

September 29, 2020

BY ELECTRONIC FILING

Mr. Bernard Logan, Interim 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 facilities:
Partial Line #2010 230 kV Single Circuit Transmission Line Underground Pilot Project
(Tysons-Future Spring Hill Substation)
Case No. PUR-2020-00198*

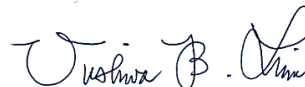
Dear Mr. Logan:

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, three (3) color copies of the map of the Virginia Department of Transportation “General Highway Map” for Fairfax County were mailed to the Commission’s Division of Energy Regulation on September 25, 2020. The Company also provided the Division of Energy Regulation electronic access, via e-room, to 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.

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.
David J. DePippo, Esq.



**Dominion
Energy®**

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

**Before the State Corporation
Commission of Virginia**

**Partial Line #2010 230 kV Single
Circuit Transmission Line
Underground Pilot Project
(Tysons-Future Spring Hill
Substation)**

Application No. 299

Case No. PUR-2020-00198

Filed: September 29, 2020

Volume 1 of 1

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY

FOR APPROVAL AND CERTIFICATION
OF ELECTRIC TRANSMISSION FACILITIES

Partial Line #2010 230 kV Single Circuit Transmission Line
Underground Pilot Project
(Tysons-Future Spring Hill Substation)

Application No. 299

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COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

APPLICATION OF	)	
	)	
VIRGINIA ELECTRIC AND POWER COMPANY	)	Case No. PUR-2020-00198
	)	
For approval and certification of electric transmission	)	
facilities: Partial Line #2010 230 kV Single Circuit	)	
Transmission Line Underground Pilot Project	)	
(Tysons-Future Spring Hill Substation)	)	

**APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY
FOR APPROVAL AND CERTIFICATION OF ELECTRIC TRANSMISSION
FACILITIES: PARTIAL LINE #2010 230 KV SINGLE CIRCUIT
TRANSMISSION LINE UNDERGROUND PILOT PROJECT
(TYSONS-FUTURE SPRING HILL SUBSTATION)**

Pursuant to § 56-585.1:5, § 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. Section 56-585.1:5 of Va. Code, which was enacted as part of the 2018 Grid Transformation and Security Act, recently was amended by the General Assembly of Virginia, signed into law by Governor Ralph Northam on March 4, 2020, and effective July 1, 2020, to allow for an additional project to qualify for the underground transmission line pilot program authorized therein (hereafter, the “Underground Pilot Program”).

3. Specifically, Section 56-585.1:5 D provides that:

[A] project shall be qualified to be placed underground, in whole or in part, if it meets all of the following criteria: (i) an engineering analysis demonstrates that it is technically feasible to place the proposed line, in whole or in part, underground; (ii) the governing body of each locality in which a portion of the proposed line will be placed underground indicates, by resolution, general community support for the project and that it supports the transmission line to be placed underground; (iii) a project has been filed with the Commission or is pending issuance of a certificate of public convenience and necessity by October 1, 2020; (iv) the estimated additional cost of placing the proposed line, in whole or in part, underground does not exceed \$40 million or, if greater than \$40 million, the cost does not exceed 2.5 times the cost of placing the same line overhead, assuming accepted industry standards for undergrounding to ensure safety and reliability; if the public utility, the affected localities, and the Commission agree, a proposed underground line whose cost exceeds 2.5 times the cost of placing the line overhead may also be accepted into the pilot program; (v) the public utility requests that the project be considered as a qualifying project under this section; and (vi) the primary need of the project shall be for purposes of grid reliability, grid resiliency, or to support economic development priorities of the Commonwealth, including the economic development priorities and the comprehensive plan of the governing body of the locality in which at least a portion of line will be placed, and shall not be to address aging assets that would have otherwise been replaced in due course.¹

¹ Va. Code § 56-585.1:5 D.

4. In this Application the Company proposes:

- (i) to remove an approximate 0.56 mile segment of its existing overhead 230 kV Reston-Tysons Line #2010 from the Tysons Substation to just south of the site for the future Spring Hill Substation (the “Existing Facilities”), and relocate and replace the line underground (the “Relocated Facilities”);
- (ii) to complete work at the Tysons Substation to allow this segment of Line #2010 to be relocated underground; and
- (iii) to construct a transition pole (“Transition Pole”) just south of the future Spring Hill Substation to transition Line #2010 from an underground line to an overhead line.

(collectively, the “Underground Project” or “Project”).

5. The Project is necessary to support economic development priorities of the Commonwealth, including the economic development priorities and the Comprehensive Plan of Fairfax County, Virginia.

6. The Company requests that this Project be approved by the Commission as a project that qualifies as a line to be placed underground, in part, because this Project meets all of the statutory requirements set forth in Va. Code § 56-585.1:5 D for the Underground Pilot Program, as briefly discussed below. Pursuant to that statute, Fairfax County (“County”) has adopted a resolution in support of this Project and requested that the Company relocate and convert a portion of Transmission Line #2010 (“Line”) between the Tysons Substation and the future Spring Hill Substation from overhead to underground to facilitate the construction of a large, planned mixed-use development, named The View, that supports the economic development priorities and the Comprehensive Plan of the County. The purpose behind this Project is described in detail in Section I of the Appendix attached to this Application.

7. The Project meets all of the statutory requirements for the Underground Pilot Program as follows:

- (i) *An engineering analysis demonstrates that it is technically feasible to place the proposed line, in whole or in part, underground*

The Company conducted an engineering analysis that demonstrates it is technically feasible to place the proposed Project underground. The Company concluded that the Open Trench/Duct bank Construction Method is the best construction method for this Project, as that method is an industry standard and the most cost-effective solution.

- (ii) *The governing body of each locality in which a portion of the proposed line will be placed underground indicates, by resolution, general community support for the project and that it supports the transmission line to be placed underground*

As stated above, Fairfax County has adopted a resolution in support of this Project and through the resolution has identified general community support for the Project to enable construction of a planned mixed-use development. In addition to the Board of Supervisors, the underground placement is endorsed and supported by Tysons Partnership, the non-profit organization representing the full spectrum of stakeholders that comprise the Tysons community.

- (iii) *A project has been filed with the Commission or is pending issuance of a certificate of public convenience and necessity by October 1, 2020*

The Company filed this Application for Commission approval of this Project on September 29, 2020; therefore, it will be pending issuance of a certificate of public convenience and necessity by October 1, 2020.

- (iv) *The estimated additional cost of placing the proposed line, in whole or in part, underground does not exceed \$40 million or, if greater than \$ 40 million, the cost does not exceed 2.5 times the cost of placing the same line overhead, assuming accepted industry standards for undergrounding to ensure safety and reliability; if the public utility, the affected localities, and the Commission agree, a proposed underground line whose cost exceeds 2.5 times the cost of placing the line overhead may also be accepted into the pilot program*

The estimated construction cost of the proposed Project is approximately \$30.4 million, which is less than \$40 million.

- (v) *The public utility requests that the project be considered as a qualifying project under this section*

Through this Application, the Company respectfully requests that the Commission consider this Project as a qualifying project under Va. Code § 56-585.1:5 D.

- (vi) *The primary need of the project shall be for purposes of grid reliability, grid resiliency, or to support economic development priorities of the Commonwealth, including the economic development priorities and the comprehensive plan of the governing body of the locality in which at least a portion of line will be placed, and shall not be to address aging assets that would have otherwise been replaced in due course*

The primary need of the Project is to support the economic development priorities of the Commonwealth generally and Fairfax County, specifically, including the economic development priorities and the Comprehensive Plan of Fairfax County.

A developer, Tysons Development LLC, intends to construct The View, a large, planned mixed-use development that supports the economic development priorities and the Comprehensive Plan of the County. The View was approved through a rezoning application land entitlement process by the Fairfax County Board of Supervisors on October 15, 2019.

Currently, Line #2010 is an overhead transmission line running from the Tysons Substation to the Reston Substation. The current alignment of the overhead line cuts through portions of Tysons that are planned for the highest densities due to their proximity to the Spring Hill Metro Station and the planned area for development of The View. Placing this portion of the Line underground would be consistent with the vision contained in the Comprehensive Plan and would help foster economic development opportunities.

See Section I of the Appendix attached to this Application for further details of how this Project satisfies the statutory requirements.

8. The proposed underground route (“Proposed Route”) consists of approximately 0.58 mile of variable width right-of-way along existing Line #2010 between Tysons Substation and just south of the future Spring Hill Substation site. It largely will be on existing Company owned right-of-way and deviates for approximately 0.10 mile to accommodate the future site of The View development. Moreover, the undergrounding will terminate at the Transition Pole.

9. The Company intends to build a Transition Pole just south of the location where the Company plans to construct the future Spring Hill Substation. The Transition Pole will be

approximately 140 feet tall, subject to final engineering. The Company also intends to replace the existing Structure #2010/12, which is located south of the future Spring Hill Substation and the planned Transition Pole. The existing approximately 61-foot Structure #2010/12 will be replaced with an approximately 90-foot structure, subject to final engineering.

10. The Company plans to commence the Project after the installation of Line #2175, the Idylwood Substation (“Idylwood”) to Tysons Substation (“Tysons”) project, is complete. The Idylwood to Tysons project is scheduled to be completed by December 31, 2022. The desired in-service target date for this Project is December 31, 2025. The Company estimates that it will take approximately 54 months for detailed engineering, materials procurement, permitting, 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 June 30, 2021. Should the Commission issue a final order by June 30, 2021, the Company estimates that construction should begin by January 1, 2023, and be completed by December 31, 2025.

11. The estimated construction cost of the proposed Project is approximately \$30.4 million (in 2020 dollars) to facilitate underground construction, construction of the Transition Pole near the future Spring Hill Substation site, and replacement of existing Structure #2010/12. This cost includes approximately \$22.6 million for underground transmission line related work (with the construction costs for the Transition Pole included), approximately \$0.70 million for overhead transmission line related work (with the construction costs for the replacement of existing Structure #2010/12 included), and approximately \$7.10 million for substation-related work at the Tysons Substation. A detailed description of the proposed Project is provided in Sections I and II of the Appendix attached to this Application.

12. The Proposed Route consists of approximately 0.58 mile of variable right-of-way width. There are no route alternatives provided as this Project is being proposed as an overhead to underground conversion on existing right-of-way, with the exception of the area being relocated to accommodate future development in the area. The impact of the proposed Project on scenic, environmental, and historical features is described in detail in Section III of the Appendix.

13. 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 Project by the DEQ and other relevant agencies. The DEQ Supplement is attached to this Application.

14. 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.

15. 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.

16. In addition to the information provided in the Appendix and the DEQ Supplement, this Application is supported by the prefiled direct testimony of Company Witnesses Harrison S. Potter, Robert J. Shevenock II, Stephen O. Taylor, Kenneth W. Wagner (Draper Aden Associates), Mohammad M. Othman, and Charles H. Weil 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 the construction of the Project pursuant to § 56-585.1:5 D and § 56-46.1 of the Code of Virginia; 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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September 29, 2020

COMMONWEALTH OF VIRGINIA
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STATE CORPORATION COMMISSION

APPLICATION OF
VIRGINIA ELECTRIC AND POWER COMPANY
FOR APPROVAL AND CERTIFICATION
OF ELECTRIC TRANSMISSION FACILITIES

Partial Line #2010 230 kV Single Circuit Transmission
Line Underground Pilot Project
(Tysons-Future Spring Hill Substation)

Application No. 299

Appendix

Containing Information in Response to
“Guidelines for Transmission Line Applications Filed under Title 56 of the Code of Virginia”

Case No. PUR-2020-00198

Filed: September 29, 2020

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EXECUTIVE SUMMARY

Pursuant to § 56-585.1:5 of the Code of Virginia (“Va. Code”), Virginia Electric and Power Company (“Dominion Energy Virginia” or the “Company”) proposes:

- (i) to remove an approximate 0.56 mile segment of its existing overhead 230 kV Reston-Tysons Line #2010 from the Tysons Substation to just south of the site for the future Spring Hill Substation (the “Existing Facilities”), and relocate and replace the line underground (the “Relocated Facilities”);
- (ii) to complete work at the Tysons Substation to allow this segment of Line #2010 to be relocated underground; and
- (iii) to construct a transition pole (“Transition Pole”) just south of the future Spring Hill Substation to transition Line #2010 from an underground line to an overhead line

(collectively, the “Underground Project” or “Project”).

