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December 16, 2021

BY ELECTRONIC FILING

Mr. Bernard Logan, Clerk
c/o Document Control Center
State Corporation Commission
1300 East Main Street
Tyler Building – 1st Floor
Richmond, Virginia 23219

Application of Virginia Electric and Power Company for approval and certification of electric transmission facilities: Line #2011 Extension from Cannon Branch to Winters Branch
Case No. PUR-2021-00291

Dear Mr. Logan:

Please find enclosed for electronic filing in the above-captioned proceeding the application for approval of electric facilities on behalf of Virginia Electric and Power Company (the "Company"). This filing contains the Application, Appendix, Direct Testimony, and DEQ Supplement, including attachments.

As indicated in Section II.A.12.b of the Appendix, an electronic copy of the map of the Virginia Department of Transportation "General Highway Map" for Prince William County and the City of Manassas, as well as the digital geographic information system ("GIS") map required by § 56-46.1 of the Code of Virginia, which is Attachment II.A.2 to the Appendix, were provided via an e-room to the Commission's Division of Energy Regulation on December 15, 2021.

Please do not hesitate to call if you have any questions in regard to the enclosed.

Very truly yours,

Vishwa B. Link

Enclosures
cc: William H. Chambliss, Esq.
Mr. David Essah (without enclosures)
Mr. Neil Joshipura (without enclosures)

Mr. Michael A. Cizenski (without enclosures)
David J. DePippo, Esq.
Jontille D. Ray, Esq.
April M. Jones, Esq.

Dominion Energy®

Application, Appendix, DEQ Supplement, Direct Testimony and Exhibits of Virginia Electric and Power Company

Before the State Corporation Commission of Virginia

Line #2011 Extension from Cannon Branch to Winters Branch

Application No. 312

Case No. PUR-2021-00291

Filed: December 16, 2021

Volume 1 of 2

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY

FOR APPROVAL AND CERTIFICATION
OF ELECTRIC TRANSMISSION FACILITIES

Line #2011 Extension from Cannon Branch to Winters Branch

Application No. 312

Case No. PUR-2021-00291

Filed: December 16, 2021

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF	)	
	)	
VIRGINIA ELECTRIC AND POWER COMPANY	)	Case No. PUR-2021-00291
	)	
For approval and certification of electric transmission facilities: Line #2011 Extension from Cannon Branch to Winters Branch	)	

APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY FOR APPROVAL AND CERTIFICATION OF ELECTRIC TRANSMISSION FACILITIES: LINE #2011 EXTENSION FROM CANNON BRANCH TO WINTERS BRANCH

Pursuant to § 56-46.1 of the Code of Virginia ("Va. Code") and the Utility Facilities Act, Va. Code § 56-265.1 *et seq.*, Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company"), by counsel, files with the State Corporation Commission of Virginia (the "Commission") this application for approval and certification of electric transmission facilities (the "Application"). In support of its Application, Dominion Energy Virginia respectfully shows as follows:

1. Dominion Energy Virginia is a public service corporation organized under the laws of the Commonwealth of Virginia furnishing electric service to the public within its Virginia service territory. The Company also furnishes electric service to the public in portions of North Carolina. Dominion Energy Virginia's electric system—consisting of facilities for the generation, transmission, and distribution of electric energy—is interconnected with the electric systems of neighboring utilities and is a part of the interconnected network of electric systems serving the continental United States. By reason of its operation in two states and its interconnections with other utilities, the Company is engaged in interstate commerce.

2. In order to perform its legal duty to furnish adequate and reliable electric service, Dominion Energy Virginia must, from time to time, replace existing transmission facilities or construct new transmission facilities in its system.

3. In this Application, in order to maintain reliable service for the overall growth in the area and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, Dominion Energy Virginia proposes to complete the following in the City of Manassas and Prince William County, Virginia (collectively, the "Manassas Airport Area"):

- Remove approximately 0.06 mile of the existing 230 kV Line #2011 termination between Cannon Branch Substation and Structure #2011/68 ("Partial Line #2011 Removal");

- Construct a new approximately 1.05-mile segment of 230 kV Line #2011 starting south of Cannon Branch Substation and terminating at Winters Branch Substation in a newly acquired, variable width right-of-way expansion, ranging in width from 50 to 120 feet, parallel and to the south and east of the existing, variable width right-of-way (ranging in width from 60 to 120 feet) containing 230 kV Lines #2195 and #2148 ("Line 2011 Extension"). Specifically, for the Line #2011 Line Extension, the Company proposes to extend a third 230 kV source to Winters Branch by extending existing Line #2011 (Clifton-Cannon Branch) to terminate at Winters Branch Substation, which would create new Line #2011 (Clifton-Winters Branch); and

- Perform related work at (1) the Company's existing Cannon Branch Substation to support the line extension to Winters Branch Substation and (2) the Company's existing Winters Branch Substation to support the new line rating.

The proposed Partial Line #2011 Removal and the Line #2011 Extension to Winters Branch Substation are collectively referred to as the "Project."[1]

[1] In parallel with this Project, the Company plans to convert the existing 115 kV Line #172 (Liberty-Lomar) and Line #197 (Cannon Branch-Dominion DP-Lomar DP) by extending a third 230 kV source between Liberty and Cannon Branch ("Conversion Project"). The Company considers the Conversion Project an "ordinary extension" or improvement[] in the usual course of business" pursuant to § 56-265.2 A 1 of the Code of Virginia ("Va. Code") and consistent with Staff's July 6, 2017 guidance, which provides that any transmission project that only requires reconductoring, maintenance or station work does not require a certificate of public convenience and necessity ("CPCN"), except as noted therein. In addition to the proposed Project, the Company also believes the Conversion

4. The Project in the Manassas Airport Area is centered within the Data Center Opportunity Overlay District, which is located in Prince William County. The Project is necessary to assure that that the Company can maintain reliable service and meet the load growth in this area. Specifically, the Company anticipates extensive growth in the Manassas Airport Area over the next 5 to 10 years as many large parcels in the area are currently owned or under contract by data center developers.

5. The Company anticipates an excess of 300 MW in the Manassas Airport Area by 2023. The substations in the Manassas Airport Area have or will be energized to serve data center campuses in addition to City of Manassas Electric's Airport Delivery Point ("DP"). Accordingly, the proposed Project is needed to meet load requirements and can serve future load growth in the Manassas Airport Area, which will, in turn, facilitate economic growth in the Commonwealth.

6. The desired in-service date for the Project is December 29, 2023. The Company estimates it will take approximately 15 months for detailed engineering, materials procurement, permitting, real estate, and construction after a final order from the Commission. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by September 16, 2022. Should the Commission issue a final order by September 16, 2022, the Company estimates that construction should begin approximately July 5, 2023, and be completed by the in-service target date of December 29, 2023. This construction timeline will enable the Company to meet the targeted in-service date for the Project. This schedule is contingent upon obtaining the necessary permits and transmission line outages; dates may need to be adjusted based on permitting delays or outage delays, or design modifications in

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Project is necessary to resolve multiple 300 MW N-1-1 criteria violations, as further discussed in Section I.A of the Appendix attached to this Application.

order to comply with additional agency requirements identified during the permitting application process.

7. The estimated conceptual cost of the proposed Project is approximately $11.7 million, which includes approximately $10.4 million for transmission-related work and approximately $1.3 million for substation-related work (2021 dollars). The description of the proposed Project is described in detail in Sections I and II of the Appendix attached to this Application.

9. The new approximate 1.05-mile segment of Line #2011 requires the acquisition of a variable width right-of-way expansion, ranging in width from 50 to 120 feet, to the south and east parallel to the existing, variable width right-of-way. The proposed Line #2011 right-of-way expansion will start directly south of Cannon Branch Substation and parallel the existing, variable width right-of-way (ranging from 60 to 120 feet), containing Lines #2195 and #2148, to Winters Branch Substation. The existing monopole structures within the existing right-of-way are at maximum capacity supporting both of the existing lines. The area for the proposed right-of-way expansion was selected based on the location of the existing right-of-way. The existing right-of-way is parallel and directly adjacent to the proposed expansions. Additional costs and environmental impacts would be associated with the acquisition of and construction on new rights-of-way not directly adjacent to existing right-of-way. Given the availability of existing right-of-way and adjacent areas, the Company did not consider any alternate routes for the proposed Project. The impact of the proposed Project on scenic, environmental, and historical features is described in detail in Section III of the Appendix.

10. Based on consultations with the Virginia Department of Environmental Quality ("DEQ"), the Company has developed a supplement ("DEQ Supplement") containing information

designed to facilitate review and analysis of the proposed facilities by the DEQ and other relevant agencies. The DEQ Supplement is attached to this Application.

11. Based on the Company's experience, the advice of consultants, and a review of published studies by experts in the field, the Company believes that there is no causal link to harmful health or safety effects from electric and magnetic fields generated by the Company's existing or proposed facilities. Section IV of the Appendix provides further details on Dominion Energy Virginia's consideration of the health aspects of electric and magnetic fields.

12. Section V of the Appendix provides a proposed route description for public notice purposes and a list of federal, state, and local agencies and officials that the Company has or will notify about the Application.

13. In addition to the information provided in the Appendix and the DEQ Supplement, this Application is supported by the pre-filed direct testimony of Company Witnesses Harrison Potter, Chloe Genova, Antoaneta Yanev, and Craig Hurd filed with this Application.

WHEREFORE, Dominion Energy Virginia respectfully requests that the Commission:

(a) direct that notice of this Application be given as required by § 56-46.1 of the Code of Virginia;

(b) approve pursuant to § 56-46.1 of the Code of Virginia the construction of the Project; and,

(c) grant a certificate of public convenience and necessity for the Project under the Utility Facilities Act, § 56-265.1 *et seq.* of the Code of Virginia.

VIRGINIA ELECTRIC AND POWER COMPANY

By: */s/ Vishwa B. Link*
Counsel for Applicant

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Counsel for Applicant Virginia Electric and Power Company

December 16, 2021

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY

FOR APPROVAL AND CERTIFICATION
OF ELECTRIC TRANSMISSION FACILITIES

Line #2011 Extension from Cannon Branch to Winters Branch

Application No. 312

Appendix

Containing Information in Response to
"Guidelines for Transmission Line Applications Filed Under title 56 of the Code of Virginia"

Case No. PUR-2021-00291

Filed: December 16, 2021

TABLE OF CONTENTS

EXECUTIVE SUMMARY

In order to maintain reliable service for the overall growth in the area and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company") proposes to complete the following in the City of Manassas and Prince William County, Virginia ("the Manassas Airport Area"):

(i) Remove approximately 0.06 mile of the existing 230 kV Line #2011 termination between Cannon Branch Substation and Structure #2011/68 ("Partial Line #2011 Removal");

(ii) Construct a new approximately 1.05-mile segment of 230 kV Line #2011 starting south of Cannon Branch Substation and terminating at Winters Branch Substation in a newly acquired, variable width right-of-way expansion, ranging in width from 50 to 120 feet, parallel and to the south and east of the existing, variable width right-of-way (ranging in width from 60 to 120 feet) containing 230 kV Lines #2195 and #2148 ("Line 2011 Extension"). Specifically, for the Line #2011 Line Extension, the Company proposes to extend a third 230 kV source to Winters Branch by extending existing Line #2011 (Clifton-Cannon Branch) to terminate at Winters Branch Substation, which would create new Line #2011 (Clifton-Winters Branch); and

(iii) Perform related work at (1) the Company's existing Cannon Branch Substation to support the line extension to Winters Branch Substation and (2) the Company's existing Winters Branch Substation to support the new line rating.

The proposed Partial Line #2011 Removal and the Line #2011 Extension to Winters Branch Substation are collectively referred to as the "Project."[1]

The Project in the Manassas Airport Area is centered within the Data Center Opportunity Overlay District, which is located in Prince William County. The Project is necessary to assure that that the Company can maintain reliable service and meet the load growth in this area. Specifically, the Company anticipates extensive growth in the Manassas Airport Area over the next 5 to 10 years as many large parcels in the area are currently owned or under contract by data center developers.

The Company anticipates an excess of 300 MW in the Manassas Airport Area by 2023. The substations in the Manassas Airport Area have or will be energized to serve data center campuses in addition to City of Manassas Electric's Airport Delivery Point ("DP"). The load growth

[1] In parallel with this Project, the Company plans to convert the existing 115 kV Line #172 (Liberty-Lomar) and Line #197 (Cannon Branch-Dominion DP-Lomar DP) by extending a third 230 kV source between Liberty and Cannon Branch ("Conversion Project"). The Company considers the Conversion Project an "ordinary extension[] or improvement[] in the usual course of business" pursuant to § 56-265.2 A 1 of the Code of Virginia ("Va. Code") and consistent with Staff's July 6, 2017 guidance, which provides that any transmission project that only requires reconductoring, maintenance or station work does not require a certificate of public convenience and necessity ("CPCN"), except as noted therein. In addition to the proposed Project, the Company also believes the Conversion Project is necessary to resolve multiple 300 MW N-1-1 criteria violations, as further discussed in Section I.A.

provided in Section I.C below demonstrates the dynamic nature and large magnitude of the data center load growth occurring in this small geographic area. Accordingly, the proposed Project is needed to meet load requirements and can serve future load growth in the Manassas Airport Area, which will, in turn, facilitate economic growth in the Commonwealth.

As noted above, the new approximate 1.05-mile segment of Line #2011 requires the acquisition of a variable width right-of-way expansion, ranging in width from 50 to 120 feet, to the south and east, parallel to an existing, variable width right-of-way that contains Lines #2195 and #2148. The proposed Line #2011 right-of-way expansion will start directly south of Cannon Branch Substation and parallel the existing, variable width right-of-way (ranging in width from 60 to 120 feet), containing Lines #2195 and #2148, terminating at Winters Branch Substation.

The estimated conceptual cost of the proposed Project is approximately $11.7 million, which includes approximately $10.4 million for transmission–related work and approximately $1.3 million for substation-related work (2021 dollars).

The desired in-service target date for the proposed Project is December 29, 2023. The Company estimates it will take approximately 15 months for detailed engineering, materials procurement, permitting, real estate, and construction after a final order from the Commission. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by September 16, 2022. Should the Commission issue a final order by September 16, 2022, the Company estimates that construction should begin around July 5, 2023, and be completed by the in-service target date, which is December 29, 2023. This construction timeline will enable the Company to meet the targeted in-service date for the Project. This schedule is contingent upon obtaining the necessary permits and transmission line outages; dates may need to be adjusted based on permitting or outage delays, or design modifications in order to comply with additional agency requirements identified during the permitting application process.

I. NECESSITY FOR THE PROPOSED PROJECT

A. State the primary justification for the proposed project (for example, the most critical contingency violation including the first year and season in which the violation occurs). In addition, identify each transmission planning standard(s) (of the Applicant, regional transmission organization ("RTO"), or North American Electric Reliability Corporation) projected to be violated absent construction of the facility.

Response: The proposed Project is necessary to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards and to maintain reliable service to the overall growth in the area. See Attachment I.A.1 for an overview map of the proposed Project.

Dominion Energy Virginia's transmission system is responsible for providing transmission service: (i) for redelivery to the Company's retail customers; (ii) to Appalachian Power Company, Old Dominion Electric Cooperative, NOVEC, Central Virginia Electric Cooperative, and Virginia Municipal Electric Association for redelivery to their retail customers in Virginia; and (iii) to North Carolina Electric Membership Corporation and North Carolina Eastern Municipal Power Agency for redelivery to their customers in North Carolina (collectively, the "Dominion Energy Zone" or "DOM Zone").

Dominion Energy Virginia is part of the PJM Interconnection, L.L.C. ("PJM") regional transmission organization, which provides service to a large portion of the eastern United States. PJM is currently responsible for ensuring the reliability of and coordinating the movement of electricity through all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia. This service area has a population of approximately 65 million and on August 2, 2006, set a record high of 166,929 megawatts ("MW") for summer peak demand, of which Dominion Energy Virginia's load portion was approximately 19,256 MW serving 2.4 million customers. On July 20, 2020, the Company set a record high of 20,087 MW for summer peak demand. On February 20, 2015, the Company set a winter peak and all-time record demand of 21,651 MW. Based on the 2021 PJM Load Forecast, the Dominion Energy Zone is expected to grow with average growth rates of 0.5% summer and 0.9% winter over the next 10 years compared to the PJM average of 0.3% and 0.3% over the same period for the summer and winter, respectively.

Dominion Energy Virginia is also part of the Eastern Interconnection transmission grid, meaning its transmission system is interconnected, directly or indirectly, with all of the other transmission systems in the United States and Canada between the Rocky Mountains and the Atlantic Coast, except for Quebec and most of Texas. All of the transmission systems in the Eastern Interconnection are dependent on each other for moving bulk power through the transmission system and for

reliability support. Dominion Energy Virginia's service to its customers is extremely reliant on a robust and reliable regional transmission system.

NERC has been designated by the Federal Energy Regulatory Commission ("FERC") as the electric reliability organization for the United States. Accordingly, NERC requires that the planning authority and transmission planner develop planning criteria to ensure compliance with NERC Reliability Standards. Mandatory NERC Reliability Standards require that a transmission owner ("TO") develop facility interconnection requirements that identify load and generation interconnection minimum requirements for a TO's transmission system, as well as the TO's reliability criteria.[2]

Federally mandated NERC Reliability Standards constitute minimum criteria with which all public utilities must comply as components of the interstate electric transmission system. Moreover, the Energy Policy Act of 2005 mandates that electric utilities follow these NERC Reliability Standards and imposes fines on utilities found to be in noncompliance up to $1.3 million per day per violation.

PJM's Regional Transmission Expansion Plan ("RTEP") is the culmination of a FERC-approved annual transmission planning process that includes extensive analysis of the electric transmission system to determine any needed improvements.[3] PJM's annual RTEP is based on the effective criteria in place at the time of the analyses, including applicable standards and criteria of NERC, PJM, and local reliability planning criteria, among others.[4] Projects identified through the RTEP process are developed by the TO in coordination with PJM, and are presented at the Transmission Expansion Advisory Committee ("TEAC") meetings prior to inclusion in the RTEP that is then presented for approval by the PJM Board of Managers (the "PJM Board").

Outcomes of the RTEP process include three types of transmission system upgrades or projects: (i) baseline upgrades are those that resolve a system reliability criteria violation, which can include planning criteria from NERC, ReliabilityFirst, SERC Reliability Corporation, PJM, and TOs; (ii) network upgrades are new or upgraded facilities required primarily to eliminate reliability criteria violations caused by proposed generation, merchant transmission, or long-term firm transmission service requests; and (iii) supplemental projects are projects initiated by the TO in order to interconnect new customer load, address degraded equipment performance, improve operational flexibility and efficiency, and increase infrastructure resilience. While supplemental projects are included in the RTEP,

[2] *See* FAC-001-3 (effective Jan. 1, 2019), which can be found at https://www.nerc.com/_layouts/15/PrintStandard.aspx?standardnumber=FAC-001-3&title=Facility%20Interconnection%20Requirements&Jurisdiction=United%20States.

[3] PJM Manual 14B focuses on the RTEP process and can be found at https://www.pjm.com/-/media/documents/manuals/m14b.ashx.

[4] *See* PJM Manual 14B, Attachment D: PJM Reliability Planning Criteria.

and the PJM Board administers stakeholder review of supplemental projects as part of the RTEP process, the PJM Board does not actually approve such projects.

The Company has defined the Manassas Airport Area study for this Application to include City of Manassas Electric's Airport Delivery Point ("DP") and Dominion Energy Virginia's Cannon Branch, Winters Branch, Cloverhill, future Brickyard Substation,[5] and future Wakeman Substation.[6] Attachment I.A.2 details the one-line for the Manassas Airport Area after the conversion of Lines #172 and #197, otherwise known as the Conversion Project.[7]

The Manassas Airport Area is centered in the Data Center Opportunity Zone Overlay District in Prince William County.[8] The Data Center Opportunity Zone was created to allow for by-right data center development based off proximity to high voltage transmission lines of 115 kV or more and planned for office or industrial uses. Attachment I.G.2 shows the Data Center Opportunity Zone Overlay in the Manassas Airport Area. The Company anticipates extensive growth in the Manassas Airport Area over the next 5 to 10 years as many large parcels in the area are currently owned or under contract by data center developers.

Line 2011 230 kV Extension Project

The Line 2011 230 kV Extension ("Line Extension") Project is necessary to resolve potential criteria violations of mandatory NERC Reliability Standards. The Project introduces an additional 230 kV line terminating at Winters Branch Substation to resolve 300 MW N-1-1 Load Drop violations and to maintain reliable service to overall growth in the area. As part of the Line Extension Project, the Company proposes to: (i) remove approximately 0.06 mile of the existing 230 kV Line #2011 termination between Cannon Branch Substation and Structure #2011/68; (ii) extend a third 230 kV source to Winters Branch by extending existing Line #2011 (Clifton-Cannon Branch) to terminate at Winters Branch Substation, which would create new Line #2011 (Clifton-Winters Branch). More specifically, the Company

[5] Brickyard Substation (s2131) has a target in-service date of May 31, 2024. The need for the Brickyard Substation was presented to PJM as part of the M-3 process on May 15, 2019; the solution for the need was presented on November 17, 2019; and the solution was accepted into the local plan on November 4, 2020. Brickyard Substation was not included as part of the 2025 RTEP case build; however, Brickyard only further contributes to the 300 MW N-1-1 Load Drop Violations.

[6] Wakeman Substation (s2630.1) has a target in-service date of December 12, 2022. The need for the Wakeman Substation was presented to PJM as part of the M-3 process on November 4, 2020; the solution for the need was presented on August 10, 2020; and the solution was accepted into the local plan on November 30, 2021. Wakeman Substation was not included as part of the 2025 RTEP case build; however, Wakeman only further contributes to the 300 MW N-1-1 Load Drop Violations.

[7] The Company considers the Conversion Project, which includes the conversion of existing 115 kV Line #172 (Liberty-Lomar) and Line #197 (Cannon Branch-Dominion DP-Lomar DP) to extend a third 230 kV source to between Liberty and Cannon Branch, to be an "ordinary extension[] or improvement[] in the usual course of business" pursuant to Va. Code § 56-265.2 A 1 and consistent with Staff's July 6, 2017 guidance. *See supra* n.1.

[8] *See* the following link:
https://library.municode.com/va/prince_william_county/codes/code_of_ordinances?nodeId=CH32ZO_ARTVOVDI_PT509DACEOPZOOVDI.

proposes to extend the existing Line #2011 1.05 miles to Winters Branch by (i) removing the existing Line #2011 termination at Cannon Branch and associated span of conductor between Structure #2011/68 and the Cannon Branch backbone structure for 0.06 mile, as noted above; (ii) installing 1.05 miles of 2-768.2 ACSS/TW/HS conductor, designed for a MOT of 250 degrees Celsius and a minimum summer transfer capacity of 1572 MVA from Structure #2011/68 to a backbone at Winters Branch Substation; and (iii) installing necessary breakers, line leads, breaker switches, and bus segments as needed at the Cannon Branch and Winters Branch Substations. All new substation equipment will be rated for the current Northern Virginia ("NOVA") standard of 4000 Amps.

The Project addresses and resolves a potential 300 MW N-1-1 consequential load loss violation for the (i) loss of 230 kV Line # 2195 Cannon Branch-Winters Branch and (ii) 230 kV Line #2148 Cannon Branch-Cloverhill seen in multiple PJM cases described below. This contingency pair will drop all customer load in the defined Manassas Airport Area, as shown in Attachment I.A.3

The Company presented four supplemental projects (DOM-2019-0023, DOM-2020-0001, DOM-2020-0004, and DOM-2020-0005) towards the end of 2019 and prior to the summer of 2020, as detailed in Section I.B. The planned one-line including these additional supplemental projects are shown in Attachment I.A.4. PJM identified multiple potential NERC criteria violations (300 MW Load Drop) in the Manassas Airport Area during the 2020 Do-No-Harm ("DNH") analysis[9] of these four projects based off the 2023 RTEP case. In September of 2020, PJM retooled the 2020 DNH study to be built off the 2025 RTEP case, resulting in the same potential NERC criteria violations, as shown in Attachment I.A.5. An additional supplemental project (DOM-2020-0040) detailed in Section I.B has also been presented and accepted into the Local Plan that will add to the Load Drop for the same contingency set reinforcing the need for this Project.

Additionally, in 2020, PJM identified the same N-1-1 300 MW Load Drop NERC criteria violations in the Manassas Airport Area as part of the 2025 RTEP Summer and Winter analysis as was seen in the 2020 DNH analysis. The 2025 RTEP Summer and Winter case did not include the four previously mentioned supplemental projects; however, it did show a total load loss greater than 300 MW.

On June 7, 2020, PJM designated projects associated with the Flowgates, as detailed in Attachment I.A.6, as an immediate need, with a target date of December 29, 2023, and subsequently did not accept proposals as part of the Open Window for these Flowgates due to several factors. These factors include the following: (i) the loss of multiple pairs of 230 kV feeds into the Manassas Airport Area, and (ii)

[9] Prior to integrating a supplemental project into the RTEP base case, PJM performs a "do no harm study" to evaluate whether a proposed supplemental project will adversely impact the reliability of the Transmission System as represented in the planning models used in all other PJM reliability planning studies. If, as a result of the do no harm study, system upgrades are required, such upgrades will be considered part of the supplemental project and are the responsibility of the Transmission Owner sponsoring the supplemental project.

future load growth in the area, as detailed in Section I.C. Attachment I.A.7 details PJM's assessment of the Manassas Airport Area and the decision to designate this Project as an immediate need.

See Attachment I.A.8 for a one-line diagram detailing the Manassas Airport Area after the proposed Project is complete.

***

In summary, in conjunction with the ordinary course Conversion Project, the proposed Project will resolve multiple 300 MW N-1-1 criteria violations that have been identified by PJM for the 230 kV lines bounded by Clifton and Liberty Substations serving the Manassas Airport Area. Additionally, the Project will help maintain reliable service and support the overall growth in the area.

Attachment I.A.1

1 INCH = 200 FEET

0 200 400 600 FEET

LEGEND

- FUTURE SUBSTATION
- EXISTING SUBSTATION
- APPROXIMATE COUNTY LIMITS
- EXISTING 115 KV LINE
- EXISTING 230 KV LINE

APPROXIMATE PROJECT LIMITS

- PROPOSED 230 KV LINE 2011 EXTENSION
- REMOVE EXISTING 230 KV LINE 2011

EXISTING LINES 197 (115 KV) & 2148 (230 KV)

EXISTING LINE 163

CANNON BRANCH SUBSTATION

EXISTING LINE 2195

EXISTING LINE 2148

EXISTING LINE 2011

EXISTING LINES 2195 & 2148

CITY OF MANASSAS

PRINCE WILLIAM COUNTY

FUTURE BRICKYARD SUBSTATION

WINTERS BRANCH SUBSTATION

Nokesville Rd

Godwin Dr

Gateway Blvd

Foster Dr

Joyce Ct

Colonel Ct

Godwin Ct

Business Center Ct

Norfolk Southern Railway

Central Park Dr

Brickyard Way

Tanner Way

Prince William Pkwy

Winged Elm Cir

Coffee Tree Ct

Grape Myrtle Ct

Lemon Tree Ct

Lime Tree Ct

Loblolly Trl

Sesame Ct

Cannon Branch

PROJECT MANAGER:	KB
DRAWN:	LC
JOB NUMBER:	103811
DATE:	08/05/2021
REVISIONS:	LC – 10/06/2021 LC – 09/22/2021 LC – 08/27/2021

TL #2011 EXTENSION FROM CANNON BRANCH TO WINTERS BRANCH APPLICANT: DOMINION ENERGY

PROJECT OVERVIEW MAP

I.A.1.

CITY OF MANASSAS AND PRINCE WILLIAM COUNTY VIRGINIA

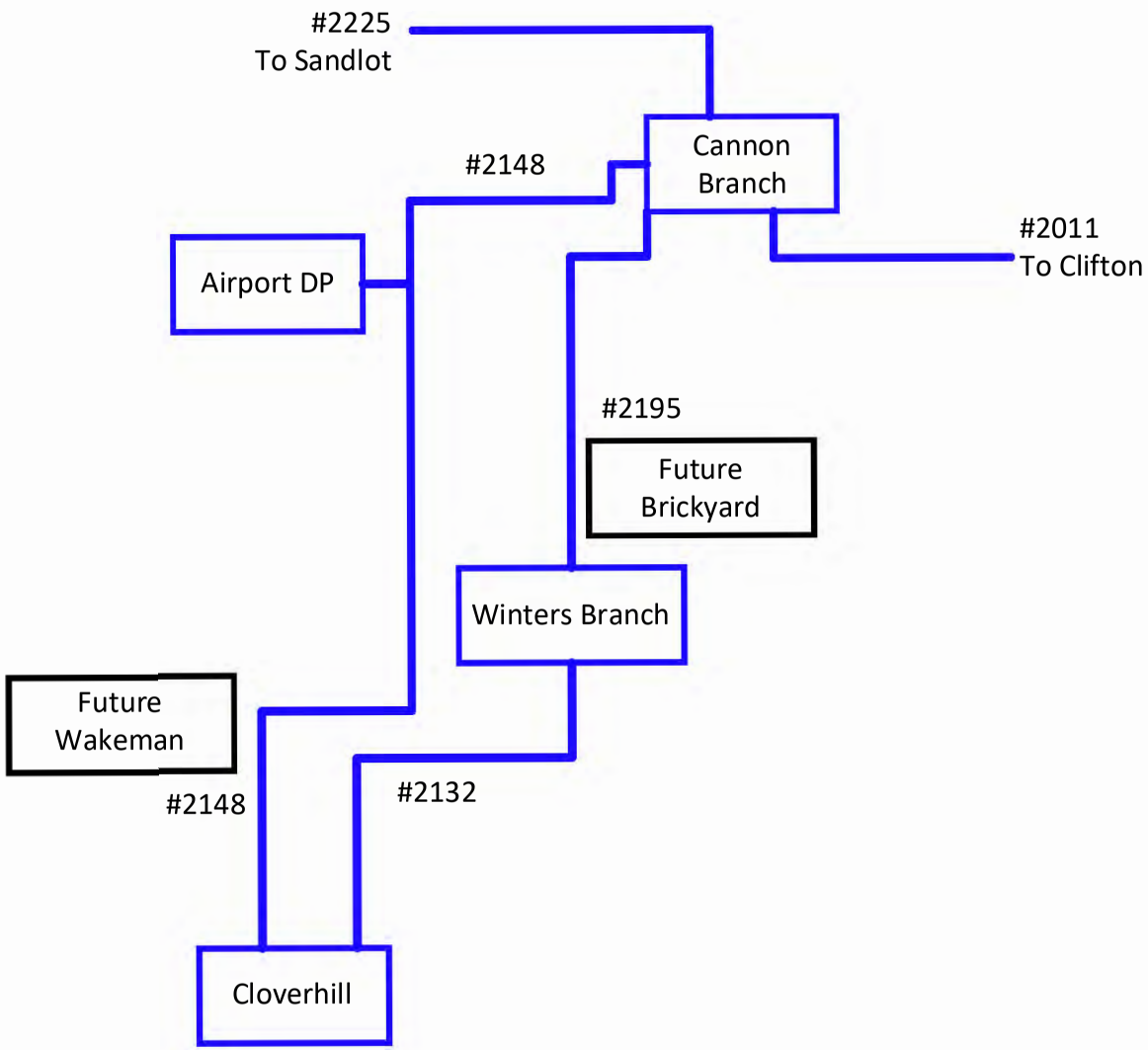
res

CORPORATE | 6575 WEST LOOP SOUTH, SUITE 300, BELLAIRE, TX 77401
P: 713.520.5400

Dominion Energy®

EXISTING ONELINE-MANASSAS AIRPORT AREA

Note: Post Conversion Project

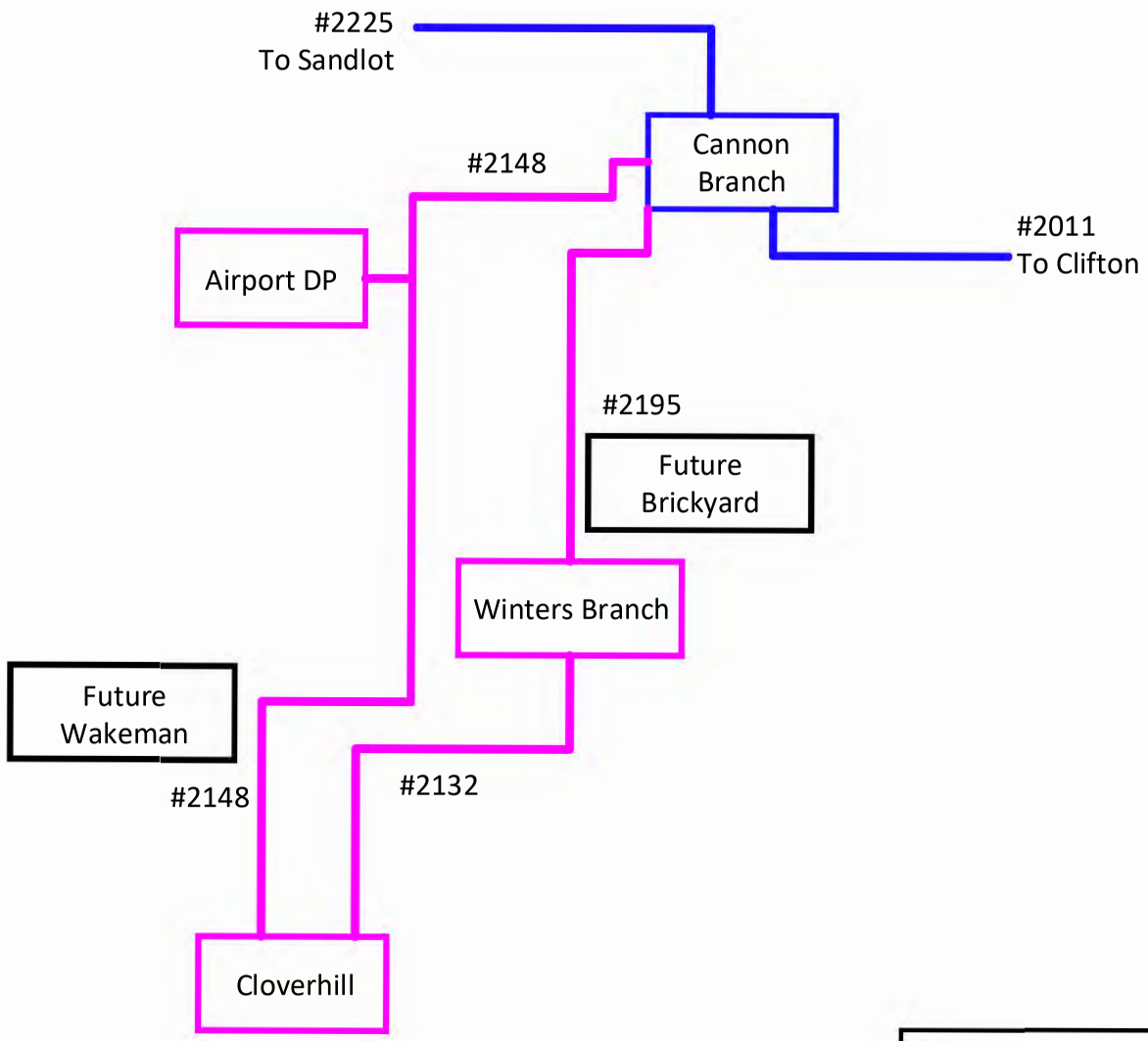


230kV Overhead Line

Future 230kV Equipment

MANASSAS AIRPORT AREA ONE-LINE CONTINGENCY EXISTING

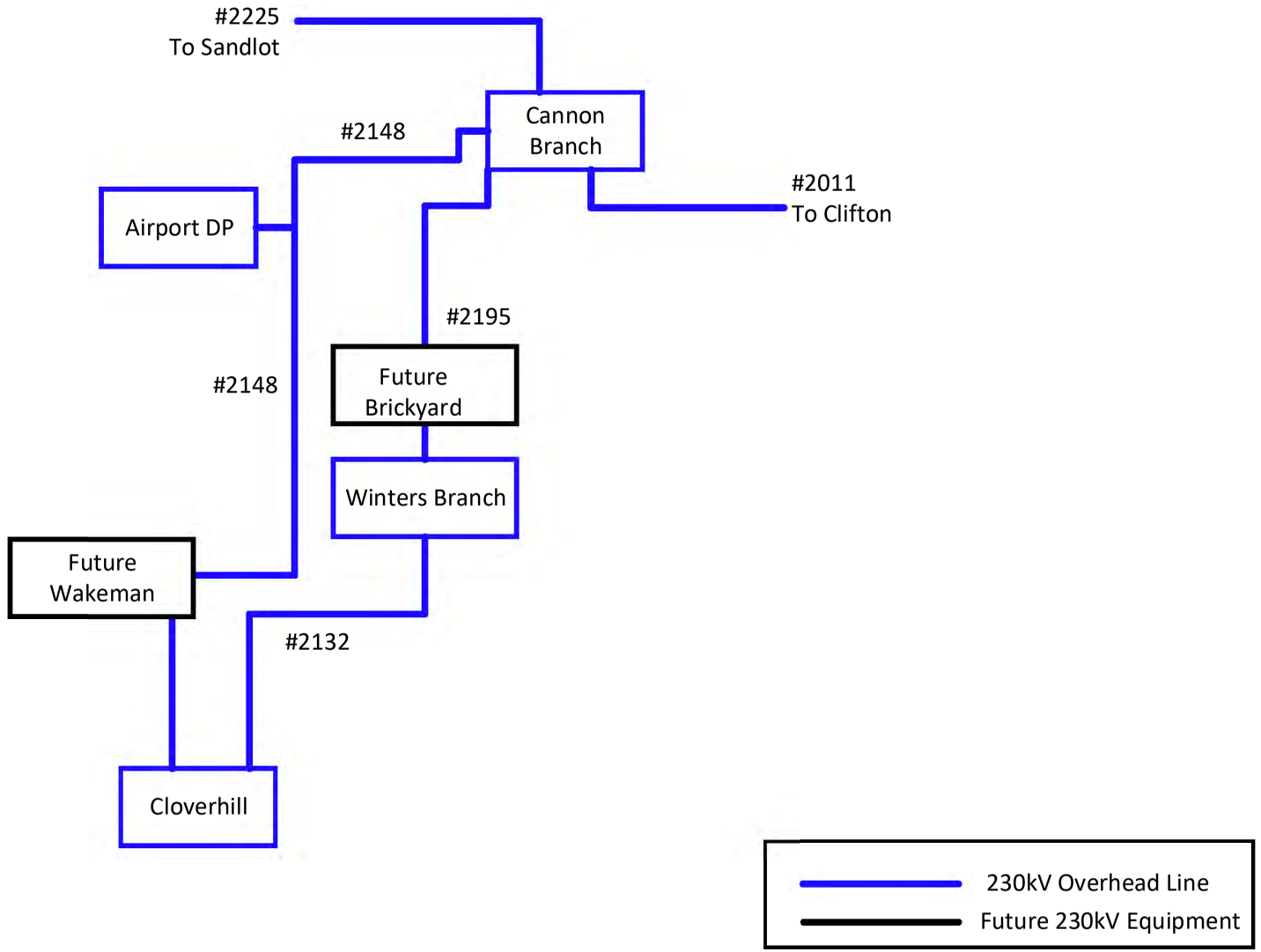
Note: Post Conversion Project



230kV Overhead Line
Future 230kV Equipment
De-energized Line

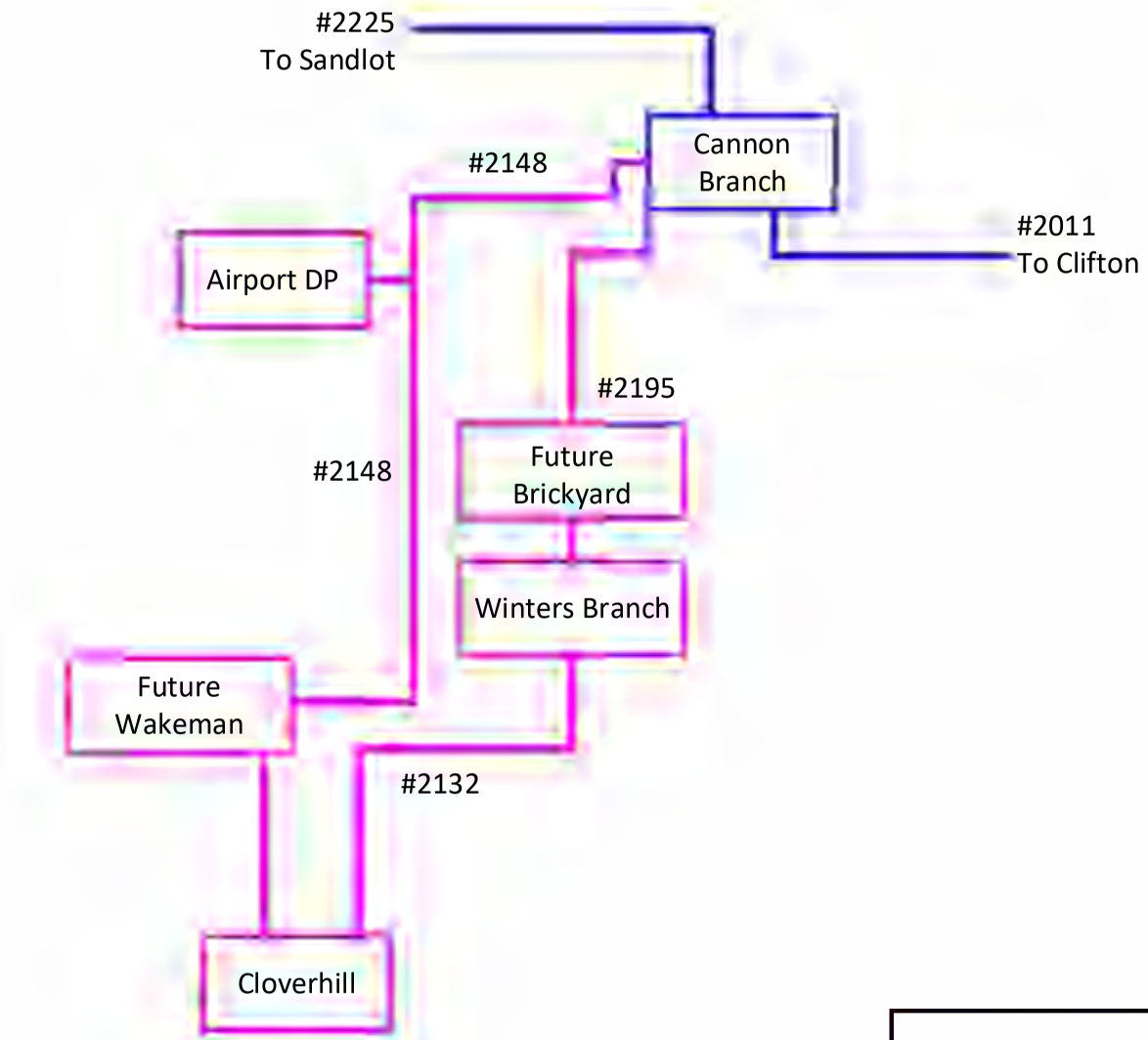
PLANNED ONELINE-MANASSAS AIRPORT AREA

Note: Post Conversion Project



MANASSAS AIRPORT AREA ONE-LINE CONTINGENCY PLANNED

Note: Post Conversion Project



N-1-1 Analysis Load Drop Summary (Summer 2025 Case)						
Flowgate #	**First Cont Name**	**Second Cont Name**	**Cont. Areas**	**TotalLoadLoss**	**PJM Accepting Proposals**	**Comment**
N2-SLD6	DVP_P1-2: LN 2195	DVP_P1-2: LN 2148	345	300.45	No	Immediate Need; Manassas Airport Area. Supplemental projects in the area: DOM-2019-023, DOM-2020-001,DOM-2020-0004, DOM-2020-0005

N-1-1 Analysis Load Drop Summary (Winter 2025 Case)						
Flowgate #	**First Cont Name**	**Second Cont Name**	**Cont. Areas**	**TotalLoadLoss**	**PJM Accepting Proposals**	**PJM Comments**
N2-WLD3	DVP_P1-2: LN 2195	DVP_P1-2: LN 2148	345	330.95	No	Immediate Need; Manassas Airport Area. Supplemental projects in the area: DOM-2019-023, DOM-2020-001,DOM-2020-0004, DOM-2020-0005

DOMINION MANASSAS AREA VIOLATIONS

The Manassas area of northern Virginia in the Dominion territory is experiencing significant load growth due to the introduction of multiple new load locations and increases to existing load. The original introduction of new load was identified with smaller magnitudes of new load. However, subsequent increases in that new load have resulted in a magnitude of load significantly greater than was originally reviewed.

The original introduction of load in this area had commitments by customers to connect load as was studied by PJM in the do no harm tests. PJM and Dominion discussed with the stakeholders during these meetings that there was a potential to have a significant increase in load at a later date, however, this additional load was not confirmed, during initial discussion by the customers, through the process Dominion employs to determine if new load is to be served, and how that service would be provided. Based on evolving information from the customers since the summer of 2019, the load increases in the load pocket identified in the violations as discussed briefly below and are posted in the list of reliability violations for PJM 2020 Window 1 results, are now expected to exceed 500 MW.

