursuant to Va. Code §15.2-2202 E

Dear Mr. McCulla,

Dominion Energy Virginia (the "Company") is proposing to rebuild existing 500kV transmission lines #552 and #581 along a 36.7-mile corridor between the existing Bristers Substation in Fauquier County and the existing Ladysmith Substation in Caroline County (collectively, the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

The Company is preparing an application for Certificate of Public Convenience and Necessity ("CPCN") from the Virginia State Corporation Commission ("SCC"). Pursuant to Va. Code §15.2-2202, the Company is writing to notify you of the proposed Rebuild Project in advance of this SCC filing. We respectfully request that you submit any comments or additional information you feel would have bearing on the Project within 30 days of the date of this letter. Enclosed is a Project Location Map depicting the rebuild route and project location.

If you would like to receive a GIS shapefile of the rebuild route to assist in your project review or if you have any questions, please do not hesitate to contact me directly at (804)775-5279 or Laura.P.Meadows@dominionenergy.com. We appreciate your assistance with this project review and look forward to any additional information you may have to offer.

Regards,

Laura P. Meadows
Siting and Permitting Specialist

Attachment: Project Location Map

FIGURE 1.

Project Location Map

Bristers to Ladysmith 500 kV Rebuild

Fauquier
Counties, Virginia

Client:
Dominion Energy Virginia

DRAFT

C2 Env Project:	Prepared By:	Date:
0073/0074	MKB	01/28/20

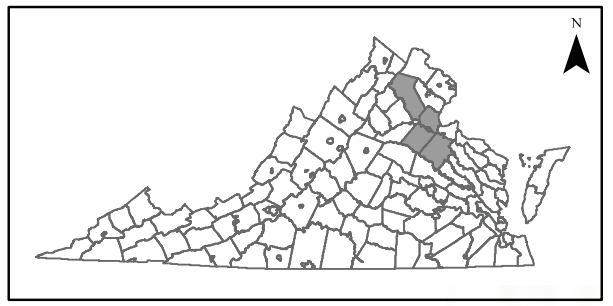
0 1.25 2.5 Miles

Scale is 1 in = 1.5 MI when printed at original size of 11x17

SITE DATA

- Existing Substations
- Existing Centerline
- County Boundary
- Limited Access Highway
- US and VA Primary Highways
- Local and Main Roads
- NHD Flowline
- NHD Waterbody

Notes:
1. Basemap Source: USGS The National Map/Oceans Map
2. Virginia Department of Transportation Road Centerline Data



vhb Dominion Energy C2 ENVIRONMENTAL

Dominion Energy Virginia
10900 Nuckols Rd, 4th Floor
Glen Allen, VA 23060
DominionEnergy.com

March 19, 2020

VIA EMAIL

Mr. Thomas C. Foley
Stafford County Administrator
1300 Courthouse Road
3rd Floor
Stafford, VA 22554

Reference: **Dominion Energy Virginia's Proposed Bristers to Ladysmith 500kV Transmission Line Rebuild, Fauquier, Stafford, Spotsylvania and Caroline Counties, Virginia Notice Pursuant to Va. Code §15.2-2202 E**

Dear Mr. Foley,

Dominion Energy Virginia (the "Company") is proposing to rebuild existing 500kV transmission lines #552 and #581 along a 36.7-mile corridor between the existing Bristers Substation in Fauquier County and the existing Ladysmith Substation in Caroline County (collectively, the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

The Company is preparing an application for Certificate of Public Convenience and Necessity ("CPCN") from the Virginia State Corporation Commission ("SCC"). Pursuant to Va. Code §15.2-2202, the Company is writing to notify you of the proposed Rebuild Project in advance of this SCC filing. We respectfully request that you submit any comments or additional information you feel would have bearing on the Project within 30 days of the date of this letter. Enclosed is a Project Location Map depicting the rebuild route and project location.

If you would like to receive a GIS shapefile of the rebuild route to assist in your project review or if you have any questions, please do not hesitate to contact me directly at (804)775-5279 or Laura.P.Meadows@dominionenergy.com. We appreciate your assistance with this project review and look forward to any additional information you may have to offer.