The Project is necessary to support economic development priorities of the Commonwealth, including the economic development priorities and the Comprehensive Plan of Fairfax County, Virginia. Section 56-585.1:5 of the Va. Code, which was enacted as part of the 2018 Grid Transformation and Security Act, recently was amended by the General Assembly of Virginia, signed into law by Governor Ralph Northam on March 4, 2020, and effective July 1, 2020, to allow for an additional project to qualify for the underground transmission line pilot program authorized therein (hereafter, the “Underground Pilot Program”).

The Company requests that this Project be approved by the Commission as a project that qualifies as a line to be placed underground, in part, because this Project meets all of the statutory requirements set forth in Va. Code § 56-585.1:5 D.¹ Pursuant to this amendment, Fairfax County has adopted a resolution in support of this Project and requested that the Company relocate and convert a portion of Transmission Line #2010 between the Tysons Substation and the future Spring Hill Substation from overhead to underground to facilitate the construction of a large, planned mixed-use development that supports the economic development priorities and the Comprehensive Plan of the County.

The proposed underground route (“Proposed Route”) consists of approximately 0.58 mile of variable width right-of-way along existing Line #2010 between Tysons Substation and just south of the future Spring Hill Substation site. It largely will be on existing Company owned right-of-way and deviates for approximately 0.10 mile to accommodate the future site of The View development. Line #2010 (“Line”) will exit the existing Tysons Substation across Tyco Road via Virginia Department of Transportation (“VDOT”) permit and continue southwest for approximately 0.20 mile on existing 42-foot right-of-way. Temporary construction easements will be needed along this segment as will a VDOT permit. At this point, the Line will depart from the existing right-of-way and turn south within a private service road for approximately 0.05 mile on a newly acquired 30-foot easement until it reaches Spring Hill Road (Route 684). Temporary construction easements will be required along this segment. At Spring Hill Road, the Line will

¹ See Va. Code § 56-585.1:5 D (listing six factors that each project must satisfy to qualify for Commission approval under this subsection for the pilot program for underground transmission lines).

turn west within Spring Hill Road for approximately 0.05 mile via a VDOT permit until it reaches Leesburg Pike (Route 7). These two 0.05 mile sections of the Line are being relocated outside of the existing right-of-way to accommodate The View, a future development. At Leesburg Pike, the Line turns southwest crossing under the elevated Metro Train Line and crossing Leesburg Pike via a VDOT permit for approximately 0.05 mile and then continues on existing 42-foot right-of-way for approximately 0.14 mile where it turns southeast and goes around the east side of the future Spring Hill Substation site within existing easement and the future Spring Hill Substation parcel. Temporary construction easements will be required along this segment. Just south of the future Spring Hill Substation parcel, the Line continues on existing 42-foot right-of-way to terminate at a Transition Pole.

For purposes of this Project, the Company intends to build a Transition Pole just south of the location where the Company plans to construct the future Spring Hill Substation. The Transition Pole will be approximately 140 feet tall, subject to final engineering. The Company also intends to replace the existing Structure #2010/12 located south of the future Spring Hill Substation parcel and Transition Pole. The existing approximately 61-foot Structure #2010/12 will be replaced with an approximately 90-foot structure, subject to final engineering.

The proposed 230 kV underground transmission line will have a targeted continuous rating of 900 MVA.

The Proposed Route consists of approximately 0.58 mile of variable right-of-way width, as described above. There are no route alternatives provided as this Project is being proposed as an overhead to underground conversion on existing right-of-way with the exception of the area being relocated to accommodate future development in the area.

The estimated construction cost of the proposed Project is approximately \$30.4 million (in 2020 dollars) to facilitate underground construction, construction of the Transition Pole near the future Spring Hill Substation site, and replacement of existing Structure #2010/12. This cost includes approximately \$22.6 million for underground transmission line related work (with the construction costs for the Transition Pole included), approximately \$0.70 million for overhead transmission line related work (with the construction costs for the replacement of existing Structure #2010/12 included), and approximately \$7.10 million for substation-related work at the Tysons Substation.

The Project is planned to commence after the installation of Line #2175, the Idylwood Substation (“Idylwood”) to Tysons Substation (“Tysons”) project, is complete. The Idylwood to Tysons project is scheduled to be completed by December 31, 2022. The desired in-service target date for this Project is December 31, 2025. The Company estimates that it will take approximately 54 months for detailed engineering, materials procurement, permitting, 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 June 30, 2021. Should the Commission issue a final order by June 30, 2021, the Company estimates that construction should begin by January 1, 2023, and be completed by December 31, 2025.

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: Pursuant to § 56-585.1:5 of the Va. Code, Dominion Energy Virginia proposes the Underground Project. The Existing Facilities, as shown on Attachment I.A.1, will be relocated and replaced with the Relocated Facilities, as shown on the Project overview map on Attachment I.A.2.

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, Northern Virginia 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”). The Company needs to be able to maintain the overall, long-term reliability of its transmission system as its customers require more power in the future.

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 2020 PJM Load Forecast, the DOM Zone is expected to be one of the fastest growing zones in PJM, with average growth rates of 1.2% summer and 1.4% winter over the next 10 years compared to the PJM average of 0.6% and 0.6% over the same period for both 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.

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.² PJM's annual RTEP is based on the effective criteria in place at the time of the analyses, including applicable standards and criteria of the North American Electric Reliability Corporation ("NERC"), PJM, and local reliability planning criteria, among others.³ Projects identified through the RTEP process are developed by the transmission owner ("TO") in coordination with PJM, and are presented at the Transmission Expansion Advisory Committee ("TEAC") meetings prior to inclusion in the RTEP, which is then presented for approval to 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. The Project is classified as a supplemental project in response to the Underground Pilot Program. While supplemental projects are included in the RTEP, the PJM Board does not actually approve such projects. See Section I.J for a discussion of the PJM process as it relates to this Project.

The Project is necessary to support economic development priorities of the Commonwealth, including the economic development priorities and the Comprehensive Plan of Fairfax County. Section 56-585.1:5 of the Va. Code, which was enacted as part of the 2018 Grid Transformation and Security Act, was amended recently by the General Assembly of Virginia, signed into law by Governor Ralph Northam on March 4, 2020, and effective July 1, 2020, to allow for additional projects to qualify for the underground transmission line pilot program authorized therein.

² PJM Manual 14B focuses on the RTEP process and can be found at <https://www.pjm.com/library/manuals.aspx>.

³ See PJM Manual 14B, Attachment D: PJM Reliability Planning Criteria.

Specifically, Section 56-585.1:5 D provides that:

[A] project shall be qualified to be placed underground, in whole or in part, if it meets all of the following criteria: (i) an engineering analysis demonstrates that it is technically feasible to place the proposed line, in whole or in part, underground; (ii) the governing body of each locality in which a portion of the proposed line will be placed underground indicates, by resolution, general community support for the project and that it supports the transmission line to be placed underground; (iii) a project has been filed with the Commission or is pending issuance of a certificate of public convenience and necessity by October 1, 2020; (iv) the estimated additional cost of placing the proposed line, in whole or in part, underground does not exceed \$40 million or, if greater than \$40 million, the cost does not exceed 2.5 times the cost of placing the same line overhead, assuming accepted industry standards for undergrounding to ensure safety and reliability; if the public utility, the affected localities, and the Commission agree, a proposed underground line whose cost exceeds 2.5 times the cost of placing the line overhead may also be accepted into the pilot program; (v) the public utility requests that the project be considered as a qualifying project under this section; and (vi) the primary need of the project shall be for purposes of grid reliability, grid resiliency, or to support economic development priorities of the Commonwealth, including the economic development priorities and the comprehensive plan of the governing body of the locality in which at least a portion of line will be placed, and shall not be to address aging assets that would have otherwise been replaced in due course.⁴

The Company requests that this Project be approved by the Commission as a project that qualifies as a line to be placed underground, in part, because this Project meets all of the statutory requirements set forth in Va. Code § 56-585.1:5 D. Please see the Company's rationale below.

- (i) *An engineering analysis demonstrates that it is technically feasible to place the proposed line, in whole or in part, underground*

See Section I.B.1 and Attachment I.B.1 for the engineering analysis.

- (ii) *The governing body of each locality in which a portion of the proposed line will be placed underground indicates, by resolution, general community support for the project and that it supports the transmission line to be placed underground*

⁴ Va. Code § 56-585.1:5 D.

Pursuant to this statutory amendment, Fairfax County has adopted a resolution in support of this Project and through the resolution has identified general community support for the Project to enable construction of a planned mixed-use development. Line #2010 currently traverses the area planned for development. The Fairfax County Comprehensive Plan calls for the undergrounding of utilities in Tysons to position it to serve as an “urban downtown” of the County and the economic engine of the region and of the Commonwealth as a whole. In addition to the Board of Supervisors, the underground placement is endorsed and supported by Tysons Partnership, the non-profit organization representing the full spectrum of stakeholders that comprise the Tysons community. See Attachment I.A.3.

- (iii) *A project has been filed with the Commission or is pending issuance of a certificate of public convenience and necessity by October 1, 2020*

The Company filed its Application for Commission approval of this Project on September 29, 2020; therefore, it will be pending issuance of a certificate of public convenience and necessity by October 1, 2020.

- (iv) *The estimated additional cost of placing the proposed line, in whole or in part, underground does not exceed \$40 million or, if greater than \$40 million, the cost does not exceed 2.5 times the cost of placing the same line overhead, assuming accepted industry standards for undergrounding to ensure safety and reliability; if the public utility, the affected localities, and the Commission agree, a proposed underground line whose cost exceeds 2.5 times the cost of placing the line overhead may also be accepted into the pilot program*

The estimated construction cost of the proposed Project is approximately \$30.4 million, which is less than \$40 million. See Section I.I for further detail on the estimated costs.

- (v) *The public utility requests that the project be considered as a qualifying project under this section*

Through this Application, the Company respectfully requests that the Commission consider this Project as a qualifying project under Va. Code § 56-585.1:5 D.

- (vi) *The primary need of the project shall be for purposes of grid reliability, grid resiliency, or to support economic development priorities of the Commonwealth, including the economic development priorities and the comprehensive plan of the governing body of the locality in which at least a portion of line will be placed, and shall not be to address aging assets that would have otherwise been replaced in due course*

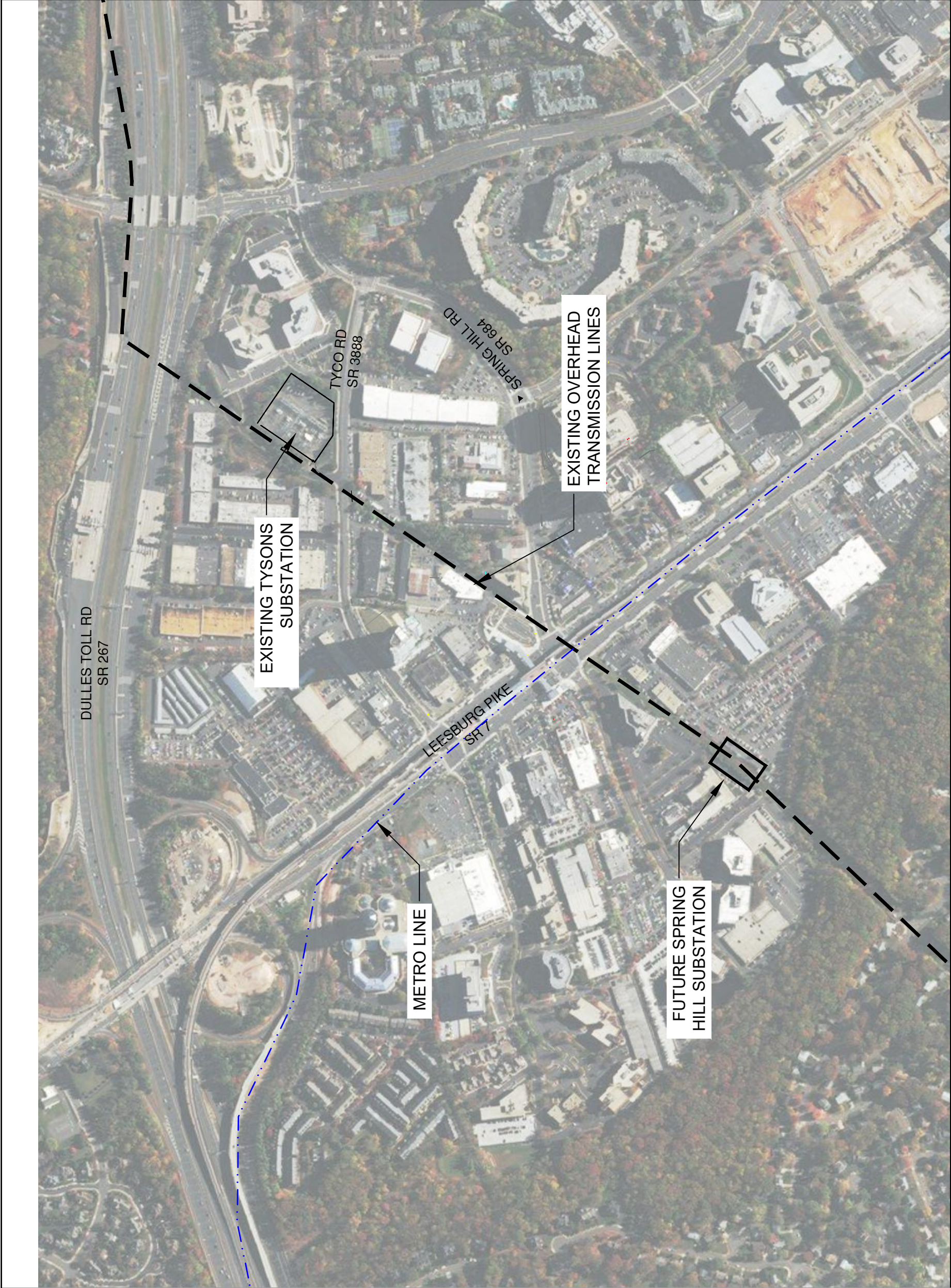
The primary need of the Project is to support the economic development priorities of the Commonwealth generally and Fairfax County, specifically, including the economic development priorities and the Comprehensive Plan of Fairfax County. See Section I.A(ii) and Attachment I.A.3, above.