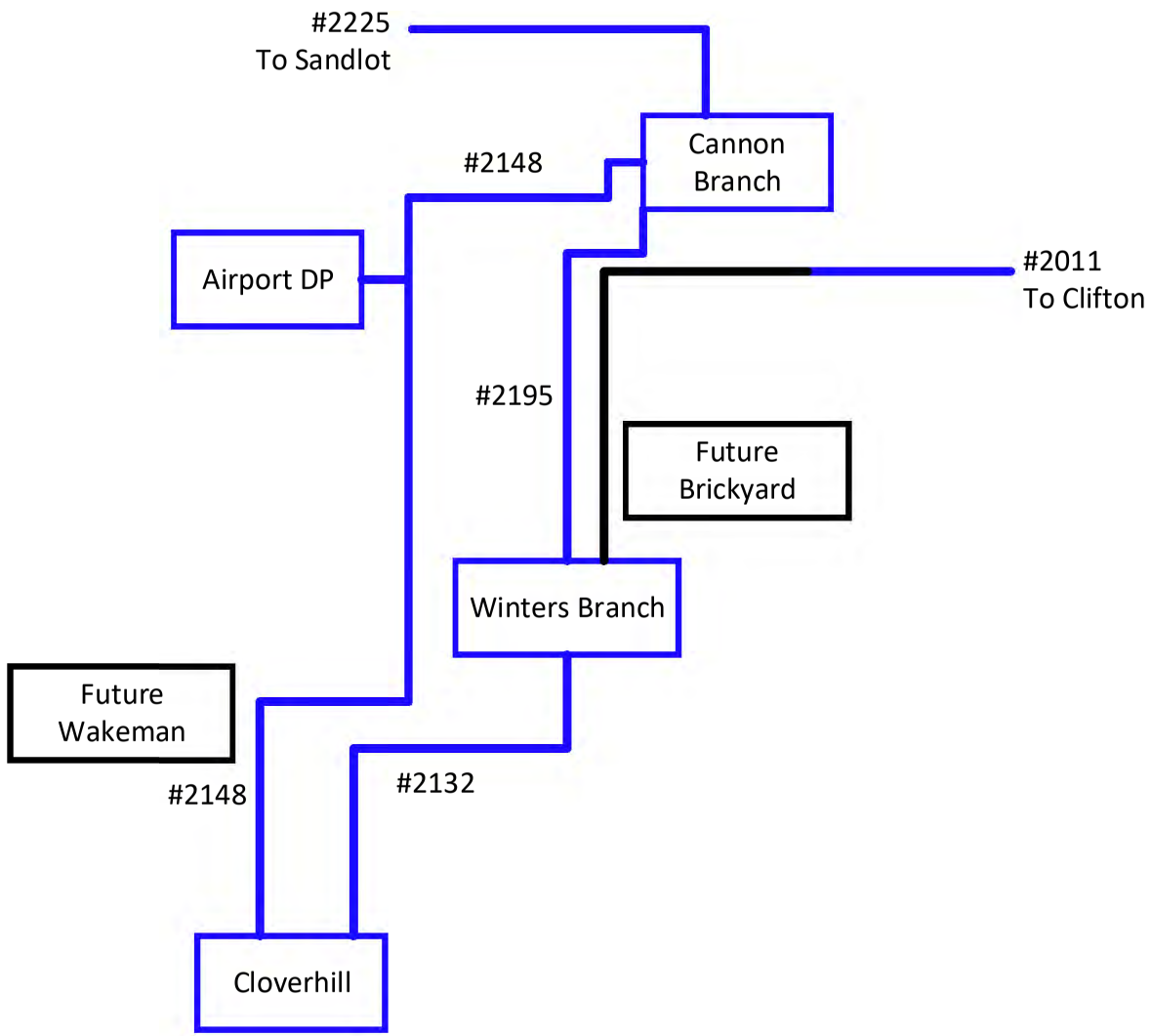
The results of both the winter and summer 2025 RTEP N-1-1 analysis show that load drop violations will occur for the loss of multiple pairs of 230 kV feeds into this area of the system in 2025 and as a result of reverse power relay schemes to prevent feeding the 230 kV system in the area from the 115 kV system. Due to the significant increase in load over the near term, and the interaction of the reverse power relay scheme, the load drop violations are now anticipated to occur in the 2022/2023 time frame.

Additionally, due to the expected arrival of future load growth in this area, integrated plans need to be considered to address the growth potential that has been evident in this area of the system.

As a result, this project will be designated immediate need to address the near term violation of dropping more than 300 MW in the 2022/2023 timeframe as well as those violations seen in 2025. Due to the interrelated nature of the existing facilities that serve load, as well future anticipated load growth, Dominion will be designated the entity to mitigate these violations.

PROPOSED ONELINE – MANASSAS AIRPORT AREA

Note: Post Conversion Project



230kV Overhead Line

Future 230kV Equipment

I. NECESSITY FOR THE PROPOSED PROJECT

B. [1] Detail the engineering justifications for the proposed project (for example, provide narrative to support whether the proposed project is necessary to upgrade or replace an existing facility, to significantly increase system reliability, to connect a new generating station to the Applicant's system, etc.). [2] Describe any known future project(s), including but not limited to generation, transmission, delivery point or retail customer projects, that require the proposed project to be constructed. [3] Verify that the planning studies used to justify the need for the proposed project considered all other generation and transmission facilities impacting the affected load area, including generation and transmission facilities that have not yet been placed into service. [4] Provide a list of those facilities that are not yet in service.

Response: **[1] Engineering Justification for Project**

See Section I.A for the engineering justification for the Project.

[2] Known Future Projects

The Manassas Airport Area has been designated as part of the Data Center Opportunity Overlay District in Prince William County, and has therefore been a coveted location for data center developers. The Company has received multiple DP Requests for new transformers at existing substations as well as new substations. The DP requests in order of in-service date include:

Winters Branch 230kV Delivery – Third Transformer
DEV distribution submitted a DP Request to add a third, 84 MVA distribution transformer at Winters Branch Substation in Prince William County. The new transformer is being driven by continued data center load growth and alternate feed contract reservations. The requested in-service date is January 1, 2022. Project DOM-2020-0004 was assigned PJM supplemental project number s2321.2 and accepted into the Local Plan[10] on November 4, 2020.

Cloverhill 230kV Delivery – Third Transformer
DEV distribution submitted a DP request to add a third 84 MVA distribution transformer at Cloverhill Substation in Prince William County. The new transformer is being driven by continued data center load growth and alternate feed contract reservations. The requested in-service date for this request is June 1, 2022. Project DOM-2020-0001 was assigned PJM supplemental project number s2321.1 and accepted into the Local Plan on November 4, 2020.

Wakeman 230 kV Delivery – New Substation
DEV distribution submitted a DP Request for Wakeman Substation to accommodate a new data center campus in Prince William County, with a total load

[10] A Transmission Owner's Local Plan includes all supplemental projects that will be included in the next year's RTEP base case cycle.

in excess of 100 MW by 2024. The requested in-service date is December 1, 2022. The need for Wakeman Substation was presented on November 4, 2020, with an updated solution presented on August 10, 2021. Dominion supplemental project DOM-2020-0040 was assigned PJM project number s2630.1 and accepted into the Local Plan on November 30, 2021.

Winters Branch 230 kV Delivery – Fourth Transformer

DEV distribution submitted another DP Request to add a fourth, 84 MVA distribution transformer at Winters Branch Substation in Prince William County. The new transformer is being driven by continued load growth in the area and contingency loading for loss of one of the existing transformers. The requested in-service date is March 1, 2023. Dominion Supplemental project DOM-2020-0005 was assigned PJM project number s2321.3 and accepted into the Local Plan on November 4, 2020.

Brickyard 230kV Delivery – New Substation

DEV distribution submitted a DP Request for Brickyard Substation to support a new data center campus in Prince William County, with a total load in excess of 100 MW. The requested in-service date for this DP request is May 15, 2023. Project DOM-2019-0023 was assigned PJM supplemental project number s2131 and accepted into the Local Plan on February 24, 2020.

The previously mentioned projects were not included as part of the 2025 RTEP case build; however, each project contributes further to the 300MW N-1-1 Load Drop Violations seen in the Manassas Airport Area and shows the continued growth in the Prince William Data Center Opportunity District. The Company is aware of additional data center campuses and required substations to serve DEV and NOVEC customer load that are in the conceptual phase. For purposes of this filing, the Company limited the scope of future projects to only those projects that have been presented to PJM.

[3] Planning Studies

The planning studies run by PJM and the Company drove the need for the Project as detailed in Section I.A. The combination of RTEP and DNH analysis drove the immediate need justification for the Project.

A PJM RTEP case is a snapshot in time case that does not include all the future projects known by the Company. The DNH case includes all Transmission Owner supplemental projects that have been presented to PJM. PJM, as well as the Company, will run traditional reliability analysis on each supplemental project added to the DNH case to ensure no harm is created to the network. In this case, the RTEP and DNH process revealed potential reliability violations in the Manassas Airport Area.

[4] Facilities List

Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

C. Describe the present system and detail how the proposed project will effectively satisfy present and projected future electrical load demand requirements. Provide pertinent load growth data (at least five years of historical summer and winter peak demands and ten years of projected summer and winter peak loads where applicable). Provide all assumptions inherent within the projected data and describe why the existing system cannot adequately serve the needs of the Applicant (if that is the case). Indicate the date by which the existing system is projected to be inadequate.

Response: Attachment I.G.1 shows the portion of the Company's transmission facilities in the area of the Project and includes Prince William County's Data Center Opportunity District. For purposes of this Application, the Company is focusing on the area north of Manassas Regional Airport, south of Prince William Parkway (Rt. 234), east of Nokesville Road (Rt. 28), and generally bounded by Cloverhill Road.

The Prince William County Data Center Opportunity District is part of the larger Woodbridge Load Zone, which is one of the three load zones that make up the Company's Northern Virginia Region (the other two load zones are Alexandria/Arlington and Fairfax).

The Company anticipates an excess of 300 MW in the Manassas Airport Area by 2023, as shown in Attachment I.C.1. The substations in the Manassas Airport Area have or will be energized to serve data center campuses in addition to City of Manassas Electric's Airport DP. The load growth provided demonstrates the dynamic nature and large magnitude of the data center load growth occurring in this small geographic area.

Load Projections

Station	Utility	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Airport	Manassas	**32.9**	**33.4**	**33.9**	34.4	34.9	35.4	36.0	36.2	37.0	37.0
Cloverhill	DEV	**24.5**	**53.7**	**56.1**	137.2	196.8	266.8	276.3	285.8	295.3	304.8
Winters Branch	DEV	-	-	**42.5**	95.5	174.5	214.4	216.5	216.5	216.5	216.5
Wakeman	DEV	-	-	-	5.0	69.0	162.0	196.3	230.5	264.8	299.0
Brickyard	DEV	-	-	-	-	-	17.0	50.6	67.3	84.0	100.8
Total		**57.4**	**87.1**	**132.5**	**272.1**	**475.2**	**695.6**	**775.7**	**836.3**	**897.6**	**958.1**

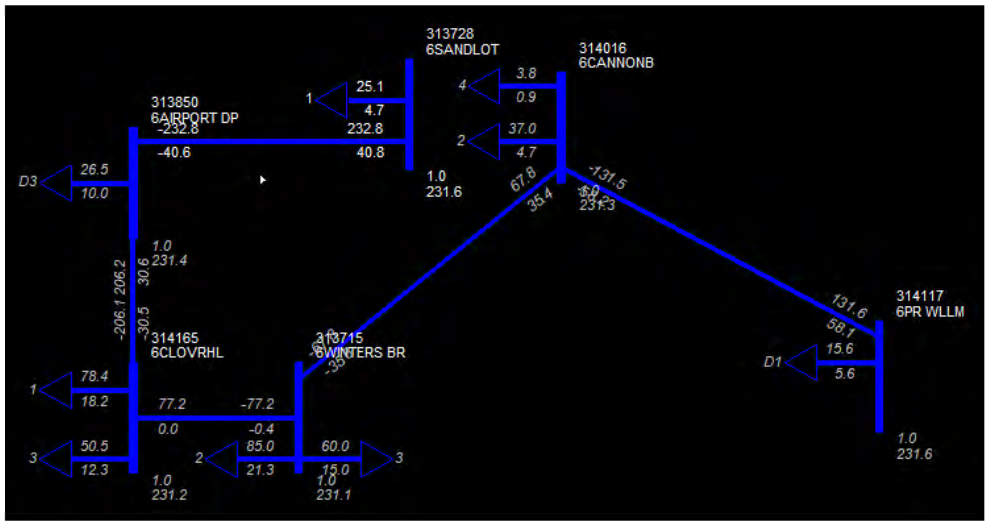
Notes:
Load projections for Airport DP Provided by City of Manassas Electric Utility
Cloverhill, Winters Branch, Brickyard, and Wakeman projected loads provided by DEV Distribution
Brickyard Substation - In Service Date 12/01/2022
Wakeman Substation - In Service Date 05/31/2024

I. NECESSITY FOR THE PROPOSED PROJECT

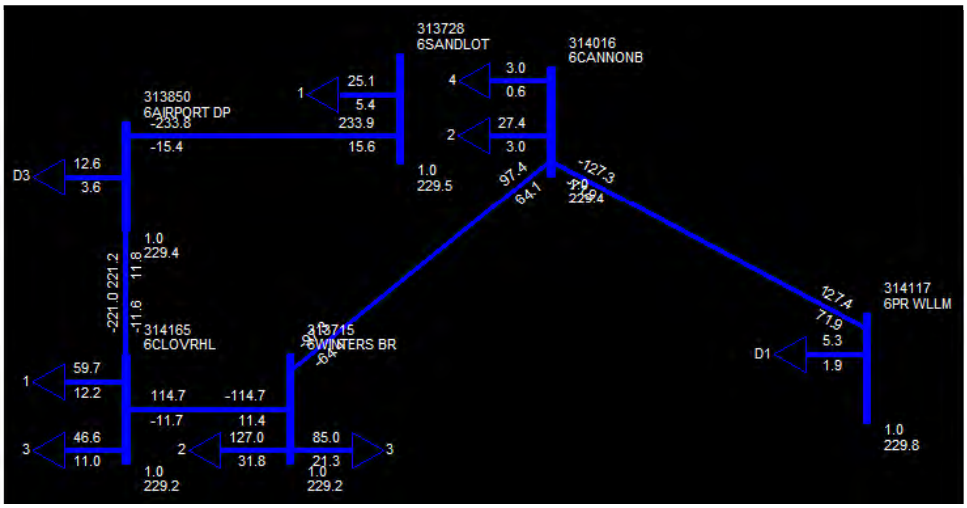
D. If power flow modeling indicates that the existing system is, or will at some future time be, inadequate under certain contingency situations, provide a list of all these contingencies and the associated violations. Describe the critical contingencies including the affected elements and the year and season when the violation(s) is first noted in the planning studies. Provide the applicable computer screenshots of single-line diagrams from power flow simulations depicting the circuits and substations experiencing thermal overloads and voltage violations during the critical contingencies described above.

Response: The 2020 RTEP cycle produced a 2025 Summer and Winter Case. The contingency and driver behind the proposed Project, loss of Line #2148 (Cannon Branch-Cloverhill) and Line #2195 (Cannon Branch-Winters Branch), has a combined loss of 300.4 MW in the 2020 RTEP Summer 2025 Case and 330.9 MW in the 2020 RTEP Winter 2025 Case.

RTEP Summer 2025 Case – 300.4MW

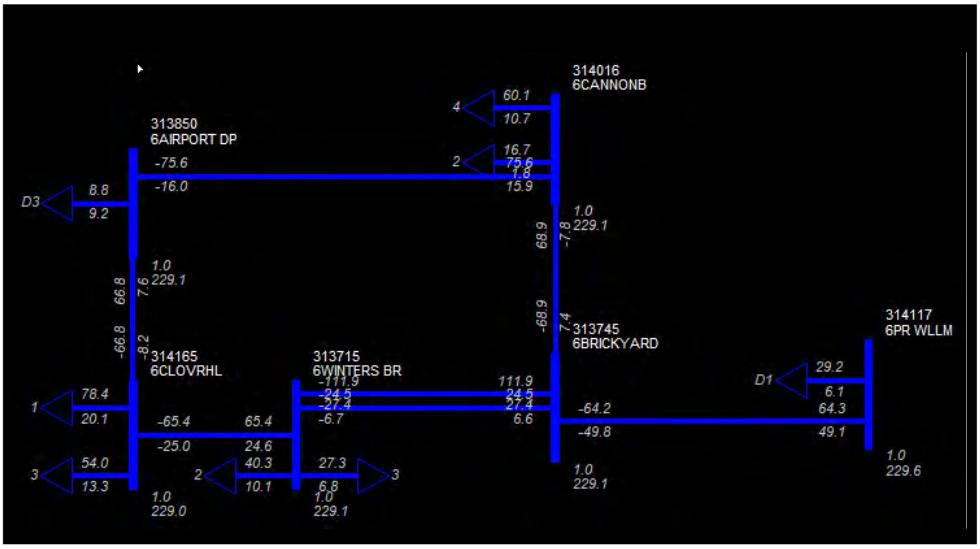


RTEP Winter 2025 Case – 330.9 MW

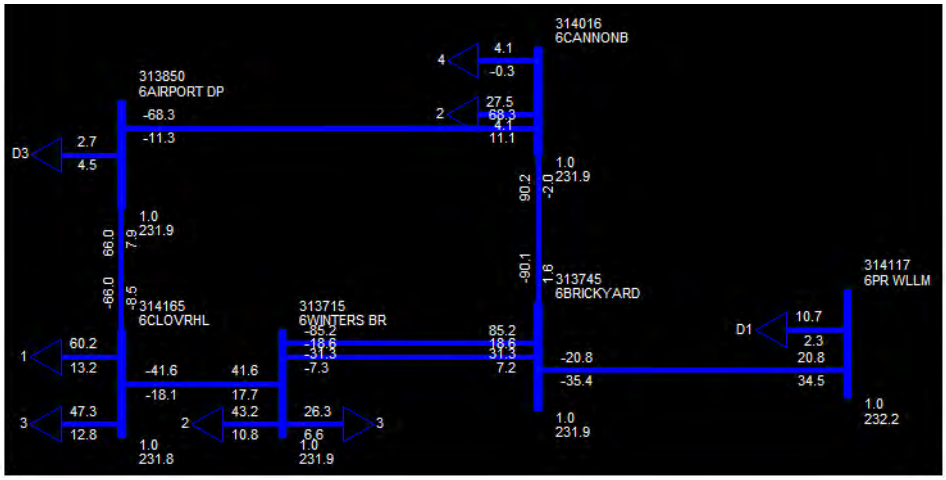


The 2021 RTEP cycle produced a 2026 Summer and Winter Case. The Manassas Airport Area was incorrectly modeled with the exclusion of the supplemental project loads for DOM-2019-0023, DOM-2020-0001, DOM-2020-0004, and DOM-2020-0005. The model was correct in not including DOM-2020-0040 as that project was not accepted into the 2020 Local Plan prior to the development of the RTEP cases. The loading in the 2026 Summer and Winter case was below 300 MW in the Manassas Airport Area, which is explained by the supplemental projects loads being left out of the case. The contingency and driver behind the proposed Project, loss of Line #2148 (Cannon Branch-Cloverhill) and Line #2195 (Cannon Branch-Winters Branch), has a combined loss of 208.8 MW in the 2020 RTEP Summer 2026 Case and 179.7 MW in the 2020 RTEP Winter 2026 Case.

RTEP Summer 2026 Case – 208.8MW

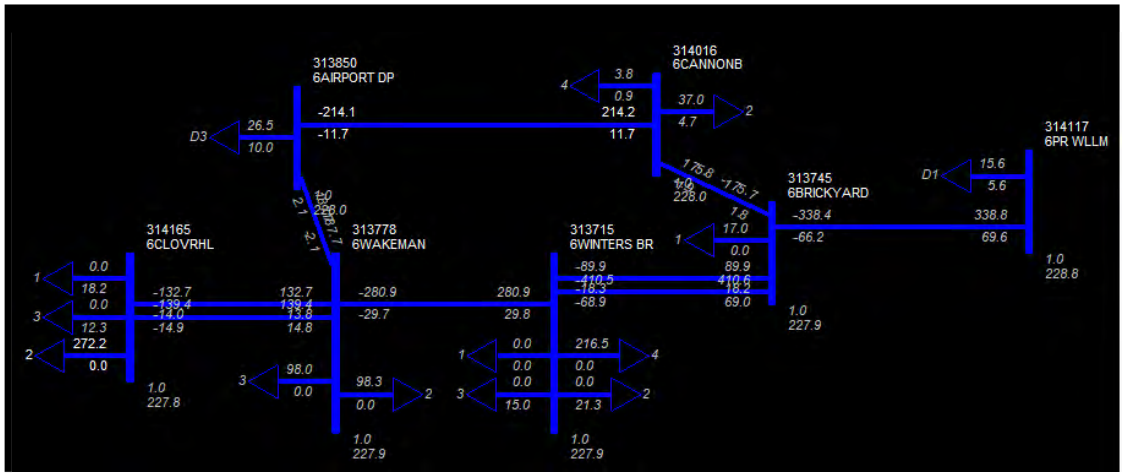


RTEP Winter 2026 Case – 179.7 MW



The 2025 PJM DNH case is the most up to date case available for the Manassas Airport Area. The case includes DOM-2019-0023, DOM-2020-0001, DOM-2020-0004, DOM-2020-0005, and DOM-2020-0040. The contingency and driver behind the proposed Project, loss of Line #2148 (Cannon Branch-Cloverhill) and Line #2195 (Cannon Branch-Winters Branch), has a combined loss of 728.83 MW in the 2025 PJM DNH Summer Case.

2025 PJM DNH Case – 728.8 MW



I. NECESSITY FOR THE PROPOSED PROJECT

E. Describe the feasible project alternatives, if any, considered for meeting the identified need including any associated studies conducted by the Applicant or analysis provided to the RTO. Explain why each alternative was rejected.

Response: Project Proposals

There are no feasible project alternatives to the Line #2011 Line Extension.

Demand-Side Resources

Pursuant to the Commission's November 26, 2013, Order entered in Case No. PUE-2012-00029, and its November 1, 2018, Final Order entered in Case No. PUR-2018-00075 ("2018 Final Order"), the Company is required to provide analysis of demand-side resources ("DSM") incorporated into the Company's planning studies. DSM is the broad term that includes both energy efficiency ("EE") and demand response ("DR"). In this case, PJM and the Company have identified a need for the proposed Project in order to comply with mandatory NERC Reliability Standards, while maintaining the overall long-term reliability of its transmission system. Notwithstanding, when performing an analysis based on PJM's 50/50 load forecast, there is no adjustment in load for DR programs that are bid into the PJM reliability pricing model ("RPM") auction because PJM only dispatches DR when the system is under stress (*i.e.*, a system emergency). Accordingly, while existing DSM is considered to the extent the load forecast accounts for it, DR that has been bid into PJM's RPM market is not a factor in this particular application because of the identified need for the Project. Based on these considerations, the evaluation of the Project demonstrated that despite accounting for DSM consistent with PJM's methods, the Project is necessary.

Incremental DSM also will not absolve the need for the Project. See Attachment I.C.1 for the historic and projected load in the Project area. By way of comparison, statewide, the Company achieved demand savings of 120.4 MW from its DSM Programs in 2020.

I. NECESSITY FOR THE PROPOSED PROJECT

F. Describe any lines or facilities that will be removed, replaced, or taken out of service upon completion of the proposed project, including the number of circuits and normal and emergency ratings of the facilities.

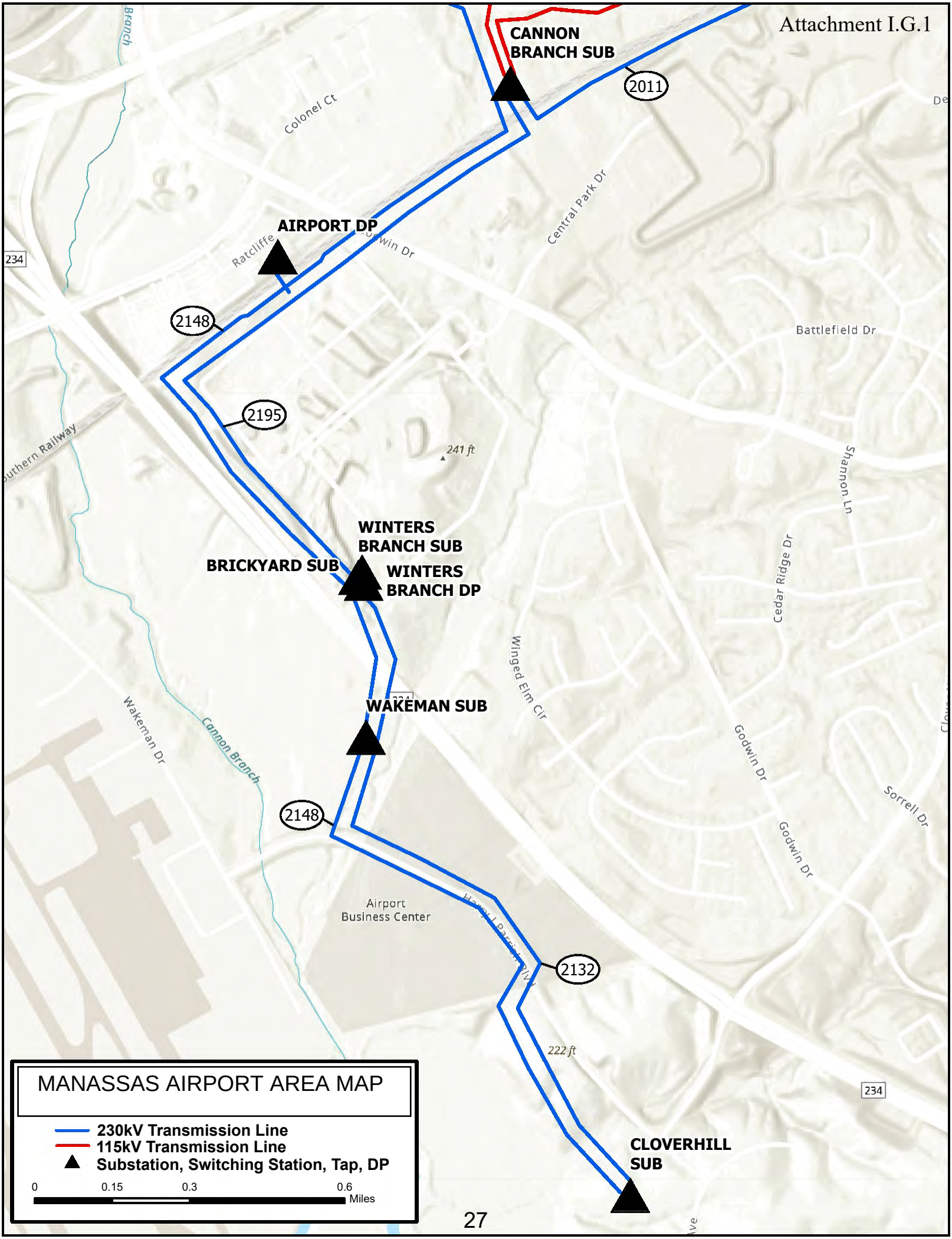
Response: As discussed in Section I.A, the existing Line #2011 termination will be removed at Cannon Branch Substation and the line extended to Winters Branch Substation. This will include the removal, replacement, and retirement of the following:

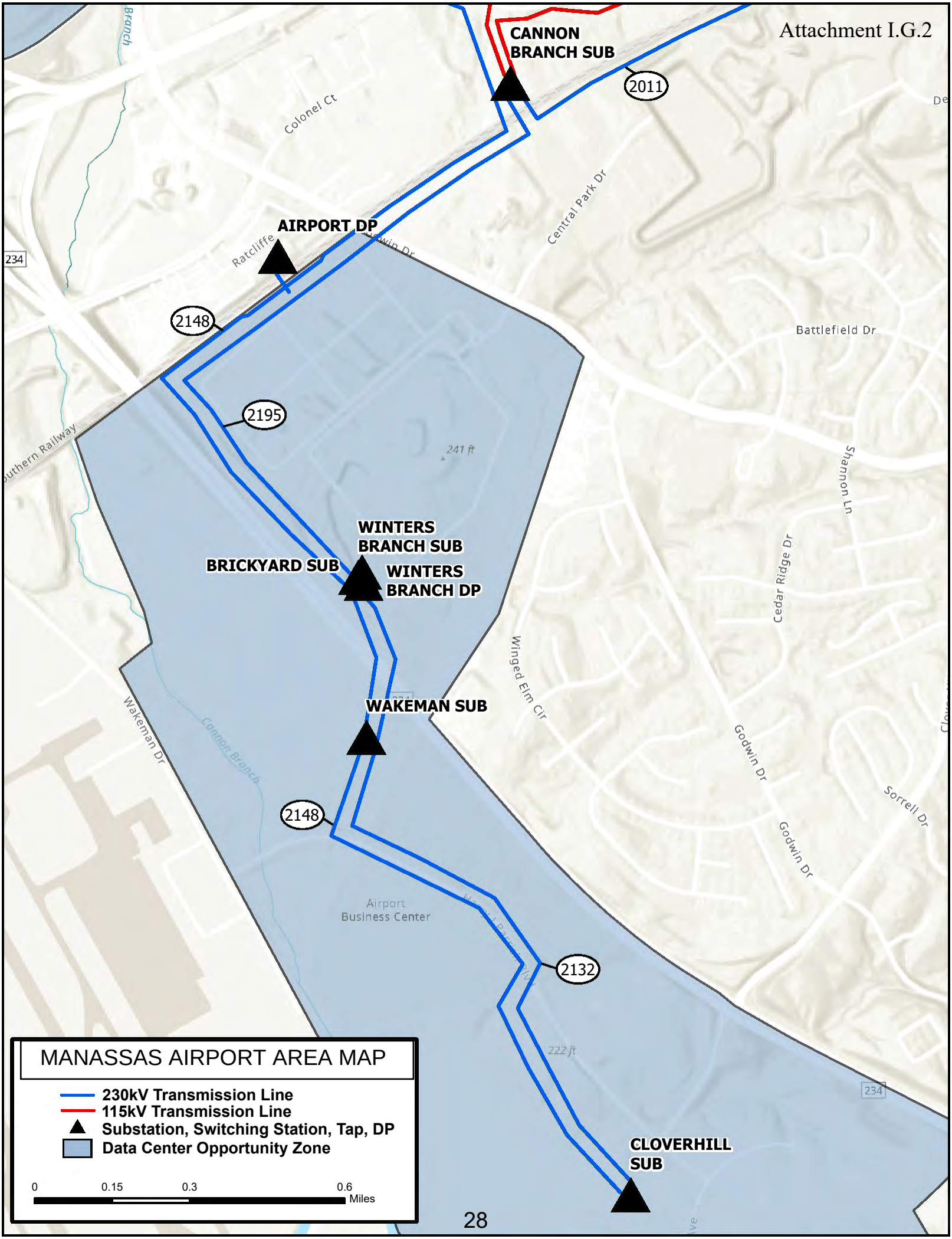
Remove the existing span of 1590 ACSR conductor between Cannon Branch Substation and Structure #2011/68. The existing 3-phase 1590 ACSR conductor has a normal/emergency transfer capability of 939 MVA.

I. NECESSITY FOR THE PROPOSED PROJECT

G. Provide a system map, in color and of suitable scale, showing the location and voltage of the Applicant's transmission lines, substations, generating facilities, etc., that would affect or be affected by the new transmission line and are relevant to the necessity for the proposed line. Clearly label on this map all points referenced in the necessity statement.

Response: See Attachment I.G.1. Please also see Attachment I.G.2, which includes the Data Center Opportunity Zone location on the map.


CANNON
BRANCH SUB
2011
AIRPORT DP
2148
2195
WINTERS
BRANCH SUB
BRICKYARD SUB
WINTERS
BRANCH DP
WAKEMAN SUB
2148
2132
CLOVERHILL
SUB
Colonel Ct
Central Park Dr
Ratcliffe
Battlefield Dr
Shannon Ln
Cedar Ridge Dr
Winged Elm Cir
Godwin Dr
Sorrell Dr
Wakeman Dr
Cannon Branch
Airport
Business Center
241 ft
222 ft
234
MANASSAS AIRPORT AREA MAP
230kV Transmission Line
115kV Transmission Line
Substation, Switching Station, Tap, DP
0
0.15
0.3
0.6
Miles


CANNON
BRANCH SUB
2011
AIRPORT DP
2148
2195
WINTERS
BRANCH SUB
BRICKYARD SUB
WINTERS
BRANCH DP
WAKEMAN SUB
2148
2132
CLOVERHILL
SUB
Colonel Ct
Central Park Dr
Ratcliffe
Battlefield Dr
Shannon Ln
Cedar Ridge Dr
Winged Elm Cir
Godwin Dr
Sorrell Dr
Wakeman Dr
Airport
Business Center
241 ft
222 ft
234
MANASSAS AIRPORT AREA MAP
230kV Transmission Line
115kV Transmission Line
Substation, Switching Station, Tap, DP
Data Center Opportunity Zone
0
0.15
0.3
0.6
Miles

I. NECESSITY FOR THE PROPOSED PROJECT

H. Provide the desired in-service date of the proposed project and the estimated construction time.

Response: The desired in-service target date for the proposed Project is December 29, 2023. The Company estimates it will take approximately 15 months for detailed engineering, materials procurement, permitting, real estate, and construction after a final order from the Commission. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by September 16, 2022. Should the Commission issue a final order by September 16, 2022, the Company estimates that construction should begin around July 5, 2023, and be completed by the in-service target date, which is December 29, 2023. This construction timeline will enable the Company to meet the targeted in-service date for the Project. This schedule is contingent upon obtaining the necessary permits and transmission line outages; dates may need to be adjusted based on permitting or outage delays, or design modifications in order to comply with additional agency requirements identified during the permitting application process.

I. NECESSITY FOR THE PROPOSED PROJECT

I. Provide the estimated total cost of the project as well as total transmission-related costs and total substation-related costs. Provide the total estimated cost for each feasible alternative considered. Identify and describe the cost classification (e.g. "conceptual cost," "detailed cost," etc.) for each cost provided.

Response: The estimated conceptual cost of the proposed Project is approximately $11.7 million, which includes approximately $10.4 million for transmission–related work and approximately $1.3 million for substation-related work (2021 dollars).

I. NECESSITY FOR THE PROPOSED PROJECT

J. If the proposed project has been approved by the RTO, provide the line number, regional transmission expansion plan number, cost responsibility assignments, and cost allocation methodology. State whether the proposed project is considered to be a baseline or supplemental project.

Response: The proposed Project is classified as a baseline project for the line extension (b3246.3) and related substation work (b3246.4).

PJM's first review of the Project was presented on October 6, 2020. See Attachment I.J.1.

PJM's second review of the Project was presented on December 1, 2020. See Attachment I.J.2.

The Project was included in the TEAC Recommendations to the PJM Board in February 2021.[11]

The Company updated the scope of the Project, and the updates were presented to PJM on August 31, 2021. See Attachment I.J.3. Although Attachment I.J.3 reflects an in-service date of June 1, 2023, the Company's proposed in-service date for the Project is December 29, 2023, which reflects the need confirmed by PJM when balanced against the timeline necessary for permitting, construction, and obtaining outages. See Section II.A.10 for more information regarding the required outages. The Company confirmed with PJM that a formal updated presentation is not required at this time as the Project is still slated to be energized in 2023.

The Project is presently 100% cost allocated to the DOM Zone.

[11] *See* https://pjm.com/-/media/committees-groups/committees/teac/2021/20210209/20210209-february-board-whitepaper.ashx.

Reliability Analysis Update

Aaron Berner, Manager

Transmission Expansion Advisory Committee

October 6, 2020

PJM©2020

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First Review

Baseline Reliability Projects

PJM©2020

Dominion Transmission Zone: Baseline Manassas Area

Process Stage: First Review

Criteria: N-1-1 Load Drop (Summer and Winter), 300 MW Load Loss

Assumption Reference: 2025 RTEP assumption

Model Used for Analysis: 2025 RTEP Summer & Winter cases

Proposal Window Exclusion: Immediate Need

Problem Statement:

- Various load drop violations in the Manassas area greater than 300 MW:
  - The loss of 230kV Line #2195 Cannon Branch-Winters Branch and 230kV Line #2196 Pioneer-Sandlot (N2-SLD5, N2-WLD2).
  - The loss of 230kV Line # 2195 Cannon Branch-Winters Branch and 230kV Line #2148 Cloverhill-Sandlot (N2-SLD6, N2-WLD3).
  - The loss of 230kV Line #2195 Cannon Branch-Winters Branch and 230kV Line #2187 Liberty-Pioneer (N2-SLD7 , N2-WLD1).
  - The loss of 230kV Line#2011 Cannon Branch-Liberty and 230kV Line #2187 Liberty-Pioneer (N2-SLD10, N2-WLD6).

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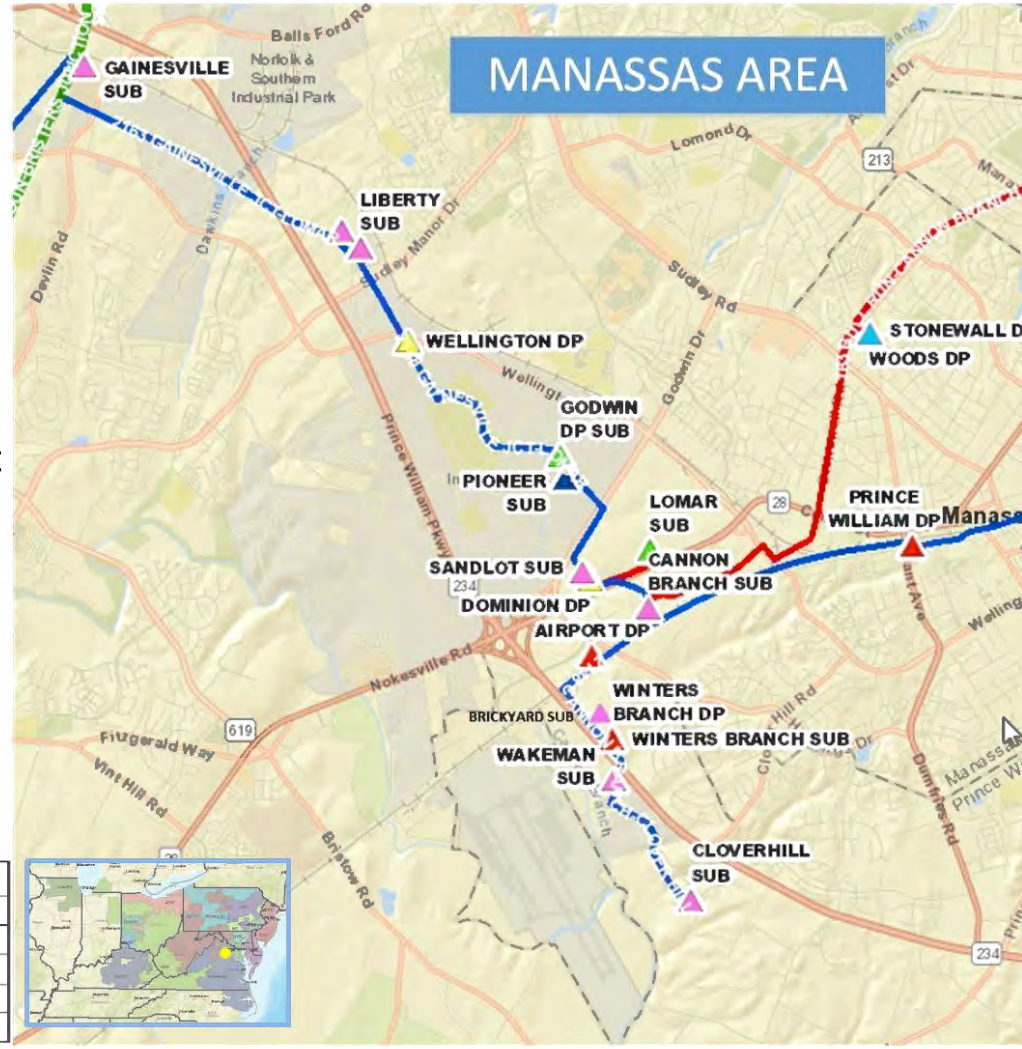

COLOR	VOLTAGE	TRANSMISSION LINE NUMBER
	500 KV.	500 thru 599
	230 KV.	200 thru 299 & 2000 thru 2099
	115 KV.	1 thru 199
	138 KV.	AS NOTED
	69 KV.	AS NOTED

PJM©2020

Dominion Transmission Zone: Baseline Manassas Area

Proposed Solution:
Convert 115kV Line #172 Liberty-Lomar and Line#197 Cannon Branch-Lomar to 230kV to provide a new 230kV source between Cannon Branch and Liberty. The majority of Line #172 Liberty-Lomar and Line #197 Cannon Branch-Lomar is adequate for 230kV operation. A wreck and rebuild will be required on 0.36 mile segment of line between Lomar and Cannon Branch junction. Substation work will be required at Liberty, Wellington, Godwin, Pioneer, Sandlot, Cannon Branch, Brickyard, and Winters Branch.

Extend Line #2011 Cannon Branch – Clifton to Winters Branch by removing the existing Line #2011 termination at Cannon Branch and extending the line to Brickyard creating Line #2011 Brickyard-Clifton and extending a new line between Brickyard and Winters Branch. Substation work will be required at Cannon Branch, Brickyard, and Winters Branch.