Regards,

Laura P. Meadows
Siting and Permitting Specialist

Attachment: Project Location Map

FIGURE 1.

Project Location Map

Bristers to Ladysmith 500 kV Rebuild

Fauquier
Counties, Virginia

Client:
Dominion Energy Virginia

DRAFT

C2 Env Project:	Prepared By:	Date:
0073/0074	MKB	01/28/20

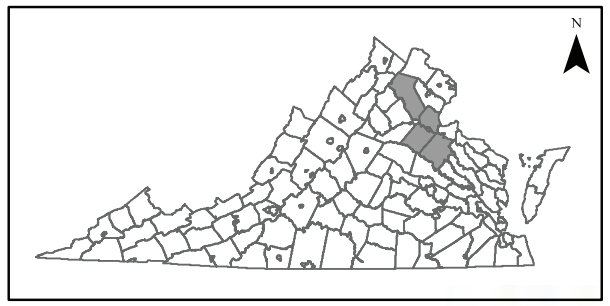
0 1.25 2.5 Miles

Scale is 1 in = 1.5 MI when printed at original size of 11x17

SITE DATA

- Existing Substations
- Existing Centerline
- County Boundary
- Limited Access Highway
- US and VA Primary Highways
- Local and Main Roads
- NHD Flowline
- NHD Waterbody

Notes:
1. Basemap Source: USGS The National Map/Oceans Map
2. Virginia Department of Transportation Road Centerline Data



vhb Dominion Energy C2 ENVIRONMENTAL

\\vhb\gis\proj\Williamsburg\34465.00 C2Environ_Dom_ENV_MSA\Output\18_19_TL552_TL581_Combined_SCC_Figures\IA_Overview\34465_500kv_36_mile_SCC_Overview.mxd
1/27/2019 1:30:06 PM

Dominion Energy Virginia
10900 Nuckols Rd, 4th Floor
Glen Allen, VA 23060
DominionEnergy.com

March 19, 2020

VIA EMAIL

Mr. Ed Petrovitch
Spotsylvania County Administrator
9104 Courthouse Road
Spotsylvania, VA 22553

Reference: Dominion Energy Virginia's Proposed Bristers to Ladysmith 500kV Transmission Line Rebuild, Fauquier, Stafford, Spotsylvania and Caroline Counties, Virginia Notice Pursuant to Va. Code §15.2-2202 E

Dear Mr. Petrovitch,

Dominion Energy Virginia (the "Company") is proposing to rebuild existing 500kV transmission lines #552 and #581 along a 36.7-mile corridor between the existing Bristers Substation in Fauquier County and the existing Ladysmith Substation in Caroline County (collectively, the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

The Company is preparing an application for Certificate of Public Convenience and Necessity ("CPCN") from the Virginia State Corporation Commission ("SCC"). Pursuant to Va. Code §15.2-2202, the Company is writing to notify you of the proposed Rebuild Project in advance of this SCC filing. We respectfully request that you submit any comments or additional information you feel would have bearing on the Project within 30 days of the date of this letter. Enclosed is a Project Location Map depicting the rebuild route and project location.

If you would like to receive a GIS shapefile of the rebuild route to assist in your project review or if you have any questions, please do not hesitate to contact me directly at (804)775-5279 or Laura.P.Meadows@dominionenergy.com. We appreciate your assistance with this project review and look forward to any additional information you may have to offer.

Regards,

Laura P. Meadows
Siting and Permitting Specialist

Attachment: Project Location Map

FIGURE 1.