Specifically, a developer, Tysons Development LLC, intends to construct The View. The View was approved through a rezoning application land entitlement process by the Fairfax County Board of Supervisors on October 15, 2019, and is considered to be a future, world-class development for Tysons Corner. It is approved for up to three million square feet of residential, commercial, and office square footage, with significant park space and cultural amenities proposed. One building, known as the “Iconic Tower” will be the tallest structure in the region at approximately 600 feet. The portion of Line #2010 that is proposed to be relocated currently traverses the area planned for development.

Tysons is the County’s urban center. With the expansion of the Metro’s Silver Line, there are now four new metro rail stops in Tysons connecting Dulles International Airport to the region’s metro center. Projected development plans for Tysons show that there will be approximately 100,000 residents and 200,000 jobs by 2050. Tysons generates \$206,533,200 in real estate taxes, or nearly 7% of the \$3.02 billion countywide real estate tax dollars (2020 Assessment). These taxes are expected to significantly rise as more development in Tysons occurs. Statewide, in FY 2018, Fairfax County contributed 22% (nearly \$6.5 billion) of the Commonwealth’s \$29.9 billion total taxes levied.

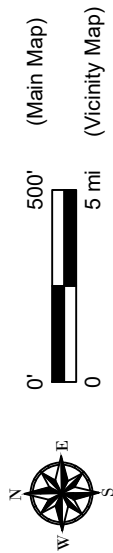
As part of the growth of the County in general, and Tysons specifically, the Company has received approval from the County to expand the Tysons Substation to accommodate Idylwood-Tysons (Line #2175). In addition, the Company has received approval from the County to construct a new Substation to be known as the Spring Hill Substation. Currently, Line #2010 is an overhead transmission line running from the Tysons Substation to the Reston Substation. When the new Spring Hill Substation is completed, the Line will connect through the new Spring Hill Substation. The current alignment of the overhead line cuts through portions of Tysons that are planned for the highest densities due to their proximity to the Spring Hill Metro Station and the planned area for development of The View. Placing this portion of the Line underground would be consistent with the vision contained in Fairfax County’s Comprehensive Plan and would help foster economic development opportunities.

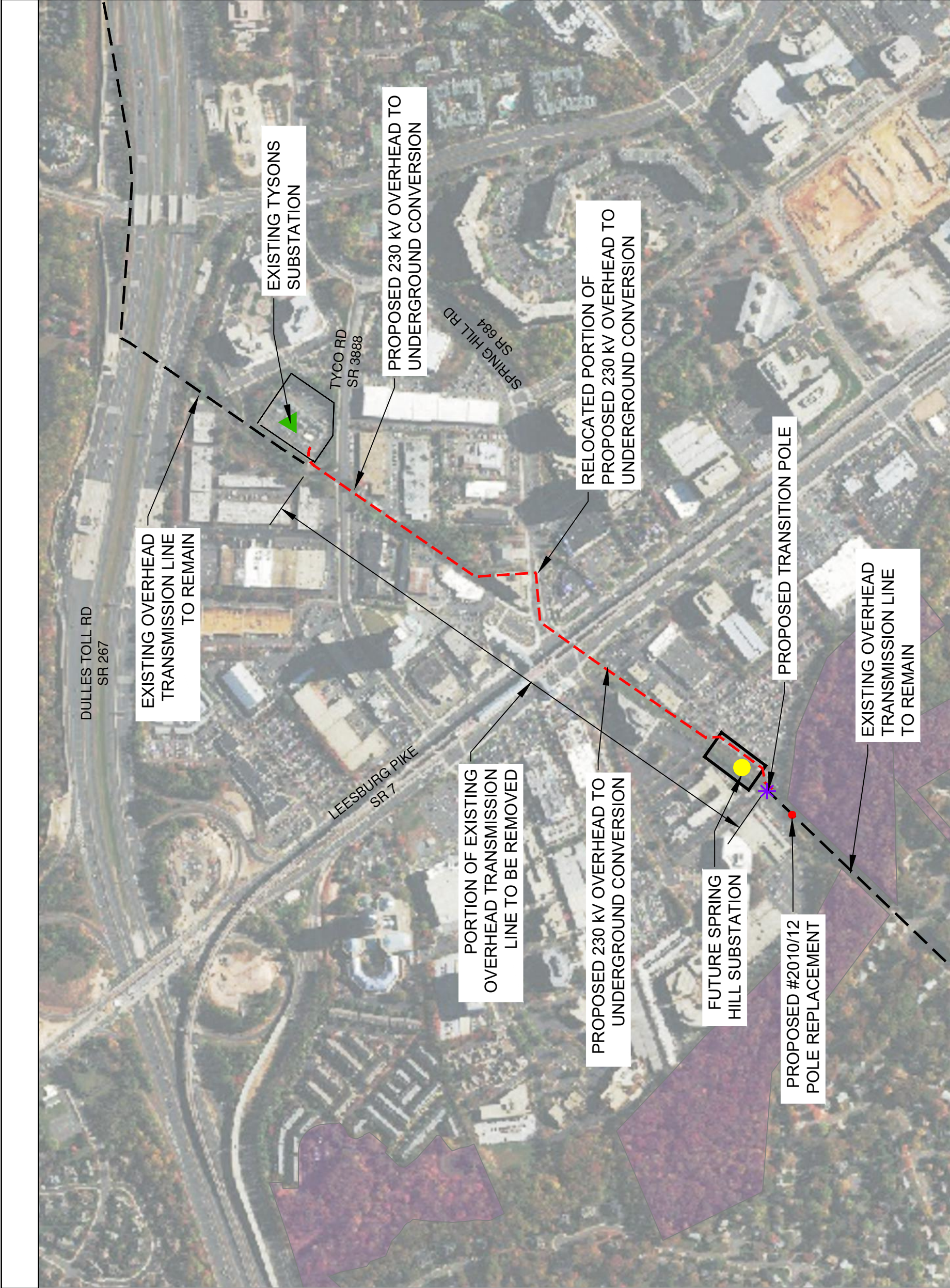
In this Underground Pilot Program, the Company will construct the first 230 kV transition pole on its system and gain additional experience with the installation of the Transition Pole. In addition, the Company will explore opportunities during the final engineering of the Transition Pole to install a pole that may be able to have its height lowered with the construction of the future Spring Hill Substation.



2010 Line Existing Layout

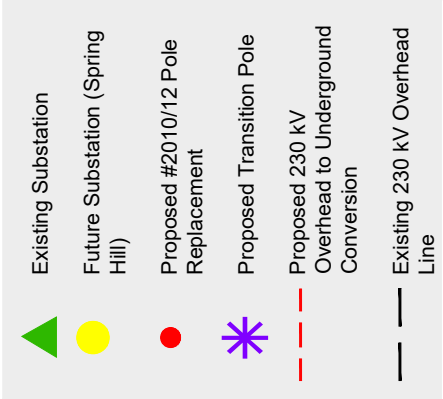
Fairfax County



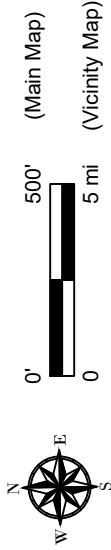


Partial Line #2010 230kV Single
Circuit Transmission Line
Underground Pilot Program (Tysons
- Future Spring Hill Substation)

Proposed Layout



Fairfax County



Board Agenda Item
March 24, 2020

ACTION - 5

Adoption of a Resolution Supporting Placement of the Springhill Substation
Transmission Line Underground (Providence District)

ISSUE:

Whether the Board of Supervisors should adopt a resolution supporting the placement of the transmission line between the Tysons Substation and the Springhill Substation underground.

RECOMMENDATION:

That County Executive recommends that the Board adopt a resolution (Attachment 3) supporting the placement of an existing overhead transmission line to be relocated underground in order to support the economic development priorities of the County and the Commonwealth and to serve the best interests of the County and its residents.

TIMING:

The Board is requested to act on this item on March 24, 2020, so that Virginia Electric and Power Company (Dominion) may include the resolution in its request to participate in the State Corporation Commission's (SCC) pilot program for underground transmission lines.

BACKGROUND:

In 2018, the General Assembly adopted Va. Code § 56-585.1:5, which established a pilot program to further the understanding of underground electric transmission lines in regard to electric reliability, construction methods and related cost and timeline estimating, and the probability of meeting such projections. Under the new law, two qualifying electrical transmission line projects can be included in the pilot program. Before a project can be included in the pilot program, a resolution from the governing body for the locality in which the line is located must be adopted, expressing the governing body's support for the underground placement.

On July 2, 2018, Dominion filed a Request to Participate in the Pilot Program with the SCC, requesting that its proposed 230-kilovolt transmission line project in Haymarket, Virginia (Prince William County) be included in the pilot program. The SCC approved Dominion's request on July 26, 2018. This leaves one remaining opening in the pilot program.

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March 24, 2020

In the 2020 General Assembly session, House Bill 576 was introduced to propose amendments to Va. Code § 56-585.1:5, specifically to expand the SCC's underground pilot program to also study the "benefits of undergrounding existing electric transmission lines to promote economic development within the Commonwealth." As part of HB 576, the pilot program was expanded to include as a qualifying project the "relocation or conversion of an existing 230-kilovolt overhead line to an underground line" if such a project would support the economic development priorities and comprehensive plan of a locality.

Tysons is the County's urban center. With the expansion of the Silver Line, there are now four new metro rail stops in Tysons connecting Dulles International Airport to the region's metro center. Projected development plans for Tysons shows that there will be 100,000 residents and 200,000 jobs by 2050. Tysons generates \$206,533,200 in real estate taxes, or nearly 7% of the \$3.02B Countywide Real Estate Tax Dollars (2020 Assessment). These taxes are expected to significantly rise as more development in Tysons comes on line. Statewide, in FY 2018, Fairfax County contributed 22% (nearly \$6.5B) of the Commonwealth's \$29.9B total taxes levied.

As part of the growth of the County in general, and Tysons specifically, Dominion has received approval from the County for a new transmission line from the Idylwood Substation to the Tysons Substation, as well as the ability to expand the Tysons Substation to accommodate the new line. That segment of the transmission line will be located underground. In addition, Dominion has received approval from the County to construct a new Substation to be known as the Springhill Substation. Currently, there is an overhead transmission line running from the Tysons Substation to the Reston Substation. When the new Springhill Substation is completed, this line will connect through the new Springhill Substation. (See Map in Attachment 1). The current alignment of the overhead line cuts through portions of Tysons that are planned for the highest densities due to their proximity to the Springhill Metro Station (See Map on Attachment 2). The overhead line is visually obtrusive and is inconsistent with the pedestrian oriented, visually attractive, high quality development that the Comprehensive Plan envisions for Tysons. Placing this portion of the line underground would be consistent with the vision contained in the Comprehensive Plan and would help foster economic development opportunities.