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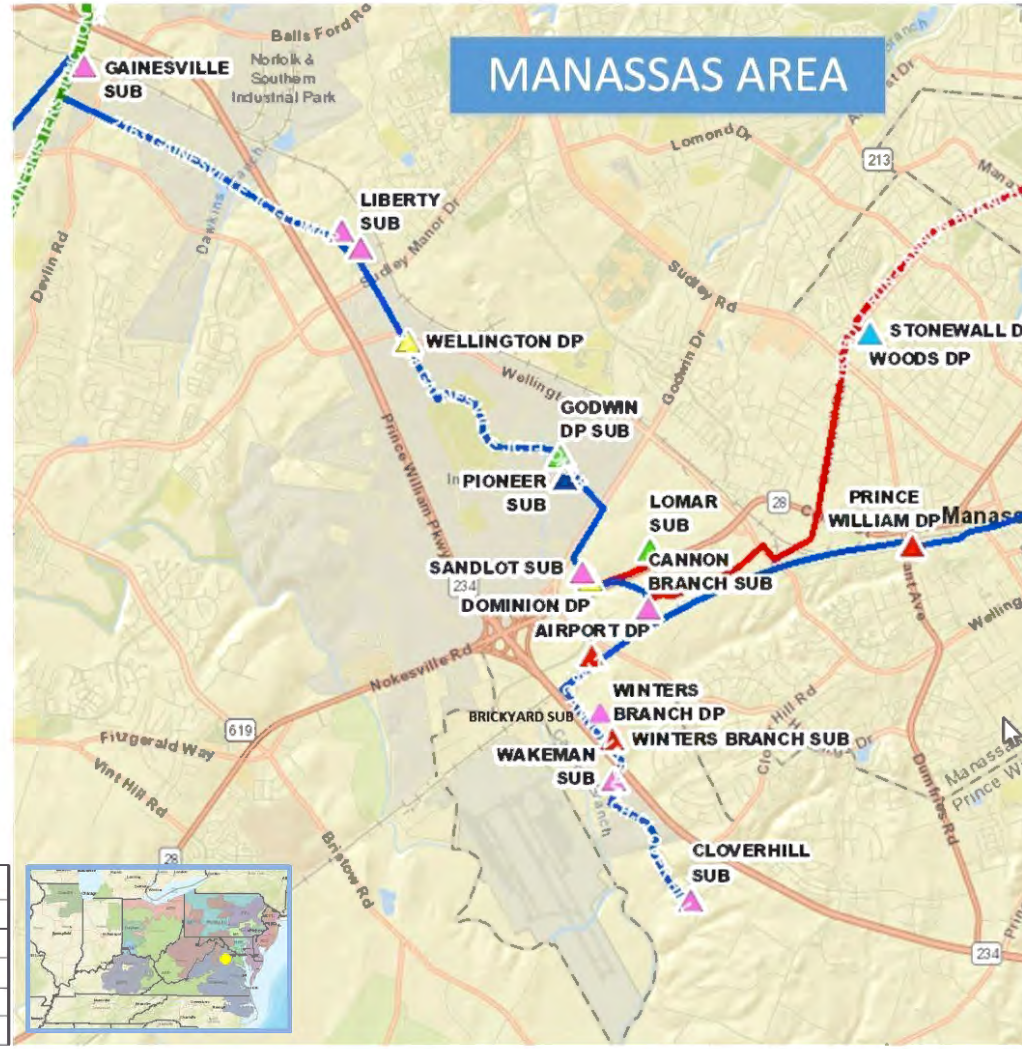
Estimated Cost: $45.0 M

- 115kV to 230kV Line Conversion: $ 10 M
- Substation Work for 115kV to 230kV Line Conversion: $ 21 M
- 230kV Line #2011 Extension: $ 10 M
- 230kV Line #2011 Substation Work for Extension: $ 4 M

Alternatives: N/A

Required In-Service: 12/1/2023



COLOR	VOLTAGE	TRANSMISSION LINE NUMBER
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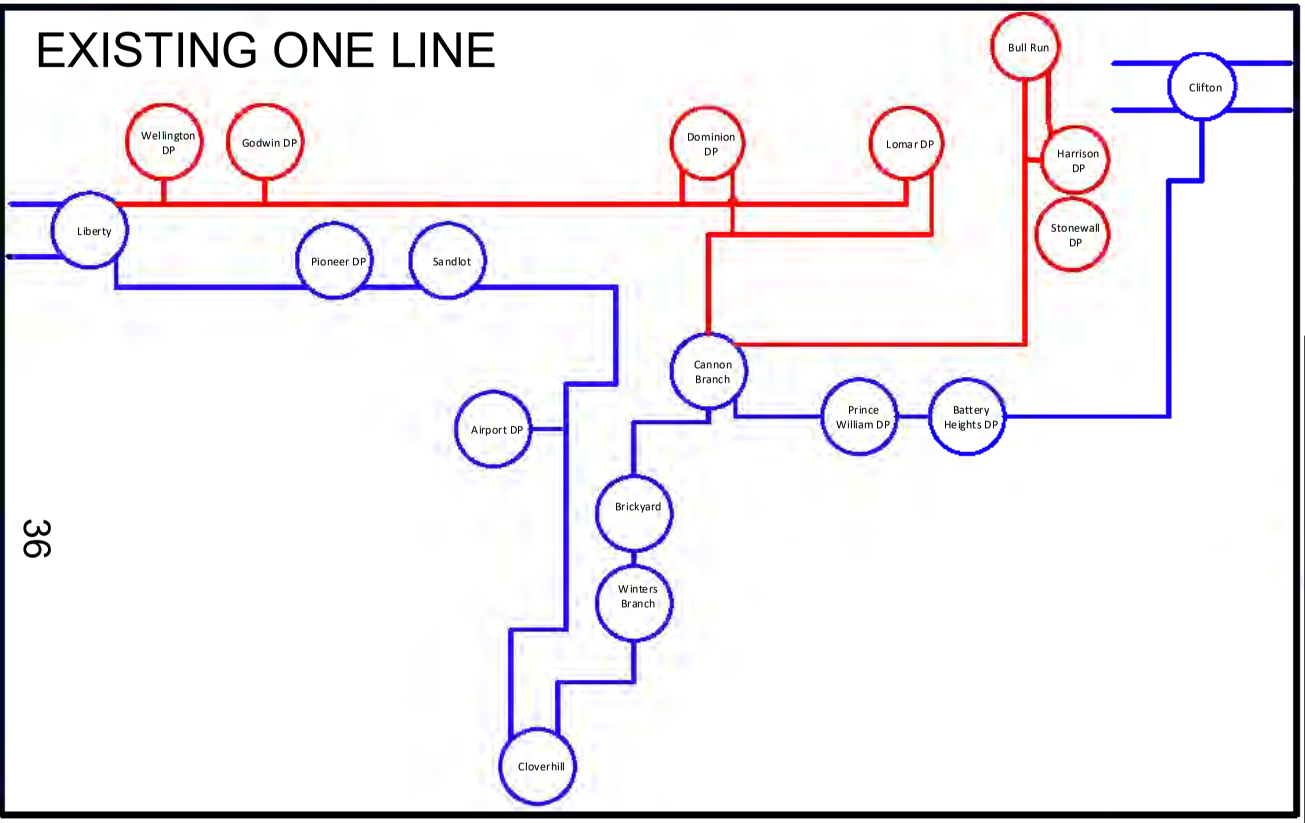
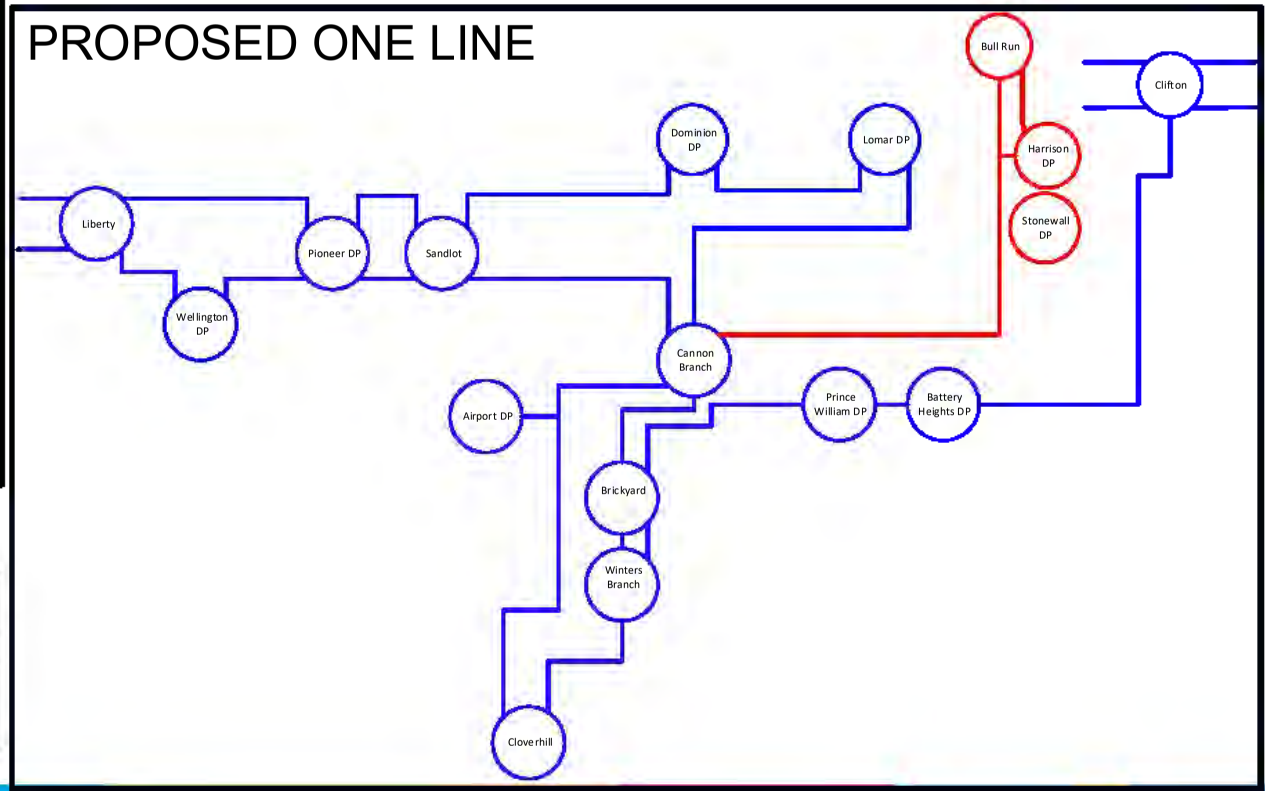
	230 KV.	200 thru 299 & 2000 thru 2099
	115 KV.	1 thru 199
	138 KV.	AS NOTED
	69 KV.	AS NOTED

PJM©2020

Dominion Transmission Zone: Baseline Manassas Area





COLOR	VOLTAGE	TRANSMISSION LINE NUMBER
	500 KV.	500 thru 599
	230 KV.	200 thru 299 & 2000 thru 2099
	115 KV.	1 thru 199
	138 KV.	AS NOTED
	69 KV.	AS NOTED

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Reliability Analysis Update

Aaron Berner, Manager

Transmission Expansion Advisory Committee

December 1, 2020

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Second Review

Baseline Reliability Projects

38

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Dominion Transmission Zone: Baseline Manassas Area

Process Stage: Second Review

Criteria: N-1-1 Load Drop (Summer and Winter), 300 MW Load Loss

Assumption Reference: 2025 RTEP assumption

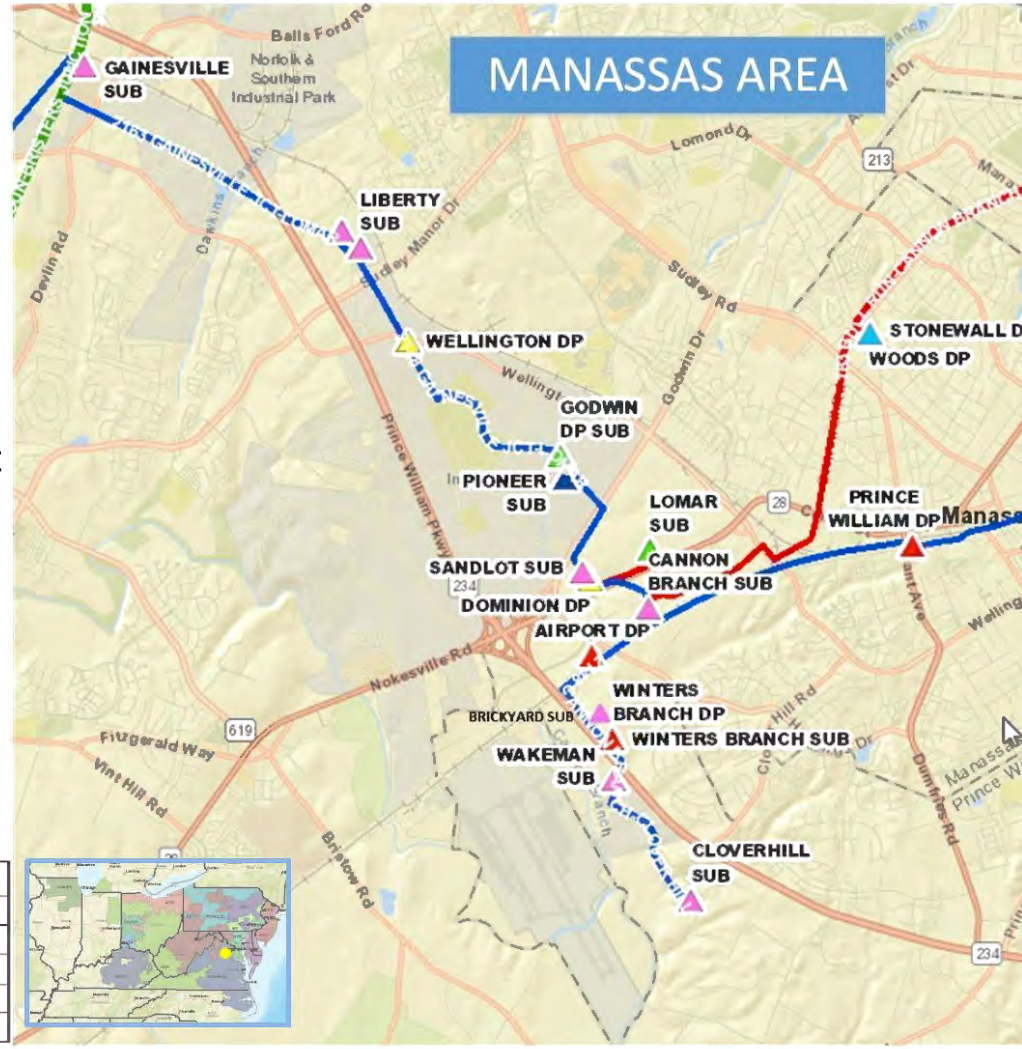
Model Used for Analysis: 2025 RTEP Summer & Winter cases

Proposal Window Exclusion: Immediate Need

Problem Statement:

- Various load drop violations in the Manassas area greater than 300 MW:
  - The loss of 230kV Line #2195 Cannon Branch-Winters Branch and 230kV Line #2196 Pioneer-Sandlot (N2-SLD5, N2-WLD2).
  - The loss of 230kV Line # 2195 Cannon Branch-Winters Branch and 230kV Line #2148 Cloverhill-Sandlot (N2-SLD6, N2-WLD3).
  - The loss of 230kV Line #2195 Cannon Branch-Winters Branch and 230kV Line #2187 Liberty-Pioneer (N2-SLD7 , N2-WLD1).
  - The loss of 230kV Line#2011 Cannon Branch-Liberty and 230kV Line #2187 Liberty-Pioneer (N2-SLD10, N2-WLD6).

Continued on next slide…



COLOR	VOLTAGE	TRANSMISSION LINE NUMBER
	500 KV.	500 thru 599
	230 KV.	200 thru 299 & 2000 thru 2099
	115 KV.	1 thru 199
	138 KV.	AS NOTED
	69 KV.	AS NOTED

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Dominion Transmission Zone: Baseline Manassas Area

Recommended Solution:
Convert 115kV Line #172 Liberty-Lomar and Line#197 Cannon Branch-Lomar to 230kV to provide a new 230kV source between Cannon Branch and Liberty. The majority of Line #172 Liberty-Lomar and Line #197 Cannon Branch-Lomar is adequate for 230kV operation. A wreck and rebuild will be required on 0.36 mile segment of line between Lomar and Cannon Branch junction. Substation work will be required at Liberty, Wellington, Godwin, Pioneer, Sandlot, Cannon Branch, Brickyard, and Winters Branch.

Extend Line #2011 Cannon Branch – Clifton to Winters Branch by removing the existing Line #2011 termination at Cannon Branch and extending the line to Brickyard creating Line #2011 Brickyard-Clifton and extending a new line between Brickyard and Winters Branch. Substation work will be required at Cannon Branch, Brickyard, and Winters Branch.

40

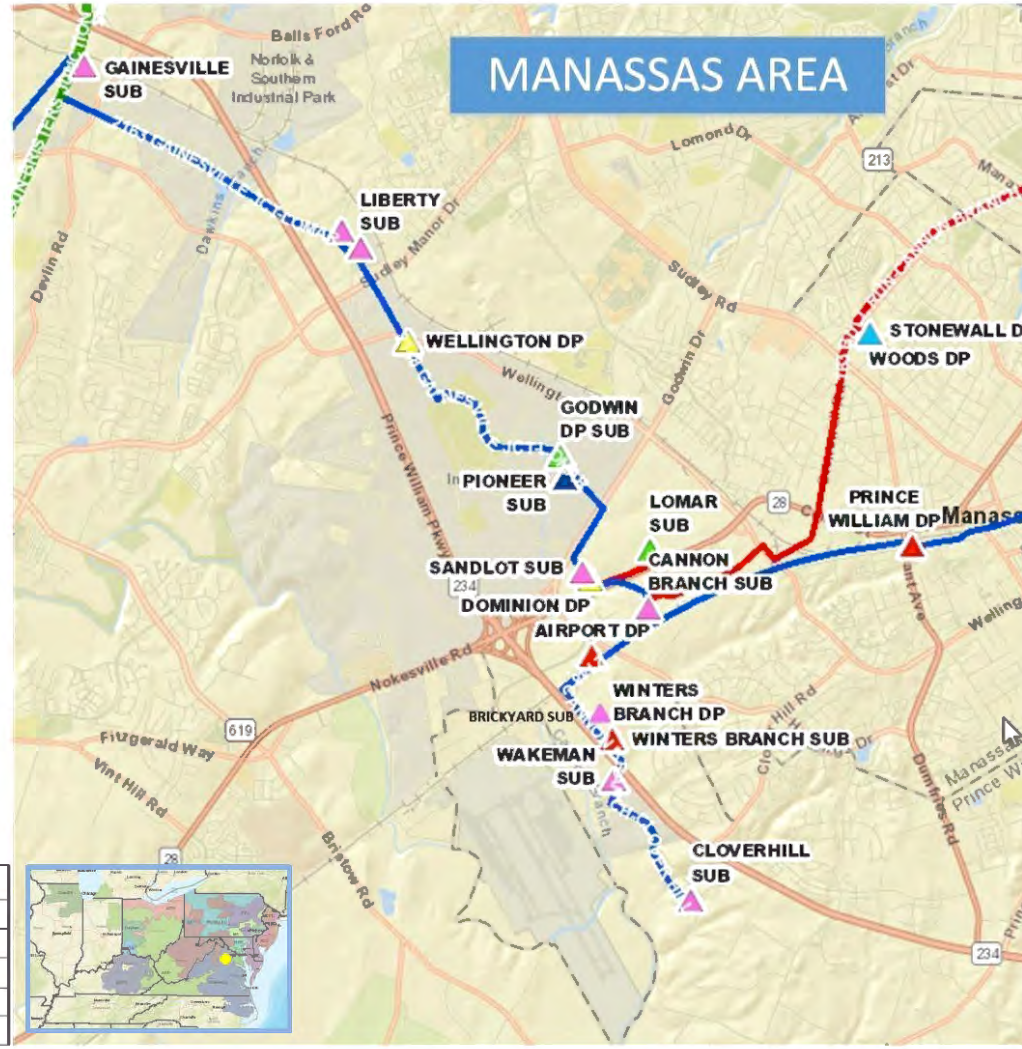
Replace the Gainesville 230kV 40kA breaker "216192" with a 50kA breaker.

Estimated Cost: $45.5 M

- 115kV to 230kV Line Conversion: $ 10 M **(b3246.1)**
- Substation Work for 115kV to 230kV Line Conversion: $ 21 M **(b3246.2)**
- 230kV Line #2011 Extension: $ 10 M **(b3246.3)**
- 230kV Line #2011 Substation Work for Extension: $ 4 M **(b3246.4)**
- Gainesville 230kV "216192" breaker replacement: $ 0.5M **(b3246.5)**

Alternatives: N/A

Required In-Service: 12/1/2023



COLOR	VOLTAGE	TRANSMISSION LINE NUMBER
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	115 KV.	1 thru 199
	138 KV.	AS NOTED
	69 KV.	AS NOTED

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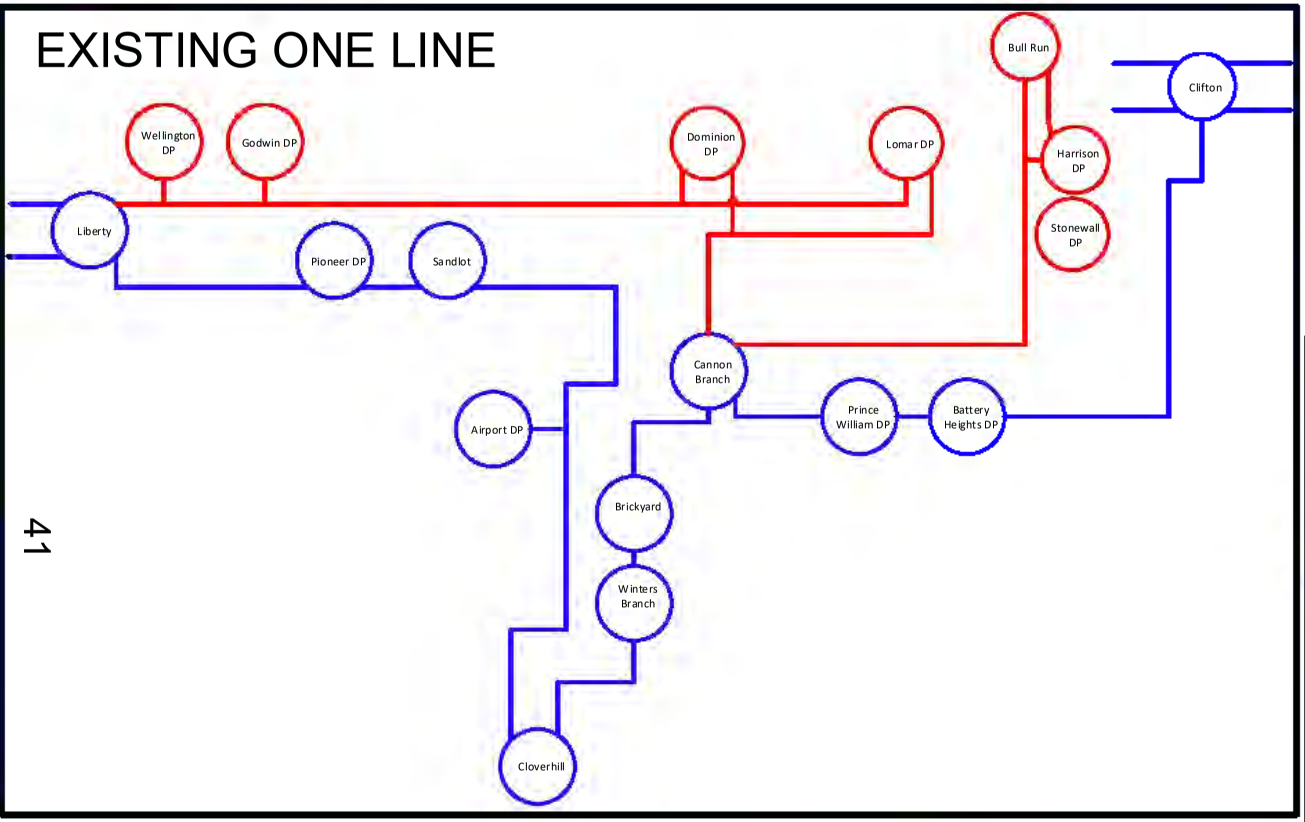
Dominion Transmission Zone: Baseline
Manassas Area

EXISTING ONE LINE



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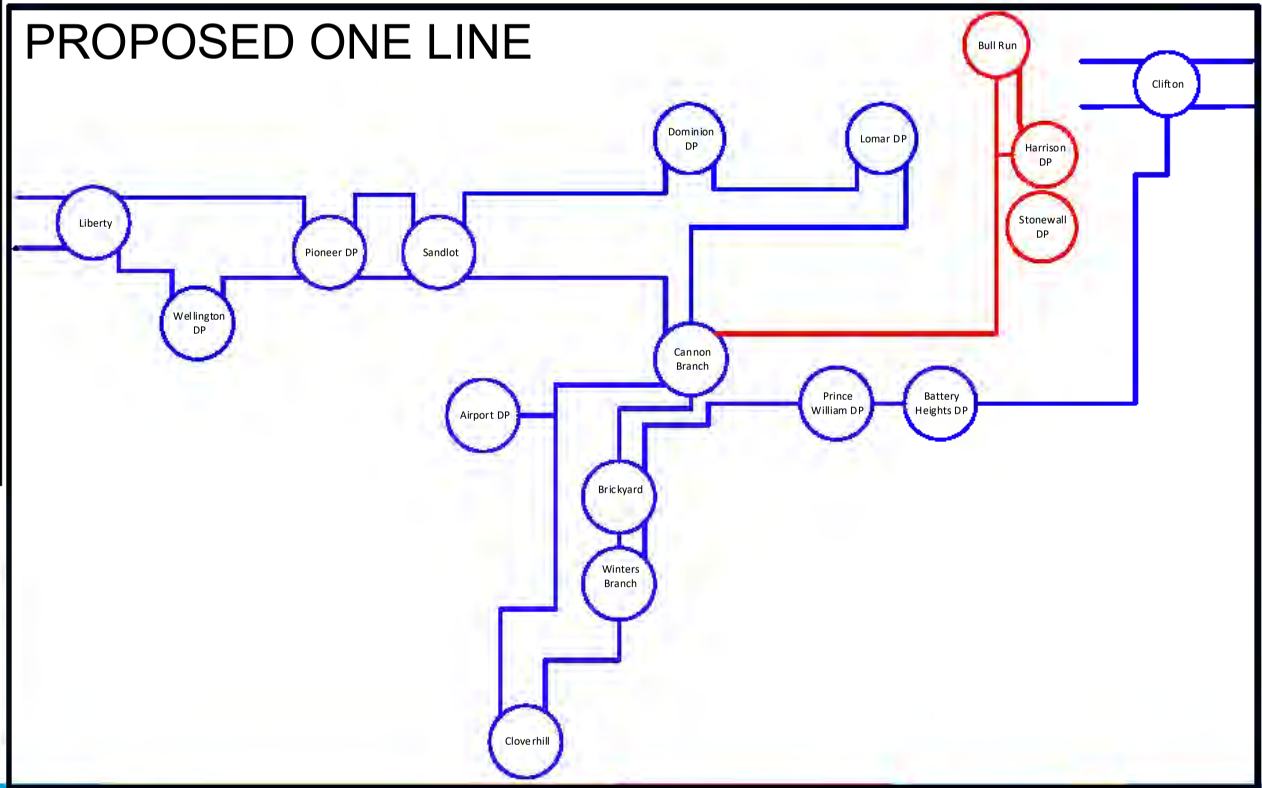
	230 KV.	200 thru 299 & 2000 thru 2099
	115 KV.	1 thru 199
	138 KV.	AS NOTED
	69 KV.	AS NOTED

PROPOSED ONE LINE



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Reliability Analysis Update

Aaron Berner, Senior Manager

Transmission Expansion Advisory Committee

Tuesday, August 31, 2021

PJM©2021

Changes to Existing Projects

Baseline Reliability Projects

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Dominion Transmission Zone: Baseline b3246 Scope / Cost Change

Process Stage: Scope / Cost Change b3246.1-.5

Criteria: N-1-1 Load Drop (Summer and Winter), 300 MW Load Loss

Assumption Reference: 2025 RTEP assumption

Model Used for Analysis: 2025 RTEP Summer & Winter cases

Proposal Window Exclusion: Immediate Need

Problem Statement:

- Various load drop violations in the Manassas area greater than 300 MW:
  - The loss of 230kV Line #2195 Cannon Branch-Winters Branch and 230kV Line #2196 Pioneer-Sandlot (N2-SLD5, N2-WLD2).
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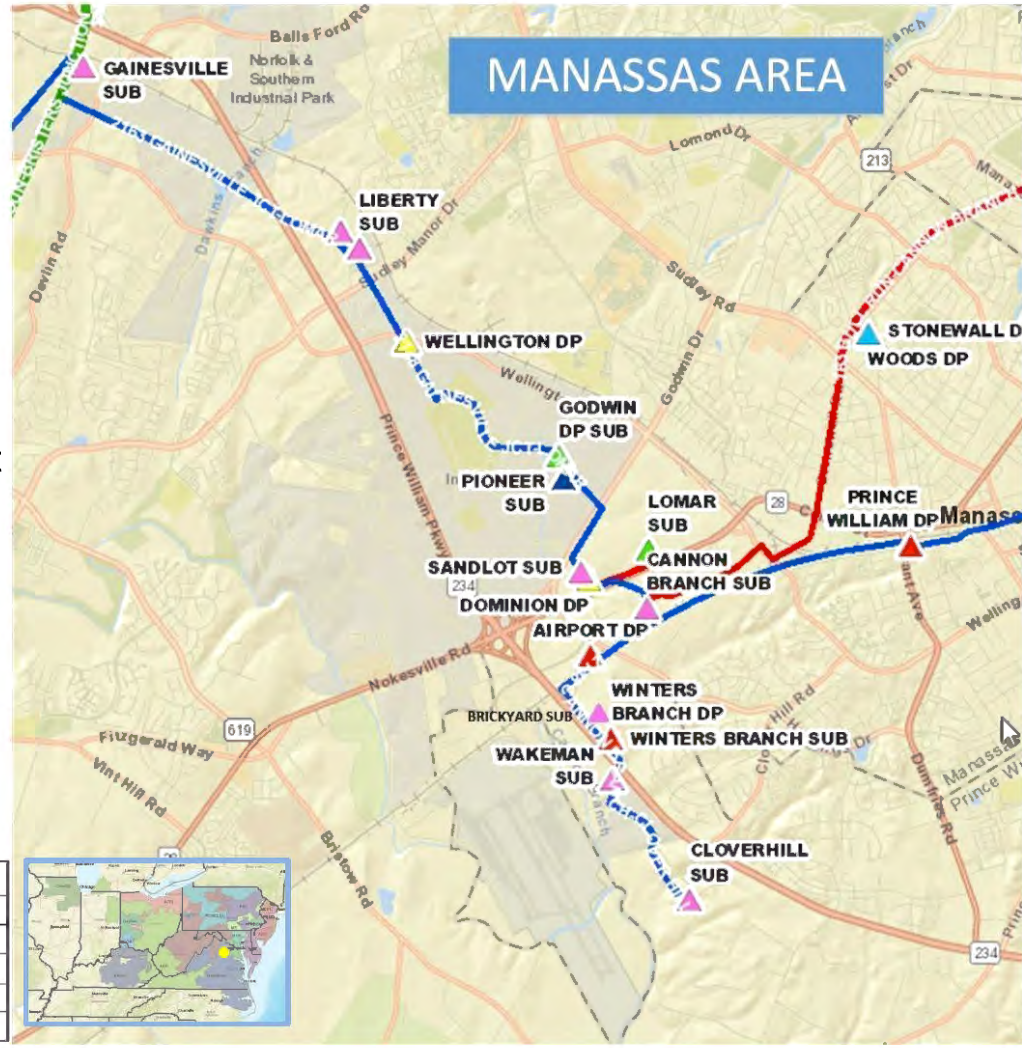
  - The loss of 230kV Line #2195 Cannon Branch-Winters Branch and 230kV Line #2187 Liberty-Pioneer (N2-SLD7 , N2-WLD1).
  - The loss of 230kV Line#2011 Cannon Branch-Liberty and 230kV Line #2187 Liberty-Pioneer (N2-SLD10, N2-WLD6).

Continued on next slide…



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	115 KV.	1 thru 199
	138 KV.	AS NOTED
	69 KV.	AS NOTED

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Dominion Transmission Zone: Baseline b3246 Scope / Cost Change

Updated Project Scope:

Based on conversations with NOVEC and the City of Manassas Electric Department during the engineering of the original scope it was determined that four Delivery Points required a scope change.
1.) NOVEC Wellington and Godwin Delivery Points will be converted vs. retired.
2.) NOVEC is no longer planning a New Wellington Delivery Point.
3.) The City of Manassas Lomar Delivery Point will be retired with a new DP established at Cannon Branch.
4.) The City of Manassas Dominion Delivery Point will be retired and sourced from an expanded Sandlot DP.

The conversion of 115kV Line #172 Liberty-Lomar and 115kV Line #197 Cannon Branch-Lomar to 230kV to provide a new 230kV source between Cannon Branch and Liberty will **not include** the conversion of 0.36 mile segment of line between Lomar and Cannon Branch junction that will be wrecked and not rebuilt (**b3246.1**). Substation work will be required at Liberty, Wellington, Godwin, Pioneer, Sandlot and Cannon Branch. (**b3246.2**).

Extend Line #2011 Cannon Branch – Clifton to Winters Branch by removing the existing Line #2011 termination at Cannon Branch and extending the line to Brickyard creating Line #2011 Brickyard-Clifton and extending a new line between Brickyard and Winters Branch (**b3246.3**). Substation work will be required at Cannon Branch, Brickyard, and Winters Branch (**b3246.4**).

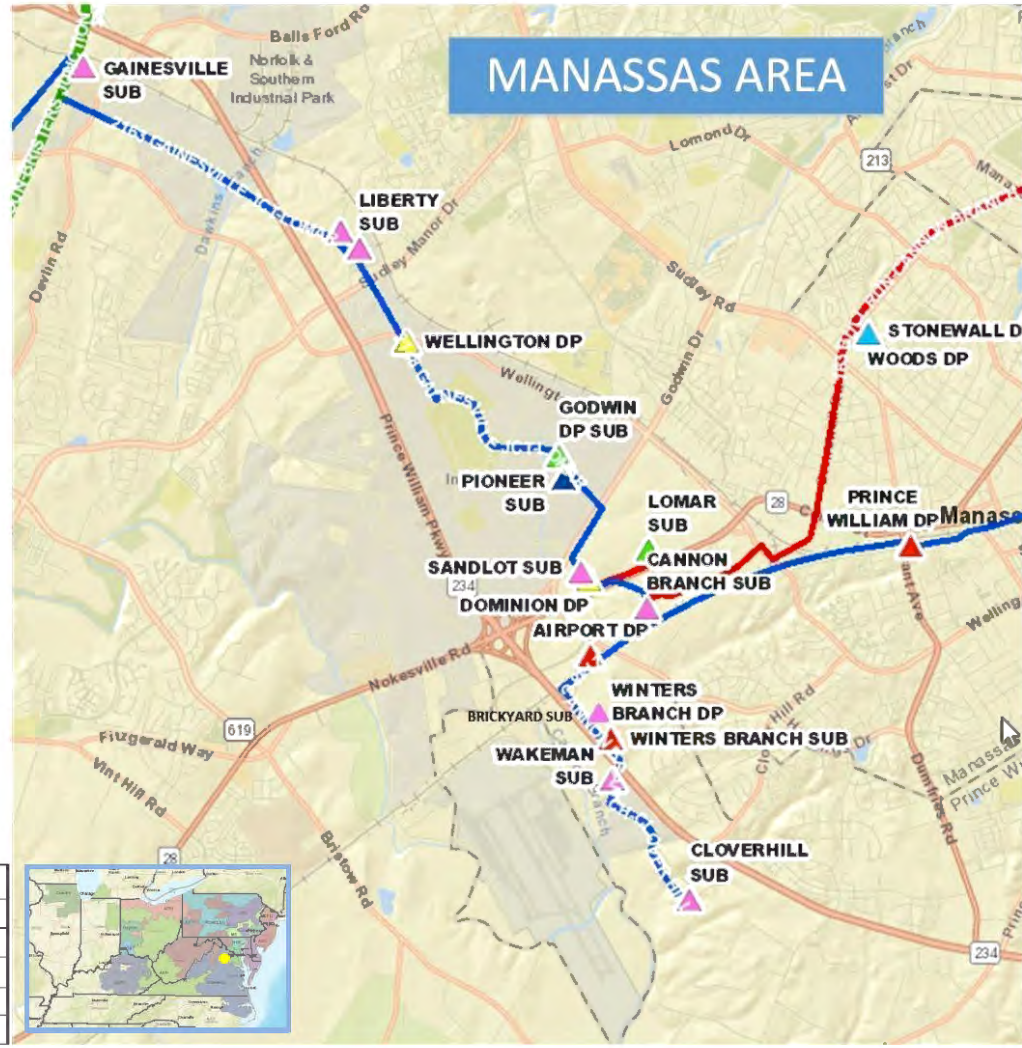
Replace the Gainesville 230kV 40kA breaker "216192" with a 50kA breaker (**b3246.5**).

Estimated Cost: $~~45.5~~ 38.5 M

- 115kV to 230kV Line Conversion: $ ~~10~~ 8 M **(b3246.1)**
- Substation Work for 115kV to 230kV Line Conversion: $ ~~21~~16 M **(b3246.2)**
- 230kV Line #2011 Extension: $ 10 M **(b3246.3)**
- 230kV Line #2011 Substation Work for Extension: $ 4 M **(b3246.4)**
- Gainesville 230kV "216192" breaker replacement: $ 0.5M **(b3246.5)**

Alternatives: N/A

Required In-Service: 6/1/2023



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	115 KV.	1 thru 199
	138 KV.	AS NOTED
	69 KV.	AS NOTED

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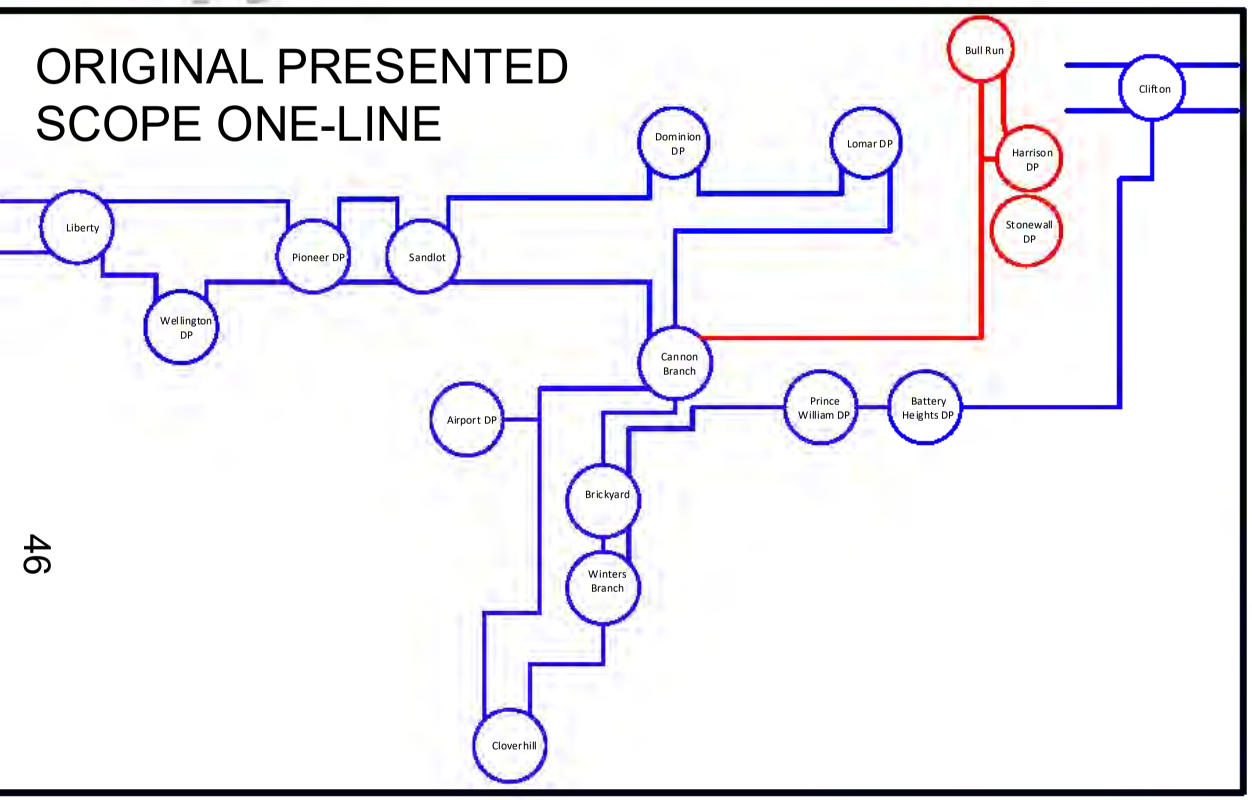
Dominion Transmission Zone: Baseline b3246 Scope / Cost Change

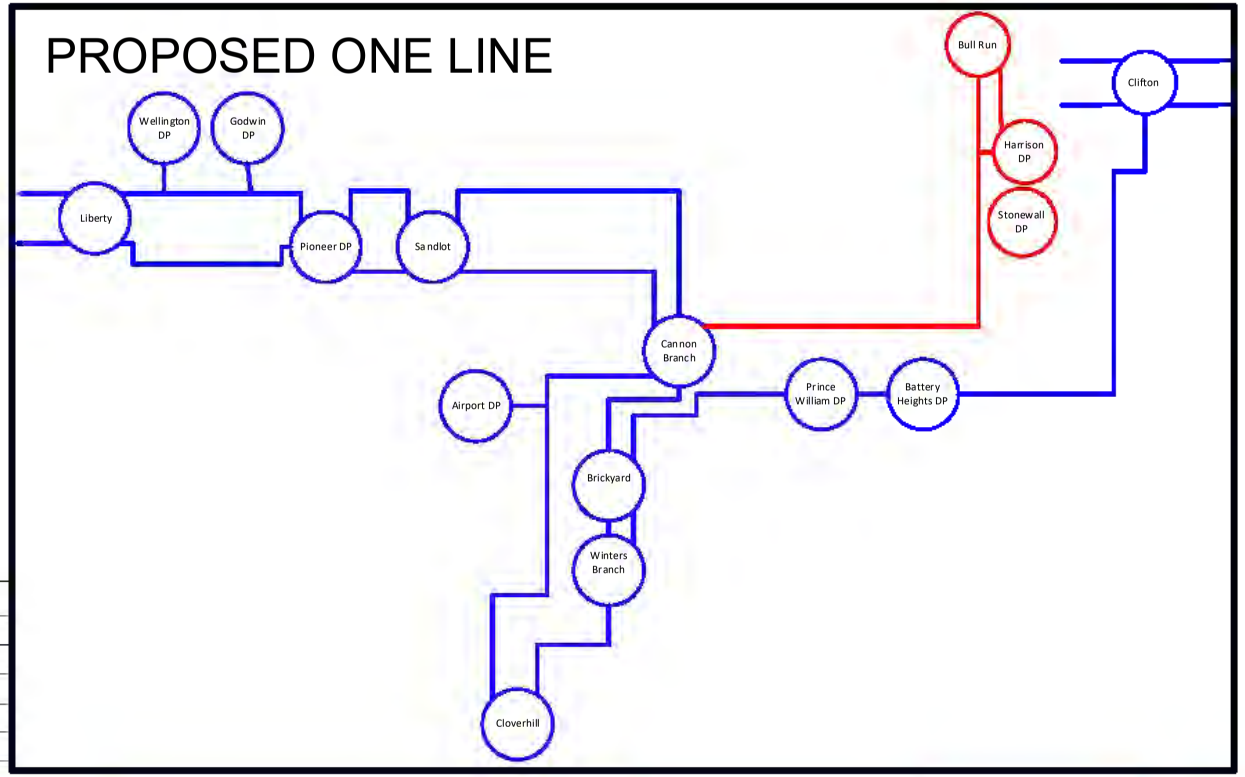
ORIGINAL PRESENTED SCOPE ONE-LINE



46

COLOR	VOLTAGE	TRANSMISSION LINE NUMBER
	500 KV.	500 thru 599
	230 KV.	200 thru 299 & 2000 thru 2099
	115 KV.	1 thru 199
	138 KV.	AS NOTED
	69 KV.	AS NOTED

PROPOSED ONE LINE



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I. NECESSITY FOR THE PROPOSED PROJECT

K. If the need for the proposed project is due in part to reliability issues and the proposed project is a rebuild of an existing transmission line(s), provide five years of outage history for the line(s), including for each outage the cause, duration and number of customers affected. Include a summary of the average annual number and duration of outages. Provide the average annual number and duration of outages on all Applicant circuits of the same voltage, as well as the total number of such circuits. In addition to outage history, provide five years of maintenance history on the line(s) to be rebuilt including a description of the work performed as well as the cost to complete the maintenance. Describe any system work already undertaken to address this outage history.

Response: Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

L. If the need for the proposed project is due in part to deterioration of structures and associated equipment, provide representative photographs and inspection records detailing their condition.

Response: Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

M. In addition to the other information required by these guidelines, applications for approval to construct facilities and transmission lines interconnecting a Non-Utility Generator ("NUG") and a utility shall include the following information:

1. The full name of the NUG as it appears in its contract with the utility and the dates of initial contract and any amendments;

2. A description of the arrangements for financing the facilities, including information on the allocation of costs between the utility and the NUG;

3. a. For Qualifying Facilities ("QFs") certificated by Federal Energy Regulatory Commission ("FERC") order, provide the QF or docket number, the dates of all certification or recertification orders, and the citation to FERC Reports, if available;

b. For self-certificated QFs, provide a copy of the notice filed with FERC;

4. Provide the project number and project name used by FERC in licensing hydroelectric projects; also provide the dates of all orders and citations to FERC Reports, if available; and

5. If the name provided in 1 above differs from the name provided in 3 above, give a full explanation.

Response: Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

N. Describe the proposed and existing generating sources, distribution circuits or load centers planned to be served by all new substations, switching stations and other ground facilities associated with the proposed project.

Response: Not applicable.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

1. Provide the length of the proposed corridor and viable alternatives.

Response: The existing right-of-way contains Lines #2195 and #2148. The total length of the proposed Project transmission line corridor is approximately 1.11 miles. Approximately 0.06 mile of the existing Line #2011 termination between Cannon Branch Substation and Structure #2011/68 will be removed, and a new approximately 1.05-mile segment of Line #2011 will be constructed starting south of Cannon Branch Substation and terminating at Winters Branch Substation in a newly acquired, variable width right-of-way expansion, ranging in width from 50 to 120 feet, parallel to the existing, variable width right-of-way, ranging in width from 60 to 120 feet.

No alternative routes are proposed for the Project. See Section II.A.9 for an explanation of the Company's route selection process.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

2. Provide color maps of suitable scale (including both general location mapping and more detailed GIS-based constraints mapping) showing the route of the proposed line and its relation to: the facilities of other public utilities that could influence the route selection, highways, streets, parks and recreational areas, scenic and historic areas, open space and conservation easements, schools, convalescent centers, churches, hospitals, burial grounds/cemeteries, airports and other notable structures close to the proposed project. Indicate the existing linear utility facilities that the line is proposed to parallel, such as electric transmission lines, natural gas transmission lines, pipelines, highways, and railroads. Indicate any existing transmission ROW sections that are to be quitclaimed or otherwise relinquished. Additionally, identify the manner in which the Applicant will make available to interested persons, including state and local governmental entities, the digital GIS shape file for the route of the proposed line.

Response: See Attachment II.A.2.

The existing right-of-way contains Lines #2195 and #2148. The total length of the proposed Project transmission line corridor is approximately 1.11 miles. Approximately 0.06 mile of the existing Line #2011 termination between Cannon Branch Substation and Structure #2011/68 will be removed, and a new approximately 1.05-mile segment of Line #2011 will be constructed starting south of Cannon Branch Substation and terminating at Winters Branch Substation in a newly acquired, variable width right-of-way expansion, ranging in width from 50 to 120 feet, parallel to the existing, variable width right-of-way, ranging in width from 60 to 120 feet. Although approximately 0.06 mile of the existing Line #2011 termination between Cannon Branch Substation and Structure #2011/68 will be removed, no portion of this existing right-of-way is proposed to be quitclaimed or relinquished.

The Company will make the digital Geographic Information Systems ("GIS") shape file available to interested persons upon request to counsel for the Company as listed in the Project Application.

1 INCH = 500 FEET

0 500 1,000 1,500 FEET

LEGEND

- EXISTING SUBSTATION
- FUTURE SUBSTATION
- AIRPORT/LANDING STRIP
- CEMETERY
- CHURCH
- FIRE STATION
- SCHOOL
- PARK
- STATE CONSERVATION LAND/EASEMENT
- EXISTING 115 KV LINE
- EXISTING 230 KV LINE

APPROXIMATE PROJECT LIMITS

- PROPOSED 230 KV LINE 2011 EXTENSION
- REMOVE EXISTING 230 KV LINE 2011

EXISTING LINES 197 (115 KV) & 2148 (230 KV)

EXISTING LINE 163

EXISTING LINE 2148

EXISTING LINE 2195

CANNON BRANCH SUBSTATION

EXISTING LINE 2011

EXISTING LINES 2195 & 2148

CITY OF MANASSAS

VIRGINIA DEPARTMENT OF HISTORIC RESOURCES EASEMENT

PRINCE WILLIAM COUNTY

FUTURE BRICKYARD SUBSTATION

WINTERS BRANCH SUBSTATION

Nokesville Rd
Foster Dr
Norfolk Southern Railway
Joyce Ct
Colonel Ct
Godwin Dr
Godwin Ct
Business Center Ct
Central Park Dr
Prince William Pkwy
234
Gateway Blvd
Carolina Dr
Observation Rd
Cannon Branch
Wakeman Dr
Brickyard Way
Tanner Way
Hastings Dr
Harvest Pl
Field Ct
Battlefield Dr
Justin Ln
Sandy Ct
Winged Elm Cir
Coffee Tree Ct
Grape Myrtle Ct
Cedar Ridge Dr
Greenleaf
Candy Ct
Plum Tree Ct
Lemon Tree

res
CORPORATE | 6575 WEST LOOP SOUTH, SUITE 300, BELLAIRE, TX 77401
P: 713.520.5400
www.res.us

TL #2011 EXTENSION FROM CANNON BRANCH TO WINTERS BRANCH
APPLICANT: DOMINION ENERGY

ENVIRONMENTAL CONSTRAINTS MAP
II.A.2.

CITY OF MANASSAS AND PRINCE WILLIAM COUNTY, VIRGINIA

PROJECT MANAGER:	KB
DRAWN:	LC
JOB NUMBER:	103811
DATE EXPORTED:	08/05/2021
REVISIONS:	LC – 10/06/2021 LC – 09/22/2021 LC – 08/27/2021

Document Path: R:\Resgis\entgis\Projects\103811_TL_2011_CannonBranch_Clifton\MXD\SCC\103811_IIA2_EnviroConstraints_11x17.mxd - Date Saved: 10/6/2021

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

3. Provide a separate color map of a suitable scale showing all the Applicant's transmission line ROWs, either existing or proposed, in the vicinity of the proposed project.

Response: See Attachment I.G.1.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

4. To the extent the proposed route is not entirely within existing ROW, explain why existing ROW cannot adequately service the needs of the Applicant.

Response: The approximate 1.05-mile new segment of Line #2011 requires the acquisition of a variable width right-of-way expansion, ranging in width from 50 to 120 feet. The proposed Line #2011 right-of-way expansion will start directly south of Cannon Branch Substation and parallel the existing, variable width right-of-way containing Lines #2195 and #2148 to Winters Branch Substation. The existing monopole structures within the existing right-of-way are at maximum capacity supporting both existing Lines #2195 and #2148.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

5. Provide drawings of the ROW cross section showing typical transmission line structure placements referenced to the edge of the ROW. These drawings should include:

a. ROW width for each cross section drawing;

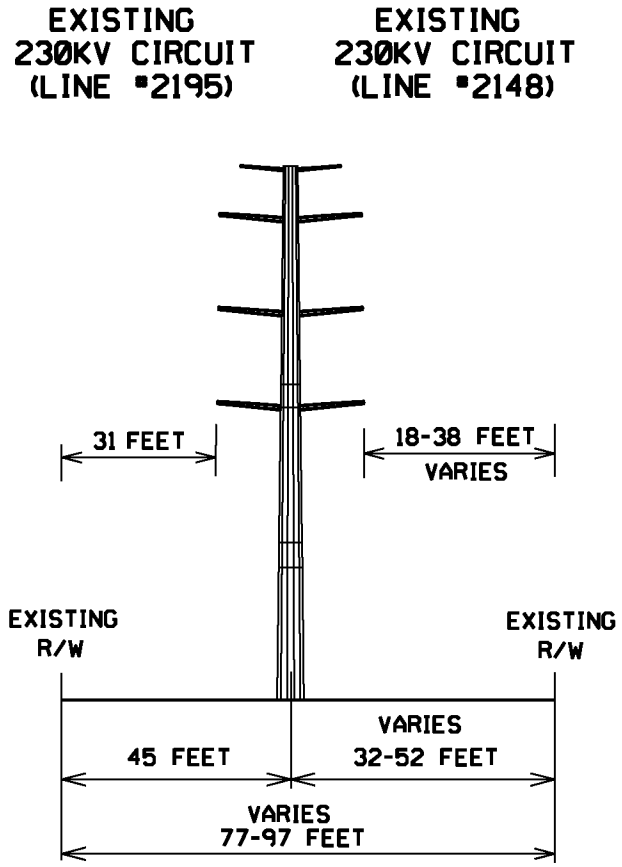
b. Lateral distance between the conductors and edge of ROW;

c. Existing utility facilities on the ROW; and

d. For lines being rebuilt in existing ROW, provide all of the above (i) as it currently exists, and (ii) as it will exist at the conclusion of the proposed project.