Project Location Map

Bristers to Ladysmith 500 kV Rebuild

Fauquier
Counties, Virginia

Client:
Dominion Energy Virginia

DRAFT

C2 Env Project:	Prepared By:	Date:
0073/0074	MKB	01/28/20

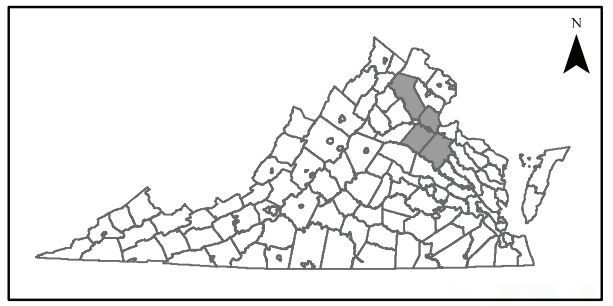
0 1.25 2.5 Miles

Scale is 1 in = 1.5 MI when printed at original size of 11x17

SITE DATA

- Existing Substations
- Existing Centerline
- County Boundary
- Limited Access Highway
- US and VA Primary Highways
- Local and Main Roads
- NHD Flowline
- NHD Waterbody

Notes:
1. Basemap Source: USGS The National Map/Oceans Map
2. Virginia Department of Transportation Road Centerline Data



vhb Dominion Energy C2 ENVIRONMENTAL

Dominion Energy Virginia
10900 Nuckols Rd, 4th Floor
Glen Allen, VA 23060
DominionEnergy.com

March 19, 2020

VIA EMAIL

Mr. Charles M. McCulley, Jr.
Caroline County Administrator
P.O. Box 447
Bowling Green, VA 22427

Reference: Dominion Energy Virginia's Proposed Bristers to Ladysmith 500kV Transmission Line Rebuild, Fauquier, Stafford, Spotsylvania and Caroline Counties, Virginia Notice Pursuant to Va. Code §15.2-2202 E

Dear Mr. McCulley,

Dominion Energy Virginia (the "Company") is proposing to rebuild existing 500kV transmission lines #552 and #581 along a 36.7-mile corridor between the existing Bristers Substation in Fauquier County and the existing Ladysmith Substation in Caroline County (collectively, the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

The Company is preparing an application for Certificate of Public Convenience and Necessity ("CPCN") from the Virginia State Corporation Commission ("SCC"). Pursuant to Va. Code §15.2-2202, the Company is writing to notify you of the proposed Rebuild Project in advance of this SCC filing. We respectfully request that you submit any comments or additional information you feel would have bearing on the Project within 30 days of the date of this letter. Enclosed is a Project Location Map depicting the rebuild route and project location.

If you would like to receive a GIS shapefile of the rebuild route to assist in your project review or if you have any questions, please do not hesitate to contact me directly at (804)775-5279 or Laura.P.Meadows@dominionenergy.com. We appreciate your assistance with this project review and look forward to any additional information you may have to offer.

Regards,

Laura P. Meadows
Siting and Permitting Specialist

Attachment: Project Location Map

FIGURE 1.

Project Location Map

Bristers to Ladysmith 500 kV Rebuild

Fauquier
Counties, Virginia

Client:
Dominion Energy Virginia

DRAFT

C2 Env Project:	Prepared By:	Date:
0073/0074	MKB	01/28/20

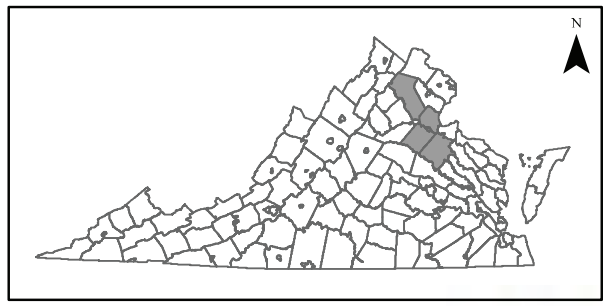
0 1.25 2.5 Miles

Scale is 1 in = 1.5 MI when printed at original size of 11x17

SITE DATA

- Existing Substations
- Existing Centerline
- County Boundary
- Limited Access Highway
- US and VA Primary Highways
- Local and Main Roads
- NHD Flowline
- NHD Waterbody

Notes:
1. Basemap Source: USGS The National Map/Oceans Map
2. Virginia Department of Transportation Road Centerline Data



vhb Dominion Energy C2 ENVIRONMENTAL