As an existing 230-kilovolt overhead transmission line, placing a portion of the line underground would qualify as a project to be included in the SCC's pilot program.

The attached resolution (Attachment 3) expresses the Board's strong support for undergrounding this transmission line between the Tysons Substation and the Springhill Substation. The adopted Comprehensive Plan for the County clearly calls for the undergrounding of utilities in Tysons to position it to serve as "urban downtown" of the

Board Agenda Item
March 24, 2020

County and the economic engine of the region and of the Commonwealth as a whole. An underground alignment is also superior due to safety considerations. Finally, the underground placement is endorsed and supported by the Tysons Partnership, the non-profit organization representing the full spectrum of stakeholders that comprise the Tysons community. The Tysons Partnership states that "Overhead lines are visually obtrusive and fundamentally at odds with the pedestrian oriented, urban type of development envisioned for Tysons under the County's Comprehensive Plan. Underground placement is more compatible with the Plan's intent and helps foster economic development. Undergrounding of utilities better positions Tysons as the County's 'urban downtown,' which also reinforces its position as the region's "economic engine."

FISCAL IMPACT:

There is no impact to the General Fund.

ENCLOSED DOCUMENTS:

Attachment 1: Map Showing Transmission Line between Tysons Substation and Springhill Substation

Attachment 2: Map Showing Conflict between Existing Transmission Line and Proposed Development

Attachment 3: Resolution

STAFF:

Rachel Flynn, Deputy County Executive

Barbara A. Byron, Director, Department of Planning and Development

ASSIGNED COUNSEL:

Joanna L. Faust, Assistant County Attorney

Transmission Line between Tysons Substation
and Springhill Substation



Undergrounding Tysons Substation to Springhill Substation Resolves Conflicts with Development Proposals



At a regular meeting of the Board of Supervisors of Fairfax County, Virginia, held in Conference Room 11 in the Fairfax County Government Center in Fairfax, Virginia, on Tuesday, March 24, 2020, at which meeting a quorum was present and voting, the following resolution was adopted.

Fairfax County Board of Supervisors Resolution

WHEREAS, the General Assembly established a pilot program pursuant to Virginia Code§ 56-585.1:5 in order to further the understanding of underground electric transmission lines in regard to electric reliability, construction methods and related cost and timeline estimating, the probability of meeting such projects, and the benefits of undergrounding existing electric transmission lines to promote economic development within the Commonwealth; and

WHEREAS, one qualifying project in Haymarket, Virginia has already been accepted into the pilot program;

WHEREAS, one qualifying project under the pilot program shall be the relocation or conversion of an existing 230-kilovolt overhead transmission line to an underground line in order to promote the economic development priorities and the comprehensive plan of the governing body of the locality; and

WHEREAS, in connection with the construction of the new Springhill Substation in Fairfax County, Virginia, an existing 230-kilovolt overhead transmission line is proposed to be connected to the new Substation (the Project);

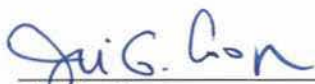
WHEREAS, the Board of Supervisors supports the placement of that transmission line underground and the County has identified general community support for the Project; and

WHEREAS, the Project would support the economic development priorities of the Commonwealth, including the Board's economic development priorities and Comprehensive Plan;

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of Fairfax County supports the Project as one that best serves the interests of Fairfax County and its residents and would support economic development priorities of the Commonwealth, including the economic development priorities and comprehensive plan.

ADOPTED this 24th day of March 2020, Fairfax, Virginia.

A Copy – Teste:



Jill G. Cooper
Clerk for the Board of Supervisors

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**

The following engineering analysis demonstrates that it is technically feasible to place the proposed Project underground in accordance with Va. Code § 56-585.1:5 D(i). Specifically, the existing Line #2010 overhead line currently traverses the developer's proposed location to construct the mixed-use development called The View. Converting this portion of the overhead line to underground will allow Fairfax County to further its Comprehensive Plan to support the economic development of the area. See Section I.A and Attachment I.B.1 for the engineering analysis.

The existing Line #2010 overhead line that will be relocated, in part, underground is a combination of 1033.5 ACSS (45/7) with a maximum operating temperature ("MOT") of 140°C and 1351 ACSR (45/7) with a MOT of 150°C. The limiting conductor is the 1033.5 ACSS (45/7) with a normal rating of 681 MVA at 100°F, an emergency rating of 681 MVA at 100°F and a load dump rating of 781 MVA at 100°F. The underground cable replacing the existing overhead line will be selected to have a continuous rating of 900 MVA.

[2] Known Future Projects

The future Spring Hill Substation will be located in Tysons along the Company's existing overhead Line #2010 route. In 2010, Fairfax County adopted a new Comprehensive Plan for Tysons designed to take advantage of four new metro stations. Up to 49 million square feet of office, residential, hotel, and commercial development is planned within Tysons's approximately 4.2 square mile radius, and over 200 MVA of new load is projected to be added in Tysons over the next 10 years. With the anticipated growth, it became apparent that a second substation would be necessary to serve the Tysons area, and in approximately 2011, the Company began development of the future Spring Hill Substation. The distribution function of the Company has submitted a delivery point ("DP") request and CPR #40-3366 for a new 230kV Delivery (Spring Hill) in Fairfax County on property owned by the Company, with an estimated energization target date of

12/31/2025. Initial installation will include two 84 MVA, 230-34.5 kV transformers, and four 34.5 kV circuits with an ultimate configuration of four 84 MVA transformers and twenty 34.5 kV circuits. As part of this Project, Line #2010 will be undergrounded from Tysons Substation to the site of the future Spring Hill Substation.

For purposes of this Project, the Company intends to build a Transition Pole just south of the location where the Company plans to build the future Spring Hill Substation because it will need to complete this Project sooner than completion of the future Spring Hill Substation.

[3] Planning Studies

Not applicable.

[4] Facilities List

Not applicable.

Engineering Analysis

Underground Feasibility Study – Options

**RE: Partial Line #2010 230kV Single Circuit
Transmission Line Underground Pilot Project
(Tysons-Future Spring Hill Substation)**

DAA project number: 18020160-110303

Date: September 15, 2020

Prepared for:
Dominion Energy
10900 Nuckols Road
Glen Allen, VA 23060



Draper Aden Associates
Engineering • Surveying • Environmental Services

1.0 Executive Summary

Virginia Electric and Power Company (“Dominion Energy Virginia” or the “Company”) proposes to remove an approximate 0.56 mile segment of its existing overhead single circuit 230kV Reston-Tysons Line #2010 (“Line”) and place these facilities underground (the “Project”). The proposed underground route (“Proposed Route”) consists of approximately 0.58 mile of variable width right-of-way. No route alternatives were considered as this Project is being proposed as an overhead to underground conversion on existing right-of-way (“ROW”), except for the area being relocated to accommodate a future mixed-use development, called The View. Specifically, this Project will support economic development priorities of the Commonwealth, including the economic development priorities and the Comprehensive Plan of Fairfax County. Section 56-585.1:5 of the Virginia Code, which was enacted as part of the 2018 Grid Transformation and Security Act, recently was amended by the General Assembly of Virginia, signed into law by Governor Ralph Northam on March 4, 2020, and effective on July 1, 2020, to allow for an additional project to qualify for the underground transmission line pilot program authorized therein.

Upon review of the various trenching and trenchless underground construction methods, evaluated in detail below, it was concluded that an “Open Trench/Duct bank Construction” method is the preferred construction method for this Project. It is the least costly of the methods studied, offers the most flexibility, and provides the Company with the greatest likelihood to meet the required 900 MVA Ampacity requirement for the Project. This method also provides the best opportunity to meet the Company’s request to keep the overhead portion of Line #2010 in place during the construction of the underground line, which eliminated most of the trenchless methods from further consideration.

2.0 Introduction

For purposes of evaluating the various construction methods for the Project, Dominion Energy Virginia commissioned a Feasibility Study of Trenchless Undergrounding Methods from Haley and Aldrich (the “H&A Report”) within the existing ROW. Three Trenchless Undergrounding Methods were evaluated in the H&A Report: (1) Horizontal Directional Drill (“HDD”), (2) Microtunnel, and (3) Direct Pipe. The H&A Report is attached as Attachment A. Draper Aden was asked to evaluate Open Trench/Duct bank Construction and a Jack and Bore Hybrid/Duct bank Construction (“Jack and Bore Hybrid”) compared to the three trenchless methods considered in the H&A Report, and to recommend a preferred construction method for the Project (as discussed below, the Direct Pipe method was rejected for the reasons in the H&A Report and not carried forward for this evaluation). The Company also requested that evaluation take into account that the existing Line #2010 will remain in place during construction of the underground line in the event the Company needs to return the Line to service during the construction period. This is referenced throughout this document as the Return to Service Requirement.

Draper Aden is a consulting engineering firm with experience working in and around Fairfax County and the Tysons area, among other areas. For example, Draper Aden has recently provided engineering and permitting assistance on the following transmission cases for the Company: Idylwood-Tysons 230kV Single Circuit Underground Transmission Line, Tysons Substation Rebuild and Related Transmission Facilities (PUR-2017-00143) (“Idylwood-Tysons Project”); Potomac Yards Undergrounding and Glebe GIS Substation Conversion (PUR-2019-00040); Haymarket 230 kV Double Circuit Transmission Line and 230-34.5 kV Haymarket Substation (PUE-2015-00107); and the Future Spring Hill Substation.

The purpose of this report is to provide an engineering analysis of the proposed construction methods and design to support the feasibility of the Project for a certificate of public convenience and necessity before the Virginia State Corporation Commission.

3.0 Transmission Right-of-Way

3.1 Existing Transmission Easement

The Proposed Route consists of approximately 0.58 mile of variable width right-of-way along existing Line #2010 between Tysons Substation and just south of the future Spring Hill Substation site. It will largely be on existing Company owned right-of-way and deviates for approximately 0.10 mile to accommodate the future site of The View development. Research of the existing easements indicates a 42-foot wide easement with both overhead and underground rights along the existing ROW. However, depending on the construction method, additional temporary construction easements will be necessary. See Attachment B for a detailed map showing the existing and proposed ROW, Virginia Department of Transportation (“VDOT”) permits, new ROW required, and temporary construction easements required (“Easement Map”).

3.1.1 Existing Easement Rights

The entire existing easement was previously owned by Fairfax County and was conveyed to the Company on May 3, 1939, from the Fairfax County Board of Supervisors. At the time of conveyance, a 22 kV line was operating on the ROW, titled “Spring Hill Vienna 22 kV Line on Fairfax County Right of Way.” Dominion Energy Virginia’s records indicate an easement width of 42 feet from Tysons Substation to the proposed transition pole (“Transition Pole”) just south of future Spring Hill Substation. This preliminary deed research does not specify the width of the transmission easement on each parcel; however, one of the parcels granting an easement to Fairfax County Water Authority includes a boundary survey indicating the width of the easement at 42 feet. A subsequent recorded easement agreement in 1971 with Fairfax County, as well as several of the exhibits indicate full easement rights, including both overhead and underground rights.

3.1.2 Roadway Crossings

Depending on the construction method, up to three VDOT roads will be impacted. Leesburg Pike (Rte. 7) and Tyco Road (S.R. 3888) would be crossed by all construction methods. Additionally, Spring Hill Rd. (S.R. 684) would be impacted by the Open Trench/Duct bank Construction method and the Jack and Bore Hybrid method. VDOT permission will be sought via permit for all three roads impacted. The Company has initiated the process to seek VDOT permits.

3.1.3 Metro Crossing

Regardless of the construction method, the Project will cross under the metro rail located in the center median area of Leesburg Pike (Rte. 7), which is elevated at the crossing location. The Company currently holds a permit with Washington Metropolitan Airport Transit Authority (“WMATA”) for the current overhead crossing and will work with WMATA to modify the existing permit to grant underground rights.

3.2 Future Underground Rights

3.2.1 Roadway Crossings and/or Construction in Roadways

A permit from VDOT would be required for all three underground road crossings for the Open Trench/Duct bank Construction method and the Hybrid Jack and Bore Hybrid method. A permit from VDOT would be required only for Tyco Road and Leesburg Pike (Rte. 7) for all other methods.

3.2.2 Temporary Construction Easements

Temporary construction easements will be required for the construction of all methods of installation. See the H&A Report ([Attachment A](#)) and Easement Map ([Attachment B](#)) for the currently identified temporary construction easements necessary for this Project.