Response: See Attachment II.A.5.i.–vi. For additional information on the proposed structures, see Section II.B.3.

STRUCTURE 2148/44 (2195/2) - GODWIN DRIVE



EXISTING CONFIGURATION

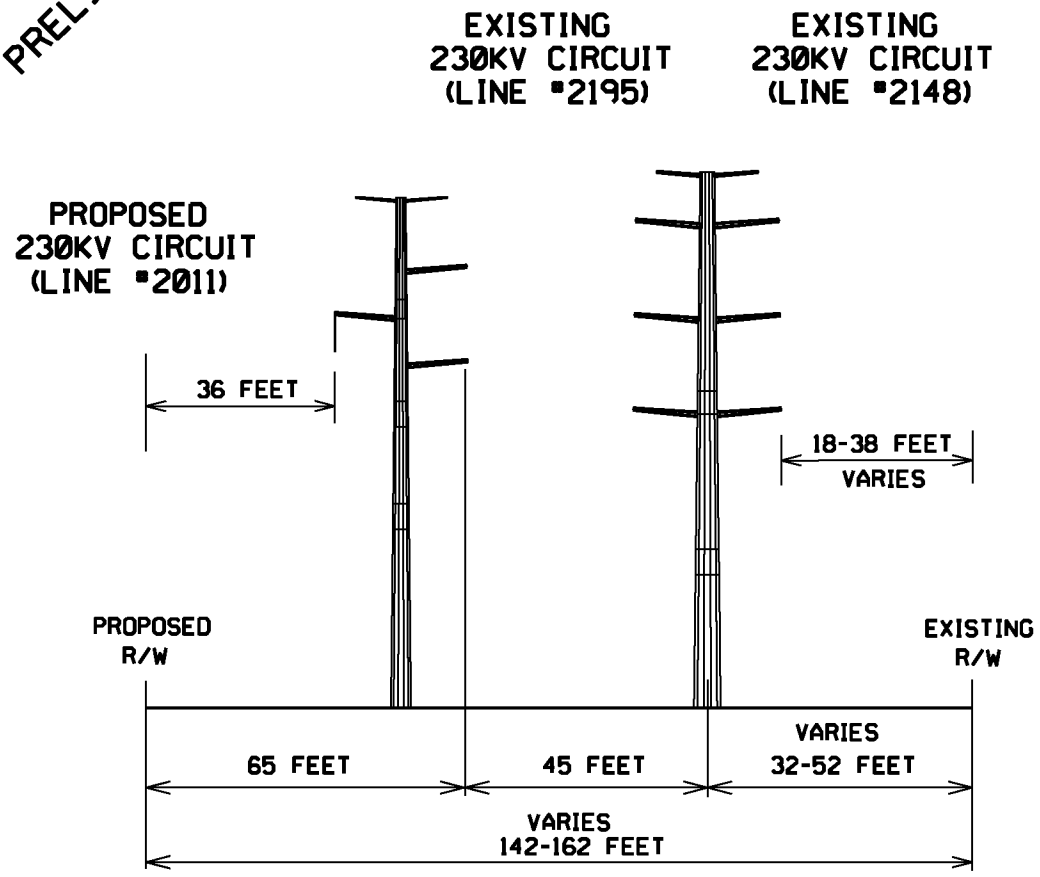
TYPICAL RIGHT OF WAY LOOKING TOWARD WINTERS BRANCH

$DGNSPEC$

$DGNSPEC$

STRUCTURE 2011/69 - GODWIN DRIVE

PRELIMINARY



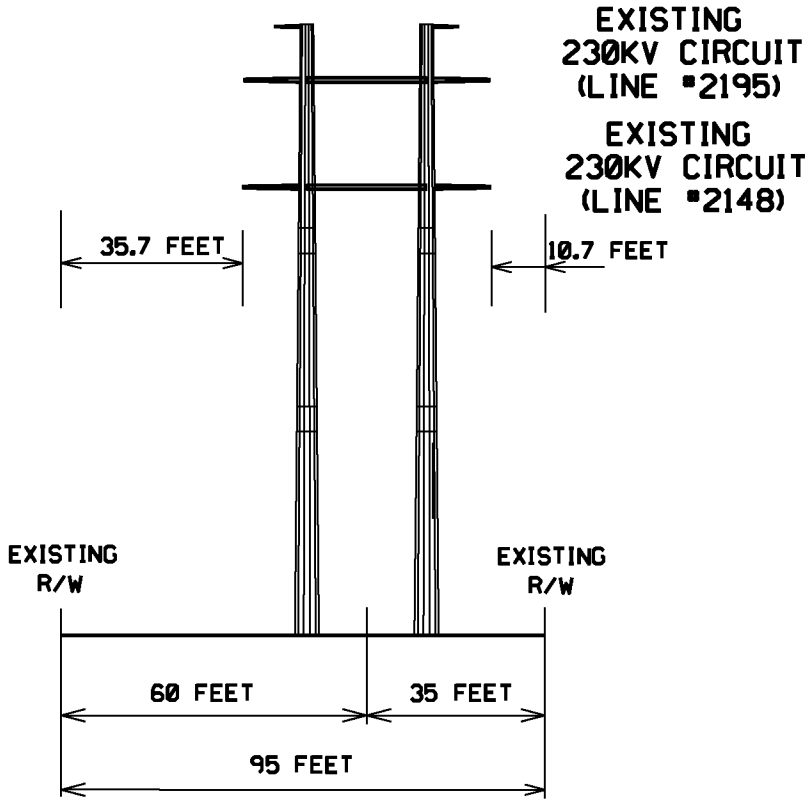
PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD WINTERS BRANCH

NOTE: INFORMATION CONTAINED ON DRAWINGS IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN

$DGNSPEC$

GODWIN DRIVE - STRUCTURE 2148/49 (2195/7)



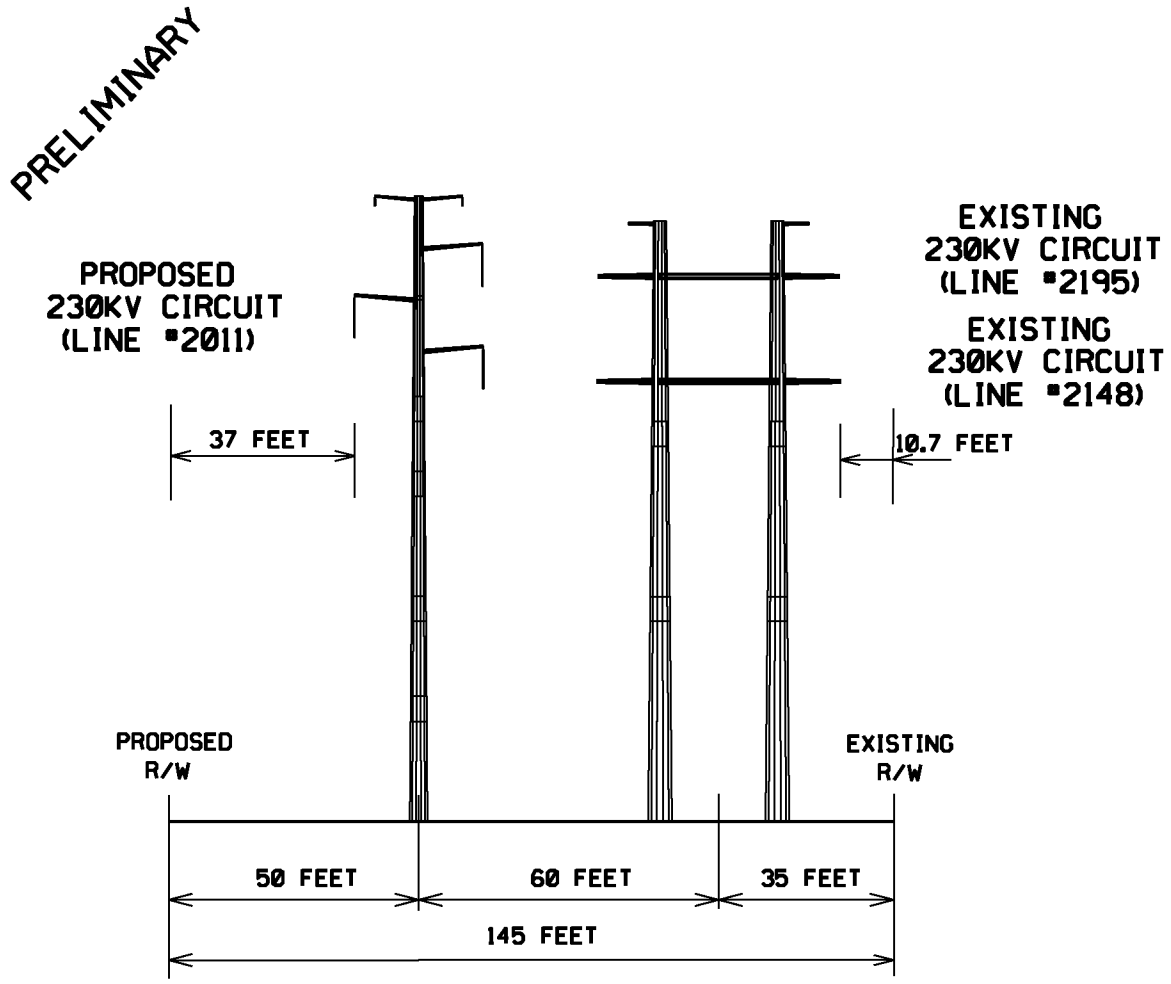
EXISTING CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD WINTERS BRANCH

$DGNSPEC$

$DGNSPEC$

GODWIN DRIVE - STRUCTURE 2011/74



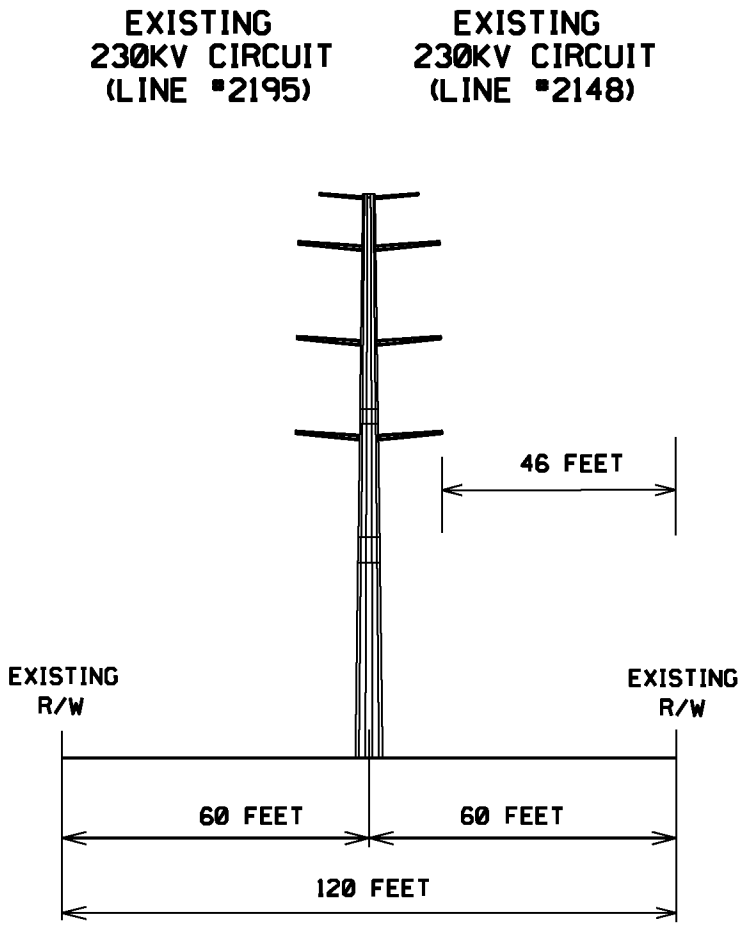
PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD WINTERS BRANCH

NOTE: INFORMATION CONTAINED ON DRAWINGS IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN

$UGNSPLC$

STRUCTURE 2148/49 (2195/7) - WINTERS BRANCH

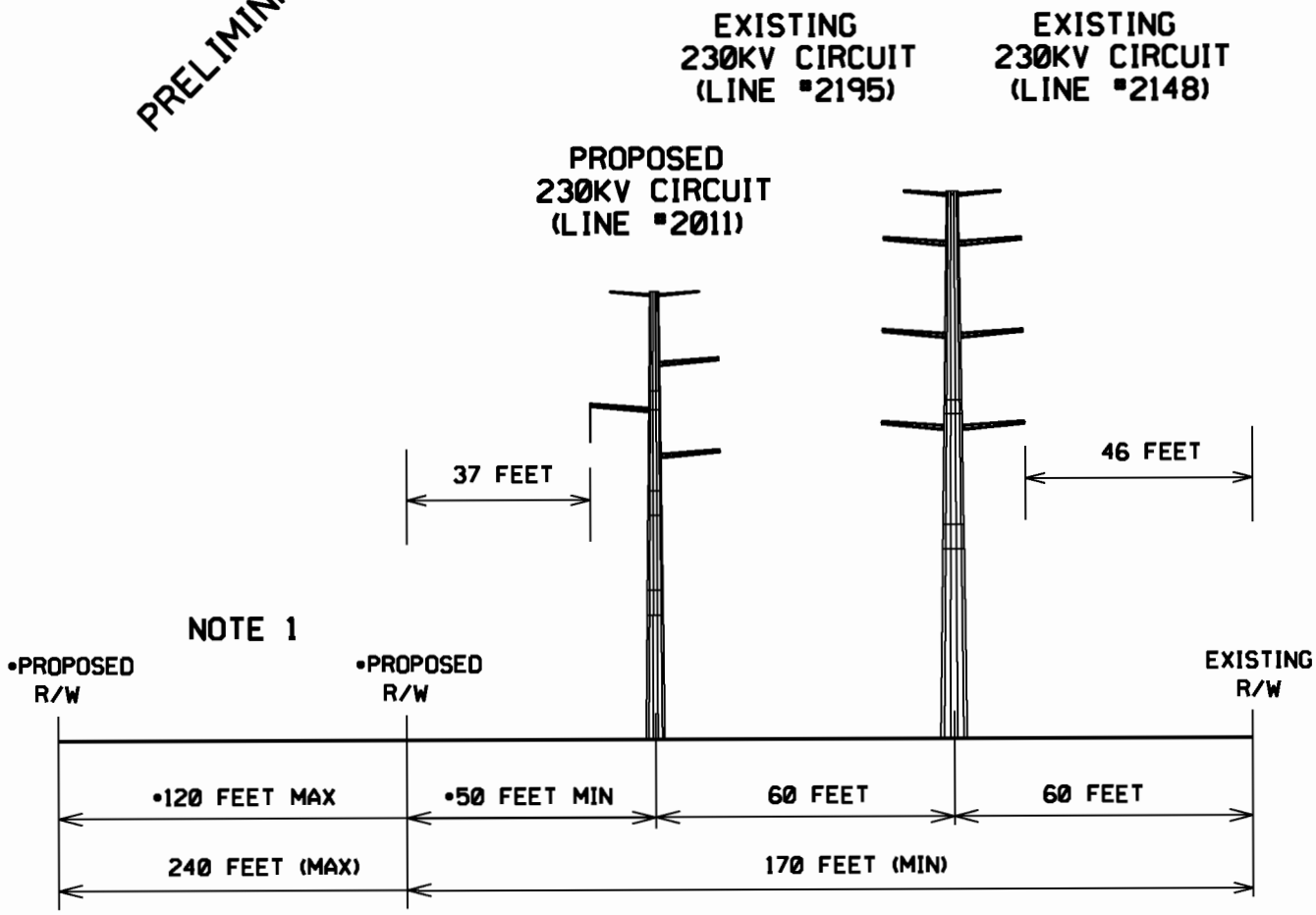


EXISTING CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD WINTERS BRANCH

STRUCTURE 2011/75 - WINTERS BRANCH

PRELIMINARY



PROPOSED CONFIGURATION

TYPICAL RIGHT OF WAY LOOKING TOWARD WINTERS BRANCH

NOTE:

1. R/W EXPANSION VARIES OUTSIDE WINTERS BRANCH UP TO APPROXIMATELY 120'.

NOTE: INFORMATION CONTAINED ON DRAWINGS IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN

$DGNSPEC$

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

6. Detail what portions of the ROW are subject to existing easements and over what portions new easements will be needed.

Response: The approximate 1.05-mile new segment of Line #2011 requires the acquisition of a variable width right-of-way expansion, ranging in width from 50 to 120 feet, parallel to an existing variable width right-of-way containing Lines #2195 and #2148. The easements for the right-of-way containing Lines #2195 and 2148 were acquired in September 2012.

No conservation easements are located within or directly adjacent to the Project right-of-way; however, one Department of Historic Resources conservation easement is located within 600 feet of the right-of-way as shown on Attachment II.A.6, and includes the following:

- Cannon Branch Fort Site easement (DHR Easement ID #155-5020) established May 19, 2000.

In accordance with the Guidelines for Assessing Impacts of Proposed Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia (2008), a Stage I Pre-Application Analysis was conducted by Dutton & Associates ("Dutton") in August 2021. This report was forwarded to VDHR in December 2021, and is included as Attachment 2.H.1 to the DEQ Supplement.

The Stage I Pre-Application Analysis conducted by Dutton included an analysis of potential impacts to the Cannon Branch Fort Site. The Cannon Branch Fort is a fortification constructed during the Civil War. The Fort overlooks Cannon Branch between Manassas and Bristow, Virginia. The site is significant for the potential to provide information on the history of the Civil War in Northern Virginia. The archaeological site is apparently undocumented in the written records of the conflict; the specifics of its exact construction and use are not known. As a result, the site may be of importance as a record of the war and as a source of information regarding the construction technology used on this type of fortification. The site was listed in the NRHP in 1999 and has had a Historic Preservation Easement since 2000.

In order to assess the potential impact of the proposed Project, visual inspection was conducted of the setting around the property, with emphasis on views towards the Project area to document existing setting, sight lines, and viewshed. This assessment found that Cannon Branch Fort is located approximately 0.10 mile from the Project alignment at its nearest point. The property is located between an industrial complex and a regional highway on the outskirts of Manassas, VA; thus, the landscape between the property and the Project is moderately developed. Development between the property and the Project area includes the four-lane divided Prince William Parkway (Route 234), a railroad corridor, and a high-density residential townhouse development.

Inspection from Cannon Branch Fort revealed that the site is located within a mixed-use area surrounded by modern development and infrastructure. From the parking lot, several office buildings associated with the industrial park may be seen immediately to the west while the raised Prince William Parkway corridor can be seen to the northeast. The structures on the existing Lines #2195 and #2148 that are located within the right-of-way to be shared by the Project are not visible from the parking lot, as the structures are screened by the raised roadway and intervening vegetation. The Cannon Branch Fort itself is set back from the parking lot at the end of a walking trail within a thickly wooded area. The vegetation around the Fort completely inhibits views beyond the immediate site and because of the mix of types and species, is anticipated to provide screening year-round and will therefore screen any potential views of the Project. This was confirmed by photo simulation from the main parking lot, which revealed the structures will remain beneath the intervening tree line. As such, the Project will not introduce any change of setting or viewshed from the property and will therefore have no impact on Cannon Branch Fort.

1 INCH = 500 FEET

0 500 1,000 1,500 FEET

LEGEND

- EXISTING SUBSTATION
- FUTURE SUBSTATION
- CONSERVATION EASEMENT
- LOCAL PARK
- NON-PROFIT FEE SIMPLE HOLDING
- REGIONAL PARK
- VDOT WETLANDS BANK
- EXISTING 115 KV LINE
- EXISTING 230 KV LINE

APPROXIMATE PROJECT LIMITS

- PROPOSED 230 KV LINE 2011 EXTENSION
- REMOVE EXISTING 230 KV LINE 2011

EXISTING LINES 197 (115 KV) & 2148 (230 KV)

EXISTING LINE 163

EXISTING LINE 2148

CANNON BRANCH SUBSTATION

EXISTING LINE 2195

EXISTING LINE 2011

EXISTING LINES 2195 & 2148

CITY OF MANASSAS

VIRGINIA DEPARTMENT OF HISTORIC RESOURCES EASEMENT

PRINCE WILLIAM COUNTY

FUTURE BRICKYARD SUBSTATION

WINTERS BRANCH SUBSTATION

Nokesville Rd
Foster Dr
Norfolk Southern Railway
Joyce Ct
Colonel Ct
Godwin Dr
Godwin Ct
Business Center Ct
Central Park Dr
Gateway Blvd
Carolina Dr
Prince William Pkwy
Observation Rd
Cannon Branch
Wakeman Dr
Brickyard Way
Tanner Way
Harvest Pl
Field Ct
Battlefield Dr
Justin Ln
Hastings Dr
Winged Elm Cir
Cotton Tree Ct
Grape Myrtle Ct
Cedar Ridge Dr
Greenleaf Dr
Candy Ct
Plum Tree Ct
Sandy Ct

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www.res.us

TL #2011 EXTENSION FROM
CANNON BRANCH TO WINTERS BRANCH
APPLICANT: DOMINION ENERGY

CONSERVATION EASEMENT MAP
II.A.6.

CITY OF MANASSAS AND PRINCE WILLIAM COUNTY,
VIRGINIA

PROJECT MANAGER:	KB
DRAWN:	LC
JOB NUMBER:	103811
DATE EXPORTED:	08/05/2021
REVISIONS:	LC – 10/06/2021 LC – 09/23/2021 LC – 08/27/2021

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II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

7. Detail the proposed ROW clearing methods to be used and the ROW restoration and maintenance practices planned for the proposed project.

Response: The approximate 1.05-mile new segment of Line #2011 requires the acquisition of a new, variable width right-of-way expansion, ranging in width from 50 to 120 feet, parallel to the existing monopole structures containing the double circuit Lines #2195 and #2148. Based on the current conditions of the area for right-of-way acquisition and Line #2011 construction, some tree clearing may be required. However, based on the ongoing and significant data center construction activities, any tree clearing would be minimal.

Erosion control will be maintained and temporary stabilization for all soil disturbing activities will be used until the right-of-way, has been restored. Upon completion of the Project, the Company will restore the right-of-way utilizing site rehabilitation procedures outlined in the Company's *Standards & Specifications for Erosion & Sediment Control and Stormwater Management for Construction and Maintenance of Linear Electric Transmission Facilities (TE VEP 8000)* that was approved by the Virginia Department of Environmental Quality ("DEQ"). Time of year and weather conditions may affect when permanent stabilization takes place.

This right-of-way will continue to be maintained on a regular cycle to prevent interruptions to electric service and provide ready access to the right-of-way in order to patrol and make emergency repairs. Periodic maintenance to control woody growth will consist of hand cutting, machine mowing, and herbicide application.

See Attachment II.A.7 for correspondence between the Company and Digital Realty Trust ("DRT") pertaining to acquisition of right-of-way. The majority of right-of-way the Company needs for this Project will come from DRT, which will involve three of DRT's properties. The proposed transmission right-of-way will also require demolition of a building on one of DRT's properties, which DRT is aware of and has agreed to such demolition.

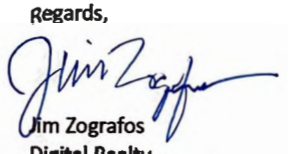
December 13, 2021

Dear Messrs. Loepker and Prough,

Over the past few months, Dominion Energy has been working with Digital Second Manassas 2, LLC ("DSM2") regarding the acquisition of an easement for a right-of-way for the above referenced 230 kV transmission line project. Consistent with those discussions, DSM2 is willing to discuss the terms of Dominion's acquisition of the necessary right-of-way easement for the transmission line project. As you are aware, in a portion of the area designated for the new right-of-way, currently there is an improvement (a brick manufacturing plant). As you further are aware, DSM2 will be ending the use of that plant, and is willing to negotiate the terms of its demolition to accommodate the transmission line project and needed right-of-way.

We look forward to continuing to work with Dominion on this project.

Regards,



Jim Zografos
Digital Realty

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

8. Indicate the permitted uses of the proposed ROW by the easement landowner and the Applicant.

Response: Any non-transmission use will be permitted that:

- Is in accordance with the terms of the easement agreement for the right-of-way;
- Is consistent with the safe maintenance and operation of the transmission lines;
- Will not restrict future line design flexibility; and
- Will not permanently interfere with future construction.

Subject to the terms of the easement, examples of typical permitted uses include but are not limited to:

- Agriculture
- Hiking Trails
- Fences
- Perpendicular Road Crossings
- Perpendicular Utility Crossings
- Residential Driveways
- Wildlife / Pollinator Habitat

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

9. Describe the Applicant's route selection procedures. Detail the feasible alternative routes considered. For each such route, provide the estimated cost and identify and describe the cost classification (e.g. "conceptual cost," "detailed cost," etc.). Describe the Applicant's efforts in considering these feasible alternatives. Detail why the proposed route was selected and other feasible alternatives were rejected. In the event that the proposed route crosses, or one of the feasible routes was rejected in part due to the need to cross, land managed by federal, state, or local agencies or conservation easements or open space easements qualifying under §§ 10.1-1009 – 1016 or §§ 10.1-1700 – 1705 of the Code (or a comparable prior or subsequent provision of the Code), describe the Applicant's efforts to secure the necessary ROW.

Response: The new approximate 1.05-mile segment of Line #2011 requires the acquisition of a variable width right-of-way expansion, ranging in width from 50 to 120 feet, to the south and east parallel to the existing variable width right-of-way. The proposed Line #2011 right-of-way expansion will start directly south of Cannon Branch Substation and parallel the existing variable width right-of-way (ranging from 60 to 120 feet), containing Lines #2195 and #2148, to Winters Branch Substation. The existing monopole structures within the existing right-of-way are at maximum capacity supporting both of the existing lines. The area for the proposed right-of-way expansion was selected based on the location of the existing right-of-way. The existing right-of-way is parallel and directly adjacent to the proposed expansions. Additional costs and environmental impacts would be associated with the acquisition of and construction on new rights-of-way not directly adjacent to existing right-of-way. Given the availability of existing right-of-way and adjacent areas, the Company did not consider any alternate routes for the proposed Project.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

10. Describe the Applicant's construction plans for the project, including how the Applicant will minimize service disruption to the affected load area. Include requested and approved line outage schedules for affected lines as appropriate.

Response: To minimize service disruption to the affected load area during construction of the Project, the Company plans to take segments of the impacted lines for the Project out of service in several separate sequentially planned outages thereby maintaining electrical service and limiting disruption to the affected load area. Assuming a final order from the Commission by September 16, 2022, construction of the Project will commence around July 5, 2023.

The Company plans to take the following sequential outages for the Project:

- Outage #1: Late Spring/Early Summer 2023
  - Outage to relocate Line #2195
- Outage #2: Mid-Summer 2023
  - Outage to remove Line #2011 from Cannon Branch
- Outage #3: Late Summer 2023
  - Outage to extend Line #2011 to Winters Branch

The Company will request line outages from PJM prior to the date of such outages. It is customary for PJM to not grant approval of the outages until shortly before the outages are expected to occur and, therefore, they may be subject to change.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

11. Indicate how the construction of this transmission line follows the provisions discussed in Attachment 1 of these Guidelines.

Response: As noted in Section II.A.9, Attachment 1 of these Guidelines provides a tool routinely used by the Company in routing its transmission line projects.

The Company utilized Guideline #1 (existing rights-of-way should be given priority when adding additional facilities) by siting the proposed Project within the existing transmission corridor and adjacent areas, as discussed in Section II.A.9.

By utilizing areas adjacent to an existing transmission line corridor and the existing Norfolk Southern Railroad and Prince William Parkway (SR 234), the proposed Project will minimize impact to any site listed on the National Register of Historic Places ("NRHP"). Thus, the proposed Project is consistent with Guideline #2 (where practical, rights-of-way should avoid sites listed on the NRHP). See Section III.A for a description of the resources identified in the Stage I Pre-Application Analysis prepared by Dutton on behalf of the Company, which is included with the DEQ Supplement as Attachment 2.H.1. Consistent with its customary practice, the Company will coordinate with the Virginia Department of Historic Resources ("VDHR") regarding the findings of the Stage I Pre-Application Analysis.

The Company has communicated with a number of local, state, and federal agencies prior to filing this application consistent with Guideline #4 (where government land is involved the Company should contact the agencies early in the planning process). See Sections III.B, III.J, and the DEQ Supplement.

The Company follows recommended construction methods on a site-specific basis for typical construction projects (Guidelines #8, #10, #11, #15, #16, #18, and #22).

The Company also utilizes recommended guidelines in the clearing of right-of-way, constructing facilities and maintaining rights-of-way after construction. Moreover, secondary uses of right-of-way that are consistent with the safe maintenance and operation of facilities are permitted.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

12. a. Detail counties and localities through which the line will pass. If any portion of the line will be located outside of the Applicant's certificated service area: (1) identify each electric utility affected; (2) state whether any affected electric utility objects to such construction; and (3) identify the length of line(s) proposed to be located in the service area of an electric utility other than the Applicant; and

b. Provide three (3) color copies of the Virginia Department of Transportation "General Highway Map" for each county and city through which the line will pass. On the maps show the proposed line and all previously approved and certificated facilities of the Applicant. Also, where the line will be located outside of the Applicant's certificated service area, show the boundaries between the Applicant and each affected electric utility. On each map where the proposed line would be outside of the Applicant's certificated service area, the map must include a signature of an appropriate representative of the affected electric utility indicating that the affected utility is not opposed to the proposed construction within its service area.

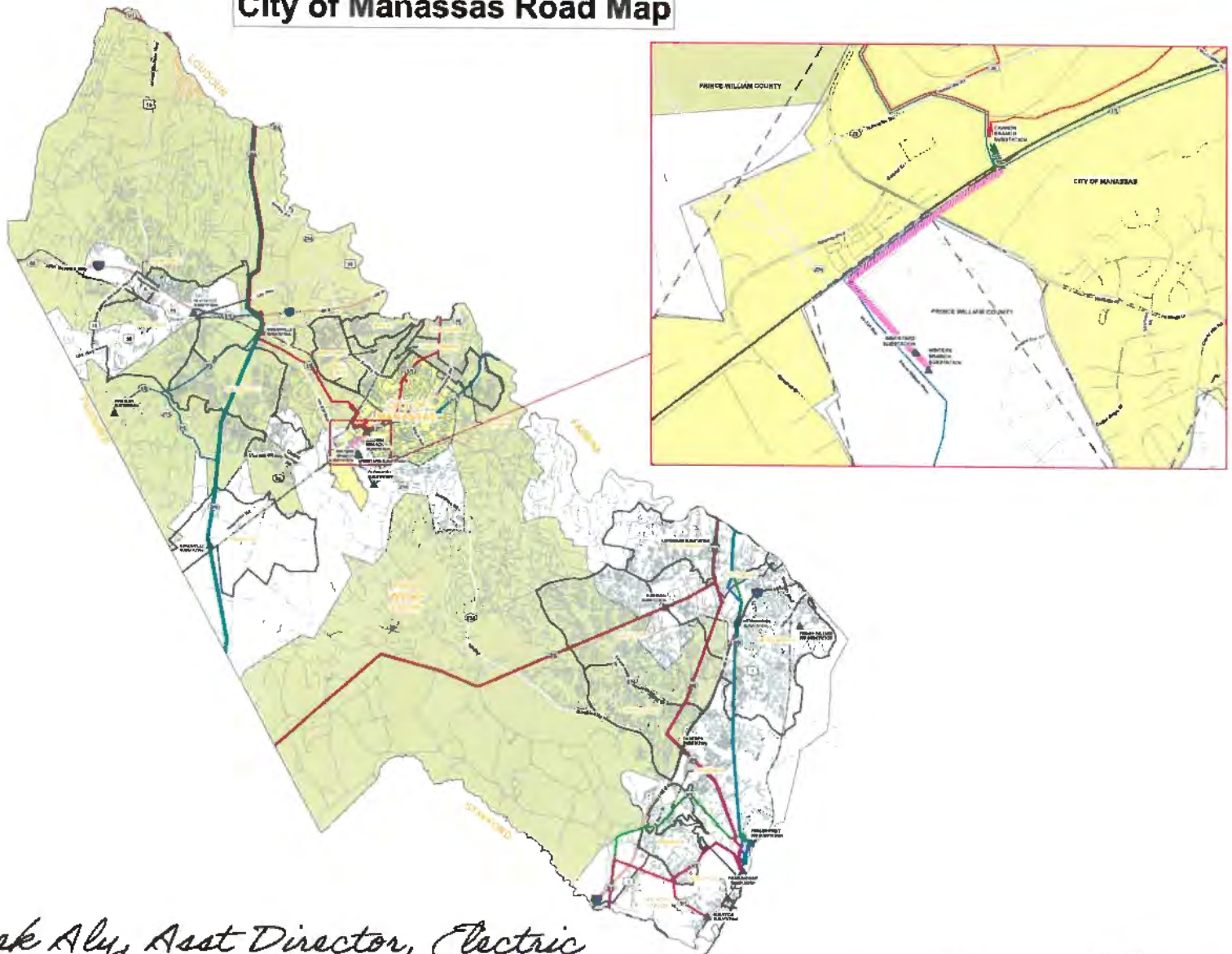
Response: a. The proposed Project is located in Prince William County and the City of Manassas. The Project is also within the City of Manassas and Dominion Energy Virginia's service territories. Approximately 0.47 mile of the Project right-of-way is located within the City of Manassas' service territory and approximately 0.78 mile is located within Dominion Energy Virginia's service territory in Prince William County.

b. An electronic copy of the VDOT "General Highway Map" for Prince William County and the City of Manassas has been marked as required and submitted with the Application. A reduced copy of the map is provided in Attachment II.A.12.b.

Prince William County & City of Manassas Road Map

This digital map depicts the Virginia Electric and Power Company ("Company") transmission facilities in this county as approved by the Virginia State Corporation Commission ("SCC"), and any proposed transmission facilities in this county, as of November 10, 2021. Other Company facilities previously authorized by the SCC may be depicted on prior SCC approved county maps.

Stream data from Esri, Road data from Esri and VDOT. Transmission line and electric service territory data from Department of Homeland Infrastructure. Rail data from VGIN.



N
W E
S

VIRGINIA ELECTRIC AND POWER COMPANY PLANS TO REMOVE AND CONSTRUCT TRANSMISSION LINES AND SUBSTATIONS AS SHOWN IN BLACK AND PINK DASHES ON THIS MAP.

THE CITY OF MANASSAS IS NOT OPPOSED TO SUCH CONSTRUCTION IN ITS SERVICE TERRITORY.

SIGNATURE _____

DATE _____ TITLE _____

Legend

- Proposed 230 kV Line 2011 Extension
- Remove Existing 230 kV Line 2011
- Number of Lines of Structures/Number of Circuits
- Existing Substation
- Existing 115 kV Line
- Existing 230 kV Line
- Existing 500 kV Line

Provider Service Territory

- Northern Virginia Electric Coorporation
- City of Manassas (Va)
- VEPCO

Tarek Aly, Asst Director, Electric

11/23/2021

0 1.5 3 4.5 6 Miles

*Road data obtained from VDOT and Esri, current as of November 2020.

Prince William County & City of Manassas

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

1. Detail the number of circuits and their design voltage, initial operational voltage, any anticipated voltage upgrade, and transfer capabilities.

Response: The relocated section of 230 kV Line #2011 will be designed and operated at 230 kV and have a transfer capability of 1573 MVA.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

2. Detail the number, size(s), type(s), coating and typical configurations of conductors. Provide the rationale for the type(s) of conductor(s) to be used.

Response: The relocated section of 230 kV Line #2011 will have 3-phase bundled 768.2 ACSS/TW/HS conductors. The bundled 768.2 ACSS/TW/HS conductors are a Company standard for new 230 kV construction with a diameter of 0.977 inches.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

3. With regard to the proposed supporting structures over each portion of the ROW for the preferred route, provide diagrams (including foundation reveal) and descriptions of all the structure types, to include:

a. mapping that identifies each portion of the preferred route;

b. the rationale for the selection of the structure type;

c. the number of each type of structure and the length of each portion of the ROW;

d. the structure material and rationale for the selection of such material;

e. the foundation material;

f. the average width at cross arms;

g. the average width at the base;

h. the maximum, minimum and average structure heights;

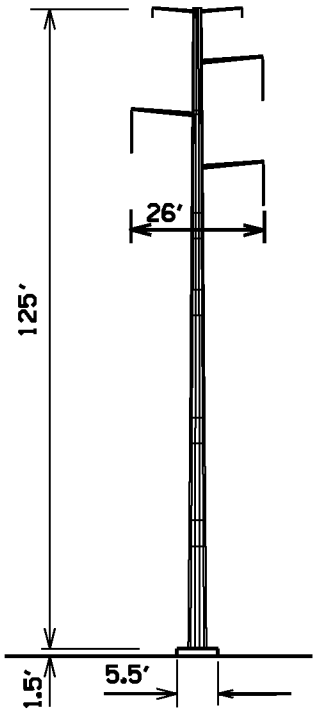
i. the average span length; and

j. the minimum conductor-to-ground clearances under maximum operating conditions.

Response: See Attachments II.B.3.i and II.B.3.ii.

SINGLE CIRCUIT SUSPENSION STEEL POLE

PRELIMINARY



PROPOSED STRUCTURES

a. MAPPING THAT IDENTIFIES EACH PORTION OF THE PREFERRED ROUTE: SEE ATTACHMENT II.B.5

B. RATIONALE FOR THE SELECTION OF THE STRUCTURE TYPE: THE SINGLE SHAFT STEEL POLE REDUCES THE FOOTPRINT OF THE STRUCTURE

c. NUMBER OF EACH TYPE OF STRUCTURE AND LENGTH OF EACH PORTION OF THE R/W: 2 AND 0.95 MILES

d. STRUCTURE MATERIAL AND RATIONALE FOR THE SELECTION OF SUCH MATERIAL: WEATHERING STEEL TO MATCH ADJACENT STRUCTURES

e. FOUNDATION MATERIAL: CONCRETE

f. AVERAGE WIDTH AT CROSSARM: 26'

g. AVERAGE WIDTH AT BASE: 5.5'

H. MAX. MIN. AND AVERAGE STRUCTURE HEIGHTS: 125', 125', AND 125' (DOES NOT INCLUDE FOUNDATION REVEAL)

I. AVERAGE SPAN LENGTH: 557 FEET (RANGE 100 - 827 FEET)

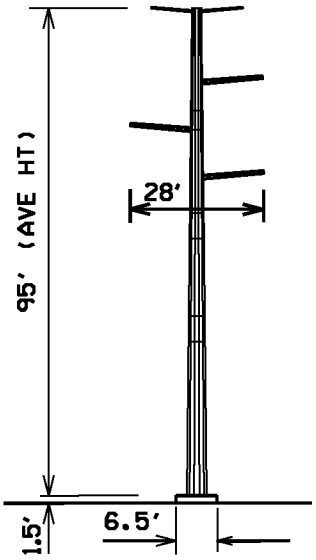
J. MIN CONDUCTOR-GROUND CLEARANCE UNDER MAX OPERATING CONDITIONS: 22.5'

NOTE: Information contained on drawing is to be considered preliminary in nature and subject to change based on final design.

$DGNSPEC$

SINGLE CIRCUIT DOUBLE DEADEND STEEL POLE

PRELIMINARY



PROPOSED STRUCTURES

a. MAPPING THAT IDENTIFIES EACH PORTION OF THE PREFERRED ROUTE: SEE ATTACHMENT II.B.5

B. RATIONALE FOR THE SELECTION OF THE STRUCTURE TYPE: THE SINGLE SHAFT STEEL POLE REDUCES THE FOOTPRINT OF THE STRUCTURE

c. NUMBER OF EACH TYPE OF STRUCTURE AND LENGTH OF EACH PORTION OF THE R/W: 5 AND 0.95 MILES

d. STRUCTURE MATERIAL AND RATIONALE FOR THE SELECTION OF SUCH MATERIAL: WEATHERING STEEL TO MATCH ADJACENT STRUCTURES

e. FOUNDATION MATERIAL: CONCRETE

f. AVERAGE WIDTH AT CROSSARM: 28'

G. AVERAGE WIDTH AT BASE: 6.5'

H. MAX. MIN. AND AVERAGE STRUCTURE HEIGHTS: 110 FEET, 80', AND 95' (DOES NOT INCLUDE FOUNDATION REVEAL)

I. AVERAGE SPAN LENGTH: 557 FEET (RANGE 100 - 827 FEET)

J. MIN CONDUCTOR-GROUND CLEARANCE UNDER MAX OPERATING CONDITIONS: 22.5'

NOTE: Information contained on drawing is to be considered preliminary in nature and subject to change based on final design.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

4. With regard to the proposed supporting structures for all feasible alternate routes, provide the maximum, minimum and average structure heights with respect to the whole route.

Response: Not applicable.

II. DESCRIPTION OF THE PROPOSED PROJECT

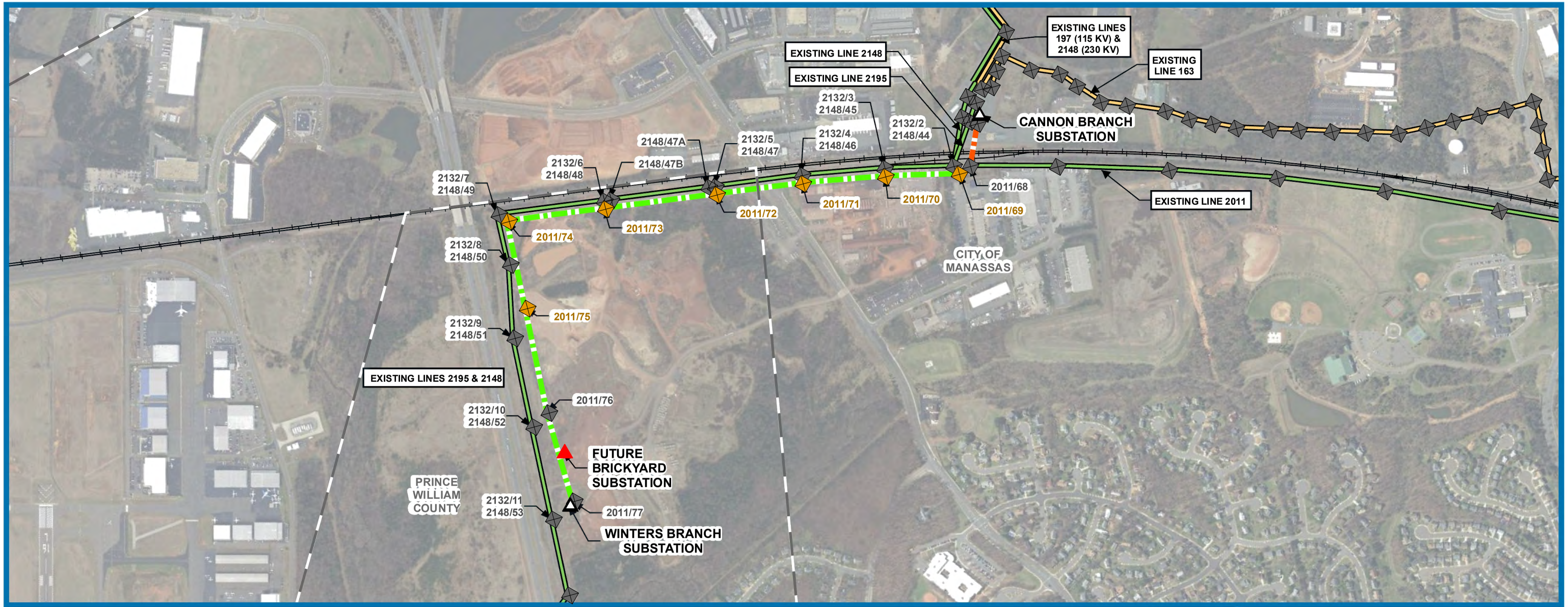
B. Line Design and Operational Features

5. For lines being rebuilt, provide mapping showing existing and proposed structure heights for each individual structure within the ROW, as proposed in the application.

Response: See Attachment II.B.5 for proposed structure heights and locations.

See the table below for the existing and proposed heights of structures related to the Project. The proposed approximate structure heights are from the conceptual design created to estimate the cost of the proposed Project and are subject to change based on final engineering design. The approximate structure heights do not include foundation reveal.

Structure Number	Existing Structure Height (ft)	Proposed Structure Height (ft)	Attachment II.B.3 Structure Type
2011/68	100	-	-
2011/69	-	80	ii
2011/70	-	105	ii
2011/71	-	110	ii
2011/72	-	125	i
2011/73	-	125	i
2011/74	-	80	ii
2011/75	-	100	ii
2011/76	110	-	-
2011/77	75	-	-
Min	**75**	**80**	-
Max	**110**	**125**	-
Average	**95**	**104**	-

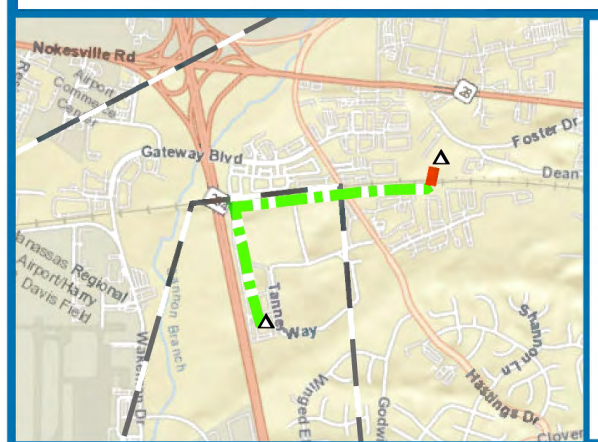


Existing Structure Number	2011/68	-	-	-	-	-	-	-	2011/76	2011/77
Existing Structure Height (Feet)	100	-	-	-	-	-	-	-	110	75
Proposed Structure Number	-	2011/69	2011/70	2011/71	2011/72	2011/73	2011/74	2011/75	-	-
Proposed Structure Height (Feet)	-	80	105	110	125	125	80	100	-	-

1 INCH = 700 FEET

0 700 1,400 2,100

FEET



LEGEND

- EXISTING SUBSTATION
- FUTURE SUBSTATION
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- EXISTING 115 KV LINE
- EXISTING 230KV LINE

APPROXIMATE PROJECT LIMITS

- PROPOSED 230 KV LINE 2011 EXTENSION
- REMOVE EXISTING 230 KV LINE 2011

TL #2011 EXTENSION FROM
CANNON BRANCH TO WINTERS BRANCH
APPLICANT: DOMINION ENERGY

EXISTING AND PROPOSED STRUCTURES MAP
II.B.5.