3.2.3 Metro Crossing

A permit modification from WMATA will be required to add underground rights for the crossing under the elevated metro rail located in the center median area of Leesburg Pike (Rte. 7).

4.0 Tysons to Future Spring Hill Substation Terminations

4.1 Tysons Substation

As part of the recently approved and under construction Idylwood-Tysons Project, portions of the Tysons Substation are being rebuilt and converted to a Gas Insulated Substation ("GIS"). As part of the Idylwood-Tysons Project, space was allocated and incorporated into that design at Tysons Substation that can be used to accept this Project as it will terminate in Tysons Substation. This is the northeast termination of the Project. In addition to the GIS terminations at Tysons, space for a Reactor and associated cabling for this Project was planned into the design of the Tysons Substation.

4.2 Termination Point at a Transition Pole

The Project will transition from underground to overhead at this Transition Pole just southwest of the future Spring Hill Substation. This is the southwest termination of the underground portion of the Project.

5.0 Transmission Outage required to construct the Project

5.1 Company guidance

The Company provided guidance that any recommended construction method should be able to support keeping Line #2010 in place during construction to meet the Return to Service Requirement.

6.0 Open Trench/Duct bank Construction

6.1 Construction Configuration – The route for this method is primarily on the existing 42-foot right-of-way, except that approximately 0.05 mile of the route will be located on a service road within the 30-foot easement to be acquired and another approximately 0.05 mile located via a VDOT permit from Spring Hill Road to the crossing of Leesburg Pike (Rte. 7).

Typical construction methods for duct bank work involve open trenching with large excavators. The trench is shored temporarily with trench boxes to provide a safe working area for personnel to install the conduits and spacers. Once the conduits that are placed in the trench are properly aligned, ready-mix concrete is poured into the trench to provide physical protection and appropriate heat transfer properties around the cables. The trench boxes are then removed, and fluidized thermal backfill is placed into the trench as needed to provide the proper thermal environment for the cables to operate within the design parameters. The duct bank is installed at a minimum of 42 inches below the ground surface (or typically 56 inches below grade).

Open Trench/Duct bank Construction is typically the most cost-effective option provided there is adequate space for the trenching to be performed both vertically and horizontally. Temporary construction easements will be acquired consistent with the areas marked on the Easement Map ([Attachment B](#)). The Project has an existing 42-foot wide ROW for approximately 0.48 mile of the 0.58 mile route, which is adequate horizontal space with the additional construction easements. The remaining ROW will be adequate horizontal space with an approximately 0.05 mile route on a 30-foot easement to be acquired and approximately 0.05 mile route via VDOT permit from Springhill Road and crossing Leesburg Pike (Rte. 7), with an additional construction easement as noted on [Attachment B](#).

- 6.2 Installation Considerations** –To comply with the Return to Service Requirement, the duct banks will need to be constructed with the existing affected segment of Line #2010 in place in case the Line needs to be placed back in service. Other considerations are the challenges from crossing Leesburg Pike (Rte. 7), which involve various lane closures, night work, and seasonal project shutdowns, as trenching is not allowed to be plated from November through April.
- 6.3 Cable Ampacity Requirements** – To obtain the required 900 MVA rating, two sets of 5000 kcmil cables will be required. This installation method provides the best opportunity to meet the required ampacity by allowing for minor route adjustments within the ROW to avoid other heat sources along the Proposed Route. It will also provide the most cost-effective cable system for the required rating by allowing for the most heat dissipation out of all the options, as this method will be shallower than any other method because it provides a shorter path for the heat to dissipate. Additionally, the duct bank can be poured with a thermal concrete and backfilled with a thermal backfill, both with heat dissipating qualities designed to meet the ampacity requirement. Similar projects have utilized this installation method to satisfy the ampacity requirement
- 6.4 Environmental Considerations** – Typical duct bank construction falls under the Company’s Department of Environmental Quality (“DEQ”) Annual Standards and Specifications for Linear Projects as it relates to managing Erosion and Sediment Control and Stormwater Management, and runoff as it relates to construction.
- 6.5 Construction Schedule** – Open Trench/Duct bank Construction provides the Company with the most control as this option requires minimal coordination with the developer. One schedule restriction for this construction method will be for the use of temporary Steel Plating over open trench sections during construction within a VDOT right-of-way.

Steel plating is not allowed, per VDOT requirements, from November 1 to April 1 due to the plates being slippery and not visible to drivers in snow conditions, and hazardous to snow plows. Therefore, all trench work within VDOT roads will need to be completed outside of November 1 to April 1.

- 6.6 Estimated Costs** - This type of construction is typically the most cost-effective method for installing underground cable systems. The estimated cost for a 230 kV duct bank construction in this area is approximately \$1836/ft. The estimated cost of installing the duct bank and associated manholes is approximately \$6.59M.

7.0 Jack and Bore Hybrid

- 7.1 Construction Configuration** – The route and construction method for this option will be the same as the Open Trench/Duct bank Construction configuration above (Section 6) with the following exception: the approximate 0.05 mile section crossing Leesburg Pike (Rte. 7) would be completed by a Jack and Bore instead of open trench. This method is often implemented to avoid traffic impacts created by working on the road surface as required by the traditional Open Trench/Duct bank Construction method.
- 7.2 Installation Considerations** – To comply with the Return to Service Requirement, the duct banks and bore would need to be constructed with the overhead portion of Line #2010 in place in case the Line is needed to be placed back in service. Other considerations for this construction method are the challenges of crossing Leesburg Pike (Rte. 7). The Jack and Bore section under Leesburg Pike (Rte. 7), introduces several challenges to the Project, as detailed below.

The jacking and receiving shafts would ideally be out of the roadways and in alignment with the route, with a total length not exceeding 300 feet. These shafts are estimated to be approximately 30 feet wide by 50 feet long, with an estimated depth of at least 30 feet and up to 50 feet. Finding the appropriate space and proper alignment for these shafts and associated work areas in this busy intersection is problematic, especially on the north side of Leesburg Pike (Rte. 7). These shafts usually are located in areas free of other underground utilities, so as not to impede required work area in the shaft. If underground utilities are encountered, they either need to be temporarily relocated or supported if there is still ample work area remaining in the shaft. In this case, finding an area of 30 feet x 50 feet without other underground utilities may be a challenge. As shown in Attachment C ("Jack and Bore Options"), three preliminary drill location options were considered: (1) Option A with the drill length of approximately 230 feet; (2) Option B with the drill length of approximately 270 feet; and, (3) Option C with the drill length of approximately 215 feet. All three options are within a close proximity to a metro rail pier supporting the elevated tracks, which will require significant engineering analysis to acquire the permits for these options. All three options would require the relocation of electric, communications, water, and sewer lines.

Option A would require the eastbound lanes of Spring Hill Road to be closed for the duration of the bore with a traffic detour in place onto other roadways in the area for this eastbound closure. Option B would impact the access to a parking area and require

easements and construction of a temporary access. Option B would also require the right turn lane and crosswalk of Spring Hill Road, along with substantial vehicular movement and traffic flow internal to the adjacent metro parking lot, to be closed for the duration of the bore. Option C has a desirable alignment, as it is the shortest route and has a perpendicular crossing of Route 7, however this would require permanent easements on private property to accommodate each drill pit on either side of Route 7. In addition, the northern drill pit in Option C is in close proximity to underground fuel tanks, therefore raising potential substantial environmental concerns and causing this Option to be rejected from further consideration. VDOT, WMATA (metro rail), and impacted utility owners would require a detailed drill monitoring plan, that would require pre- and post-condition surveys, utility closed-circuit television (“CCTV”) monitoring, and survey points set and monitored frequently to provide proof of no settlement or vibration damage to any roadways, train rails, and utilities. This monitoring would impact traffic as much as open trenching through the area. In addition, the location of both pits could still impact traffic during construction as heavy equipment and all the drill related equipment would be needed in the area to access, excavate, shore, and lower equipment into the shaft and for site restoration. Summarizing the three options, it is recommended that Option C be rejected due to complications with private property, underground fuel tanks, and unknown environmental concerns. Options A and B are better options than Option C, however they are complicated by Spring Hill Road closures.

- 7.3 Cable Ampacity Requirements** – To obtain the required 900 MVA rating, two sets of 5000 kcmil cable will be required. As noted above, the majority of the route would still be open trench. Therefore, as explained in Section 6.3, in the trenched areas this alternative provides the same opportunity to meet the ampacity requirement as the Open Trench/Duck bank alternative. The difference in this alternative is the Jack and Bore section, which is in the range of being 215 feet to 270 feet long. Without specific and detailed design and geotechnical information, the exact depth is not known but is expected to be in the 30 feet to 50 feet range. Although it is possible to obtain the required ampacity at a depth of 30 feet to 50 feet, provided that the existing soil hold good heat dissipating qualities, other heat sources such as distribution lines could be in the area with limited design flexibility. These additional depths and limited flexibility could prove to provide substantial obstacles to meeting the ampacity requirements and serve as a limiting section to the total line’s ampacity capacity.
- 7.4 Environmental Considerations** – Jack and Bore Hybrid falls under the Company’s DEQ Annual Standards and Specifications for Linear Projects as it relates to managing Erosion and Sediment Control and Stormwater Management, and runoff as it relates to construction. However, with drilling, additional subsurface elements are introduced that will need to be managed on the site, such as drill spoils and mud, along with pit excavation spoils, and greater need for dewatering of the deeper excavated areas.
- 7.5 Construction Schedule** – As above, this alternative also provides similar control of the schedule except for the area needed for a drilling or receiving shaft on or adjacent to the development property, which would require developer coordination. The length of time to perform the Jack and Bore operation is estimated to take up to 2-3 months compared to 3-4 weeks for the same length of Open Trench construction. One

advantage to Jack and Bore Hybrid is that it eliminates the need for the use of temporary Steel Plating over Leesburg Pike (Rte. 7), if shafts can be located outside of VDOT ROW. This would result in increased schedule control, as Steel Plating is not allowed in VDOT managed roads from November 1 to April 1, as discussed above.

- 7.6 Estimated Costs** – This type of construction is typically used to cross under obstacles for distances up to about 300 feet when Open Trench construction is not an option. The Jack and Bore portion of this option is estimated to cost \$5000/ft. for approximately 270 feet. The estimated cost of installing the duct bank, Jack and Bore, and associated manholes, is approximately \$8.31M.

8.0 Horizontal Directional Drill (“HDD”) – Additional details are available in the H&A Report.

- 8.1 Construction Configuration** – This Trenchless Undergrounding Method would be installed as a straight route with no horizontal curves and would pass under the proposed future development, The View. It would consist of one 36-inch casing pipe, with four 8 – 10 inch pipes for the cables, two 3 – 4 inch pipes for communication, along with grout pipes and spacers to be determined.

- 8.2 Installation Considerations** - The proposed alignment is approximately 0.5 mile long from Tysons Substation to the future Spring Hill Substation. According to the H&A Report, the HDD alignment and length lend itself well for the “intersect” method of drilling, where pilot hole drilling is performed simultaneously from both ends of the alignment using two HDD rigs. This requires HDD work areas and pipe assembly areas on both ends of the Project alignment. Draper Aden is familiar with this requirement in the Tysons area and anticipates challenges in locating the space in this urban environment to perform this type of construction. The H&A Report references both man-made and natural subsurface obstacles identified in their study that impose risk on the success of the HDD Drilling method. In addition, the future garage area/foundations of The View would need to be considered as well. Prior to filing its application for the Project, the Company coordinated with the developer of the The View to determine the maximum depth of its future garage area/foundations. Unfortunately, the developer was not able to provide that information prior to filing and may not have definitive information related thereto for some time. To mitigate this risk, The H&A Report recommends the depth of installation would have to be approximately 100 feet below the ground surface and in solid bedrock, making it a more challenging and slower drill. This method could allow for the affected Line #2010 to stay in place to satisfy the Return to Service Requirement. However, construction equipment and methods would need additional analysis to ensure that there is adequate space under the existing transmission line to perform the HDD work.

H&A provided a difficulty ranking of 8 out of 10 for this method, with the general description of this ranking as “anticipate numerous issues with respect to trenchless crossing feasibility.”

- 8.3 Cable Ampacity Requirements** - To obtain the required 900 MVA rating, two sets of 5000 kcmil cables will be required. Even though there are many design and geotechnical unknowns at this time, it is likely that this installation method would require the depth

of this route to be in the range of 100 feet below grade. This method introduces the largest risk of not meeting the required ampacity. For other projects in the area, the Company was able to meet a similar ampacity requirement at 40 – 50 feet below grade. The additional depth to 100 feet is expected to have major challenges to meet the ampacity requirement. This method introduces the greatest risk and challenges to meet the required ampacity.

8.4 Environmental Considerations – The impact of drill fluid migration and potential release via path of least resistance is a concern based on the geotechnical information available. The H&A Report recommends that a professional HDD mud engineer and experienced contractor be used for this drilling method since drilling through these subsurface conditions could be challenging from the perspective of borehole stability.

8.5 Construction Schedule – This method would require coordination with the successful design engineering and contractor firms of The View, as foundation depths and locations will need to be known. The developer's schedule is unknown at this point and could impact the Project if the schedules of the two projects are not compatible.

8.6 Estimated Costs – HDD construction is estimated to cost \$2,434/ft. The estimated cost of installing the duct bank, drilling and pipe installation (HDD), is approximately \$12.08M.

9.0 Microtunnel - Additional details are available in the H&A Report.

9.1 Construction Configuration – This Trenchless Undergrounding Method would be generally along the existing right-of-way but has several small angles, as it would pass within the proposed future development, The View, via a chase (an enclosed box and conduit system) in the underground garage. The microtunnel portion would consist of one 48-inch reinforced concrete casing pipe, with four 8 – 10 inch pipes for the cables, two 3 – 4 inch pipes for communication, along with grout pipes and spacers to be determined.

9.2 Installation Considerations – The H&A Report states the best approach for microtunneling involves two separate microtunnel alignments combined with a pipe chase between them, a manhole, and open trench. Microtunnel 1 would begin in the excavation for garage C-3 of The View and terminate south of Leesburg Pike (Rte. 7) at the location of a future manhole, for a total length of approximately 0.16 mile. From this point, Open Trench/Duct bank Construction would be utilized for the remainder of the route to Future Spring Hill Substation. Microtunnel 2 would begin in the excavation for garage C-2B of The View and would terminate at Tysons Substation, for a total length of approximately 0.28 mile. Once completed these two microtunnels would be connected via a chase that would be incorporated into the construction of the underground garage. The approximate depth of the microtunnel alignment is 20 to 25 feet below ground surface.

Construction timing and coordination with the developer/contractor of The View would be required, making the Project subject to the developer's schedule. The most limiting factor about this method, however, is that it would not allow for the affected Line #2010 segment to stay in place because the building construction for The View would

need to start to access the future garage excavation area, therefore not satisfying the Return to Service Requirement (see further explanation in section 9.5 below).

- 9.3 Cable Ampacity Requirements** - To obtain the required 900 MVA rating, two sets of 5000 kcmil cables will be required. The difficulty to achieve the required rating using this method would rank somewhere between Open Trench and HDD. The large uncertainty pertaining to the microtunnel installation method is in the area of the pipe chase through the foundation of the developers building/garage. Coordination with the developer/contractor of The View would be required to understand installation specifics of their foundations and the thermal characteristics of the concrete that they plan to use for their foundation. Additional heat sources within the development, including the building/garage, are also a risk, as any heat source would negatively impact the ampacity. Nevertheless, despite the many risks and unknowns with this method, it is conceivable that the required ampacity could be obtained.

- 9.4 Environmental Considerations** – The Microtunneling portion of this Project would fall under the Company’s DEQ Annual Standards and Specifications for Linear Projects as it relates to managing Erosion and Sediment Control and Stormwater Management, and runoff as it relates to construction. Drill spoils and mud, along with pit excavation spoils, also must be environmentally managed. The access to and the drill work areas for the drill sites within the garage would fall under the developer’s land disturbance permit, which would require executed memorandums of understanding between the developer and the Company.

- 9.5 Construction Schedule** – This methodology relies heavily on the schedule of The View Project, see the H&A Report ([Attachment A](#)) for further explanation. It is our opinion that it would be extremely difficult to coordinate the excavation of the garage areas with the developer, then have them stop to allow the microtunneling operation to begin and be completed. Also, the design and construction coordination for the chase required to connect the two microtunnels within the future garage area is extremely problematic. None of this work could begin until the developer excavates the named garages, and there is little chance that the need for these excavations will align with the developer’s timing or construction sequence. We believe that the coordination required for this methodology introduces an unacceptable amount of risk to the construction schedule of the Project.

In addition, this methodology does not allow for the Return to Service Requirement because the Line #2010 would need to be removed prior to starting the garage excavation and should therefore be rejected.

- 9.6 Estimated Costs** - Microtunnel construction is estimated to cost \$4,874/ft., the chase portion is estimated to cost \$1500/ft. Adding the Microtunnel and chase costs and netting out the Open Trench sections, the estimated cost for installing duct bank, the chase section, and the Microtunnel Section, excluding cable costs, is approximately \$13.40M.

- 10.0 Direct Pipe** – This method is described in the H&A Report and is “Not recommended” as shown on page 21 of the Report.

11.0 Conclusion – The evaluation of these alternatives relied heavily on the work provided in the H&A Report, combined with DAA’s experience working in and around this area and on similar projects. In addition, the Return to Service Requirement eliminated some methods from further consideration. This evaluation was completed by comparing traditional Open Trench/Duct bank Construction to various trenchless methods and can be summarized and ranked as follows:

1. The ***Open Trench/Duct bank Construction alternative*** is the preferred construction method when comparing impacts, costs, and schedules. This engineering analysis finds that it is technically feasible to place this segment of Line #2010 underground as proposed by the Company through this method. This method is the most common method of duct bank installation for underground transmission lines where access is available. It also is cost-effective and offers the most routing flexibility and the most likelihood to meet the required 900 MVA ampacity requirement for the Project. The open trench method of construction currently is being used by the Company on another Northern Virginia project near this Project, that being the Idylwood-Tysons Project. The majority of the Idylwood-Tysons Project, except for the HDD section required to go under I-495 and I-66, is open trench/duct bank construction.
2. The ***Jack and Bore Hybrid alternative*** was rejected due to the large land requirements for the drilling and receiving shafts, associated work areas, and developer coordination. Although temporary, these shafts are a 30 feet x 50 feet minimum once constructed and additional space is needed for support equipment and material to be lowered into the shafts as work progresses. Although space was identified as shown in the [Attachment C](#), this is a congested intersection in an urban area, thereby making this extremely difficult to perform. Additionally, the alignment, vibration and settlement monitoring, cost, and risk factor were also concerning for the Company and led to rejecting this alternative.
3. The ***Microtunnel alternative*** was rejected due to not being able to meet the Return to Service Requirement, scheduling challenges, and cost.
4. The ***HDD alternative*** was rejected due to its high difficulty ranking based on risk assessment, along with further complications of accommodating the Return to Service Requirement. This method was also the least likely to meet the 900 MVA Ampacity requirement.
5. The ***Direct Pipe alternative*** was rejected due to severe complications that could not be overcome. For more details, see page 21 of the H&A Report.

Glossary -Definitions

Open Trench/Duct bank

The open trench construction method is the most straightforward and generally the most cost-effective solution for installing an underground line. The method utilizes construction equipment to excavate a trench along the path of the underground line. The standard depth of installation is about 56 inches below grade. Once the trench is excavated and shored for safety, trench spacers and PVC conduits are placed in the bottom of the trench and concrete is poured around them to help with protection of the cable system. The trench is then backfilled to specifications and the initial grade is restored. This method allows for greater flexibility to avoid existing utilities and generally offers good thermal characteristics for heat dissipation.

Jack and Bore

Similar to microtunneling explained below, this trenchless methodology requires the excavation of a jacking and receiving pit on either end of the bore. Unlike microtunneling, this technique needs to be in a straight path and does not have the ability to be steered. With these limitations, it limits the length that is generally acceptable to approximately 300 feet. This process uses a boring machine that applies force to the casing pipe and drill head. Behind the drill head, there is an auger in the casing pipe that removes the soils from behind the drill head pushing them back to the drill pit. An auger is a drilling device, or drill bit, used for making holes in wood or in the ground. These spoils are then dug out from the surface. Once the drill head enters the exit pit, the drill head and auger are removed, and the casing pipe is left in place.

Horizontal Directional Drilling

Horizontal Directional Drilling (“HDD”) is a trenchless construction method where a borehole is created by drilling a pilot hole in the ground using a surface launched drill rig. The pilot hole is then enlarged in stages to an appropriate size based on the product pipe diameter. The product pipe is then pulled into place by a drill rig. This method requires enlarging the pilot to approximately 1.5 times the diameter of the product pipe while keeping the borehole open and stable using drilling fluids. This introduces an inherent risk of bore hole collapse in case of large diameter HDD drills under certain geological conditions.

Microtunneling

Microtunneling involves the installation of pipelines from a jacking shaft to receiving shaft by excavating a borehole using a remotely controlled, laser or gyroscope guided Microtunnel Boring Machine (“MTBM”) with continuous face and ground support. There is a potential settlement issue if there is improper operation of MTBM or too large of an overcut is used (contractor selection). The stability of the borehole is maintained using bentonite lubrication pumped from the sides of the MTBM that counteracts both earth load face pressure and hydrostatic pressure from groundwater. The stability of the face is maintained using bentonite slurry under a prescribed pressure. The slurry is mixed in tanks located near the jacking shaft at ground surface and pumped using slurry pipes through the casing pipe to the cutting head of the MTBM. The slurry mixes with the subsurface formation in front of the MTBM under pressure. The excavated cutting mixed with slurry is returned to the surface via a parallel slurry pipe for removal of cuttings from the slurry via an onsite process unit. The casing pipe is jacked behind

the MTBM using a pipe jacking frame that is setup against a thrust block in the jacking shaft. Upon completing the excavation of the borehole, the MTBM is retrieved at the preconstructed receiving shaft. Most of the microtunneling operations performed in the United States typically consist of straight alignment although there are a few cases of successful curved microtunnel projects.

Direct Pipe

The Direct Pipe method is a relatively new construction methodology first used to cross the Rhine River in 2007 in Germany. This method pioneered by Herrenknecht AG combines the technical aspects of HDD and Microtunneling. Direct pipe can be generally described as a hybrid between HDD and Microtunneling. It is a technology where a borehole slightly larger than the product pipe (5% to 10% of the diameter of the product pipe) is constructed using MTBM with simultaneous installation of a continuous steel casing or product pipe behind the MTBM using pipe thrusters. Pipe thrusters are used to hold the outside of the pipe and push the pipe into the excavated borehole behind the advancing microtunnel head.

Estimated Costs

The Estimated Costs identified in this report are for comparative purposes only and represent typical costs for the civil portion only for each construction method discussed. Civil is a common term used in estimating the separate costs associated with all elements of trench work (trenching, pipe, and conduit installation) separate from the electrical components portion of the Project. Civil costs are the costs it takes to get the construction method complete and ready to install the cable and electrical components. Costs shown do not include labor or material for cable, splices, terminations, traffic control, rehabilitation of sidewalks and roads, easements, associated substation work, transmission structures and replacements, and therefore only represent a portion of the costs presented by the Company for the Project.

Attachments:

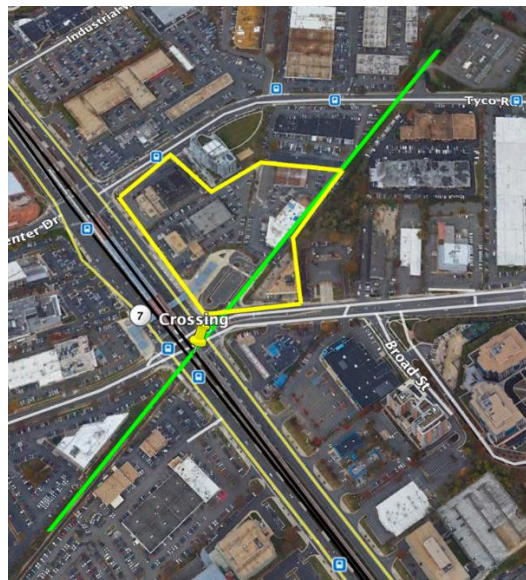
Attachment A – H&A Report

Attachment B – Easement Map

Attachment C – Jack & Bore Options



REPORT ON
CONCEPTUAL TRENCHLESS FEASIBILITY STUDY
LINE 2010 AT INTERSECTION OF SPRING HILL ROAD AND
LEESBURG PIKE
TYSONS, VIRGINIA



by
Haley & Aldrich, Inc.
McLean, Virginia

for
Dominion Energy
Richmond, Virginia

File No. 135080-002
September 2020



HALEY & ALDRICH, INC.
1497 Chain Bridge Road
Suite 304
McLean, VA 22101-2833
703.336.6200

15 September 2020
File No. 135080-002

Dominion Energy
701 East Cary Street
Richmond, Virginia 23219

Attention: Steven O. Taylor

Subject: Conceptual Trenchless Feasibility Study
Line 2010 At Intersection of Spring Hill Road and Leesburg Pike
Tysons, Virginia

Dear Mr. Taylor:

We understand that Dominion is in the process of investigating the feasibility of using trenchless methods to underground the existing overhead Line 2010 from Tysons Substation to a proposed Spring Hill Switching Station in Tysons, VA. The proposed underground alignment will pass within an existing Dominion easement underneath the intersection of Spring Hill Road and Leesburg Pike (Rte. 7) and “The View at Tysons” planned development.