CITY OF MANASSAS AND PRINCE WILLIAM COUNTY, VIRGINIA

res
Dominion Energy
CORPORATE | 6575 WEST LOOP SOUTH, SUITE 300, BELLAIRE, TX 77401
P: 713.520.5400
www.res.us

PROJECT MANAGER:	KB
DRAWN:	LC
JOB NUMBER:	103811
DATE EXPORTED:	08/05/2021
REVISIONS:	LC - 10/06/2021 LC - 09/23/2021 LC - 08/30/2021 LC- 10/12/2021

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1 OF 1

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II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

6. Provide photographs for typical existing facilities to be removed, comparable photographs or representations for proposed structures, and visual simulations showing the appearance of all planned transmission structures at identified historic locations within one mile of the proposed centerline and in key locations identified by the Applicant.

Response: [1] See Attachment II.B.6.a for representative photographs of typical existing structures.

[2] See Attachment II.B.6.b for representative photographs of typical proposed structures.

[3] Visual simulations showing the appearance of proposed transmission structures are provided for historic properties within one mile of the proposed centerline where the Project will be visible. Attachment II.B.6.c provides a map of the evaluated historic properties within 1.0 mile of the Project (Figure 1) and existing photographs and simulations of the proposed structures from selected observation points ("OPs"). OPs used for the simulations are indicated on Figure 1. The table below identifies the historic properties evaluated.

Historic Property	Observation Point No.	Comments
Manassas Station Operations Battlefield (DHR ID #076-5036)	2, 3, 4, 5	Minimal Impact - Photo Simulation revealed that the Project will generally be screened by intervening development and vegetation. Where visibility is possible, the Project will be seen in conjunction with existing other infrastructure within a compromised setting. Therefore, the Project will not introduce any substantial change of setting or viewshed from the battlefield.
Second Manassas Battlefield (DHR #076-5190)	N/A	No Impact - Views in the direction of the Project are screened by buildings, trees, and a variety of other development, which inhibit long-distance views in the direction of the Project. Existing transmission

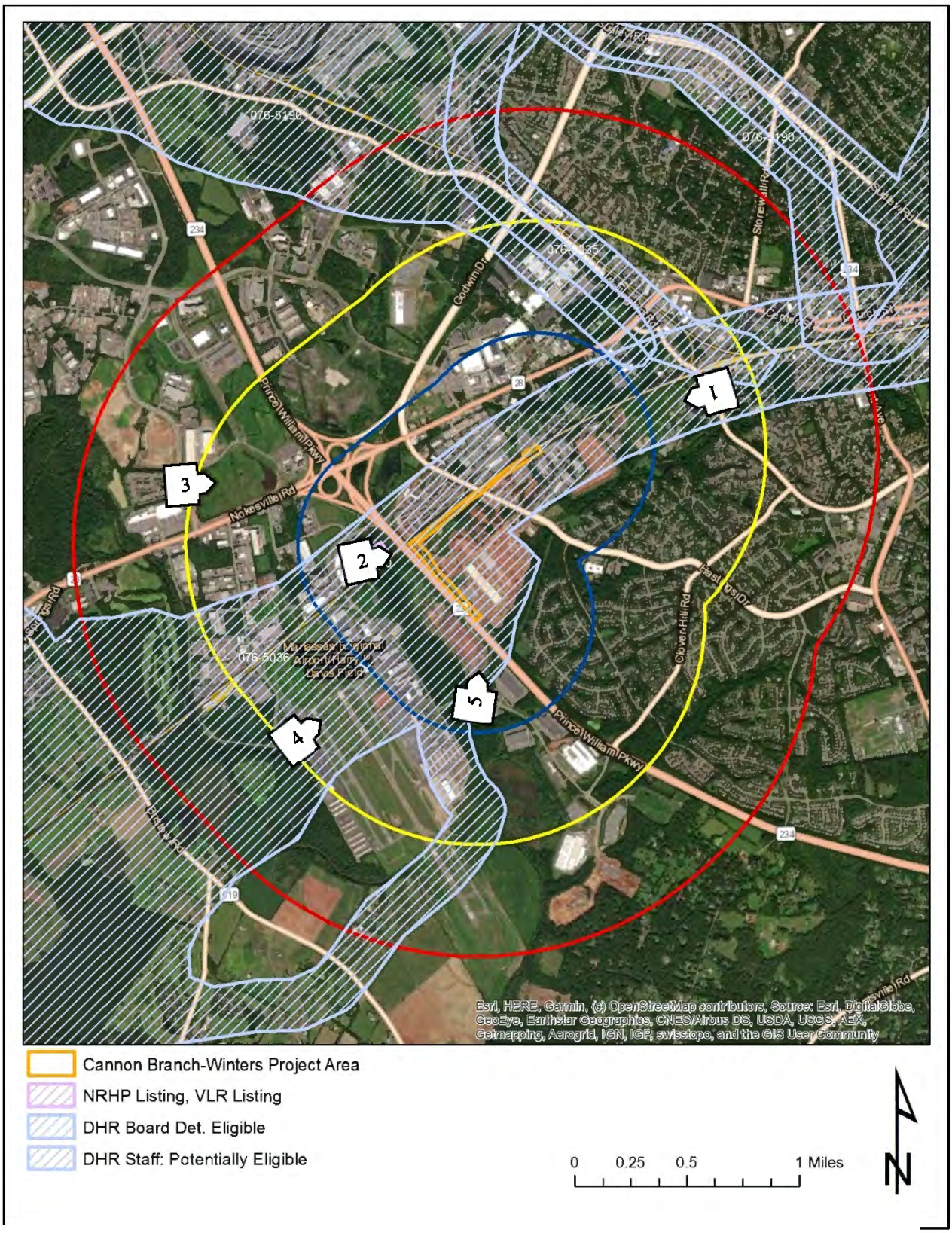
Historic Property	Observation Point No.	Comments
		lines in the vicinity of the Project are not visible. As such, no photo simulation was conducted from this location.
First Manassas Battlefield (DHR #076-5335)	N/A	No Impact - Views in the direction of the Project are screened by buildings, trees, and a variety of other development, which inhibit long-distance views in the direction of the Project. Existing transmission lines in the vicinity of the project are not visible. As such, no photo simulation was conducted from this location.
Jennie Dean Memorial Site (DHR #155-0010)	1	Minimal Impact - Photo Simulation revealed the Project structures will be screened from the interpretive kiosk area, but may be visible in conjunction with other existing transmission lines from other vantages and will therefore not introduce any substantial change of setting or viewshed from the property.
Cannon Branch Fort (DHR #155-5020)	2	No Impact – Photo simulation confirmed that the existing thick vegetation within and around the property will completely screen views in the direction of the Project.

See Attachment II.B.6.d for graphical renderings of the proposed Project.

Existing Single-circuit weathering steel angle structure

Proposed single-circuit weathering steel suspension structure with staggered arms

Proposed single-circuit weathering steel double dead-end structure with staggered arms



Attachment II.B.6.c - Figure 1: Location and direction of photo simulations from considered historic properties within their respective study tiers around the project alignment.

Photo simulations prepared by:
GTTE LLC
email:
info@gttellc.com
703 447 1350

Location:
Jennie Dean Memorial

Project: Line 2011
Cannon Branch - Winters

Structure	Distance (ft)	Height (ft)
2011/69	4403	80.0
2011/70	4943	105.0
2011/71	5537	110.0
2011/72	6367	125.0
2011/73	6962	125.0
2011/74	7666	80.0
2011/75	7522	100.0

Attachment II.B.6.c - Photo Simulation 1: Simulation location, direction of view, and structures modeled from Jennie Dean Memorial Site interpretative kiosk. Source: GTTE, LLC

Photo simulations prepared by: GTTE LLC email: info@gttellc.com 703 447 1350	Project: Line 2011 Rebuild	Location: Jennie Dean Memorial	Existing View	0 1" 2" 3" 4"
	Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.	

Attachment II.B.6.c - Photo Simulation 1: Existing view from Jennie Dean Memorial Site interpretive kiosk. Source: GTTE, LLC

06

Photo simulations prepared by: GTTE LLC email: info@gttellc.com 703 447 1350	**Project: Line 2011 Rebuild**	**Location: Jennie Dean Memorial**	**Proposed View** (Location of towers not visible are overlaid with yellow tower icon)
	Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.

Attachment II.B.6.c - Photo Simulation 1: Proposed view from Jennie Dean Memorial Site interpretive kiosk (Structures not visible- shown in yellow). Source: GTTE, LLC

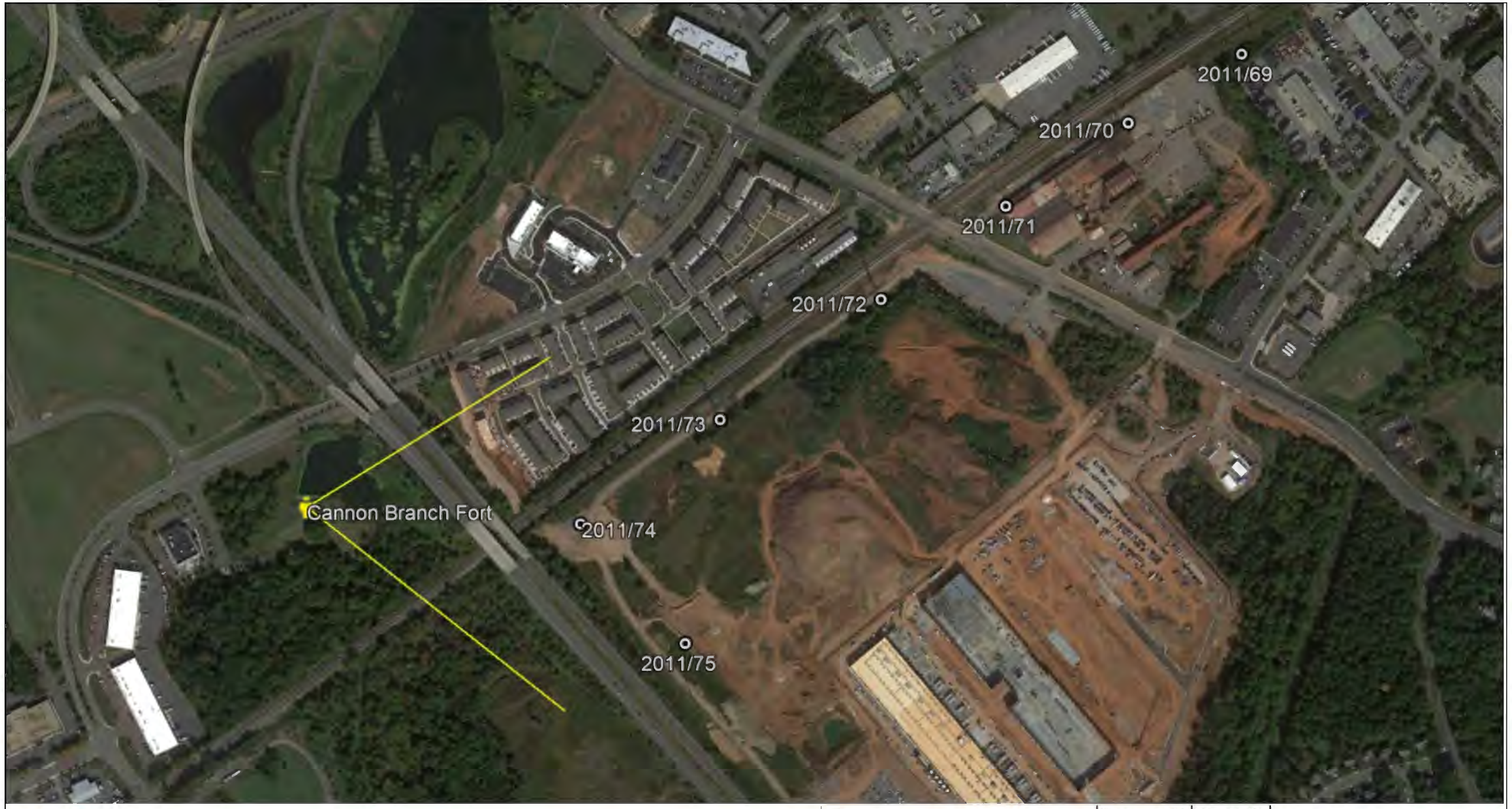


Photo simulations
prepared by:
GTTE LLC
email:
info@gttellc.com
703 447 1350

Location:
Cannon Branch Fort

Project: Line 2011
Cannon Branch - Winters

Structure	Distance (ft)	Height (ft)
2011/69	4283	80.0
2011/70	3740	105.0
2011/71	3140	110.0
2011/72	2398	125.0
2011/73	1745	125.0
2011/74	1134	80.0
2011/75	1659	100.0

Attachment II.B.6.c - Photo Simulation 2: Simulation location, direction of view, and structures modeled from Cannon Branch Fort parking lot. Source: GTTE, LLC

Photo simulations prepared by: GTTE LLC email: info@gttellc.com 703 447 1350	**Project: Line 2011 Rebuild**	**Location: Cannon Branch Fort**	**Existing View**
	Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.

Attachment II.B.6.c - Photo Simulation 2: Existing view from Cannon Branch Fort parking lot. Source: GTTE, LLC

Photo simulations prepared by: GTTE LLC email: info@gttellc.com 703 447 1350	**Project: Line 2011 Rebuild**	**Location: Cannon Branch Fort**	**Proposed View** (Location of towers not visible are overlaid with yellow tower icon)
	Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.

Attachment II.B.6.c - Photo Simulation 2: Proposed view from Cannon Branch Fort parking lot (Structures not visible- shown in yellow). Source: GTTE, LLC

Photo simulations
prepared by:
GTTE LLC
email:
info@gttellc.com
703 447 1350

Location:
Hornbaker Road

Project: Line 2011
Cannon Branch - Winters

Structure	Distance (ft)	Height (ft)
2011/69	8228	80.0
2011/70	7744	105.0
2011/71	7225	110.0
2011/72	6744	125.0
2011/73	6086	125.0
2011/74	5587	80.0
2011/75	6123	100.0

Attachment II.B.6.c - Photo Simulation 3: Simulation location, direction of view, and structures modeled from Hornbaker Road. Source: GTTE, LLC

Photo simulations prepared by:
GTTE LLC
email:
info@gttellc.com
703 447 1350

Project: Line 2011 Rebuild	Location: Hornbaker Road	Existing View

Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.

This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.

Attachment II.B.6.c - Photo Simulation 3: Existing view from Hornbaker Road. Source: GTTE, LLC

Photo simulations prepared by: GTTE LLC email: info@gttellc.com 703 447 1350	**Project: Line 2011 Rebuild**	**Location: Hornbaker Road**	**Proposed View** (Location of towers not visible are overlaid with yellow tower icon)
	Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.

Attachment II.B.6.c - Photo Simulation 3: Proposed view from Hornbaker Road (Structures not visible- shown in yellow). Source: GTTE, LLC

Photo simulations
prepared by:
GTTE LLC
email:
info@gttellc.com
703 447 1350

Location:
Piper Lane

Project: Line 2011
Cannon Branch - Winters

Structure	Distance (ft)	Height (ft)
2011/69	9132	80.0
2011/70	8610	105.0
2011/71	8019	110.0
2011/72	7390	125.0
2011/73	6588	125.0
2011/74	5897	80.0
2011/75	5795	100.0

Attachment II.B.6.c - Photo Simulation 4: Simulation location, direction of view, and structures modeled from Piper Lane. Source: GTTE, LLC

Photo simulations prepared by:
GTTE LLC
email:
info@gttellc.com
703 447 1350

Project: Line 2011 Rebuild	Location: Piper Lane	Existing View	0 1" 2" 3"
Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.	

Attachment II.B.6.c - Photo Simulation 4 – Existing view from Piper Lane. Source: GTTE, LLC

Photo simulations prepared by:
GTTE LLC
email:
info@gttellc.com
703 447 1350

Project: Line 2011 Rebuild

Location: Piper Lane

Proposed View
(Location of towers not visible are overlaid with yellow tower icon)

Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.

This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.

Attachment II.B.6.c - Photo Simulation 4: Proposed view from Piper Lane (Structures not visible- shown in yellow). Source: GTTE, LLC

Photo simulations prepared by:
GTTE LLC
email:
info@gttellc.com
703 447 1350

Location:
Harry J Parrish Boulevard

Project: Line 2011
Cannon Branch - Winters

Structure	Distance (ft)	Height (ft)
2011/69	5735	80.0
2011/70	5351	105.0
2011/71	4929	110.0
2011/72	4008	125.0
2011/73	4046	125.0
2011/74	3754	80.0
2011/75	3166	100.0

Attachment II.B.6.c - Photo Simulation 5: Simulation location, direction of view, and structures modeled from Harry J Parrish Boulevard. Source: GTTE, LLC

Photo simulations prepared by:
GTTE LLC
email:
info@gttellc.com
703 447 1350

Project: Line 2011 Rebuild | **Location: Harry J Parrish Blvd** | **Existing View**

Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.

This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.

Attachment II.B.6.c - Photo Simulation 5: Existing view from Harry J Parrish Boulevard. Source: GTTE, LLC

Photo simulations prepared by:
GTTE LLC
email:
info@gttellc.com
703 447 1350

Project: Line 2011 Rebuild

Location: Harry J Parrish Blvd

Proposed View
(Location of towers not visible are overlaid with yellow tower icon)

Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.

This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.

Attachment II.B.6.c - Photo Simulation 5: Proposed view from Harry J Parrish Boulevard (Visible structures shown as they would appear; Structures not visible- shown in yellow). Source: GTTE, LLC

CANNON BRANCH - WINTERS BRANCH

Transmission Line Project

EXISTING TRANSMISSION LINE

NEW TRANSMISSION LINE

SUBSTATION

Dominion Energy®

CANNON BRANCH - WINTERS BRANCH

Transmission Line Project

PERSPECTIVE RENDERING

EXISTING CONDITIONS

View looking north from Prince William Pkwy

Dominion Energy®

Visualization is for discussion purposes only.
Final design is subject to change pending public, engineering, and regulatory review.

CANNON BRANCH - WINTERS BRANCH

Transmission Line Project

PERSPECTIVE RENDERING

PROPOSED CONDITIONS

View looking north from Prince William Pkwy

Dominion Energy®

Visualization is for discussion purposes only.
Final design is subject to change pending public, engineering, and regulatory review.

CANNON BRANCH - WINTERS BRANCH

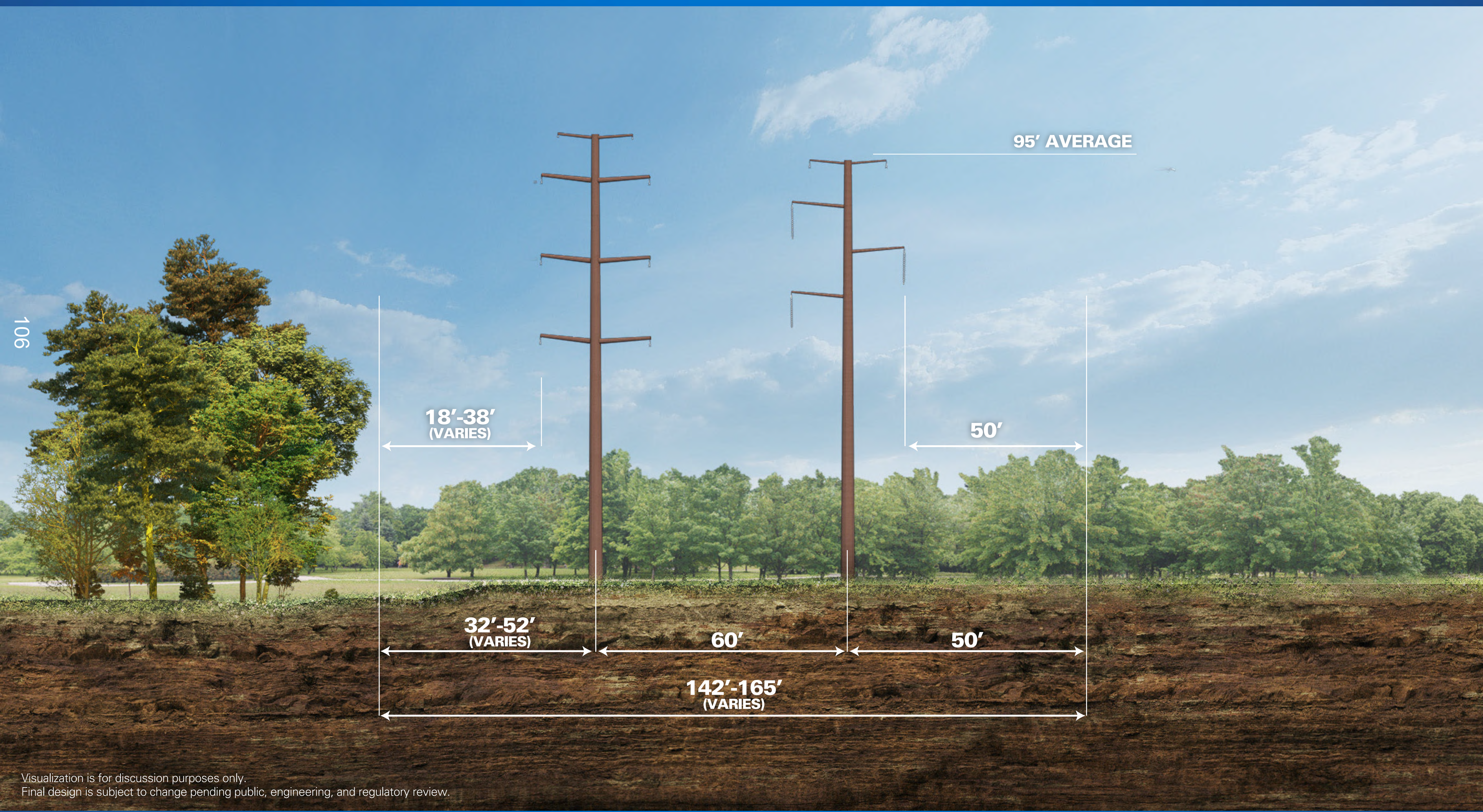
Transmission Line Project

PROPOSED SECTION

CONFIGRUATION 1

Parallel to Prince William Pkwy

Dominion Energy®



Visualization is for discussion purposes only.
Final design is subject to change pending public, engineering, and regulatory review.

CANNON BRANCH - WINTERS BRANCH

Transmission Line Project

PROPOSED SECTION

CONFIGURATION 2

Parallel to Railroad Crossing Godwin Dr

Dominion Energy®

Visualization is for discussion purposes only.
Final design is subject to change pending public, engineering, and regulatory review.

CANNON BRANCH - WINTERS BRANCH

Transmission Line Project

PROPOSED SECTION
STRUCTURE MATERIAL

Parallel to Prince William Pkwy

Dominion Energy®

Visualization is for discussion purposes only.
Final design is subject to change pending public, engineering, and regulatory review.

II. DESCRIPTION OF THE PROPOSED PROJECT

C. Describe and furnish plan drawings of all new substations, switching stations, and other ground facilities associated with the proposed project. Include size, acreage, and bus configurations. Describe substation expansion capability and plans. Provide one-line diagrams for each.

Response: There are no new substations, switching stations, or other ground facilities associated with the proposed Line #2011 Extension Project, nor are any of the impacted stations being expanded. The Line #2011 Extension Project will require the following substation work:

At Cannon Branch Substation, the Company will remove line risers and a wave trap and terminate Line #2011 outside the substation to support the line extension to Winters Branch Substation.

At Winters Branch Substation, the Company will replace line risers and install line terminal equipment, including circuit breaker, switches, wave trap, and coupling capacitor voltage transformers ("CCVTs") to support the new line rating.

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

A. Describe the character of the area that will be traversed by this line, including land use, wetlands, etc. Provide the number of dwellings within 500 feet, 250 feet and 100 feet of the centerline, and within the ROW for each route considered. Provide the estimated amount of farmland and forestland within the ROW that the proposed project would impact.

Response: **Land Use**

The Project area is located within Prince William County and the City of Manassas for a total length of approximately 1.11 miles. The area is largely characterized as urban commercial and industrial, with scattered residential, forested, agricultural and open space areas. According to the U.S. Geological Survey's National Land Cover Database, land cover categories crossed by the Project right-of-way are predominantly developed (7.13 acres or 66.4%). Other land cover categories crossed by the Project right-of-way consist of approximately 1.19 acres (11.1%) of forested land, 2.14 acres (19.9%) of barren land, and 0.28 acre (2.6%) of herbaceous land. The Project right-of-way does not cross any Virginia Scenic Byways or Scenic Rivers or private recreation areas.

Farmland/Forests

A total of 5.56 acres of prime farmland, 2.06 acres of farmland of statewide importance, and 3.11 acres of not prime farmland occurs within the proposed Project right-of-way. See Attachment III.A.1. Soils appropriate for prime farmland exist within the Project area; however, none of these areas are zoned for agricultural purposes or available for agricultural use. The majority of the Project area has been previously disturbed or developed. Therefore, the Project is not expected to impact agricultural land.

The existing right-of-way adjacent to the proposed right-of-way expansion is regularly maintained to keep vegetation at the emergent and scrub-shrub level for the safe operation of the existing facilities. The new transmission line right-of-way expansion for the approximate 1.05-mile new segment of Line #2011 will be maintained similarly; however, the area of the proposed right-of-way expansion has been previously disturbed and developed. Because the adjacent existing transmission line right-of-way is maintained for transmission operation and due to previous land development within the proposed right-of-way expansion, there are no forested areas within the Project right-of-way.

Wetlands

According to the U.S. Geological Survey ("USGS") National Hydrography Dataset ("NHD") the proposed Project does not cross any named perennial streams and rivers.

Within the proposed right-of-way for the new approximate 1.05-mile segment of Line #2011 from Cannon Branch to Winters Branch, the Company delineated wetlands and other Waters of the United States ("WOUS") using the *Routine Determination Method* as outlined in the *1987 Corps of Engineers Wetland Delineation Manual* and methods described in the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (Version 2.0). Approximately 0.40 acre of palustrine emergent wetlands were identified within the proposed right-of-way for the Project. No streams or other wetland types are located within the right-of-way. The Company submitted the results of this delineation to the U.S. Army Corps of Engineers (the "Corps") on June 18, 2021, for confirmation. A Preliminary Jurisdictional Determination, which verified the results of the delineation, was issued by the Corps on September 29, 2021 (ref. NAO-2021-01690).

As noted in Section II.A.7, work related to the proposed Project may require clearing for access and the proposed variable width right-of-way expansion, ranging in width from 50 to 120 feet; however, no palustrine forested wetlands were identified with the proposed right-of-way expansion. Therefore, it is anticipated that any wetlands or WOUS will only be impacted due to access.

Prior to construction, the Company will obtain any necessary permits to impact jurisdictional resources.

Historic Features

In accordance with the Guidelines for Assessing Impacts of Proposed Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia (2008), a Stage I Pre-Application Analysis was conducted by Dutton in August 2021. This report was forwarded to VDHR in December 2021, and is included as Attachment 2.H.1 to the DEQ Supplement.

The background research conducted as part of this analysis was guided by VDHR guidance and designed to identify all previously recorded National Historic Landmarks ("NHL") located within 1.5-miles or closer of the proposed Project, all historic properties listed in the National Register of Historic Places ("NRHP") or battlefields located within 1-mile or closer of the proposed Project, all historic properties considered eligible for listing in the NRHP located within 0.5-miles or closer of the proposed Project, archaeological sites located directly within the proposed Project area. Historic properties include architectural and archaeological (*i.e.*, terrestrial and underwater) resources, historic and cultural landscapes, battlefields, and historic districts. For each historic property within the defined tiers, a review of existing documentation and a field reconnaissance was undertaken to assess each property's significant character-defining features, as well as the character of its current setting. Following identification of historic properties, Dutton assessed the potential for impacts to any identified properties as a result of the proposed Project. Specific attention was given to determining whether or not construction related to the project could introduce new visual elements into the

property's viewshed or directly impact the property through construction, which would either directly or indirectly alter those qualities or characteristics that qualify the historic property for listing in the NRHP.

VDHR and Virginia Cultural Resources Information System ("VCRIS") records indicate that there have been 21 prior Phase I cultural resource surveys within one mile of the Project area, four of which directly include portions of the Project area. As a result of these surveys, the entire Project area has been subject to cultural resource survey. The VCRIS records reveal there are 30 previously recorded archaeological sites within one mile of the Project area, none of which are located within or adjacent to the Project area (which is within 100 feet of the Project centerline). With regards to architectural resources, five historic properties that are either designated and NHL, listed in, or determined eligible or potentially eligible for listing in the NRHP are located within the defined study tiers. This includes zero NHLs located within 1.5 mile or closer of the proposed Project, two NRHP-listed properties located 1.0 mile or closer of the Project (Jennie Dean Memorial Site/ VDHR# 155-0010 and Cannon Branch Fort/ VDHR #155-5020), three battlefields located 1.0 mile or closer to the Project (Manassas Station Operations/ VDHR# 076-5036, Second Manassas Battlefield/ VDHR #076-5190, and First Manassas Battlefield/ VDHR #076-5335), and zero additional properties that have been determined eligible or potentially eligible for listing in the NRHP that are located within 0.5 mile or closer of the Project.

As the Project area is located within the vicinity of the downtown/suburban area of Manassas, the Project and all of the resources are situated within a densely developed landscape. Field inspection, representative photographs, and photo simulation reveal that the Project area is screened from many vantage points in the vicinity by intervening development. Where longer vistas are possible and the Project area is visible, it is seen in conjunction with a variety of modern development and other infrastructure. The Project alignment is an extension of an existing transmission line and will border two additional transmission lines within a shared right-of-way. The proposed structures will be similar in height and design to the other existing structures in the area. As such, it is anticipated to be visible only from those vantage points where the other existing lines are already visible and screened from those vantage points where the existing lines cannot be seen. Therefore, the proposed Project will not introduce any substantially new or different qualities or features into the viewshed from any of the historic properties and will have no more than a minimal impact as defined by VDHR on any architectural resources that are designated an NHL, listed in the NRHP, or determined eligible or potentially eligible for listing. Please see the table below.

Architectural Resources Within or Adjacent to the Project Right-of-Way

VDHR #	Resource Name	VDHR/NRHP Status	Distance from Centerline of Project (miles)	Recommended Impact
076-5036	Manassas Station Operations Battlefield (Historic), Bristoe Station Battlefield (Historic), Bull Run Bridge (Historic), Kettle Run Battlefield (Historic), Union Mills (Historic)	DHR Staff: Potentially Eligible	Directly Crossed ~0- Miles	Minimal Impact
076-5190	Second Battle of Manassas (Historic/Current), Battle of Gainesville (Historic), Brawner's Farm (Historic), Groveton (Historic), Manassas Plains (Historic), Second Battle of Bull Run (Historic/Current)	DHR Staff: Potentially Eligible	~0.55 Mile	No Impact
076-5335	First Battle of Manassas (Historic), Brawner's Farm (Historic), First Battle of Bull Run (Historic), Gainesville (Historic), Groveton (Historic), Manassas Plains (Historic)	DHR Staff: Potentially Eligible	~0.65 Mile	No Impact
155-0010	Jennie Dean Memorial Site (Historic), Manassas Industrial School for Colored Youth (NRHP Listing)	NRHP Listing, VLR Listing	~0.75 Mile	Minimal Impact
155-5020	Cannon Branch Fort (Historic), The Wakeman Site (Historic)	NRHP Listing, VLR Listing	~0.10 Mile	No Impact

With regards to archaeological sites, there are no (zero) previously identified sites located within or adjacent to the Project area (within 100 feet of the Project centerline). As a result of previously conducted surveys, the entire Project area has been subject to Phase I cultural resources survey. It is Dutton's opinion that the Project will not impact any archaeological sites and no further consideration of archaeological resources is warranted.

The Company will coordinate with VDHR through review of the Stage I Pre-Application Analysis regarding these initial findings.

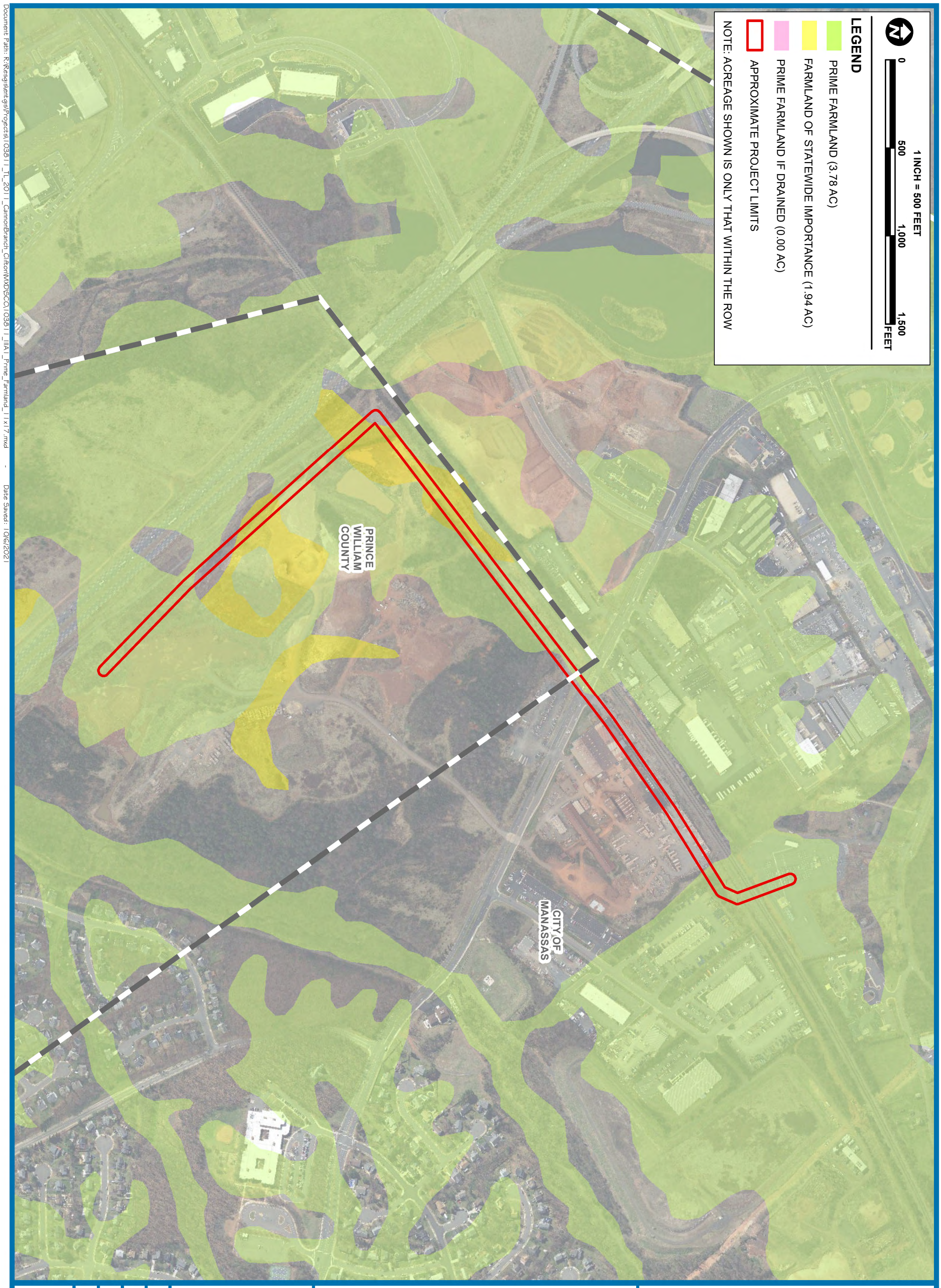
Wildlife

A search of the Department of Wildlife Resources ("DWR") public database identified several federal and state listed species that have the potential to occur within the project area. These resources are identified in the report included as Attachment 2.F.1 to the DEQ Supplement. The Company intends to reasonably minimize any impact on these species and coordinate with DWR as appropriate.

Dwellings

According to the Prince William County GIS data, there are no dwellings located within 500 feet of the centerline of the portion of the Project within Prince William County.

According to the City of Manassas GIS data, there are 43 dwellings located within 500 feet of the centerline of the portion of the Project within the City of Manassas, 13 dwellings located within 250 feet of the centerline of the Project, and 4 dwellings within 100 feet of the centerline of the Project.



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REVISIONS:
LC – 10/06/2021
LC – 09/23/2021
LC – 08/27/2021

DATE EXPORTED: 08/05/2021

JOB NUMBER: 103811

DRAWN: LC

PROJECT MANAGER: KB

TL #2011 EXTENSION FROM
CANNON BRANCH TO WINTERS BRANCH
APPLICANT: DOMINION ENERGY

PRIME FARMLAND MAP
III.A.1.

CITY OF MANASSAS AND PRINCE WILLIAM COUNTY, VIRGINIA

res
CORPORATE | 6575 WEST LOOP SOUTH, SUITE 300, BELLAIRE, TX 77401
P: 713.520.5400
www.res.us

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

B. Describe any public meetings the Applicant has had with neighborhood associations and/or officials of local, state or federal governments that would have an interest or responsibility with respect to the affected area or areas.

Response: In late November 2020, the Company launched an internet website (www.dominionenergy.com/cannonbranch) dedicated to an early iteration of the proposed Project and subsequently updated the project website in late summer 2021 as the project evolved to what is now the proposed Project. The website includes a description and benefits of the Project, an explanation of need, route map, renderings, project timeline, and information on the Commission review process

In December 2020, the Company sent project announcement mailers to approximately 400 property owners within 500 feet of the original project. This mailer detailed an early iteration of the project, which included the proposed Project in this application. The postcard provided a brief overview of the project and stated that the Company would continue to keep the community up to date as the project progressed. Please see Attachment III.B.1.

In November 2021, the Company sent an update to approximately 300 property owners within 1000 feet of the proposed Project noting that the proposed Project had changed from the Company's previous communications, what those changes were, and to invite the owners to attend a virtual community meeting and visit the updated Project website. Please see Attachment III.B.2.

Newspaper print advertisements (see Attachment III.B.3) regarding the proposed Project and virtual open house were placed the following newspapers in December 2021:

- Prince William Times – West and North (24,005 circulation)
  - Thursday, 12/2 Publication
  - Half Page Color Ad (9.44x6.75)
- Inside NOVA (25,000 circulation)
  - Thursday, 12/2 Publication
  - Half Page Color Ad (9.5x6.4)

In addition, digital and social media advertisements were placed in December 2021 to promote the virtual open house and push stakeholders to the Project website. The Company ran ads across Prince William County and the City of Manassas. Examples of these advertisements are included as Attachment III.B.4, and results of these ads are included as Attachment III.B.5.

The Company held a virtual open house on December 9, 2021, at 6:00 p.m. At the virtual open house, the Company provided details about the Project, the need, Project timing, and the Commission approval process. The presentation used

during the virtual open house is included as Attachment III.B.6. No participants attended the virtual open house; however, the event was recorded and posted to the Project website and post-event digital ads (see Attachment III.B.7) were placed to draw community members back to the Project website and to view the virtual open house recording. Please note that, at the time of this filing, metrics were not yet available.

In preparing for this Project, the Company researched the demographics of the surrounding communities using the 2021/2026 Esri Updated Demographic data, which includes current-year estimates and 5-year projections of U.S. demographic data. Esri develops the annual demographic datasets using a variety of sources, beginning with the latest base, then adding a mixture of administrative records and private sources to capture changes. This information revealed that there are 12 Census Block Groups that fall within a mile of the Project corridor. A review of ethnicity, income, age, and education census data identified populations within the study area that meet the U.S. Environmental Protection Agency threshold to be defined as Environmental Justice communities ("EJ Communities").

Pursuant to Va. Code §§ 56-46.1 C and 56-259 C, as well as Attachment 1 of these Guidelines, there is a strong preference for the use of existing utility right-of-way whenever feasible. The Project consists of the removal of an approximate 0.06-mile segment of the existing Line #2011 termination between Cannon Branch Substation and Structure #2011/68. The Project also includes the construction of a new approximately 1.05-mile segment of Line #2011 starting south of Cannon Branch Substation and terminating at Winters Branch Substation in a newly acquired, variable width right-of-way expansion, ranging in width from 60 to 120 feet, parallel to the existing, variable width right-of-way, ranging in width from 50 to 120 feet. The existing monopole structures within the existing right-of-way are at maximum capacity supporting both existing Lines #2195 and #2148. Impacts to neighboring properties have been minimized by utilizing areas adjacent to the existing transmission line right-of-way, the Norfolk Southern Railroad, and Prince William Parkway (SR 254), as well as using the same structure type (monopole), structure material (Cor Ten steel), and keeping structure heights similar, as the existing structures.

Additionally, the portion of the Project in Prince William County is located within the Data Center Opportunity Zone Overlay District. According to Section 32-509 of the Prince William County Code of Ordinances, the Data Center Opportunity Zone Overlay District was created for the purpose of promoting development of data centers within areas of the County where there is existing infrastructure that could adequately support the proposed use. This District continues the County's efforts to attract and advance high-tech industrial development while limiting negative impacts to communities. Accordingly, the proposed Project is needed to meet load requirements and serve future load growth in Prince William County, which will, in turn, facilitate development of data centers within the County. The proposed Line #2011 Extension is located on property that is currently utilized or under development for the operation/construction of industrial, commercial, and

substation facilities. Based on the analysis of the Project, the Company does not anticipate disproportionately high or adverse impacts to the surrounding community or the EJ Communities located within the study area, consistent with the Project design and requirements of the Virginia Code to reasonably minimize adverse impacts.

In addition to its evaluation of impacts, the Company has and will continue to engage the EJ Communities and others affected by the Project in a manner that allows them to meaningfully participate in the project development and approval process so that their views and input can be taken into consideration. A copy of the Company's Environmental Justice Policy is provided as Attachment III.B.8.

Electric Transmission
P.O. Box 26666
Richmond, VA 23261

Dominion Energy®

Actions Speak Louder

Investing in Our Communities

Local Powerline Project Information Enclosed

Dominion Energy image. Not project specific.

Dominion Energy®

Prince William Uprate and Extension Postcard_Nov 2020_folded.indd 1 11/20/20 10:24 AM

IMPORTANT

Local Powerline Project Information

Use your iPhone camera or the QR reader app on other smartphones to visit the project page on our website.

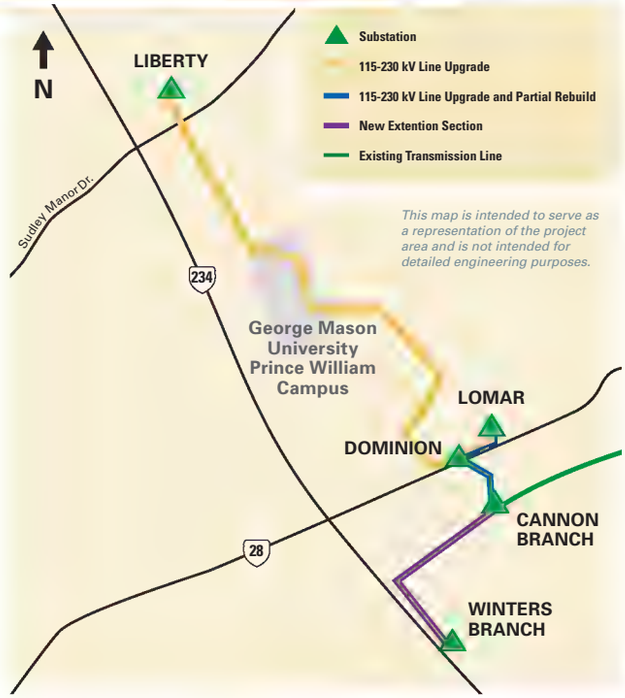
Liberty-Lomar 230 kV Upgrade and Cannon Branch-Winters Branch 230 kV Line Extension

AT DOMINION ENERGY, we are committed to providing safe, reliable, and affordable electric service to the communities we serve. You are receiving this postcard because we are currently preparing to upgrade two existing 115 kV electric transmission lines in Prince William County and the city of Manassas, Virginia to operate at 230 kV. In addition, we are building a new 230 kV transmission line between two existing substations. This project is necessary to help strengthen the bulk electricity grid and maintain reliable service for our customers.

Throughout the coming weeks, you may see our crews and contractors collecting information as we develop our plans before submitting the project to the Virginia State Corporation Commission (SCC) for approval.

In addition, we want to inform you that in the wake of ongoing public health concerns from the spread of the coronavirus, we are mindful of our activities and maintaining property owner interactions with the appropriate social distancing. The work we do is integral to maintaining grid reliability and our crews will continue to perform work as needed.

Thank you for your patience and understanding. We will continue to keep you updated as activities progress.



CONTACT US — **Visit our website at DominionEnergy.com/libertywinters for project updates. Or contact us by sending an email to powerline@dominionenergy.com or calling 888-291-0190.**

WHAT:

1. **Upgrade the existing 115 kV line that runs between our Liberty Substation and the city of Manassas' Lomar Substation to operate at 230 kV**
2. **Partially rebuild and upgrade the existing 115 kV line that runs between the City of Manassas' Lomar and Dominion Delivery Point substations and our Cannon Branch Substation to operate at 230 kV**
3. **Build a new 230 kV transmission line from our Cannon Branch Substation to our Winters Branch Substation**

WHY:

Planning studies are conducted to evaluate scenarios where the loss of electric transmission assets would result in an overload on the grid. This project proactively addresses the issues identified by these studies to maintain federal reliability standards and strengthen grid resiliency.

WHERE:

The project is located in Prince William County and Manassas, Virginia.