In accordance with your request, Haley & Aldrich, Inc. (Haley & Aldrich) is pleased to submit this conceptual feasibility report evaluating three trenchless installation methods. Haley & Aldrich performed this work in accordance with our proposal dated 8 April 2020, and your subsequent authorization on 14 April 2020.

Project Overview

Line 2010 (110 KV) is an overhead transmission line that generally runs in the northeast to southwest direction from the existing Tysons Substation to a proposed Spring Hill Switching Station. The project location is shown in Figure 1. Prominent surface features and associated foundations in proximity of the alignment include:

- “The View at Tysons” development consisting of high-rise residential and commercial buildings, five story underground garages and landscaped areas
- WMATA Silver Line viaduct
- Existing overhead poles for Line 2010
- Other commercial and residential buildings



Figure 1 – Overview of the project location

PRODUCT PIPE SIZES

HDD, microtunnel and direct pipe were considered for this feasibility study. The following product pipe configuration is considered as a part of this feasibility study:

- Four 8 to 10-in. pipe for the cables
- Two 3 to 4-in. pipes for communication
- One 36-in. casing pipe
- Grout pipes – Number of grout pipes will be determined based on the length of installation
- Spacers – Number of spacers will be determined based on the length of installation

SUMMARY OF SUBSURFACE INFORMATION

As part of this feasibility study, Haley & Aldrich reviewed the following documents to interpret the subsurface geologic conditions and prepare the subsurface profile. The documents were provided by Dominion. No subsurface explorations were performed specifically for this feasibility study.

- Tysons Corner to Herndon Line 2010-01. Geotechnical Boring Logs prepared by Girdler Foundation & Exploration Co., Lanexa, Virginia on behalf of Virginia Electric Power Co. (VEPCO). Dated February 1973.
- Pole Tower Location Sheets, 230 kV Transmission Line No 2010, Tysons to Dranesville, Drawing No. 1.2010.1.99, Sheet 1 of 13, by Stone & Webster on behalf of Virginia Electric Power Co. (VEPCO). Original plan date May 1971 with additions made through September 1999.
- Geotechnical Engineering Evaluation, Tysons Substation Rebuild, 8440 Tyco Road, Tysons, Virginia. Prepared by Kleinfelder for Dominion Energy Virginia. Dominion Project No. 992466D1 dated January 7, 2019
- Final Subsurface Investigation Report - Dulles Corridor Metrorail Project, Phase I Extension (West Falls Church to Wiehle Avenue), Fairfax and Loudoun Counties, Virginia, Volume 1. Prepared by MACTEC Engineering and Consulting, Inc. on behalf of Dulles Transit Engineers, Vienna, Virginia. MACTEC Project No: 3551-04-0429, dated September 29, 2005.
- Preliminary Geotechnical Engineering Report, The View at Tysons Towers C2A and C2B, 1576 Spring Hill Road, Tysons, Fairfax County, Virginia. Prepared by ECS Mid-Atlantic, LLC on behalf of the CDC Companies, Vienna, Virginia. ECS Project Number 01:27709-A, and dated March 29, 2019.
- Final Geotechnical Engineering Report, The View at Tysons, 1576 Spring Hill Road, Tysons, Fairfax County, Virginia. Prepared by ECS Mid-Atlantic, LLC on behalf of the CDC Companies, Vienna, Virginia. ECS Project No. 01:27709, dated September 19, 2018.

This evaluation did not include an assessment or review of the potential for contaminated materials (soil and groundwater) at the proposed site.

REGIONAL AND BEDROCK GEOLOGY

Introduction

Haley & Aldrich reviewed readily available geologic publications and maps relative to the overburden soils and bedrock in the vicinity of the project alignment, including selected geotechnical test boring logs prepared by others (referenced above).

Physiographic Province

The Spring Hill HDD project is located in the Piedmont Physiographic Province of Virginia, a terrain that forms characteristically undulating hilly uplands, which is underlain by tightly-folded and faulted metamorphic and crystalline bedrock that has been variably altered and subjected to long-term weathering.

The extensive weathering results in rock that is commonly highly decayed near ground surface, yielding soil-like materials (typically termed “residual soils,” “residuum,” or “saprolite”) that exhibit a decrease in weathering characteristics with increased depth. The weathering effects occur along joints, fractures and foliation planes within the rock mass itself, and some rock types (e.g., schists) are more vulnerable to weathering and decomposition than other rocks (gneisses, quartz veins, intrusive granites).

A typical soil profile in the Piedmont exhibits silty and clayey soils near-surface where weathering is more advanced, followed with increasing depth by sandy SILTS and silty SANDS. As the rock become less and less weathered, the soil matrix expresses more distinct rock “fabric” or “grain” until more competent rock is encountered that is reflective of the original parent rock. In the area of Tysons Corner and parts of Fairfax County, the weathered residual soils that overlie more competent rocks can extend to depths of about 100 ft or more from ground surface.

Due to the weathering continuum, no clear, distinct boundary between residual soil and rock exist, but instead a transitional zone of “decomposed rock” is typically found overlying the parent rock. Consequently, the boundary between decomposed rock and harder, more competent rock is often irregular and erratic, even over short lateral and vertical distances, especially in high angle bedded and foliated rocks. As such, there can be pods or lenses of hard rock within zones of decomposed rock or within the residual soils that may be found well above the competent bedrock.

Bedrock Type

The project area is underlain by bedrock of the Mather Gorge Formation, which is comprised of interbedded, foliated metamorphic rocks such as quartz-rich schists, phyllonite, metagraywacke, impure quartzite, migmatite and gneiss, with rare intrusive rocks. The tightly folded metamorphic rocks are aligned in a general southwest-to-northeast fold ridge (known as the Freedom Hill Antiform), and the Spring Hill HDD route roughly parallels this fold feature.

Subsurface Profile

To develop the subsurface profile for this study, we grouped the test boring log classifications and soil descriptions developed by others into three broad categories based on their general engineering and geologic properties. Note that the attributes for each category reflect a range of specific material properties that are described in more detail on the test boring logs.

Fills: Classified as soils that have been disturbed, placed or modified by man, these typically loose to medium dense clayey or silty SANDS often contain variable amounts of organic soils, wood fragments, metal, wire, plastic, concrete, boulders or other man-made obstructions, such as former foundations.

Saprolite/Residual Soils: These naturally occurring soils were identified below the Fills and reflect a wide range of soil grain sizes and in-situ soil densities due to their origin as highly weathered bedrock. Commonly described as consisting of sandy lean CLAY, sandy SILT, clayey SAND and silty SAND all with varying amounts of clay, sand or gravel, they exhibited a general increase in density and strength with depth.

The colors of the Saprolite/Residual Soils also varied widely, and included light brown to dark brown, light green gray, yellow-brown, red-yellow, red-brown, light to dark gray, and yellow white descriptions. Evidence of their origin as highly weathered foliated metamorphic rocks was indicated by the occurrence of highly-micaceous beds, visible relict rock structure in the soil samples, and presence of quartz gravels. The percentage of fines (soil grains passing the #200 soil sieve) roughly ranged from 52 percent to 72 percent.

Decomposed Rock: On the profile, Decomposed Rock was outwardly similar to the overlying Saprolite/Residual Soils as they both result from weathering of bedrock, but samples of the Decomposed Rock, however, exhibited more distinct relict rock fabric, original rock foliation and bedding, and possessed higher typical densities (based on the Standard Penetration Test [SPT]) that still required 50 to 100 sample hammer blows to achieve 6-in. (or less) of sampler penetration. The boundaries between the overlying Saprolite/Residual Soils and the Decomposed Rock, and that of the Decomposed Rock and underlying parent rock, was often irregular, and will vary laterally and vertically depending on location. The percentage of fines in the Decomposed Rock roughly ranged from 41 to 63 percent.

Based on the test boring logs, the Decomposed Rock was typically schistose in character, although at least one boring for the WMATA Silver Line viaduct structures encountered gneiss. Relict pods, veins and clasts of quartz were also described in this material.

The pertinent subsurface information is shown in Appendix A. For the purposes of this study, project elevations are referenced to Mean Sea Level (MSL).

Trenchless Methods Evaluated for This Study

Three trenchless alternatives were evaluated as a part of this feasibility study include:

- HDD
- Microtunnel
- Direct pipe

Below is a summary of conditions, issues, and opinions that affect feasibility and cost for the trenchless undergrounding of Line 2010.

ALTERNATIVE 1 - HORIZONTAL DIRECTIONAL DRILL

Logistical Considerations

The proposed HDD alignment is approximately 2,670 ft in lengths starting at the Tysons Substation and ending at the proposed Spring Hill Switching Station as shown in Figure 2. The length of HDD alignment lends well for “intersect” method of drilling where pilot hole drilling is performed simultaneously from both ends of the alignment using two HDD rigs. Therefore, HDD work areas and pipe assembly areas are proposed on both sides of the alignment. The final direction of alignment may be selected based on coordination with private property owners and contractor’s means and methods.

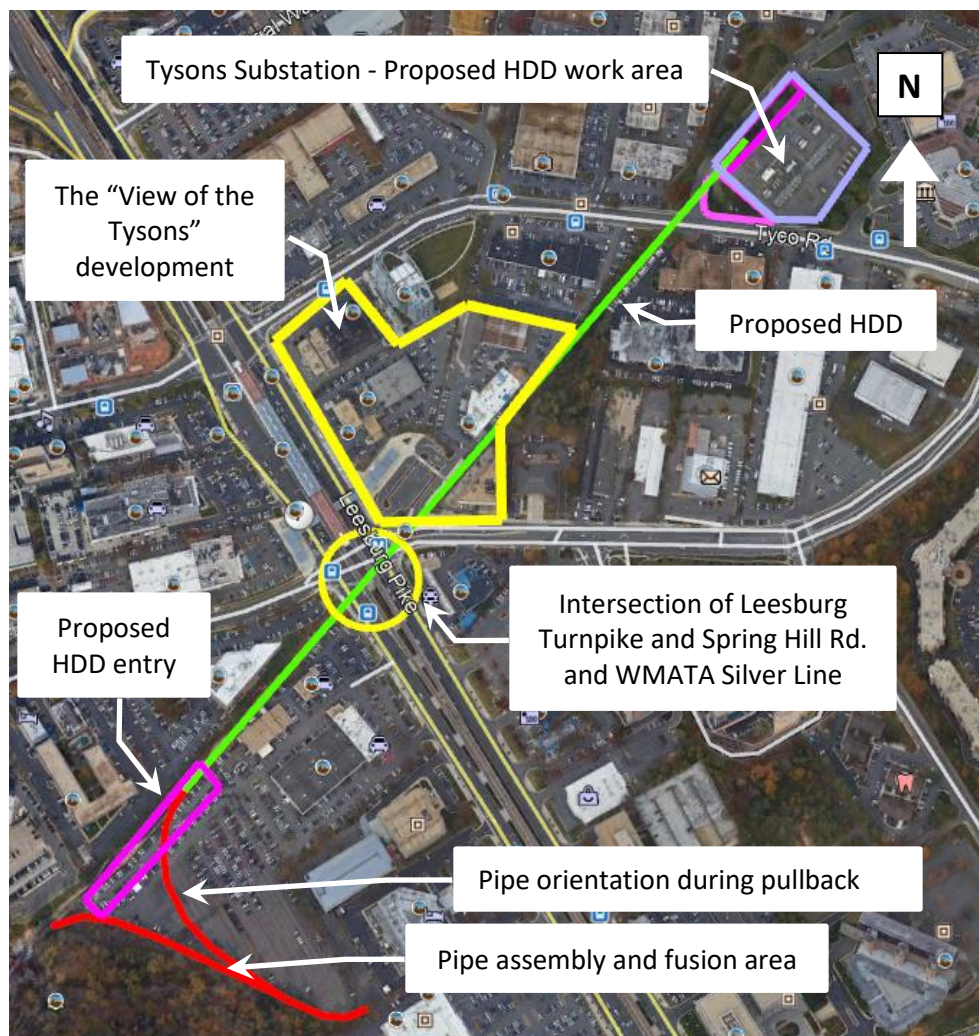


Figure 2 – Overview of the HDD alignment and work areas

Spring Hill Side

The proposed HDD work area on the Spring Hill Switching Station side is in a parking lot located south of the commercial building as shown in Figure 3. Google earth study of this area indicates that there is sufficient space to setup HDD equipment and to assemble and fuse multiple 1,000 ft pipe strings. Coordination and approval from the private property owner will be required since access to the proposed area is through Leesburg Pike and through private property.