PROJECT TIMELINE

NOVEMBER – DECEMBER 2020
Complete initial public outreach and surveying activities

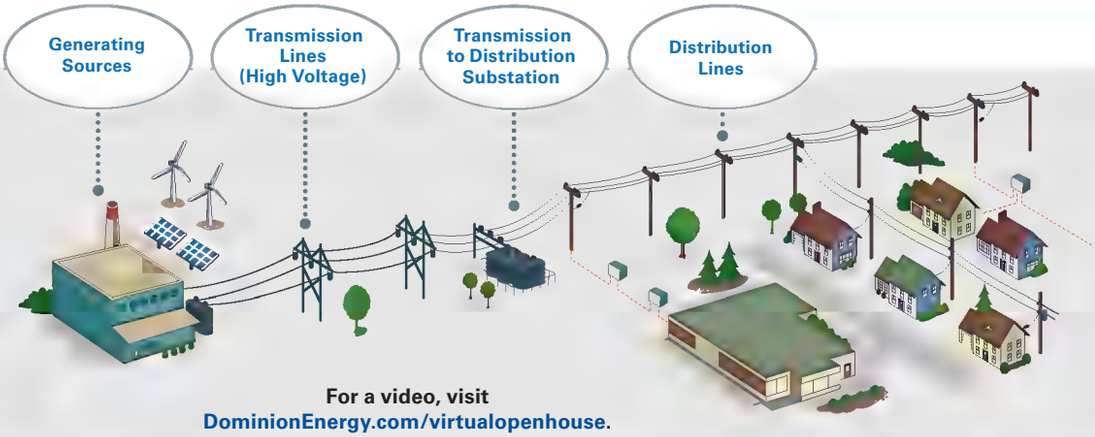
JANUARY 2021
Hold virtual community meeting

MARCH 2021
Submit application to SCC

JANUARY 2023
Proposed construction start date

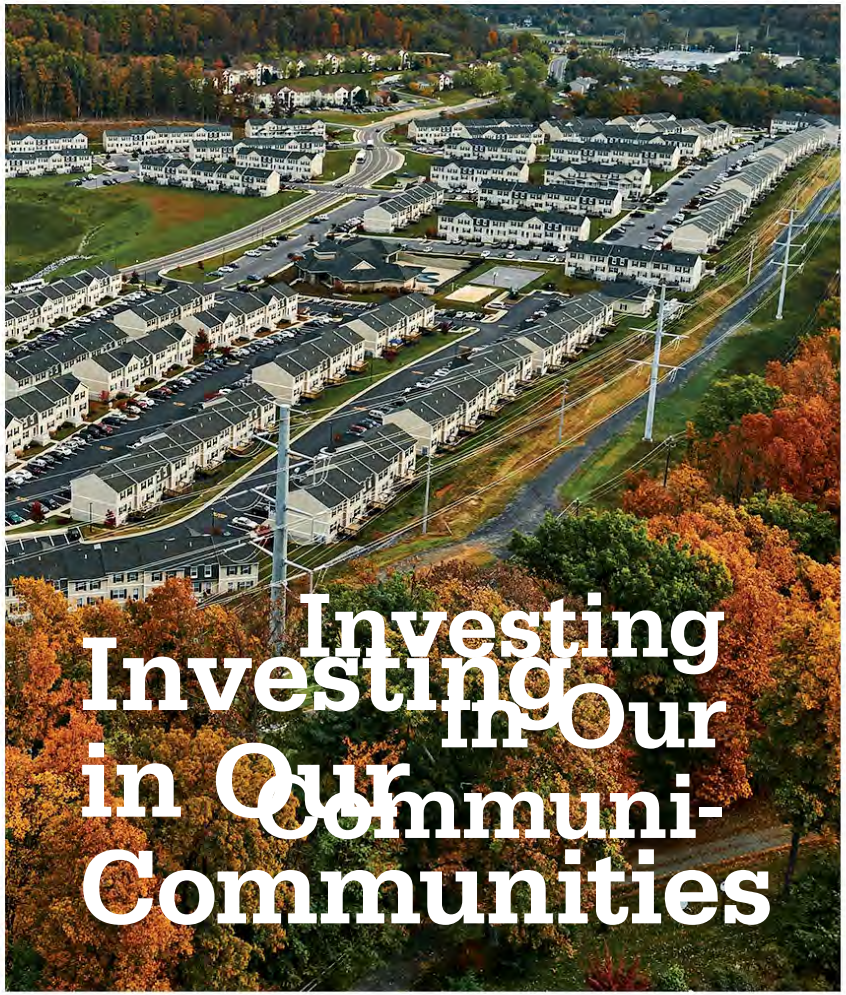
Delivering Clean, Safe, Affordable and Sustainable Energy

Transmission lines are the tall, high-voltage lines that carry electricity over long distances from power generation facilities to substations.



For a video, visit DominionEnergy.com/virtualopenhouse.

Prince William Uprate and Extension Postcard_Nov 2020_folded.indd 2 11/20/20 10:24 AM



Dominion Energy image. Not project specific.

Electric Transmission
P.O. Box 26666
Richmond, VA 23261

Dominion Energy®

Actions Speak Louder

YOU'RE INVITED TO A VIRTUAL COMMUNITY MEETING

DETAILS ENCLOSED

IMPORTANT

You're Invited to a Virtual Community Meeting

Use your iPhone camera or the QR reader app on other smartphones to visit the project page on our website.

Cannon Branch – Winters Branch 230 kV Transmission Line Project

AT DOMINION ENERGY, we are committed to staying connected with our customers and providing the latest information on work being done in the communities we serve.

You are receiving this postcard because we would like to invite you to our virtual community meeting for the new Cannon Branch - Winters Branch Electric Transmission Line Project in the City of Manassas and Prince William County. This project is needed to maintain reliable service for the overall growth in the area and to comply with mandatory reliability standards.

You can ask questions and interact with our team as they present important information about the project, including timelines, visual simulations and why this new infrastructure is needed.

You can access our virtual community meeting for free using a mobile device, computer or simply dial-in with your telephone. Please visit DominionEnergy.com/cannonbranch for details on how to access the meeting.

We are committed to safety and are mindful of our activities and maintaining proper social distancing. The work we do is integral to maintaining grid reliability and our crews will continue to perform work as needed to provide reliable energy.

CONTACT US

Visit our website at DominionEnergy.com/cannonbranch for project updates. Or contact us by calling 888-291-0190 or sending an email to powerline@dominionenergy.com.

At Dominion Energy, we know many of our customers are facing challenges due to the COVID-19 pandemic. We're here to help. In accordance with the law recently passed in Virginia, we're offering flexible payment arrangements up to 24 months. To set up a payment plan, or view additional assistance options, please visit DominionEnergy.com or call 1-866-366-4357.

VIRTUAL COMMUNITY MEETING

Live Via Webex Events

Thursday, December 9 • 6–7 p.m.

Join the meeting by visiting our website, DominionEnergy.com/cannonbranch.

A recording will be available on the project website after the meeting.

This map is intended to serve as a representation of the project area and is not intended for detailed engineering purposes.

Cannon Branch Winters Virtual Open House Postcard–Nov.2021.indd 2 11/5/21 2:34 PM

You are invited to our Virtual Community Meeting

Hear from project experts about new electric transmission infrastructure being built in the city of Manassas and Prince William County. This project will improve electric reliability for all customers in the region.

123

Use your phone's camera or QR reader app to visit the project page directly.

Join us live online on Thursday, December 9 at 6 p.m.

You can find event details at DominionEnergy.com/cannonbranch

Dominion Energy®

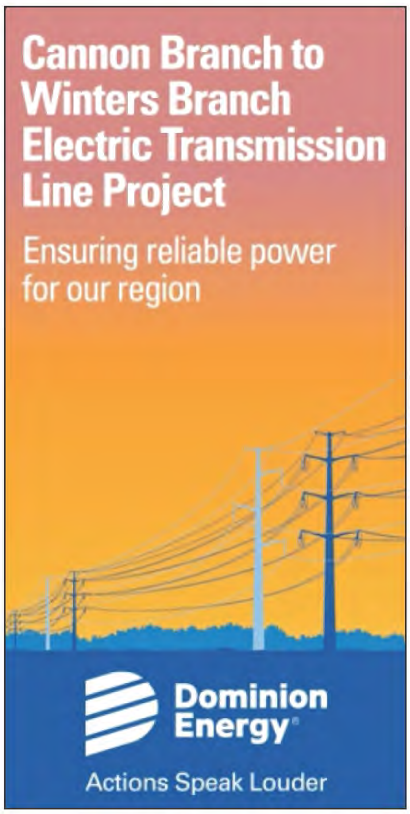
Actions Speak Louder

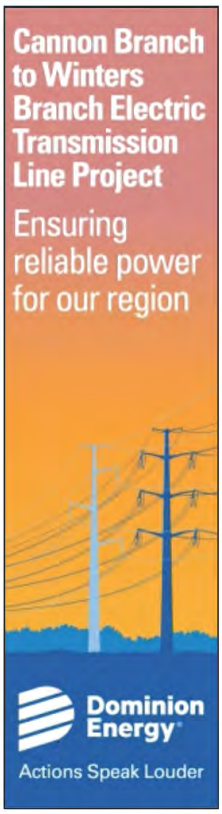
Attachment III.B.3

charles ryan associates

Dominion Energy
Electric Transmission

Winters Branch
Awareness Display





Dominion Energy Electric Transmission

Winters Branch
Nextdoor Imagery

Event Post Image:

Dominion Energy
Cannon Branch Transmission Line Project
dominion003803

Virtual Community Meeting – Pre-Event Copy

Pre-Event Social Copy

These ads will run beginning Thursday, December 2 and conclude Thursday, December 9 at 6 p.m. Each ad will feature a short video featuring event details and will link to the project page where event details are hosted.

Facebook:

V1 Message: Join us for a Virtual Community Meeting to learn about new electric transmission infrastructure being built near Prince William Parkway and Manassas Airport. The new transmission line will be built alongside an existing transmission corridor and will help maintain reliable service for our region.

Link Headline: Virtual Community Meeting

Link Description: December 9, 6-7 p.m.

Call to Action Button: Learn More

V2 Message: Curious about upcoming electrical infrastructure construction in the City of Manassas and Prince William County? Join us for a live Virtual Community Meeting.

Link Headline: Virtual Community Meeting

Link Description: December 9, 6-7 p.m.

Call to Action Button: Learn More

Twitter:

V1 Tweet: Join us for a Virtual Community Meeting to learn about new electric transmission infrastructure being built near Prince William Parkway and Manassas Airport. The new transmission line will be built alongside an existing transmission corridor and will help maintain reliable service for our region.

V2 Tweet: Curious about upcoming electrical infrastructure construction in the City of Manassas and Prince William County? Join us for a live Virtual Community Meeting.

Nextdoor:

Headline (Character Limit: 70)
Virtual Community Meeting

Body Text (Character Limit: 90)
Learn more about upcoming electrical infrastructure projects in Prince William County.

Offer Text (Character Limit: 50)
December 9, 6-7 p.m.

CTA
Learn More

Note: Character limits on the Nextdoor platform are restrictive. Please review before adding additional verbiage.

DET | Cannon Branch | 12/3/21 – 12/9/21 | Campaign Final

The Cannon Branch Pre-Event campaigns ran across Facebook, Twitter, and Nextdoor for the first phase. The majority of platforms performed above benchmark and provided education and awareness to Manassas residents that live within the project area.

343,992 impressions
of ads were delivered to target audiences.

2,992 link clicks
have taken audiences to the Cannon Branch landing page.

19,994 video views with 1,885 completions
Facebook earned the most completed views at 1,305.

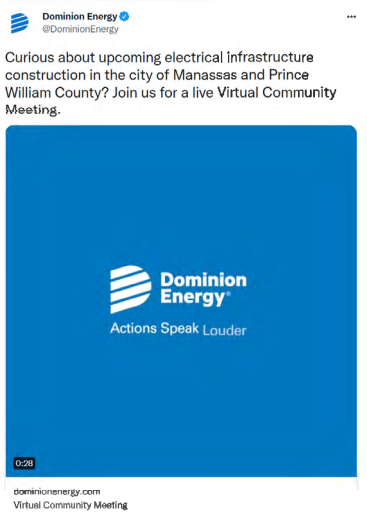
0%-634% above benchmarks
Twitter campaigns performed well in terms of CTR.

996 ad engagements
such as reactions, likes, comments, shares and saves were made on the ads.

**The campaigns were optimized to drive traffic to the website, which resulted in the lower Video Completion Rate (VCR).*

Notable Creative

Pre-Event Twitter ads earned an overall Link CTR of 7.89%. The V2 Pre-Event ad was the top-performing, earning 502 link clicks and a Link CTR of 8.12%.



Notable Insights

- Twitter was the top-performing platform, driving most of the link clicks to the website.
- Men 25-34 were the most engaged on Facebook with the content and drove the most clicks to the landing page.
- Nextdoor performed strong with a CTR nearly 150% higher than benchmark.

Facebook CTR Benchmark: 0.90% | Twitter CTR Benchmark: 1.11% | Google Display CTR Benchmark: 0.50% | Nextdoor CTR Benchmark: 0.15%

Welcome

Dominion Energy®

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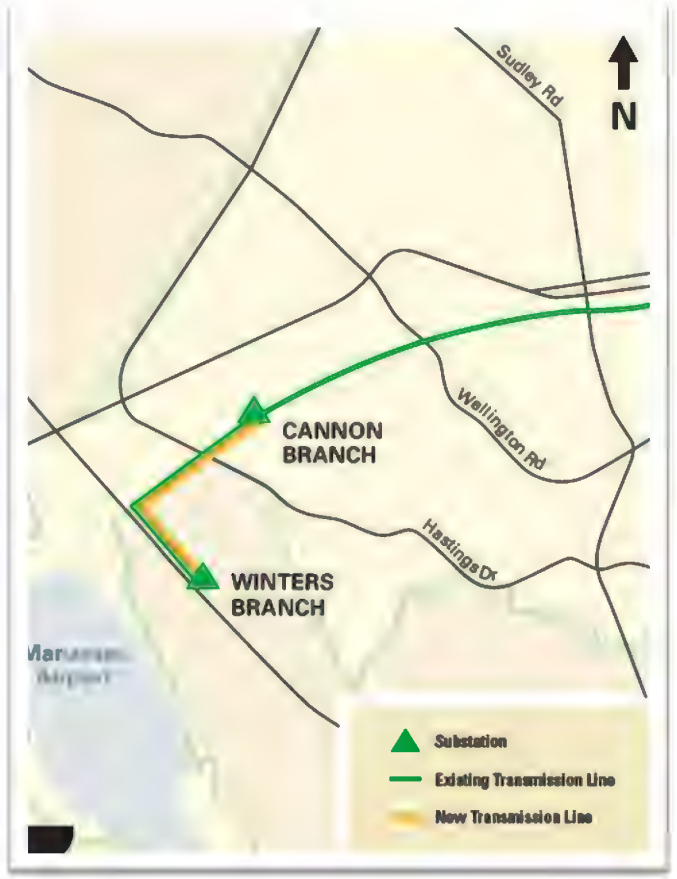
Cannon Branch – Winters Branch New 230 kV Electric Transmission Line Virtual Community Meeting

~~Virtual Community Meeting~~

Virtual Community Meeting

Dominion Energy®

Actions Speak Louder



Attachment III.B.6

Welcome

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Agenda

- Safety Message
- Meet the Team
- Public Engagement Process
- Project Overview: Need & Solution
- Q&A

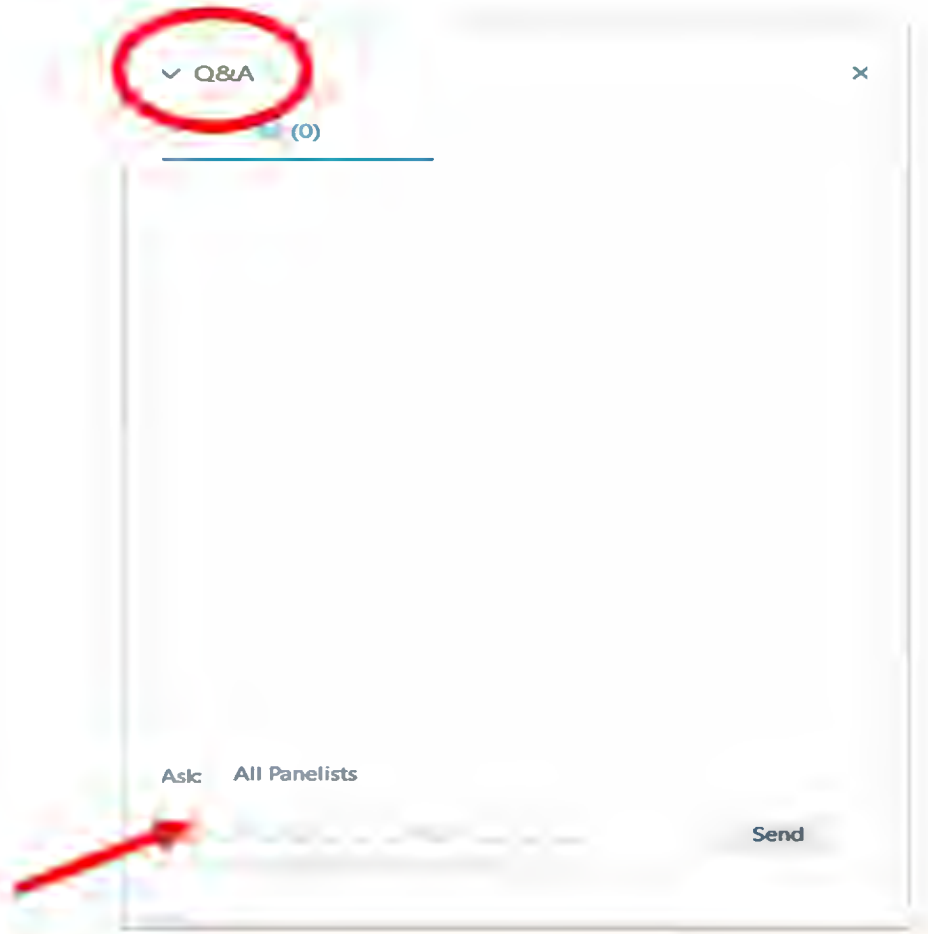
About Webex Events

- Your microphone will remain muted and video off throughout the presentation.
- This meeting will be recorded and posted on our website for those who are unable to attend.
- If you are having audio issues, please be sure you have selected “Use Computer Audio”.

Submitting Questions

- Submit questions through the Q&A at any time, select ‘All Panelists’.
- Questions will not be answered until we reach the Q&A session at the end of the presentation.
- If you have a specific question and would like us to follow up with you after the meeting, include your name, address, and preferred method of contact.

Thank you for your patience as we try to make this virtual meeting as engaging as possible!



Safety Moment – Winter

- Avoid carbon monoxide poisoning. Only use generators outdoors and away from windows. Never heat your home with a gas stovetop or oven.
- If possible, stay off roads during severe winter weather. If trapped in your car, then stay inside.
- Limit your time outside. If you need to go outside, then wear layers of warm clothing. Watch for signs of frostbite and hypothermia.
- Reduce the risk of a heart attack by avoiding overexertion when shoveling snow and walking in the snow.
- Visit www.ready.gov for more tips to stay safe!

Project Team – Tonight's Panelists

Patrick
Project Manager

Sherrill
Line Engineer

Harrison
Planning

James
Environmental

Craig
Permitting

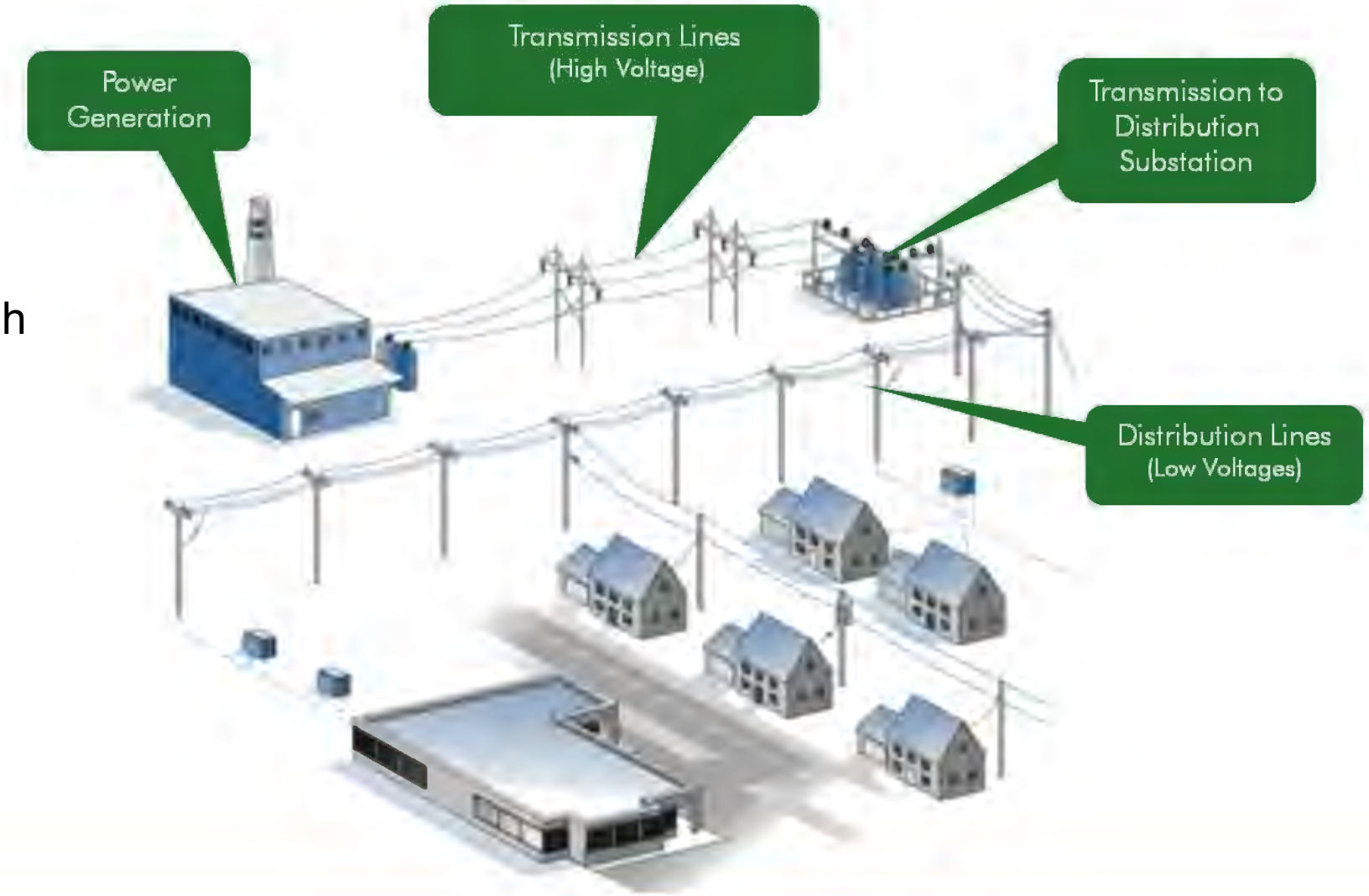
Greg
Host

Electric Transmission Lines 101

Electric transmission and electric distribution lines both carry electricity, but they look different and serve different functions.

Electric transmission lines are high voltage lines that carry electricity from our power stations to substations.

Once the transmission line reaches a substation, the voltage is lowered and delivered to your home or business via electric distribution lines.



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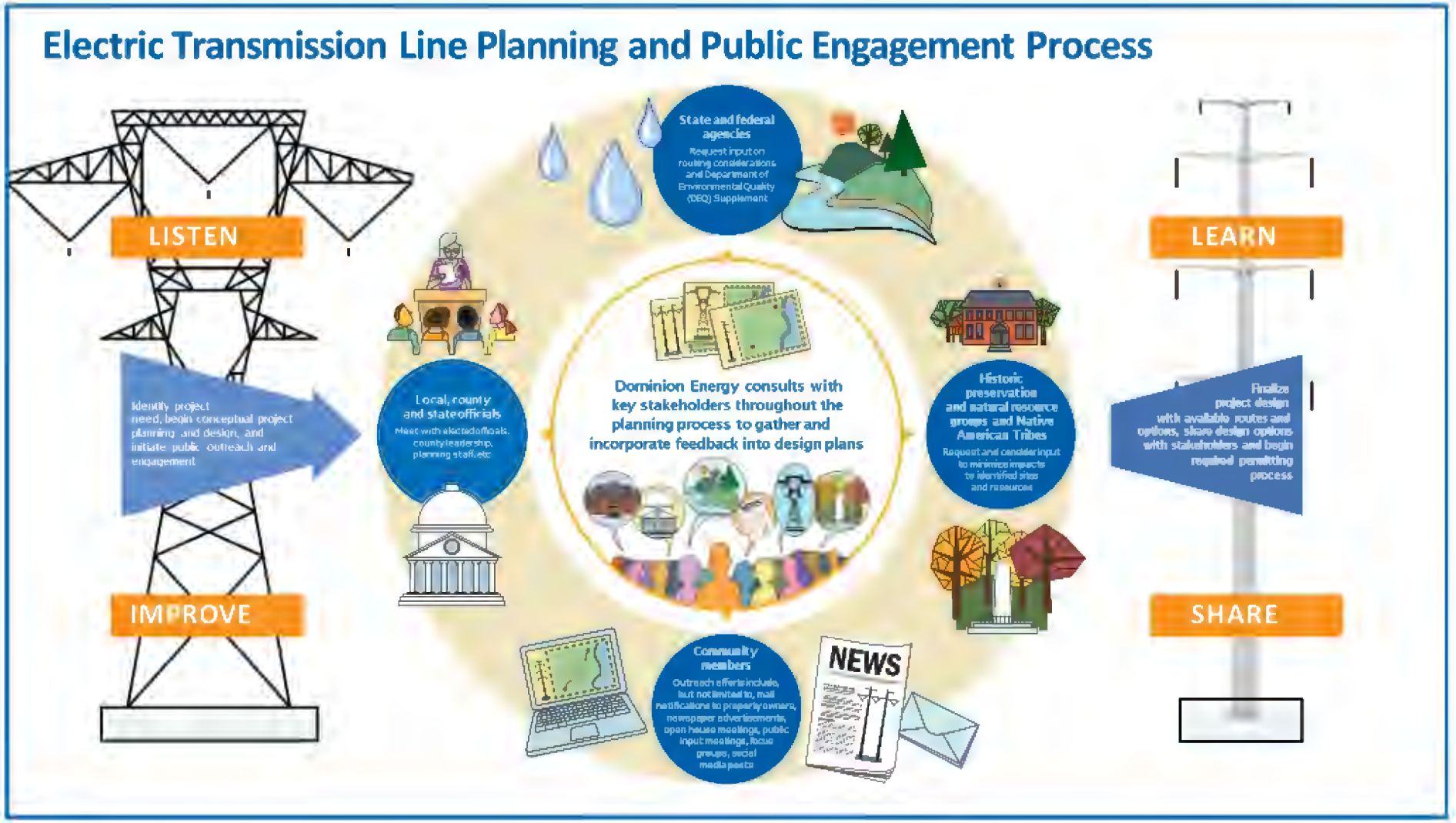
Public Engagement Process



Project Need

Forces Driving Infrastructure Need

- **Economic Growth**
- **Aging Power Grid Assets**
- **Addressing Mandatory NERC Criteria Standards**

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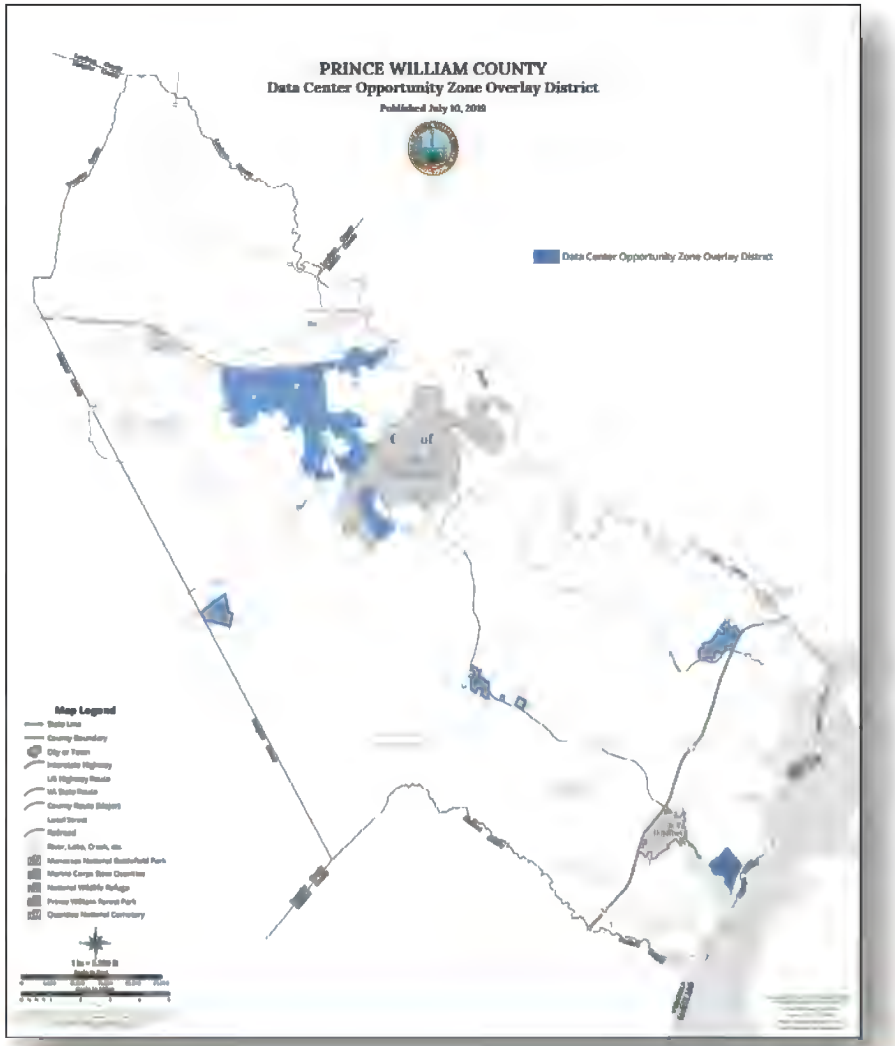


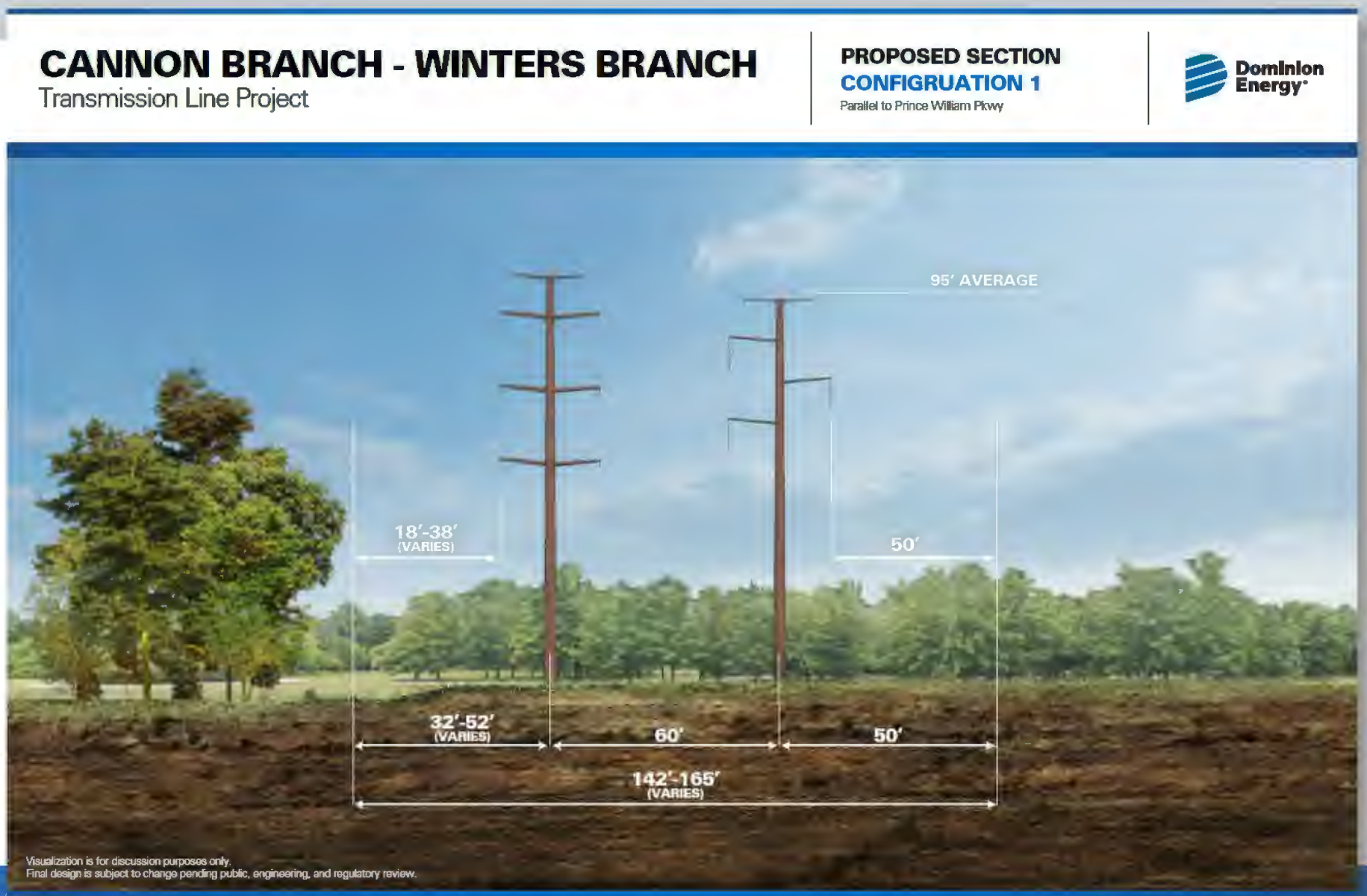
Project Scope

- **Within the City of Manassas and Prince William County**
- **1.05 miles of New electric transmission line**
- **Voltage:** 230,000 volts
- **Right of way needs:** variable width between 50 to 120 feet wide, parallel to existing double circuit transmission corridor
- **Structure type**: single circuit monopole

Project Map


1 INCH = 500 FEET
0
500
1,000
1,500
FEET
LEGEND
APPROXIMATE PROJECT LIMITS
EXISTING SUBSTATION
CANNON BRANCH SUBSTATION
Nokesville Rd
Godwin Dr
CITY OF MANASSAS
Prince William Pkwy
PRINCE WILLIAM COUNTY
Hastings Dr
WINTERS BRANCH SUBSTATION

Proposed Structure



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Proposed Structure

Existing View

Proposed View

Proposed Structure – Proposed View

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Project Timeline

December 2020	• Project announcement • Solicit input from cultural advocacy groups
Mid-2021	• Project scope evolved from original announcement • Public notice and invite to public meeting
December 2021	• Virtual community meeting
Late 2021	• File application with Virginia State Corporation Commission
Early 2023	• Pending permitting approvals, Begin construction
End 2023	• Complete construction (anticipated)

This schedule is subject to change based on weather, permitting, etc.

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Electric Transmission Line SCC Application Review Process

The Virginia State Corporation Commission (SCC) has regulatory authority over all energy providers in Virginia and requires certification for all transmission lines out of the ordinary course of doing business or are at or above 138 kilovolts (kV). Among other responsibilities, the SCC validates the need for a proposed line and approves the route and structures. In reviewing a proposed project, the SCC must consider whether potential impacts on scenic assets, historic districts and the environment have been reasonably minimized.

Dominion Energy notifies county and city officials of intent to file
Required pursuant Code of Virginia § 15.2-2202

Dominion Energy submits application to SCC
Includes full project details, including need, cost, routing options, potential impacts, etc.

Dominion Energy notifies electric cooperatives

SCC posts application for public review
Available at scc.virginia.gov

SCC issues procedural order
Case schedule is set; SCC invites public comments and formal participation in the case as a respondent

Department of Environmental Quality (DEQ) issues first report
Due within 60 days of application filing

Dominion Energy issues public notice
Notifies local officials, impacted landowners and the public

Interested parties can join case as respondents
Formal mechanism to join proceedings

Discovery begins
SCC Staff starts its review; SCC Staff, Dominion Energy and respondents may serve discovery

Public comment period opens
Submitted online or via mail

DEQ issues coordinated comments
Summary of recommendations from multiple state resource agencies to minimize impacts and for compliance with legal requirements

SCC conducts public hearings
Held in selected areas near the project

Respondents submit testimony

SCC Staff submits its report about the project

Dominion Energy submits rebuttal testimony
In response to DEQ summary, staff report and respondent testimony

Public comment period closes

SCC conducts formal evidentiary hearing
Testimony submitted and subject to cross examination by SCC Staff, Dominion Energy and respondents

SCC hearing examiner issues report of recommendation

Participants issue response
SCC Staff, Dominion Energy and respondents comment to hearing examiner's report

SCC issues final order
If approved, SCC issues a Certificate of Public Convenience and Necessity (CPCN) authorizing Dominion Energy to construct and operate the facilities

Dominion Energy pursues additional permits as needed
Local permits, U.S. Army Corps of Engineers, Federal Aviation Administration (FAA), etc.

Dominion Energy begins construction of facilities

Process could take as little as eight months to complete if uncontested, with more complex proceedings ranging from 12–24 months from start to finish

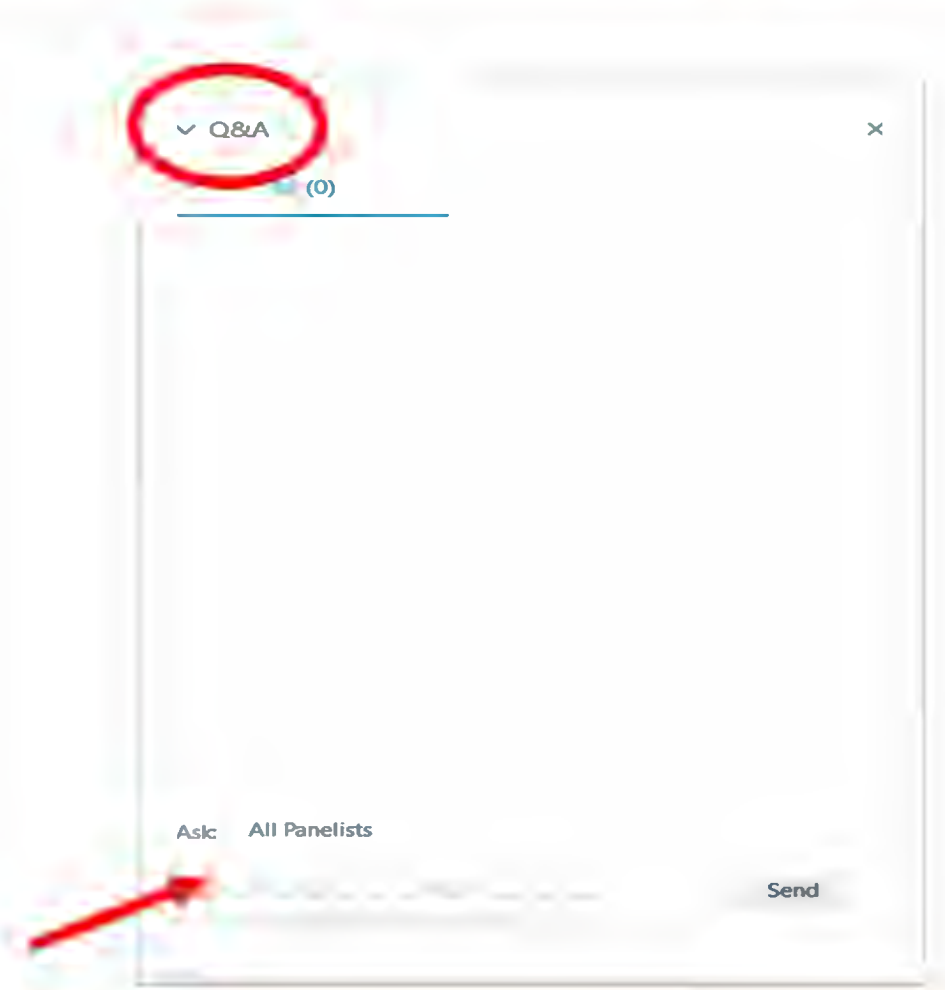
- Dominion Energy's Responsibility
- Public Involvement Touchpoints
- Procedural Steps
- Optional Step Determined by SCC

Q&A

- Submit questions through the Q&A at any time, select ‘All Panelists’.
- If you have a specific question and would like us to follow up with you after the meeting, include your name and preferred method of contact.

144

Thank you for your patience as we try to make this virtual meeting as engaging as possible!



What's Next?

- Keeping you informed on project updates.
- For questions throughout the project, including construction, send an email to **powerline@dominionenergy.com** or call **888-291-0190.**
- This meeting will be recorded and posted on our website for those who were unable to attend.
- For more information, please visit: **DominionEnergy.com/cannonbranch**

Thank you for joining!

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Dominion Energy
Cannon Branch Transmission Line Project
dominion003803

Virtual Community Meeting – Post-Event Copy

Pre-Event Social Copy

These ads will run beginning Tuesday, December 14 and conclude Monday, December 20. Each ad will feature a short video featuring event details and will link to the project page where the event recording is hosted.

Facebook:

V1 Message: We held a Virtual Community Meeting to update residents about new electric transmission infrastructure being built near Prince William Parkway and Manassas Airport. The new transmission line will be built alongside an existing transmission corridor and will help maintain reliable service for our region.

Link Headline: Virtual Community Meeting

Link Description: Watch the recording

Call to Action Button: Learn More

V2 Message: Curious about upcoming electrical infrastructure construction in the city of Manassas and Prince William County? Watch a recording of our recent Virtual Community Meeting.

Link Headline: Virtual Community Meeting

Link Description: Watch the recording

Call to Action Button: Learn More

Twitter:

V1 Tweet: We held a Virtual Community Meeting to update residents about new electric transmission infrastructure being built near Prince William Parkway and Manassas Airport. This project will help maintain reliable service for our region.

V2 Tweet: Curious about upcoming electrical infrastructure construction in the city of Manassas and Prince William County? Watch a recording of our recent Virtual Community Meeting.

Nextdoor:

Headline (Character Limit: 70)
Learn more about electrical infrastructure projects in your community

Body Text (Character Limit: 90)
Curious about upcoming electrical infrastructure projects in Prince William County?

Offer Text (Character Limit: 50)
Watch the recording

CTA
Learn More

Note: Character limits on the Nextdoor platform are restrictive. Please review before adding additional verbiage.

Watch a recording of our recent

Virtual Community Meeting

Environmental Justice: Ongoing Commitment to Our Communities

At Dominion Energy, we are committed to providing reliable, affordable, clean energy in accordance with our values of safety, ethics, excellence, embrace change and team work. This includes listening to and learning all we can from the communities we are privileged to serve.

Our values also recognize that environmental justice considerations must be part of our everyday decisions, community outreach and evaluations as we move forward with projects to modernize the generation and delivery of energy.

To that end, communities should have a meaningful voice in our planning and development process, regardless of race, color, national origin, or income. Our neighbors should have early and continuing opportunities to work with us. We pledge to undertake collaborative efforts to work to resolve issues. We will advance purposeful inclusion to ensure a diversity of views in our public engagement processes.

Dominion Energy will be guided in meeting environmental justice expectations of fair treatment and sincere involvement by being inclusive, understanding, dedicated to finding solutions, and effectively communicating with our customers and our neighbors. We pledge to be a positive catalyst in our communities.

November 2018

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 Company's review of the proposed transmission line corridor, it identified approximately one (1) unauthorized encroachment within the right-of-way. The encroachment will need to be addressed with the respective property owner as the Company continues to investigate the right-of-way.

In support of the proposed Project, the Company will be reviewing the entire corridor width prior to construction and plans to address unauthorized encroachments and easement violations, as appropriate. The proposed right-of-way expansion for the approximate 1.05-mile new segment of Line #2011 will require the demolition of one building currently owned by DRT and leased to Glen Cery Corporation. The building is currently utilized by Glen Cery Corporation as a brick and stone manufacturing plant and is located approximately 0.10 mile south of the existing Cannon Branch Substation at 9905 Godwin Drive in Manassas, Virginia.

See Section II.A.7 and Attachment II.A.7 for additional information.

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 approximate 1.05-mile new segment of Line #2011 will be constructed within a newly acquired, variable width right-of-way expansion, ranging in width from 50 to 120 feet, that parallels the existing variable width right-of-way, ranging in width from 60 to 120 feet, containing monopole structures with the double circuit 230 kV Lines #2195 and #2148. The proposed right-of-way expansion will parallel the existing right-of-way to the south from Structure #2011/68 to Structure #2011/74 and to the east from Structure #2011/74 to Winters Branch Substation. The easements for Lines #2195 and #2148 were acquired in September 2012.

The proposed Project contains multiple segments that will parallel existing utility lines, railroad tracks and/or highways:

- The approximate 0.06-mile segment of Line #2011 planned for removal from Cannon Branch Substation to existing Structure #2011/68 perpendicularly intersects the existing Norfolk Southern Railroad. The easement containing Structure #2011/68, located southeast of Cannon Branch Substation, was acquired by condemnation in April 1995. The Cannon Branch Substation fee owned property was acquired in three parts: December 1958, September 1966, and February 2011.

- The existing variable width right-of-way containing Lines #2195 and #2148 directly parallels the Norfolk Southern Railroad to the south and Prince William Parkway (SR 234) to the east.

- The new approximate 1.05-mile segment of Line #2011 will parallel Lines #2195 and #2148 to the south along the Norfolk Southern Railroad for approximately 0.65 mile and to the east along Prince William Parkway (SR 234) for approximately 0.40 mile.

- An existing sanitary sewer line and associated 30-foot-wide easement maintained by Prince William County intersects and parallels the Line #2011 Extension within the proposed right-of-way expansion between Structures #2011/74 to #2011/76.

- An existing sanitary sewer line and associated 20-foot-wide easement maintained by Prince William County, which parallels the southern side of Godwin Drive, perpendicularly intersects the proposed Line #2011 Extension between Structure #2011/72 and Godwin Drive.

- A privately-owned, existing gas line and associated 30-foot-wide easement, which parallels the southern side of the Norfolk Southern Railroad, is collocated within the existing variable width right-of-way containing Lines #2148 and #2195 and intersects the proposed Partial Line #2011 Removal near existing Structure #2011/68.

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 Adopted 2040 Comprehensive Plan* for the City of Manassas, and *The Comprehensive Plan* (2017) for Prince William County to evaluate the potential effect the Project could have future development.

The placement and construction of the electric transmission lines is not addressed within *The Adopted 2040 Comprehensive Plan* for the City of Manassas or *The Comprehensive Plan* (2017) for Prince William County; however, due to the scope and the placement of the proposed Project, the Project is not expected to impact either locality or future land use. Visual impacts to neighboring properties have been minimized by utilizing areas adjacent to an existing transmission line right-of-way, the Norfolk Southern Railroad, and Prince William Parkway (SR 254).

Additionally, the portion of the Project in Prince William County is located within the Data Center Opportunity Zone Overlay District. According to Section 32-509 of the Prince William County Code of Ordinances, the Data Center Opportunity Zone Overlay District was created for the purpose of promoting development of data centers within areas of the County where there is existing infrastructure that could adequately support the proposed use. This District continues the County's efforts to attract and advance high-tech industrial development while limiting negative impacts to communities. Accordingly, the proposed Project is needed to meet load requirements and serve future load growth in Prince William County, which will, in turn, facilitate development of data centers within the County.

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: 1. The proposed Project right-of-way crosses approximately 2.06 acres of farmland of statewide importance and approximately 5.56 acres of prime farmland.

2. a. See Attachment III.A.1. As depicted on the Attachment, a small number of segments of the proposed Project right-of-way are currently in areas designated as prime farmland. While proposed Project activities in these areas encompass new construction, the majority of these areas have been previously disturbed or developed. Therefore, the proposed Project is not expected to impact agricultural land.

b. No alternatives were evaluated, as the areas were previously disturbed.

c. No alternatives were evaluated, as the areas were previously disturbed; therefore, avoidance and minimization is not required.

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. No resources listed in the NRHP were identified within the Project right-of-way. One property listed in the NRHP (Cannon Branch Fort/ VDHR #155-5020) is located approximately 0.10-mile southwest of the right-of-way, as shown on Attachment II.A.6. Please see Section II.A.6.

2. Review of the VDHR VCRIS inventory records revealed a total of 171 previously recorded architectural resources are located within 1.5 mile of the proposed Project. Of these, there are no (0) NHLs located within 1.5 mile of the proposed Project, a total of two properties listed in the NRHP (Jennie Dean Memorial Site/ VDHR# 155-0010 and Cannon Branch Fort/ VDHR #155-5020), three battlefields located within 1.0 mile or closer of the Project (Manassas Station Operations/ VDHR# 076-5036,Second Manassas Battlefield/ VDHR #076-5190, and First Manassas Battlefield/ VDHR #076-5335), and no additional properties that have been determined eligible or potentially eligible for listing in the NRHP within 0.5 mile or closer of the Project. Of these, one battlefield is located directly within or crossed by the Project area. One of the NRHP-listed resources, the Cannon Branch Fort is also under a Historic Preservation Easement with the VDHR. Please see Section III.A.

3. None.

4. The VDHR VCRIS records reveal there are thirty previously recorded archaeological sites within one mile of the Project area, none of which are located within or adjacent to the Project area (within 100 feet of the Project centerline).

5. None.

6. None.

7. The Company requested comments from the Virginia Department of Conservation and Recreation ("DCR") Department of Natural Heritage regarding the Proposed Project on October 20, 2021. See Attachment 2.F.4 of the DEQ Supplement.

8. None.

9. No conservation easements are located within the approximate 1.05-mile new segment of Line #2011; however, one Historic Preservation Easement associated with the Cannon Branch Fort (VDHR# 155-5020) is located within 500 feet of the proposed right-of-way expansion, as shown on Attachment II.A.6. Please see Section II.A.6.

10. None.

11. None.

12. Other than those listed in items 1 through 11, the right-of-way for the proposed approximate 1.05-mile new segment of Line #2011 does not cross any federal or state parks or forests, game preserves, or Wildlife Management Areas.

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 FAA's website (https://oeaaa.faa.gov/oeaaa/external/portal.jsp) was reviewed to identify airports within 10 miles of the proposed Project. Based on this review, one FAA-restricted airport was identified:

- Manassas Regional Airport, approximately 0.35 mile southwest of Winters Branch Substation

In an email dated November 2, 2021, the Company solicited comments from the Virginia Department of Aviation ("DOAv") regarding the proposed Project. In an email dated November 4, 2021, the DOAv stated that, due to the proximity of the proposed project to the Manassas Regional Airport, a Form 7460 must be submitted to the Federal Aviation Administration ("FAA") to determine if the Project constitutes a hazard to air navigation. This email is included as Attachment 2.N.1 to the DEQ Supplement. The Company will file Form 7460 with the FAA as requested.

Seven private helipads and seven private airports are located within 10 miles of the line. The Company will work with the private entities as appropriate.

See also Section 2.N of the DEQ Supplement.

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 Project right-of-way does not cross any scenic Virginia byways. The acquisition of areas parallel to existing right-of-way minimizes permanent incremental impacts at road crossings.

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

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

Response: As described in detail in Sections III.B and V.D of the Appendix, the Company solicited feedback from Prince William County and the City of Manassas regarding the proposed Project. Below is a list of coordination that has occurred with municipal, state, and federal agencies:

- A wetland delineation has been completed for the Project and a request for Preliminary Jurisdictional Determination has been submitted to the Corps (June 18, 2021).

- Coordination with the Corps, DEQ, and the VDOT will take place as appropriate to obtain necessary approvals for the proposed Project.

- Letters dated November 2, 2021, were submitted to Prince William County and the City of Manassas to describe the Project and request comment. See Section V.D.

- A letter was submitted to the agencies listed in Section V.C on December 4, 2020, describing the proposed Project and requesting comment. See Attachment 2 to the DEQ Supplement.

- A Stage 1 Pre-Application Analysis has been prepared and was submitted to VHDR in December 2021. See Attachment 2.H.1 to the DEQ Supplement.

- As part of the Project, the Company solicited comments via letter sent on December 2, 2020, describing the original iteration of the Project from several federally-recognized Native American Tribes, including:

    - 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
    - Upper Mattaponi Indian tribe
    - Catawba Indian Nation
    - Delaware Nation

A template letter and project overview map are provided as Attachment III.J.1. Two responses to the aforementioned letter correspondence are attached as Attachment III.J.2.

Subsequently, the Company updated Native American Tribes on November 16, 2021, regarding the change in scope for the proposed Project. Please see Attachment III.J.3 for this notice update.

See also Sections III.B, III.K, and V.D of this Appendix, and the DEQ Supplement.

Dominion Energy Virginia
Electric Transmission
P.O. Box 26666, Richmond, VA 23261-6666
DominionEnergy.com

Dec. 2, 2020

Line 172 and 197 Upgrade and Cannon Branch-Winters Branch Line Extension

Dear_____ _____[insert name]:

At Dominion Energy, we are dedicated to maintaining reliable electric service 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 upcoming electric transmission project in Prince William County and the city of Manassas, Virginia to maintain compliance with federal reliability standards.

This project involves upgrading two 115 kV electric transmission lines to operate at 230 kV and building a new 230 kV transmission line between two existing substations. The Liberty-Lomar line upgrade primarily involves replacing the conductor wire. The Lomar-Cannon Branch line upgrade involves partially rebuilding a section of the line and wholly replacing the conductor wire. Additionally, we plan to build a new 230 kV transmission line between Cannon Branch and Winters Branch substations. The proposed route utilizes an existing right of way corridor which needs to be expanded to accommodate the new line.

We are currently in the conceptual phase and are seeking input prior to submitting an application with the Virginia State Corporation Commission (SCC) in spring 2021. 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 Jan. 8, 2021, so we have adequate time to 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 coronavirus, we do not plan to host an in-person community event at this time. In lieu of our traditional open house, we will host a virtual community meeting early in 2021. Please visit the project webpage at DominionEnergy.com/libertywinters for meeting updates and project information.

If you would like additional information, have any questions, or would like to set up a meeting to discuss the project, please do not hesitate to contact us by sending an email to Maxwell.S.Payeur@dominionenergy.com or calling 804-201-8145. You may also contact Tribal Relations Manager Ken Custalow by sending an email to Ken.Custalow@dominionenergy.com or calling 804-837-2067.

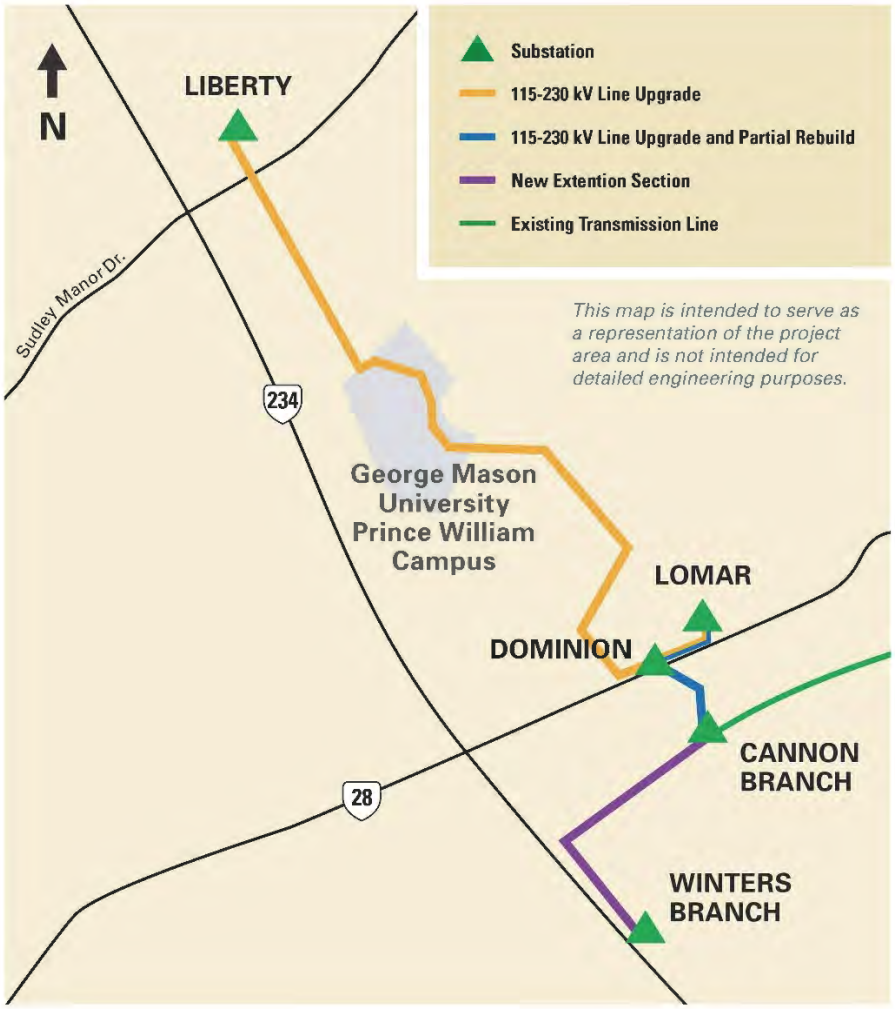
Sincerely,

Maxwell Payeur
Communications Specialist
The Electric Transmission Project Team

[Enclosure: Project Overview Map]

Liberty-Winters Branch 230 kV Line Upgrades and Line Extension

Prince William County & Manassas, Virginia



For more information on this project, please visit our project webpage at DominionEnergy.com/libertywinters. You may also contact us by sending an email to powerline@dominionenergy.com or calling 888-291-0190.

Dominion Energy®

PAMUNKEY INDIAN TRIBE

Terry Clouthier
Cultural Resource Director

TRIBAL GOVERNMENT
Tribal Office

1054 Pocahontas Trail
King William, VA 23086

(804) 843-2109
FAX (866) 422-3387

THPO File Number: 2021-312

Date: 12/30/2020

Maxwell Payeur
Communications Specialist
The Electric Transmission Team
Dominion Energy Virginia
Electric Transmission
PO Box 26666
Richmond, Virginia. 23261

RE: Proposed Line 172 and 197 Upgrade and Cannon Branch-Winters Branch Line Extension, City of Manassas and Prince William County, Virginia

Dear Mr. Payeur,

Thank you for contacting the Pamunkey Indian Tribe regarding the proposed plans for the Line 172 and 197 Upgrade and Cannon Branch-Winters Branch Line Extension in the City of Manassas and Prince William County, Virginia. My office offers the following comments regarding the proposed project.

My office would like to be a consulting party for this proposed undertaking.

What efforts are being planned to take into account any known historic properties that may be affected by the undertaking? What efforts are being undertaken to account for any unknown historic properties which may be affected by the proposed undertaking?

My office recommends that a cultural resource survey be initiated at all areas where ground disturbing activities will occur prior to any ground disturbing activities and that the results of the surveys be provided to my office prior to the actual disturbance so that proper consultation can occur. The only locations that should not be subject to survey are areas where an acceptable cultural resource survey has previously been performed or where topography is in excess of 15% slope or standing water.

Thank you for considering our cultural heritage in your decision-making process.

If you have any questions feel free to email me at terry.clouthier@pamunkey.org

Sincerely,

MONACAN INDIAN NATION

12/7/2020

Dominion Energy Virginia
Ken Custalow
PO Box 26666
Richmond, VA 23261

RE: Request for Consulting Party Status on Lines 172 & 197 Upgrades Project (Manassas, VA)

Dear Mr. Custalow,

Thank you for contacting us regarding the proposed project in Prince William County, VA.

The Monacan Indian Nation is a federally recognized sovereign tribe, headquartered on Bear Mountain in Amherst County. Citizens of the Nation are descended from Virginia and North Carolina Eastern Siouan cultural and linguistic groups, and our ancestral territory includes Virginia west of the fall line of the rivers, sections of southeastern West Virginia, and portions of northern North Carolina. At this time, the active Monacan consultation areas include:

Virginia: Albemarle, Alleghany, Amherst, Appomattox, Augusta, Bath, Bedford, Bland, Buchanan, Buckingham, Campbell, Carroll, Charlotte, Clarke, Craig, Culpepper, Cumberland, Dickenson, Floyd, Fluvanna, Franklin, Frederick, Giles, Goochland, Grayson, Greene, Halifax, Henry, Highland, Lee, Loudoun, Louisa, Madison, Mecklenburg, Montgomery, Nelson, Orange, Page, Patrick, Pittsylvania, Powhatan, Prince Edward, Pulaski, Rappahannock, Roanoke, Rockbridge, Rockingham, Russell, Scott, Shenandoah, Smyth, Tazewell, Warren, Washington, Wise, and Wythe Counties, and all contiguous cities.

West Virginia: Greenbrier, Mercer, Monroe, Pendleton, Pocahontas, and Summers Counties.

North Carolina: Alamance, Caswell, Granville, Orange, Person, Rockingham, Vance, and Warren Counties.

At this time, the Nation does not wish to actively participate in this consultation project, because:

X	This project is outside our ancestral territory
	The project's impacts are anticipated to be minimal
	The project is more closely related to _____, which should be contacted to participate in consultation
	The tribal office does not currently have the capacity to participate in this project
	Other:

However, the Nation requests to be contacted if:

P. O. Box 960, Amherst, VA 24521
(434) 363-4864 TribalOffice@MonacanNation.com

- Sites associated with native history may be impacted by this project;
- Adverse effects associated with this project are identified;
- Human remains are encountered during this project;
- Unanticipated native cultural remains are encountered during this project;
- Other tribes consulting on this project cease consultation; or
- The project size or scope becomes larger or more potentially destructive than currently described.

Please do not make any assumptions about future consultation interests based on this decision, as priorities and information may change. We request that you send any future consultation communications in electronic form to TribalOffice@MonacanNation.com AND hard copy to PO Box 960, Amherst, VA 24521. We appreciate your outreach to the Monacan Indian Nation and look forward to working with you in the future.

Respectfully,

Chief Kenneth Branham
Monacan Indian Nation

From:	Gregory E Mathe (DEV Trans Distribution - 1)
To:	"ekostelny@preservationvirginia.org"; "tgilmore@civilwar.org"; "jcampi@civilwar.org"; "mhokit@battlefields.org"; "steven_williams@nps.gov"; "eebreen@yahoo.com"; "leighton.powell@scenicvirginia.org"; "alex@macjamlaw.com"; "echang@savingplaces.org"; "dholmes@pecva.org"; "clnewby-alexander@nsu.edu"; "roger.kirchen@dhr.virginia.gov"; "Adrienne.Birge-Wilson@dhr.virginia.gov"; David Dutton; "wdbrowniii@aol.com"; "marywilkerson12@gmail.com"; "stephenradkins@aol.com"; "regstew007@gmail.com"; "wasandson@cox.net"; "jessica.phillips@cit-ed.org"; "mcustalow@gcaservices.com"; "mnation538@aol.com"; "earllbass@gmail.com"; "chief@nansemond.org"; "keithfanders@gmail.com"; "assistantchief@nansemond.org"; "allstonfam@aol.com"; "egroach@gmail.com"; "pamunkeytribe@pamunkey.org"; "rgray58@hughes.net"; "alatkins@email.wm.edu"; "raellinger@verizon.net"; "chiefannerich@aol.com"; "thunderhawk74@outlook.com"; "wfrankadams@verizon.net"
Cc:	Brendon E Shaw (Services - 6) (Brendon.E.Shaw@dominionenergy.com); Ken Custalow (Services - 6) (ken.custalow@dominionenergy.com); Stephen S Precker (DEV Trans Distribution - 1)
Subject:	Cannon Branch - Winters Branch Electric Transmission Project
Date:	Tuesday, November 16, 2021 4:24:00 PM
Attachments:	Cannon Branch Winters Virtual Open House Postcard–Nov.2021_FINAL.pdf Dom-WintersBranch_Boards_V3.pdf

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In December 2020, Max Payeur sent you a letter regarding a project in Prince William County involving the upgrade of Lines 172 and 197 (Liberty – Lomar and Lomar – Cannon Branch) and a new line between our Cannon Branch and Winters Branch substations. Since that time, the project scope and timing has changed.

Later this year, we will be filing with the Virginia State Corporation Commission just the new transmission line between our Cannon Branch and Winters Branch substations. We will be holding a virtual community meeting December 9 from 6 -7pm if you are interested in learning more.

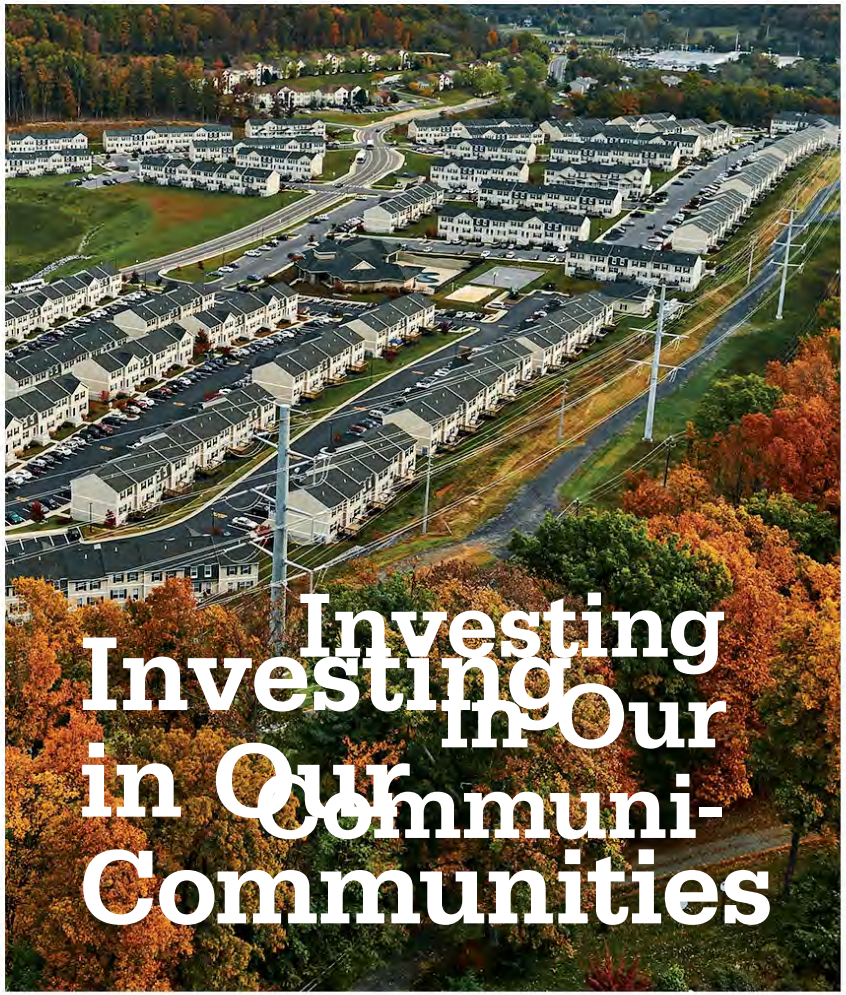
In the meantime, please see attached our postcard to the community, as well as a few project graphics. Other project information can be found online: DominionEnergy.com/cannonbranch

If you have any questions, please let us know.

Thank you,

Greg

Greg Mathe
Electric Transmission Communications
Dominion Energy
804-229-7650



Dominion Energy image. Not project specific.

Electric Transmission
P.O. Box 26666
Richmond, VA 23261

Dominion Energy®

Actions Speak Louder

YOU'RE INVITED TO A VIRTUAL COMMUNITY MEETING

DETAILS ENCLOSED

IMPORTANT

You're Invited to a Virtual Community Meeting

Use your iPhone camera or the QR reader app on other smartphones to visit the project page on our website.

Cannon Branch – Winters Branch 230 kV Transmission Line Project

AT DOMINION ENERGY, we are committed to staying connected with our customers and providing the latest information on work being done in the communities we serve.

You are receiving this postcard because we would like to invite you to our virtual community meeting for the new Cannon Branch - Winters Branch Electric Transmission Line Project in the City of Manassas and Prince William County. This project is needed to maintain reliable service for the overall growth in the area and to comply with mandatory reliability standards.

You can ask questions and interact with our team as they present important information about the project, including timelines, visual simulations and why this new infrastructure is needed.

You can access our virtual community meeting for free using a mobile device, computer or simply dial-in with your telephone. Please visit DominionEnergy.com/cannonbranch for details on how to access the meeting.

We are committed to safety and are mindful of our activities and maintaining proper social distancing. The work we do is integral to maintaining grid reliability and our crews will continue to perform work as needed to provide reliable energy.

CONTACT US

Visit our website at DominionEnergy.com/cannonbranch for project updates. Or contact us by calling 888-291-0190 or sending an email to powerline@dominionenergy.com.

At Dominion Energy, we know many of our customers are facing challenges due to the COVID-19 pandemic. We're here to help. In accordance with the law recently passed in Virginia, we're offering flexible payment arrangements up to 24 months. To set up a payment plan, or view additional assistance options, please visit DominionEnergy.com or call 1-866-366-4357.

VIRTUAL COMMUNITY MEETING

Live Via Webex Events

Thursday, December 9 • 6–7 p.m.

Join the meeting by visiting our website, DominionEnergy.com/cannonbranch.

A recording will be available on the project website after the meeting.

This map is intended to serve as a representation of the project area and is not intended for detailed engineering purposes.

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CANNON BRANCH - WINTERS BRANCH

Transmission Line Project

EXISTING TRANSMISSION LINE

NEW TRANSMISSION LINE

SUBSTATION

Dominion Energy®

CANNON BRANCH - WINTERS BRANCH

Transmission Line Project

PERSPECTIVE RENDERING

EXISTING CONDITIONS

View looking north from Prince William Pkwy

Dominion Energy®

Visualization is for discussion purposes only.
Final design is subject to change pending public, engineering, and regulatory review.

CANNON BRANCH - WINTERS BRANCH

Transmission Line Project

PERSPECTIVE RENDERING

PROPOSED CONDITIONS

View looking north from Prince William Pkwy

Dominion Energy®

Visualization is for discussion purposes only.
Final design is subject to change pending public, engineering, and regulatory review.

CANNON BRANCH - WINTERS BRANCH

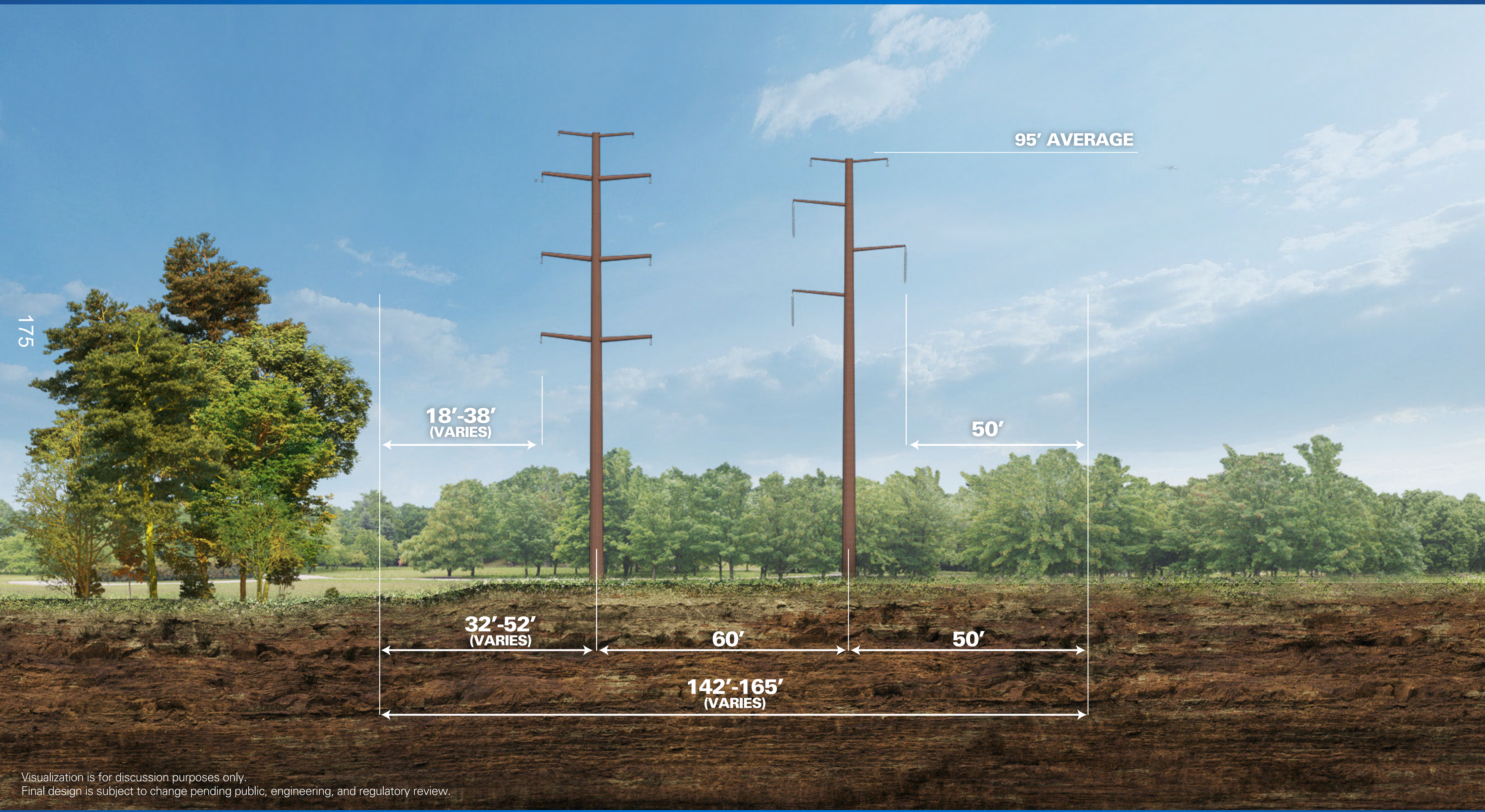
Transmission Line Project

PROPOSED SECTION

CONFIGRUATION 1

Parallel to Prince William Pkwy

Dominion Energy®



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Visualization is for discussion purposes only.
Final design is subject to change pending public, engineering, and regulatory review.

CANNON BRANCH - WINTERS BRANCH

Transmission Line Project

PROPOSED SECTION

CONFIGURATION 2

Parallel to Railroad Crossing Godwin Dr

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Visualization is for discussion purposes only.
Final design is subject to change pending public, engineering, and regulatory review.

CANNON BRANCH - WINTERS BRANCH

Transmission Line Project

PROPOSED SECTION

STRUCTURE MATERIAL

Parallel to Prince William Pkwy

Dominion Energy®

Visualization is for discussion purposes only.
Final design is subject to change pending public, engineering, and regulatory review.

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

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

Response: On December 2, 2020, the Company solicited comments via letter describing the original iteration of the Project from the non-governmental organizations and private citizen groups identified below. A copy of the letter template and project overview map are included as Attachment III.K.1. Subsequently, the Company updated these organizations on November 16, 2021, regarding the change in scope for the proposed Project. Please see Attachment III.J.3 for this notice update.

Name	Organization
Ms. Elizabeth S. Kostelny	Preservation Virginia
Mr. Thomas Gilmore	American Battlefield Trust
Mr. Jim Campi	American Battlefield Trust
Mr. Adam Gillenwater (replaced for Nov 16 update with Max Hokit)	American Battlefield Trust
Ms. Kym Hall (replaced for Nov 16 update with Steven Williams)	Colonial National Historical Park
Mr. Jack Gary (replaced for Nov 16 update with Eleanor Breen)	Council of Virginia Archaeologists
Ms. Leighton Powell	Scenic Virginia
Mr. Alexander Macaulay	Macaulay & Jamerson
Ms. Sharee Williamson (replaced for Nov 16 update with Elaine Chang)	National Trust for Historic Preservation
Mr. Dan Holmes	Piedmont Environmental Council
Ms. Meaghan Riddick	Prince William Historic Preservation Foundation
Dr. Newby- Alexander, Dean	Norfolk State University
Mr. Roger Kirchen, Archaeologist	Virginia Department of Historic Resources
Ms. Adrienne Birge-Wilson	Virginia Department of Historic Resources
Mr. Dave Dutton	Dutton + Associates, LLC

Dominion Energy Virginia
Electric Transmission
P.O. Box 26666, Richmond, VA 23261-6666
DominionEnergy.com

Dec. 2, 2020

Line 172 and 197 Upgrade and Cannon Branch-Winters Branch Line Extension

Dear ____[insert name]:

At Dominion Energy, we are dedicated to maintaining reliable electric service 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 upcoming electric transmission project in Prince William County and the city of Manassas, Virginia to maintain compliance with federal reliability standards.

This project involves upgrading two 115 kV electric transmission lines to operate at 230 kV and building a new 230 kV transmission line between two existing substations. The Liberty-Lomar line upgrade primarily involves replacing the conductor wire. The Lomar-Cannon Branch line upgrade involves partially rebuilding a section of the line and wholly replacing the conductor wire. Additionally, we plan to build a new 230 kV transmission line between Cannon Branch and Winters Branch substations. The proposed route utilizes an existing right of way corridor which needs to be expanded to accommodate the new line.

We are currently in the conceptual phase and are seeking input prior to submitting an application with the Virginia State Corporation Commission (SCC) in spring 2021. 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 Jan. 8, 2021, so we have adequate time to 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 coronavirus, we do not plan to host an in-person community event at this time. In lieu of our traditional open house, we will host a virtual community meeting early in 2021. Please visit the project webpage at DominionEnergy.com/libertywinters for meeting updates and project information.

If you would like additional information, have any questions, or would like to set up a meeting to discuss the project, please do not hesitate to contact us by sending an email to Maxwell.S.Payeur@dominionenergy.com or calling 804-201-8145.

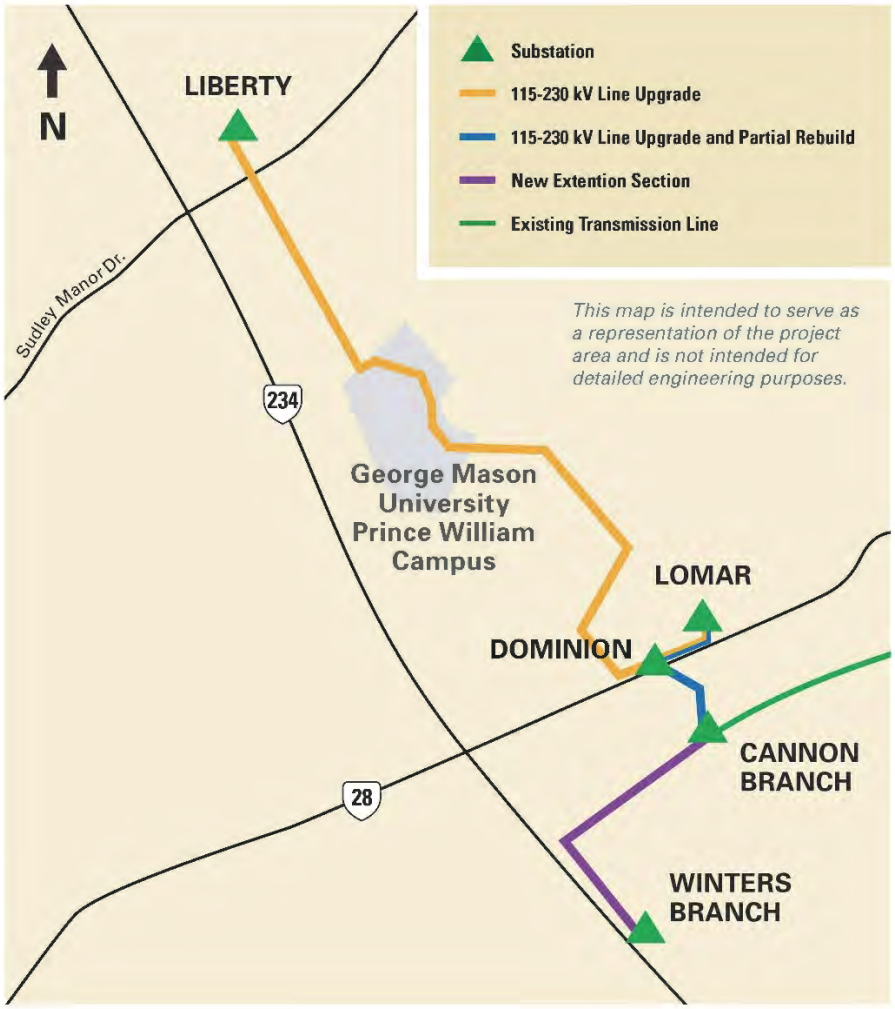
Sincerely,

Maxwell Payeur
Communications Specialist
The Electric Transmission Project Team

[Enclosure: Project Overview Map]

Liberty-Winters Branch 230 kV Line Upgrades and Line Extension

Prince William County & Manassas, Virginia



For more information on this project, please visit our project webpage at DominionEnergy.com/libertywinters. You may also contact us by sending an email to powerline@dominionenergy.com or calling 888-291-0190.

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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 for potential permits anticipated for the proposed Project.

Potential Permits

Activity	Permit	Agency
Impacts to wetlands and waters of the U.S.	Nationwide Permit 57	U.S. Army Corps of Engineers
Impacts to state wetlands and waters	Virginia Water Protection Permit	Virginia Department of Environmental Quality
Discharge of Stormwater from Construction	Construction General Permit	Virginia Department of Environmental Quality
Work within VDOT right-of-way	Land Use Permit (Construction Entrance and Aerial Crossing Permits)	Virginia Department of Transportation
Work within Norfolk Southern Railroad right-of-way	Railroad Permit	Norfolk Southern Railroad
Construction within 5,000 feet of helipads associated buildings and Construction within 20,000 feet of an airport with a runway greater than 3,200 feet in length	Notice of Proposed Construction or Alteration	Federal Aviation Administration

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 (2020) and future (2025) 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 (169 amps for Line #2148 and 94 amps for Line #2195) and at an operating voltage of 241.5 kV when supported on the existing structures – see Attachment II.A.5.i, iii, & v.

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:

Existing Lines - Historic Average Loading

Attachment	Left Edge Looking Towards Lakeside		Right Edge Looking Towards Lakeside	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.i	0.651	14.294	2.551	24.648
II.A.5.iii	2.702	19.039	6.933	43.626
II.A.5.v	0.178	9.987	0.178	11.890

Existing lines – Historical peak loading

EMF levels were calculated for the existing lines at the ***historical peak*** load condition (226 amps for Line #2148 and 125 amps for Line #2195) and at an operating voltage of 241.5 kV when supported on the existing structures – see Attachment II.A.5. i, iii, & v.

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:

Existing Lines - Historic Peak Loading

Attachment	Left Edge Looking Towards Lakeside		Right Edge Looking Towards Lakeside	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.i	0.651	19.058	2.551	32.928
II.A.5.iii	2.702	25.416	6.933	58.254
II.A.5.v	0.178	13.317	0.178	15.880

Proposed Projects – Projected average loading in 2026

EMF levels were calculated for the proposed Project at the ***projected average*** load (336 amps for Line #2148, 322 amps for Line #2195, and 772 amps for Line #2011) and at an operating voltage of 241.5 kV when supported on the proposed Project structures – see Attachment II.A.5. ii, iv, & vi.

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 Project at the projected average loading:

Proposed Lines - Projected Average Loading

Attachment	Left Edge Looking Towards Lakeside		Right Edge Looking Towards Lakeside	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.ii	3.323	102.800	7.085	87.894
II.A.5.iv	3.082	120.432	5.279	184.578
II.A.5.vi	0.406	16.537	3.143	63.601

Proposed Projects – Projected Peak loading in 2026

EMF levels were calculated for the proposed Project at the ***projected peak*** load condition (488 amps for Line #2148, 430 amps for Line #2195, and 1030 amps for Line #2011) and at an operating voltage of 241.5 kV when supported on the proposed Project structures – see Attachment II.A.5. ii, iv, & vi.

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 Project at the projected peak loading:

Proposed Lines - Projected Peak Loading

Attachment	Left Edge Looking Towards Lakeside		Right Edge Looking Towards Lakeside	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.ii	3.346	138.001	7.087	117.277
II.A.5.iv	3.080	160.529	5.270	246.113
II.A.5.vi	0.405	22.084	3.140	84.761

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 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, and 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 IEEE's 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"]) (WHO, 2007; SCENIHR, 2009, 2015; EFHRAN, 2010, 2012; ICNIRP, 2010; SSM, 2015, 2016, 2018, 2019, 2020, 2021; 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 confirm 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 most recent reviews on this topic include the 2015 report by SCENIHR and annual reviews published by SSM (*e.g.*, for the years 2015 through 2021). 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 ICNIRP and 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 Project, the Company has determined that no adverse health effects are anticipated to result from the operation of the proposed 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.

Swedish Radiation Safety Authority (SSM). Research 2020:04. Recent Research on EMF and Health Risk – Fourteenth Report from SSM's Scientific Council on Electromagnetic Fields, 2019. Stockholm, Sweden: Swedish Radiation Safety Authority (SSM), 2020.

Swedish Radiation Safety Authority (SSM). Research 2021:08. Recent Research on EMF and Health Risk – Fifteenth report from SSM's Scientific Council on Electromagnetic Fields, 2020. Stockholm, Sweden: Swedish Radiation Safety Authority (SSM), 2021.

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

IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS ("EMF") *[rev. June 2021]*

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."[12]

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, including most notably:

- The WHO, which published one of the most comprehensive and detailed reviews of the relevant scientific peer-reviewed literature in 2007;
- SCENIHR, a committee of the European Commission, which published its assessments in 2009 and 2015;
- The SSM, which has published annual reviews of the relevant peer-reviewed scientific literature since 2003, with its most recent review published in 2021; and,
- EFHRAN, which 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 below scientifically established guideline values are consistent with the conclusions of the VDH report. With respect to the statistical association observed in some of the childhood leukemia epidemiologic studies, the most recent

[12] *See* http://www.vdh.virginia.gov/content/uploads/sites/12/2016/02/highfinal.pdf.

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 EMF exposure and neurodegenerative diseases. Of these, the following recent publications, published following the inclusion date (June 2014) for the SCENIHR (2015) report through May 2021, 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 periods (1980 and on), and consistent pattern for the 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) examined 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). Amoon et al. (2018a) concluded that changing residences was not associated with either calculated magnetic-field levels or proximity to the power lines, while 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 in Crespi et al. (2016) and Kheifets et al. (2017).

- 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). In a subsequent study, Amoon et al. (2020) examined the potential impact of dwelling type on the associations reported in Crespi et al. (2019). Amoon et al. (2020) concluded that while the type of dwelling at which a child resides (e.g., single-family home, apartment, duplex, mobile home) was associated with socioeconomic status and race or ethnicity, it was not associated with childhood leukemia and did not appear to be a potential confounder in the relationship between childhood leukemia and magnetic-field exposure in this study population.
- Swanson et al. (2019) conducted a meta-analysis of 41 epidemiologic studies of childhood leukemia and magnetic-field exposure published between 1979 and 2017 to examine trends in childhood leukemia development over time. The authors reported that while the estimated risk of childhood leukemia initially increased during the earlier period, a statistically non-significant decline in estimated risk has been observed from the mid-1990s until the present (*i.e.*, 2019).
- 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.

- Núñez-Enríquez et al. (2020) assessed the relationship between residential magnetic-field exposure and B-lineage acute lymphoblastic leukemia ("B-ALL") in children under 16 years of age in Mexico. The study included 290 cases and 407 controls matched on age, gender, and health institution; magnetic-field exposure was assessed through the collection of 24-hour measurements in the participants' bedrooms. While the authors reported some statistically significant associations between elevated magnetic-field levels and development of B-ALL, the results were dependent on the chosen cut-points.

- Seomun et al. (2021) performed a meta-analysis based on 33 previously published epidemiologic studies investigating the potential relationship between magnetic-field exposure and childhood cancers, including leukemia and brain cancer. For childhood leukemia, the authors reported statistically significant associations with some, but not all, of the chosen cut-points for magnetic-field exposure. The associations between magnetic-field exposure and childhood brain cancer were statistically non-significant. The study provided limited new insight as most of the studies included in the current meta-analysis, were included in previously conducted meta- and pooled 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 to 380 kilovolts [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[13] 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.

- Gunnarsson and Bodin (2018) conducted a meta-analysis of occupational risk factors for ALS. The authors reported a statistically significant association between occupational exposures to EMF, estimated using a job-exposure matrix, and ALS among the 11 studies included. Statistically significant associations were also reported between ALS and jobs that involve working with electricity, heavy physical work, exposure to metals (including lead) and chemicals (including pesticides), and working as a nurse or physician. The authors reported some evidence for publication bias. In a subsequent publication, Gunnarsson and Bodin (2019) updated their previous meta-analysis to also include Parkinson's disease and Alzheimer's disease. A slight, statistically significant association was reported between occupational exposure to EMF and Alzheimer's disease; no association was observed for Parkinson's disease.

- 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.

- 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.

- Röösli and Jalilian (2018) performed a meta-analysis using data from five epidemiologic studies examining residential exposure to magnetic fields and

[13] 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).

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.

- 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 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.

- Filippini et al. (2020) investigated the associations between ALS and several environmental and occupational exposures, including electromagnetic fields, within a case-control study in Italy. The study included 95 cases and 135 controls matched on age, gender, and residential province; exposure to electromagnetic fields was assessed using the participants' responses to questions related to occupational use of electric and electronic equipment, occupational EMF exposure, and residential distance to overhead power lines. The authors reported a statistically significant association between ALS and residential proximity to overhead power lines and a statistically non-significant association between ALS and occupational exposure to EMF; occupational use of electric and electronic equipment was associated with a statistically non-significant decrease in ALS development.

- Huang et al. (2020) conducted a meta-analysis of 43 epidemiologic studies examining potential occupational risk factors for dementia or mild cognitive impairment. The authors included five cohort studies and seven case-control studies related to magnetic-field exposure. For both study types, the authors reported positive associations between dementia and work-related magnetic-field exposures. The paper, however, provided no information on the occupations held by the study participants, their magnetic-field exposure levels, or how magnetic-field levels were assessed; therefore, the results are difficult to interpret. The authors also reported a high level of heterogeneity among

studies. Thus, this analysis adds little, if any, to the overall weight of evidence on a potential association between dementia and magnetic fields.

- Jalilian et al. (2020) conducted a meta-analysis of ALS and occupational exposure to both magnetic fields and electric shocks within 27 studies from Europe, the United States, and New Zealand. A weak, statistically significant association was reported between magnetic-field exposure and ALS; however, the authors noted evidence of study heterogeneity and publication bias. No association was observed between ALS and electric shocks.

- Chen et al. (2021) conducted a case-control study to examine the association between occupational exposure to electric shocks, magnetic fields, and motor neuron disease ("MND") in New Zealand. The study included 319 cases with a MND diagnosis (including ALS) and 604 controls, matched on age and gender; exposure was assessed using the participants' occupational history questionnaire responses and previously developed job-exposure matrices for electric shocks and magnetic fields. The authors reported no associations between MND and exposure to magnetic fields; positive associations were reported between MND and working at a job with the potential for electric shock exposure.

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.

Amoon AT, Crespi CM, Nguyen A, Zhao X, Vergara X, Arah OA, and Kheifets L. The role of dwelling type when estimating the effect of magnetic fields on childhood leukemia in the California Power Line Study (CAPS). Cancer Causes Control 31:559-567, 2020.

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 powerlines: 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.

Chen GX, Mannetje A, Douwes J, Berg LH, Pearce N, Kromhout H, Glass B, Brewer N, McLean DJ. Occupational exposure to electric shocks and extremely low-frequency magnetic fields and motor neurone disease. Am J Epidemiol 190(3):393-402, 2021.

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.

Filippini T, Tesauro M, Fiore M, Malagoli C, Consonni M, Violi F, Iacuzio L, Arcolin E, Oliveri Conti G, Cristaldi A, Zuccarello P, Zucchi E, Mazzini L, Pisano F, Gagliardi I, Patti F, Mandrioli J, Ferrante M, Vinceti M. Environmental and occupational risk factors of amyotrophic lateral sclerosis: A population-based case-control study. Int J Environ Res Public Health 17(8):2882, 2020.

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.

Gunnarsson LG and Bodin L. Amyotrophic lateral sclerosis and occupational exposures: A systematic literature review and meta-analyses. Int J Environ Res Public Health 15(11):2371, 2018.

Gunnarsson LG and Bodin L. Occupational exposures and neurodegenerative diseases: A systematic literature review and meta-snalyses. Int J Environ Res Public Health 16(3):337, 2019.

Huang LY, Hu HY, Wang ZT, Ma YH, Dong Q, Tan L, Yu JT. Association of occupational factors and dementia or cognitive impairment: A systematic review and meta-analysis. J Alzheimers Dis 78(1):217-227, 2020.

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.

Jalilian H, Najafi K, Khosravi Y, and Röösli M. Amyotrophic lateral sclerosis, occupational exposure to extremely low frequency magnetic fields and electric shocks: A systematic review and meta-analysis. Rev Environ Health 36(1):129-142, 2020.

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.

Núñez-Enríquez JC, Correa-Correa V, Flores-Lujano J, Pérez-Saldivar ML, Jiménez-Hernández E, Martín-Trejo JA, Espinoza-Hernández LE, Medina-Sanson A, Cárdenas-Cardos R, Flores-Villegas LV, Peñaloza-González JG, Torres-Nava

JR, Espinosa-Elizondo RM, Amador-Sánchez R, Rivera-Luna R, Dosta-Herrera JJ, Mondragón-García JA, González-Ulibarri JE, Martínez-Silva SI, Espinoza-Anrubio G, Duarte-Rodríguez DA, García-Cortés LR, Gil-Hernández AE, Mejía-Aranguré JM. Extremely low-frequency magnetic fields and the risk of childhood B-lineage acute lymphoblastic leukemia in a city with high incidence of leukemia and elevated exposure to ELF magnetic fields. Bioelectromagnetics 41(8):581-597, 2020.

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.

Seomun G, Lee J, Park J. Exposure to extremely low-frequency magnetic fields and childhood cancer: A systematic review and meta-analysis. PLoS One 16:e0251628, 2021.

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.

Swanson J, Kheifets L, and Vergara X. Changes over time in the reported risk for childhood leukaemia and magnetic fields. J Radiol Prot 39:470-488, 2019.

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

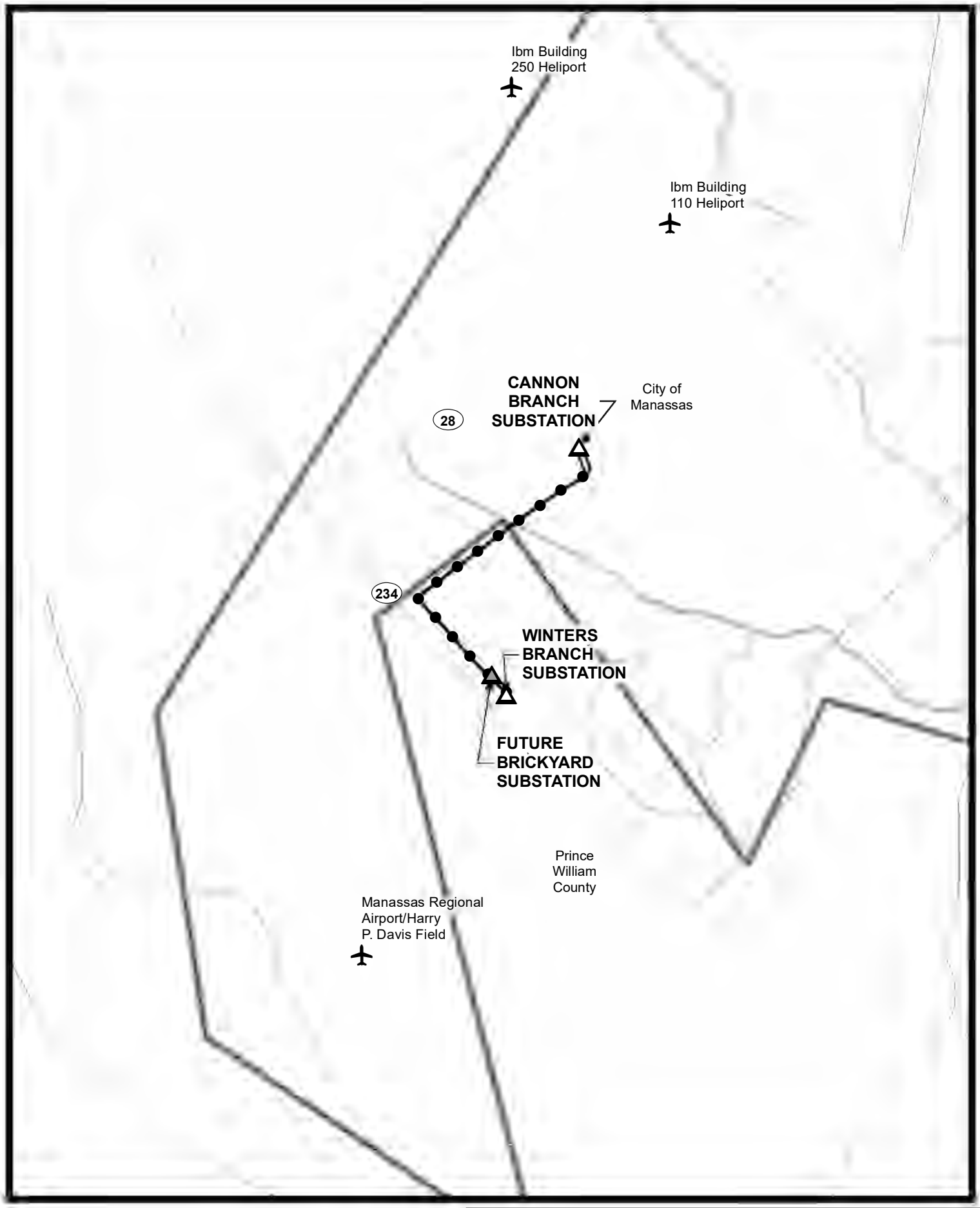
A. Furnish a proposed route description to be used for public notice purposes. Provide a map of suitable scale showing the route of the proposed project. For all routes that the Applicant proposed to be noticed, provide minimum, maximum and average structure heights.

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

The proposed Project consists of the removal of an approximate 0.06-mile segment of the existing 230 kV Line #2011 termination ("Partial Line #2011 Removal") between Cannon Branch Substation and Structure #2011/68, and the construction of a new approximately 1.05-mile segment of Line #2011 starting south of Cannon Branch Substation and terminating at Winters Branch Substation in a newly acquired, variable width right-of-way expansion parallel to the south and east of an existing, variable width right-of-way, ranging from 60 to 120 feet ("Line #2011 Extension"). The existing, variable width right-of-way ranges from 50 to 120 feet wide and contains monopole structure supporting the double circuit 230 kV Lines #2132 and #2148 ("Line #2132" and "Line #2148," respectively). The easements for the right-of-way containing Lines #2132 and #2148 were acquired in September 2012. The proposed right-of-way expansion originates south of Cannon Branch Substation in the City of Manassas and continues west-southwest for approximately 0.65 mile to the intersection of Prince William Parkway (SR 234) and the Norfolk Southern Railroad and approximately 0.40 mile southeast to Winters Branch Substation, which is located directly east of Prince William Parkway in Prince William County, Virginia.

For the approximate 1.05-mile new segment of Line #2011, the Company proposes to construct seven new structures (Structures #2011/69-75). The proposed structures along this 1.05-mile segment of the Project range in height from approximately 80 feet to 125 feet (minimum to maximum heights, respectively), with an average structure height of approximately 104 feet. These structure heights are based on preliminary conceptual design not including foundation reveal, and subject to change based on final engineering design.

NOTICE MAP



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Dominion Energy®

LEGEND

- PROPOSED 230 KV LINE 2011 EXTENSION
- REMOVE EXISTING 230 KV LINE 2011
- COUNTY LINES
- EXISTING SUBSTATION
- FUTURE SUBSTATION

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/cannonbranch.

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 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 Project on the Company's website.

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

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

Ms. Rene Hypes
Virginia Department of Conservation and Recreation
Division of Natural Heritage
600 East Main Street, Suite 1400
Richmond, Virginia 23219

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

Ms. Bettina Rayfield
Department of Environmental Quality
Office of Environmental Impact Review
P.O. Box 1105
Richmond, Virginia 23218

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

Ms. Amy M. Ewing
Virginia Department of Wildlife Resources
P.O. Box 90778
Henrico, Virginia 23228

Mr. Terry Lasher
Virginia Department of Forestry
Forestland Conservation Division
900 Natural Resources Drive, Suite 800
Charlottesville, Virginia 22903

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

Ms. Anna Lawston, Chief
US Army Corps of Engineers
Norfolk District – Northern Section
P.O. Box 489
Amissville, Virginia 20106

Mr. Abraham Lerner, P.E.
Associate Manager of Special Project Development
VDOT-NOVA District
4975 Alliance Drive
Fairfax, Virginia 22030

Mr. Mark Eversole
Virginia Marine Resources Commission
Habitat Management Division
Building 96, 380 Fenwick Road
Ft. Monroe, Virginia 23651

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

Ms. Rebecca Horner
Acting Director of Planning
Prince William County Planning Office
5 County Complex Court, Suite 210
Prince William, Virginia 22192

Ms. Yesli Vega
Coles District Supervisor
Prince William County Board of Supervisors
9400 Innovation Drive, Suite 130
Manassas, Virginia 20110

Mr. William Patrick Pate
Manassas City Manager
City of Manassas Manager's Office
9027 Center Street
Manassas, Virginia 20110

Mr. Matt Arcieri
Planning and Community Development Director
City of Manassas Planning and Development
City of Manassas
9027 Center Street
Manassas, Virginia 20110

Mr. Jason Shepard
Property Manager, Roanoke Region
Norfolk Southern Railroad
209 Shenandoah Ave NE
Roanoke, Virginia 24016

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 November 2, 2021, were delivered to Ms. Rebecca Horner, the Acting Director of the Prince William County Planning Department; Ms. Yesli Vega, the Prince William County Coles District Supervisor; Mr. William Patrick Pate, the Manassas City Manager; and Mr. Matt Arcieri, the City of Manassas Planning and Community Development Director. The letters stated the Company's intention to file this Application and invited Prince William County and the City of Manassas to consult with the Company about the Project. These letters and overview map are included as Attachments V.D.1-4.

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

November 2, 2021

BY EMAIL

Ms. Rebecca Horner
Acting Director of Planning
Prince William County Planning Office
5 County Complex Court, Suite 210
Prince William, VA 22192

RE: Dominion Energy Virginia's Line #2011 Extension from Cannon Branch to Winters Branch Project
City of Manassas and Prince William County, Virginia
Notice Pursuant to Va. Code § 15.2-2202

Dear Ms. Horner:

Dominion Energy Virginia (the "Company") is proposing the Line #2011 Extension from Cannon Branch to Winters Branch Project (the "Project") within City of Manassas and Prince William County, Virginia ("Manassas Area"). The Project is being completed to meet load growth in the Manassas Area.

Specifically, the Company is proposing to remove approximately 0.06 mile of the existing 230 kilovolt ("kV") Line #2011 termination between Cannon Branch Substation and Structure #2011/68 and construct a new approximately 1.05-mile segment of 230 kV Line #2011 starting south of Cannon Branch Substation and terminating at Winters Branch Substation. The Company is also proposing related work at the Company's existing Cannon Branch and Winters Branch Substations to support the Project.

The Company is in the process of preparing an application for a Certificate of Public Convenience and Necessity ("CPCN") from the State Corporation Commission of Virginia ("SCC"). Pursuant to Va. Code § 15.2-2202, the Company is writing to notify Prince William County of the proposed project in advance of the SCC filing. The Company respectfully requests that you submit any comments or additional information on the proposed Project within 30 days of the date of this letter. If you would like to receive a GIS shapefile of the transmission line routes to assist in the project review or if there are any questions, please do not hesitate to contact Craig Hurd at (804) 201-5020 or Craig.R.Hurd@dominionenergy.com.

We appreciate your assistance with this project review and look forward to any additional information you may have to offer.

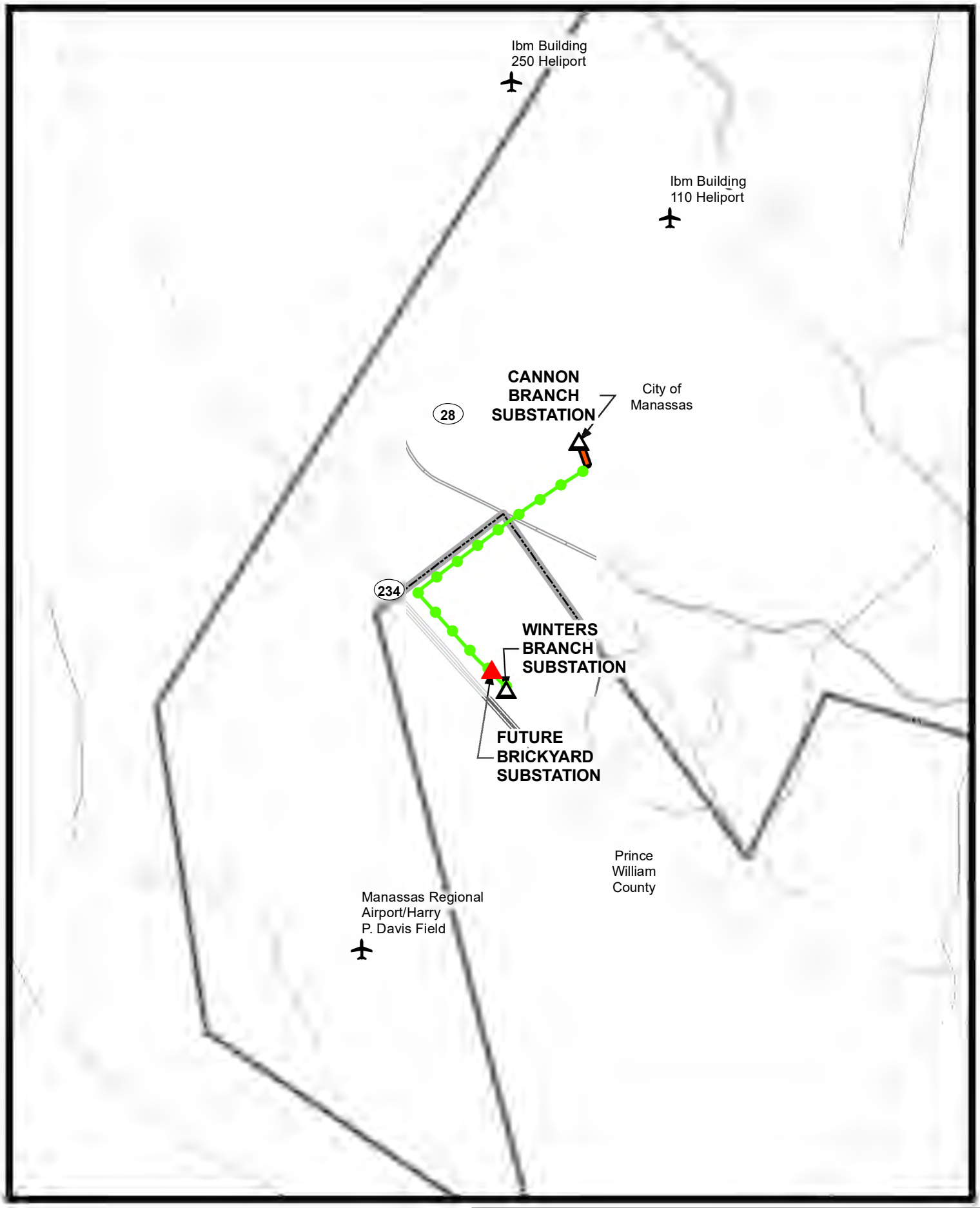
Sincerely,

Craig Hurd

Craig R. Hurd
Siting & Permitting Specialist, Electric Transmission

Attachment: Project Notice Map

NOTICE MAP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LEGEND
PROPOSED 230 KV LINE 2011 EXTENSION
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COUNTY LINES
EXISTING SUBSTATION
FUTURE SUBSTATION

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

November 2, 2021

BY EMAIL

Ms. Yesli Vega
Coles District Supervisor
Prince William County Board of Supervisors
9400 Innovation Drive, Suite 130
Manassas, VA 20110

RE: Dominion Energy Virginia's Line #2011 Extension from Cannon Branch to Winters Branch Project
City of Manassas and Prince William County, Virginia
Notice Pursuant to Va. Code § 15.2-2202

Dear Ms. Vega:

Dominion Energy Virginia (the "Company") is proposing the Line #2011 Extension from Cannon Branch to Winters Branch Project (the "Project") within City of Manassas and Prince William County, Virginia ("Manassas Area"). The Project is being completed to meet load growth in the Manassas Area.

Specifically, the Company is proposing to remove approximately 0.06 mile of the existing 230 kilovolt ("kV") Line #2011 termination between Cannon Branch Substation and Structure #2011/68 and construct a new approximately 1.05-mile segment of 230 kV Line #2011 starting south of Cannon Branch Substation and terminating at Winters Branch Substation. The Company is also proposing related work at the Company's existing Cannon Branch and Winters Branch Substations to support the Project.

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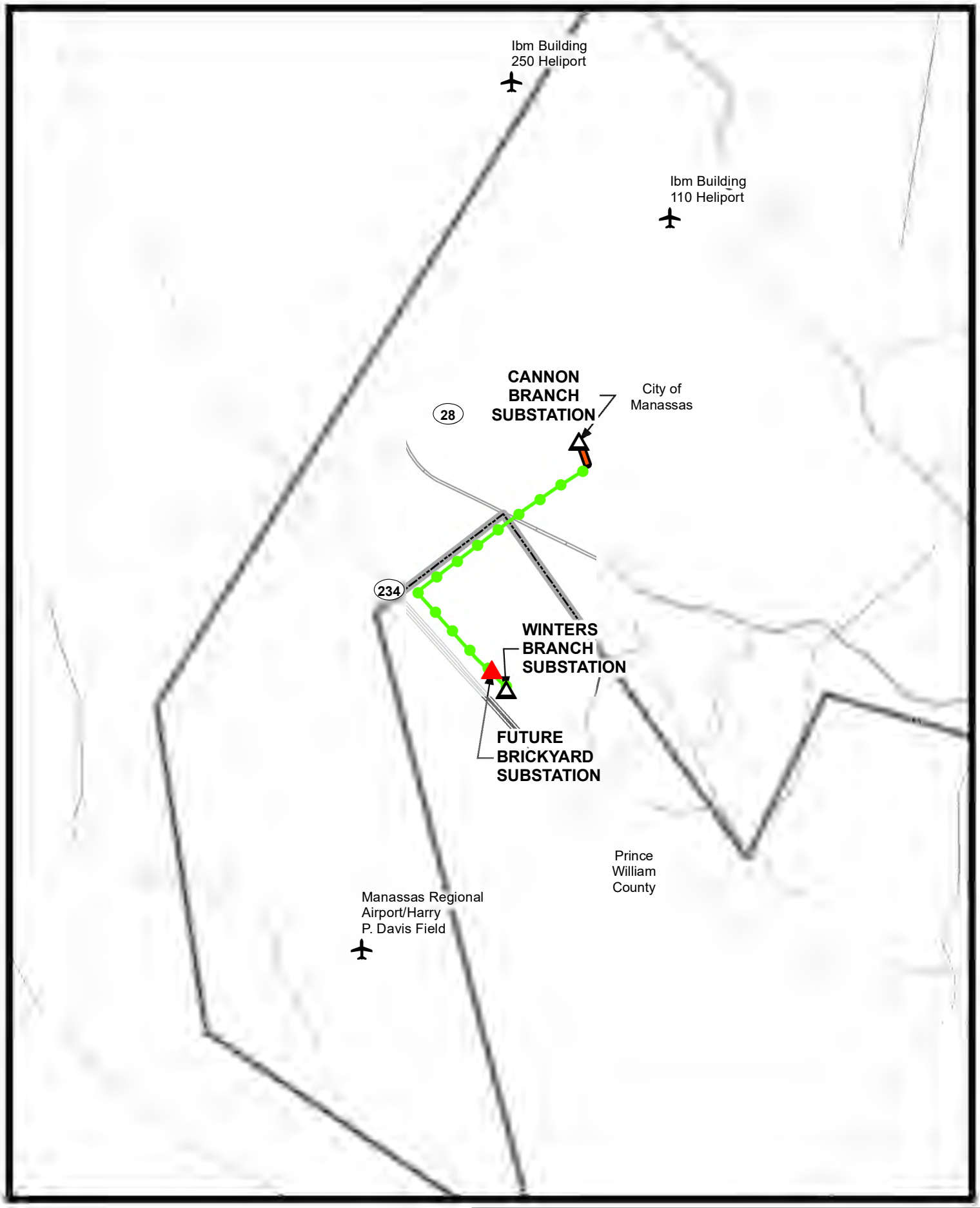
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Dominion Energy Virginia
10900 Nuckols Road, 4th Floor
Glen Allen, VA 23060
DominionEnergy.com

November 2, 2021

BY EMAIL

Mr. William Patrick Pate
Manassas City Manager
City of Manassas Manager's Office
9027 Center Street
Manassas, Virginia 20110

RE: Dominion Energy Virginia's Line #2011 Extension from Cannon Branch to Winters Branch Project
City of Manassas and Prince William County, Virginia
Notice Pursuant to Va. Code § 15.2-2202

Dear Mr. Pate:

Dominion Energy Virginia (the "Company") is proposing the Line #2011 Extension from Cannon Branch to Winters Branch Project (the "Project") within City of Manassas and Prince William County, Virginia ("Manassas Area"). The Project is being completed to meet load growth in the Manassas Area.

Specifically, the Company is proposing to remove approximately 0.06 mile of the existing 230 kilovolt ("kV") Line #2011 termination between Cannon Branch Substation and Structure #2011/68 and construct a new approximately 1.05-mile segment of 230 kV Line #2011 starting south of Cannon Branch Substation and terminating at Winters Branch Substation. The Company is also proposing related work at the Company's existing Cannon Branch and Winters Branch Substations to support the Project.

The Company is in the process of preparing an application for a Certificate of Public Convenience and Necessity ("CPCN") from the State Corporation Commission of Virginia ("SCC"). Pursuant to Va. Code § 15.2-2202, the Company is writing to notify Manassas City of the proposed project in advance of the SCC filing. The Company respectfully requests that you submit any comments or additional information on the proposed Project within 30 days of the date of this letter. If you would like to receive a GIS shapefile of the transmission line routes to assist in the project review or if there are any questions, please do not hesitate to contact Craig Hurd at (804) 201-5020 or Craig.R.Hurd@dominionenergy.com.

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Sincerely,

Craig Hurd

Craig R. Hurd
Siting & Permitting Specialist, Electric Transmission

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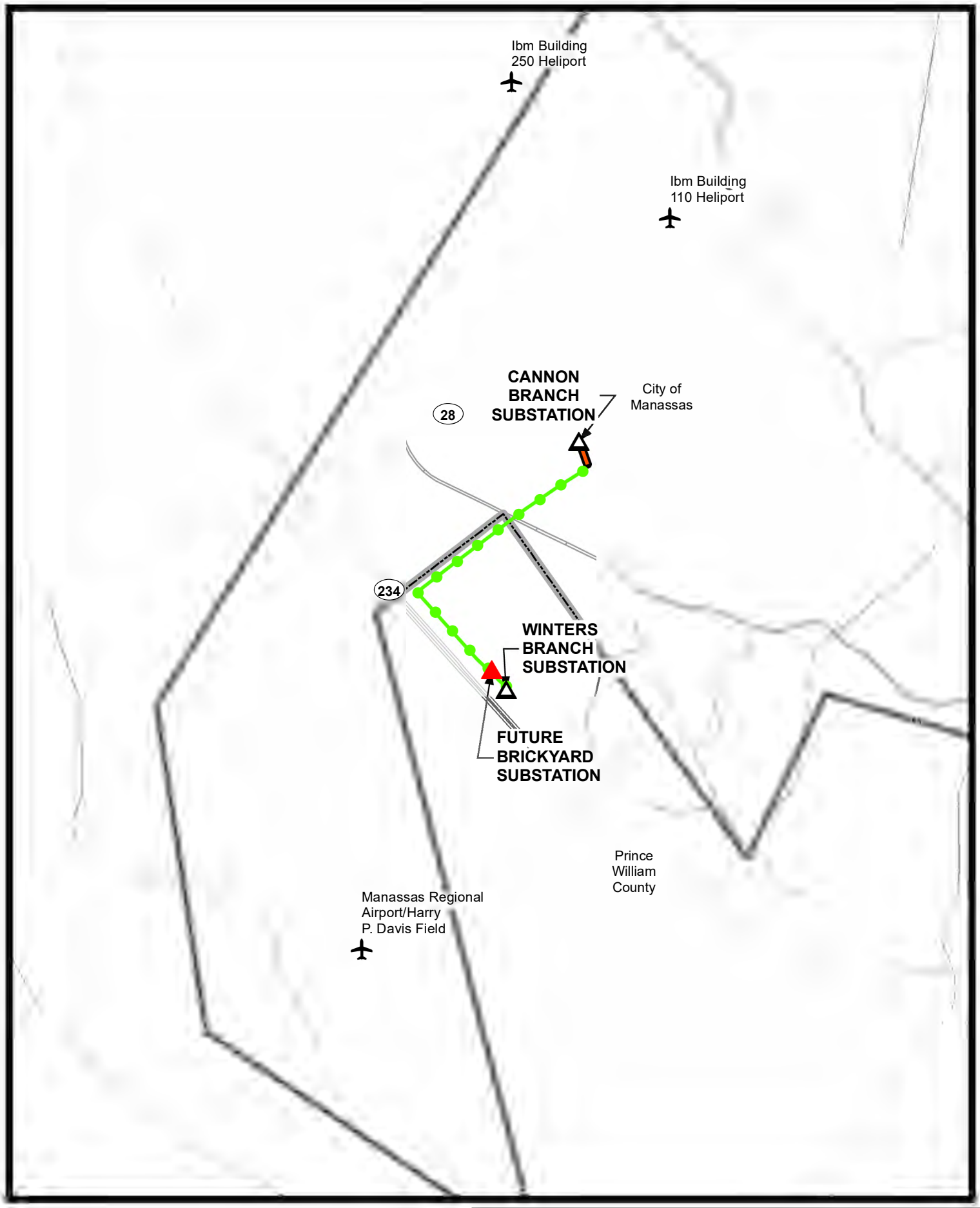
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Dominion Energy Virginia
10900 Nuckols Road, 4th Floor
Glen Allen, VA 23060
DominionEnergy.com

November 2, 2021

BY EMAIL

Mr. Matt Arcieri
Planning and Community Development Director
City of Manassas Planning and Development
9027 Center Street
Manassas, Virginia 20110

RE: Dominion Energy Virginia's Line #2011 Extension from Cannon Branch to Winters Branch Project
City of Manassas and Prince William County, Virginia
Notice Pursuant to Va. Code § 15.2-2202

Dear Mr. Arcieri:

Dominion Energy Virginia (the "Company") is proposing the Line #2011 Extension from Cannon Branch to Winters Branch Project (the "Project") within City of Manassas and Prince William County, Virginia ("Manassas Area"). The Project is being completed to meet load growth in the Manassas Area.

Specifically, the Company is proposing to remove approximately 0.06 mile of the existing 230 kilovolt ("kV") Line #2011 termination between Cannon Branch Substation and Structure #2011/68 and construct a new approximately 1.05-mile segment of 230 kV Line #2011 starting south of Cannon Branch Substation and terminating at Winters Branch Substation. The Company is also proposing related work at the Company's existing Cannon Branch and Winters Branch Substations to support the Project.

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Sincerely,

Craig Hurd

Craig R. Hurd
Siting & Permitting Specialist, Electric Transmission

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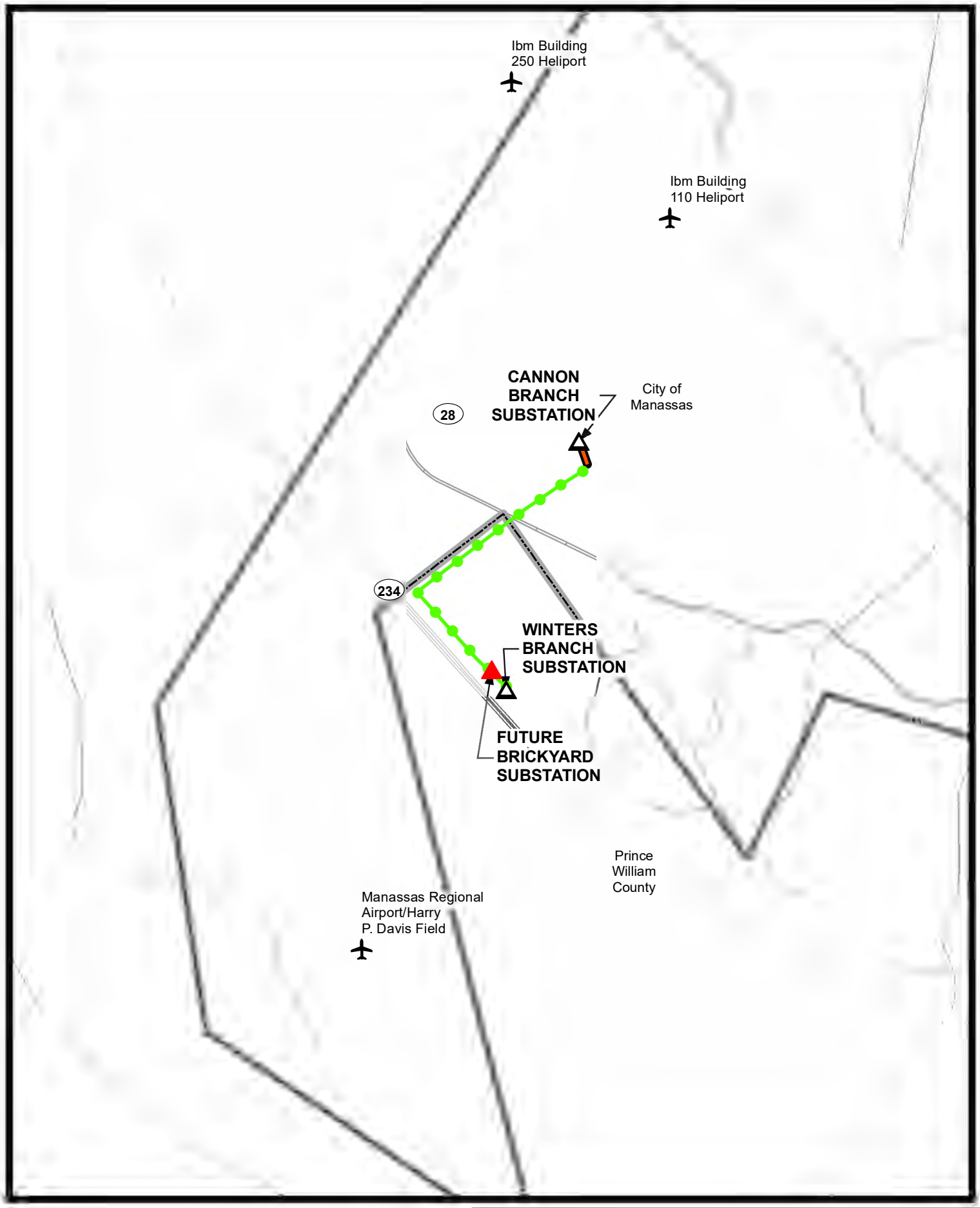
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COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF	)	
	)	
VIRGINIA ELECTRIC AND POWER COMPANY	)	Case No. PUR-2021-00291
	)	
For approval and certification of electric transmission facilities: Line #2011 Extension from Cannon Branch to Winters Branch	)	

IDENTIFICATION, SUMMARIES AND TESTIMONY OF DIRECT WITNESSES OF VIRGINIA ELECTRIC AND POWER COMPANY

Harrison Potter

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

Chloe Genova

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

Antoaneta Yanev

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

Craig Hurd

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Harrison Potter

Title: Consulting Engineer – Electric Transmission Planning

Summary:

Company Witness Harrison Potter sponsors those portions of the Appendix describing the Company's transmission system and need for, and benefits of, the proposed Project, as follows:

- Section I.B: This section details the engineering justifications for the proposed project.
- Section I.C: This section describes the present system and details how the proposed Project will effectively satisfy present and projected future load demand requirements.
- Section I.D: Although not applicable, this section describes critical contingencies and associated violations due to the inadequacy of the existing system.
- Section I.E: This section explains feasible project alternatives.
- Section I.G: This section provides a system map for the affected area.
- Section I.H: This section provides the desired in-service date of the proposed project and the estimated construction time.
- Section I.J: This section provides information about the project if approved by the RTO.
- Section I.K: Although not applicable, this section provides outage history and maintenance history for existing transmission lines if the proposed project is a rebuild and is due in part to reliability issues.
- Section I.M: Although not applicable, this section contains information for transmission lines interconnecting a non-utility generator.
- Section I.N: Although not applicable, this section, when applicable, provides the proposed and existing generating sources, distribution circuits or load centers planned to be served by all new substations, switching stations, and other ground facilities associated with the proposed project.
- Section II.A.10: This section provides details of the construction plans for the proposed project, including requested and approved line outage schedules.

Additionally, Company Witness Potter co-sponsors the following portions of the Appendix:

- Section I.A (co-sponsored with Company Witness Chloe Genova): This section details the primary justifications for the proposed project.
- Section I.I. (co-sponsored with Company Witnesses Chloe Genova and Antoaneta Yanev): This section provides the estimated total cost of the proposed project.
- Section II.A.3 (co-sponsored with Company Witness Craig Hurd): This section provides color maps of existing or proposed rights-of-way in the vicinity of the project.

A statement of Mr. Potter's background and qualifications is attached to his testimony as Appendix A.

DIRECT TESTIMONY
OF
HARRISON POTTER
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2021-00291

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Harrison Potter, and I am an Engineer III in Electric Transmission Planning for the Company. My business address is 10900 Nuckols Road, Glen Allen, Virginia 23060. A statement of my qualifications and background is provided as Appendix A.

Q. Please describe your areas of responsibility with the Company.

A. I am responsible for planning the Company's electric transmission system for voltages of 69 kilovolt ("kV") through 500 kV.

Q. What is the purpose of your testimony in this proceeding?

A. In order to maintain reliable service for the overall growth in the area and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, the Company proposes to complete the following in the City of Manassas and Prince William County, Virginia (collectively, the "Project"):

- Remove approximately 0.06 mile of the existing 230 kV Line #2011 termination between Cannon Branch Substation and Structure #2011/68 ("Partial Line #2011 Removal");

- Construct a new approximately 1.05-mile segment of 230 kV Line #2011 starting south of Cannon Branch Substation and terminating at Winters Branch Substation in a newly acquired, variable width right-of-way expansion, ranging in width from 50 to 120 feet, parallel and to the south and east of the existing, variable width right-of-way (ranging in width from 60 to 120 feet) containing 230 kV Lines #2195 and #2148 ("Line 2011 Extension"). Specifically, for the Line

#2011 Line Extension, the Company proposes to extend a third 230 kV source to Winters Branch by extending existing Line #2011 (Clifton-Cannon Branch) to terminate at Winters Branch Substation, which would create new Line #2011 (Clifton-Winters Branch); and

- Perform related work at (1) the Company's existing Cannon Branch Substation to support the line extension to Winters Branch Substation and (2) the Company's existing Winters Branch Substation to support the new line rating.

The purpose of my testimony is to describe the Company's transmission system and the need for, and benefits of, the proposed Project. I am sponsoring Sections I.B, I.C, I.D, I.E, I.G, I.H, I.J, I.K, I.M, I.N, and II.A.10 of the Appendix. Additionally, I co-sponsor Section I.A with Company Witness Chloe Genova; Section I.I with Company Witnesses Chloe Genova and Antoaneta Yanev; and Section II.A.3 with Company Witness Craig Hurd.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS
OF
HARRISON POTTER

Harrison Potter is a 2012 graduate from Virginia Commonwealth University with a Masters in Business Administration and a 2005 graduate from Virginia Polytechnic Institute and State University with a Bachelor of Science in Mechanical Engineering. Mr. Potter has been employed by the Company for 17 years. His experience with the Company includes transmission planning (two years), distribution planning (11 years), distribution design (two years), and GIS services (two years). Mr. Potter was promoted to his current role in transmission planning in 2019.

Mr. Potter has previously testified before the Virginia State Corporation Commission.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Chloe Genova

Title: Engineering Technical Specialist II

Summary:

Company Witness Chloe Genova sponsors those portions of the Appendix providing an overview of the design characteristics of the transmission facilities for the proposed Project, and discussing electric and magnetic field levels, as follows:

- Section I.F: This section describes any lines or facilities that will be removed, replaced or taken out of service upon completion of the proposed project, including the number of circuits and normal and emergency ratings of the facilities.

- Section I.L: Although not applicable, this section normally provides photographs illustrating the deterioration of structures and associated equipment as applicable.

- Section II.A.5: This section provides drawings of the right-of-way cross section showing typical transmission lines structure placements.

- Sections II.B.1 to II.B.3: These sections provide the line design and operational features of the proposed project.

- Section II.B.4: Although not applicable, this section normally provides the line design and operational features of a proposed project.

- Section IV: This section provides analysis on the health aspects of electric and magnetic field levels.

Additionally, Company Witness Genova co-sponsors the following portions of the Appendix:

- Section I.A (co-sponsored with Company Witness Harrison Potter): This section details the primary justifications for the proposed project.

- Section I.I (co-sponsored with Company Witnesses Harrison Potter and Antoaneta Yanev): This section provides the estimated total cost of the proposed project.

- Section II.B.5 (co-sponsored with Company Witness Craig Hurd): This section provides the mapping and structure heights for the existing overhead structures.

A statement of Ms. Genova's background and qualifications is attached to her testimony as Appendix A.

DIRECT TESTIMONY
OF
CHLOE GENOVA
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2021-00291

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Chloe Genova, and I am an Engineering Technical Specialist II in the Electric Transmission Line Engineering Department of the Company. My business address is 10900 Nuckols Road, Glen Allen, Virginia 23060. A statement of my qualifications and background is provided as Appendix A.

Q. Please describe your areas of responsibility with the Company.

A. I am responsible for the estimating, conceptual, and final design of high voltage transmission line projects from 69 kilovolt ("kV") to 500 kV.

Q. What is the purpose of your testimony in this proceeding?

A. In order to maintain reliable service for the overall growth in the area and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, the Company proposes to complete the following in the City of Manassas and Prince William County, Virginia (collectively, the "Project"):

- Remove approximately 0.06 mile of the existing 230 kV Line #2011 termination between Cannon Branch Substation and Structure #2011/68 ("Partial Line #2011 Removal");

- Construct a new approximately 1.05-mile segment of 230 kV Line #2011 starting south of Cannon Branch Substation and terminating at Winters Branch Substation in a newly acquired, variable width right-of-way expansion, ranging in width from 50 to 120 feet, parallel and to the south and east of the existing, variable

width right-of-way (ranging in width from 60 to 120 feet) containing 230 kV Lines #2195 and #2148 ("Line 2011 Extension"). Specifically, for the Line #2011 Line Extension, the Company proposes to extend a third 230 kV source to Winters Branch by extending existing Line #2011 (Clifton-Cannon Branch) to terminate at Winters Branch Substation, which would create new Line #2011 (Clifton-Winters Branch); and

- Perform related work at (1) the Company's existing Cannon Branch Substation to support the line extension to Winters Branch Substation and (2) the Company's existing Winters Branch Substation to support the new line rating.

The purpose of my testimony is to describe the design characteristics of the transmission facilities for the proposed Project, and also to discuss electric and magnetic field ("EMF") levels. I sponsor Sections I.F, I.L, II.A.5, II.B.1 to II.B.4, and IV of the Appendix. I also co-sponsor Section I.A of the Appendix with Company Witness Harrison Potter; Section I.I of the Appendix with Company Witness Antoaneta Yanev; and Section II.B.5 with Company Witness Craig Hurd.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS OF CHLOE GENOVA

Chloe Genova received a Bachelor of Science degree in Civil Engineering Technology from the Pennsylvania College of Technology in 2018. She currently possesses an Engineer-in-Training certification in Virginia. She worked as a contractor for Dominion Energy for three years before being hired as a full-time employee in July 2021. Mrs. Genova's experience with the Company includes Overhead Electric Transmission Line Design (July 2018-Present).

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Antoaneta Yanev

Title: Engineering Technical Specialist III

Summary:

Company Witness Antoaneta Yanev sponsors or co-sponsors the following portions of the Appendix describing the work to be performed at the existing substations for the proposed Project, as follows:

- Section I.I (co-sponsored with Company Witnesses Harrison Potter and Chloe Genova): This section provides the estimated total cost of the proposed project.

- Section II.C: This section describes and furnishes a one-line diagram of the substation(s) associated with the proposed project.

A statement of Ms. Yanev's background and qualifications is attached to her testimony as Appendix A.

DIRECT TESTIMONY
OF
ANTOANETA YANEV
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2021-00291

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Antoaneta Yanev, and I am an Engineering Technical Specialist III for the Company. My business address is 2400 Grayland Avenue, Richmond, Virginia 23220. A statement of my qualifications and background is provided as Appendix A.

Q. Please describe your area of responsibility with the Company?

A. I am responsible for evaluation of the substation project requirements, feasibility studies, conceptual physical design, scope development, preliminary engineering and cost estimating for high voltage transmission and distribution substations.

Q. What is the purpose of your testimony in this proceeding?

A. In order to maintain reliable service for the overall growth in the area and to comply with the mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, the Company proposes to complete the following in the City of Manassas and Prince William County, Virginia (collectively, the "Project"):

- Remove approximately 0.06 mile of the existing 230 kV Line #2011 termination between Cannon Branch Substation and Structure #2011/68 ("Partial Line #2011");

- Construct a new approximately 1.05-mile segment of 230 kV Line #2011 starting south of Cannon Branch Substation and terminating at Winters Branch Substation in a newly acquired, variable width right-of-way expansion, ranging in width from 50 to 120 feet, parallel and to the south and east of the existing, variable

width right-of-way (ranging in width from 60 to 120 feet) containing 230 kV Lines #2195 and #2148 ("Line 2011 Extension"). Specifically, for the Line #2011 Line Extension, the Company proposes to extend a third 230 kV source to Winters Branch by extending existing Line #2011 (Clifton-Cannon Branch) to terminate at Winters Branch Substation, which would create new Line #2011 (Clifton-Winters Branch); and

- Perform related work at (1) the Company's existing Cannon Branch Substation to support the line extension to Winters Branch Substation and (2) the Company's existing Winters Branch Substation to support the new line rating.

The purpose of my testimony is to describe the work to be performed at the Cannon Branch Substation and Winters Branch Substation as part of the proposed Project. I sponsor Section II.C of the Appendix and co-sponsor Section I.I of the Appendix with Company Witnesses Harrison Potter and Chloe Genova, specifically, as it pertains to substation work.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS
OF
ANTOANETA YANEV

Antoaneta Yanev received her Bachelor of Science degree in electrical engineering from the Technical University of Sofia, Bulgaria in 1991, with a major in Electric Power, Stations, Networks and Systems. Ms. Yanev joined the Company in 2008. Her previous responsibilities at the Company included developing detailed physical construction drawings, bill of material, grounding studies, electrical schematics, and wiring diagrams.

Ms. Yanev has previously submitted pre-filed testimony with the Virginia State Corporation Commission.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Craig Hurd

Title: Siting and Permitting Specialist - Siting and Permitting Group

Summary:

Company Witness Craig Hurd sponsors those portions of the Appendix providing an overview of the design of the route for the proposed Project, and related permitting, as follows:

- Section II.A.1: This section provides the length of the proposed corridor and viable alternatives to the proposed project.
- Section II.A.2: This section provides a map showing the route of the proposed project in relation to notable points close to the proposed project.
- Section II.A.4: This section explains why the existing right-of-way is not adequate to serve the need, to the extent applicable.
- Sections II.A.6 to II.A.8: These sections provide details regarding the right-of-way for the proposed project.
- Section II.A.9: This section describes the proposed route selection procedures and details alternative routes considered.
- Section II.A.11: This section details how the construction of the proposed project follows the provisions discussed in Attachment 1 of the Transmission Appendix Guidelines.
- Section II.A.12: This section identifies the counties and localities through which the proposed project will pass and provides General Highway Maps for these localities.
- Section II.B.6: This section provides photographs of existing facilities, representations of proposed facilities, and visual simulations.
- Section III: This section details the impact of the proposed project on scenic, environmental, and historic features.
- Section V: This section provides information related to public notice of the proposed project.

Additionally, Mr. Hurd co-sponsors the following portions of the Appendix:

- Section II.A.3 (co-sponsored with Company Witness Harrison Potter): This section provides color maps of existing or proposed rights-of-way in the vicinity of the proposed project.
- Section II.B.5 (co-sponsored with Company Witness Chloe Genova): This section provides the mapping and structure heights for the existing overhead structures.

Finally, Mr. Hurd sponsors the DEQ Supplement filed with the Application.

A statement of Mr. Hurd's background and qualifications is attached to his testimony as Appendix A.

DIRECT TESTIMONY
OF
CRAIG HURD
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2021-00291

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Craig Hurd, and I serve as a Siting and Permitting Specialist in the Siting and Permitting Group for the Company. My business address is 10900 Nuckols Road, Glen Allen, Virginia 23060. A statement of my qualifications and background is provided as Appendix A.

Q. Please describe your areas of responsibility with the Company.

A. I am responsible for identifying appropriate routes for transmission lines and obtaining necessary federal, state, and local approvals and environmental permits for those facilities. In this position, I work closely with government officials, permitting agencies, property owners, and other interested parties, as well as with other Company personnel, to develop facilities needed by the public so as to reasonably minimize environmental and other impacts on the public in a reliable, cost-effective manner.

Q. What is the purpose of your testimony in this proceeding?

A. In order to maintain reliable service for the overall growth in the area and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, the Company proposes to complete the following in the City of Manassas and Prince William County, Virginia (collectively, the "Project"):

- Remove approximately 0.06 mile of the existing 230 kV Line #2011 termination between Cannon Branch Substation and Structure #2011/68 ("Partial Line #2011 Removal");

- Construct a new approximately 1.05-mile segment of 230 kV Line #2011 starting south of Cannon Branch Substation and terminating at Winters Branch Substation in a newly acquired, variable width right-of-way expansion, ranging in width from 50 to 120 feet, parallel and to the south and east of the existing, variable width right-of-way (ranging in width from 60 to 120 feet) containing 230 kV Lines #2195 and #2148 ("Line 2011 Extension"). Specifically, for the Line #2011 Line Extension, the Company proposes to extend a third 230 kV source to Winters Branch by extending existing Line #2011 (Clifton-Cannon Branch) to terminate at Winters Branch Substation, which would create new Line #2011 (Clifton-Winters Branch); and

- Perform related work at (1) the Company's existing Cannon Branch Substation to support the line extension to Winters Branch Substation and (2) the Company's existing Winters Branch Substation to support the new line rating.

The purpose of my testimony is to provide an overview of the route and permitting for the proposed Project. As it pertains to routing and permitting, I sponsor Sections II.A.1, II.A.2, II.A.4, II.A.6, II.A.7, II.A.8, II.A.9, II.A.11, II.A.12, II.B.6, III, and V of the Appendix. I also sponsor the DEQ Supplement filed with the Application, and co-sponsor Section II.A.3 with Company Witness Harrison Potter, and Section II.B.5 of the Appendix with Company Witness Chloe Genova.

Q. Has the Company complied with Va. Code § 15.2-2202 E?

A. Yes. In accordance with Va. Code § 15.2-2202 E, letters dated November 2, 2021, were delivered to Ms. Rebecca Horner, the Acting Director of the Prince William County Planning Department, Ms. Yesli Vega, the Prince William County Coles District Supervisor, Mr. William Patrick Pate, the Manassas City Manager, and Mr. Matt Arcieri, the City of Manassas Planning and Community Development Director, advising of the Company's intention to file this Application and inviting Prince William County and the

City of Manassas to consult with the Company about the Project. Copies of the letters are included as Appendix Attachments V.D.1-4, respectively.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS OF CRAIG HURD

Craig R. Hurd received a Bachelor of Science degree in Business Administration and an Associate of Science degree in Civil Engineering Technology from Fairmont State University in 2005. He has been employed by the Company since 2014. Mr. Hurd's experience with the Company includes Survey Contractor (2014-2016), Survey Tech I - II (2016-2019), and Siting and Permitting Specialist (2019-Present).