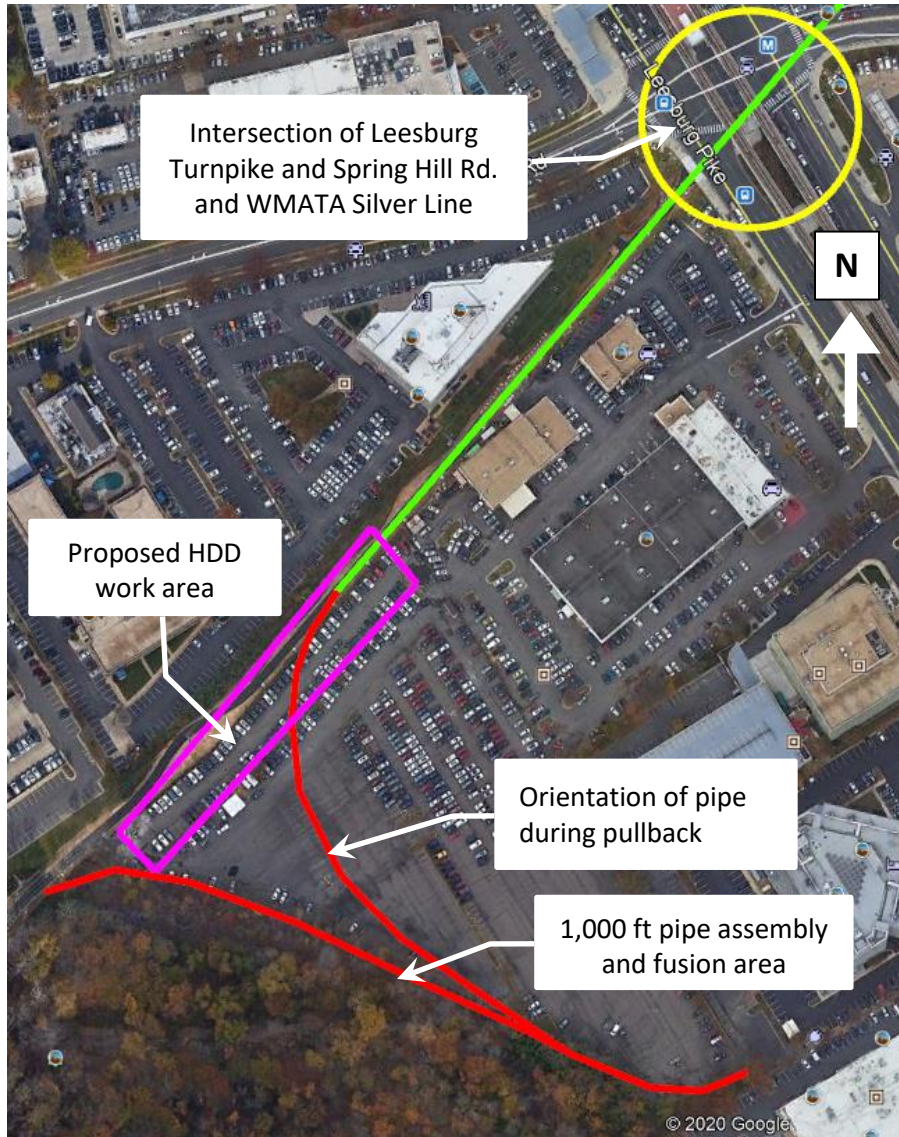


Figure 3 – Proposed HDD work area and pipe assembly area

Tysons Substation Side

The HDD work area on the northeast side is on strip of landscaped area between Tysons Substation and the access road to Dulles Plaza. Challenges in this area include securing the additional work area south of the Tysons Substation as shown in Figure 4, tree clearance in the strip of land between substation and access road to the west, and access issues to and from the substation. Assuming these challenges can be addressed, the recommended work area can be used for HDD equipment setup.

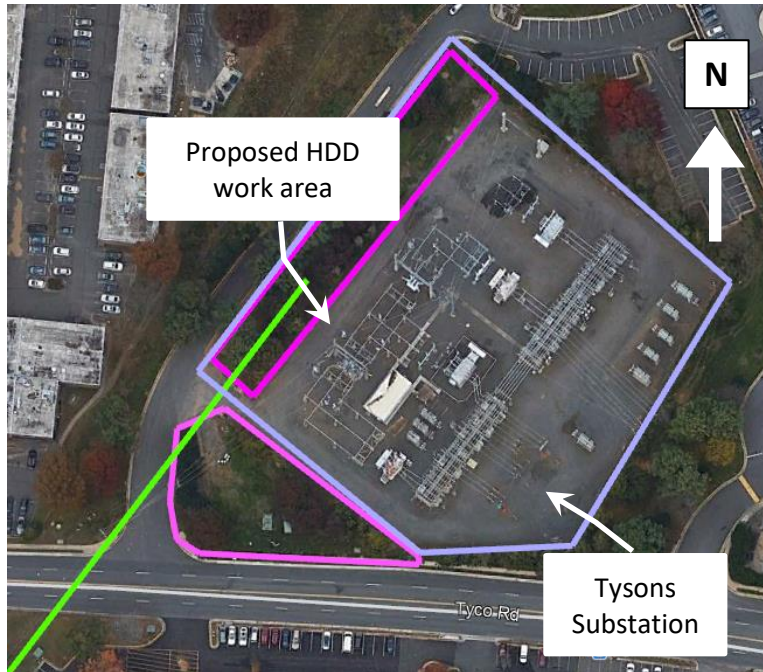


Figure 4 – Proposed HDD exit side work area

The proposed pipe assembly area on the northeast side is shown in Figure 5. The available length of assembly area is approximately 1,200 ft and will require coordination and approval from the Dulles Plaza located north of the Tysons Substation.

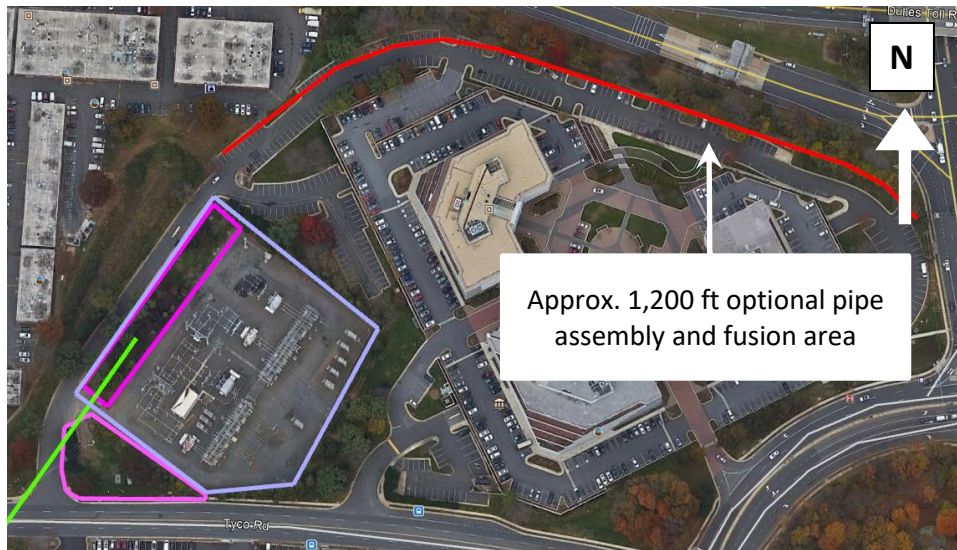


Figure 5 –Pipe assembly and fusion area north of Tysons Substation

Technical Considerations

The origin of an underground obstruction can be natural, such as a large pinnacle or knob of less-weathered and resistant rock; a boulder; or due to a “mixed face condition” where there is a contrast between softer ground (soil) and harder ground (bedrock). Certain geologic areas, such as glaciated terrains, can be at higher risk to underground obstructions due to the prevalence of durable, hard, crystalline boulders within the glacial deposits. Nonetheless, few geologic terrains are completely absent from the risk posed by naturally occurring underground obstructions, and the uncertainty of identifying them in advance.

Underground obstructions can also be man-made, such as abandoned building foundations, earth support systems, other utilities, in-use building foundation systems, and in the case of this project, Dominion transmission line pole foundations, and the WMATA Silver Line foundation elements. Apart from the natural subsurface conditions, the proximity of the HDD alignment to manmade subsurface features pose challenges relative to the depth of the HDD alignment underneath the above-mentioned features.

Based on a brief review of foundation data, a common type of deep foundation system in the Tysons Corner area is constructed of 2- to 5-ft diameter reinforced drilled shafts, roughly 24 to 64 ft deep. These appear to be present along the Dominion transmission line easement and the WMATA Silver Line viaduct piers. Similarly, there appear to be 2- and 3-ft diameter drilled shafts planned to support The View at Tysons development. Accordingly, the presence of these potential underground obstructions must be considered, and avoided where possible, in developing viable trenchless routes for the Spring Hill HDD project.

For the HDD alignment to proceed underneath the piles, the depth of installation would have to approx. 100 ft below ground surface and in sound bedrock making for a more challenging and slower drill. The

proposed alignment proceeds through decomposed bedrock at a depth of approximately 70 to 75 ft below ground surface and above the bottom of the piles elevations as shown in the HDD profile in Appendix A.

Close coordination with the developer of “The View at Tysons” from the initial stages of the project so that they can consider the HDD drill path in their foundation design. Assuming the HDD is performed before the construction of the building foundations and the design of the foundations is not complete, the intent would be to design a 20 ft clear separation between piles as a part of the foundation design to make way for the drill path. Recommendations for the design or cost implications are not a part of this feasibility study.

The proposed preliminary HDD profile is shown in Appendix A. Detailed HDD calculations have not been performed as a part of this study. We recommend that detailed calculations be performed as a part of the final design to determine the pipe material, wall thickness and HDD geometry. The specifics of the proposed preliminary HDD alignment include:

- Length: Approximately 2,670 ft
- Depth of mid-section of the HDD alignment: Approximately 70 to 75 ft below ground surface
- Approximate subsurface conditions: Decomposed bedrock
- The following product pipe materials are recommended. Decision on the pipe material should be based on the final design.
 - Four 8 to 10-in. pipe for the cables
 - High-Density Polyethylene (HDPE) or Fusible PVC (FPVC)
 - Two 3 to 4-in. pipes for communication
 - High-Density Polyethylene (HDPE) or Fusible PVC (FPVC)
 - One 36-in. casing pipe
 - Steel or High-Density Polyethylene (HDPE) or FPVC
 - Grout pipes – Number of grout pipes will be determined based on the length of installation
 - High-Density Polyethylene (HDPE) or FPVC
 - Spacers – Number of spacers will be determined based on the length of installation
 - HDPE
 - Thermal grout
 - Quantity based on the annular volume inside the casing pipe

Construction Challenges

Following construction challenges have been identified based on available information:

- The presence of “underground obstructions” to trenchless installations can impede, deflect, or completely stop the trenchless tools.
- Final HDD design should carefully consider the zone of influence and impact to the piles and the drill while determining the final drill depth.

- Impact of drill fluid migration and potential release via the path of least resistance is also a concern.
- High accuracy gyroscope-based tracking systems are recommended while drilling due to decreased tolerances and increased risk of intercepting the piles.
- It is recommended that a professional HDD mud engineer and experienced contractor be used for drilling since drilling through these subsurface conditions could be challenging from the perspective of borehole stability.

ALTERNATIVE 2 - MICROTUNNEL

This alternative involves two separate microtunnel alignments as shown in Figure 6.

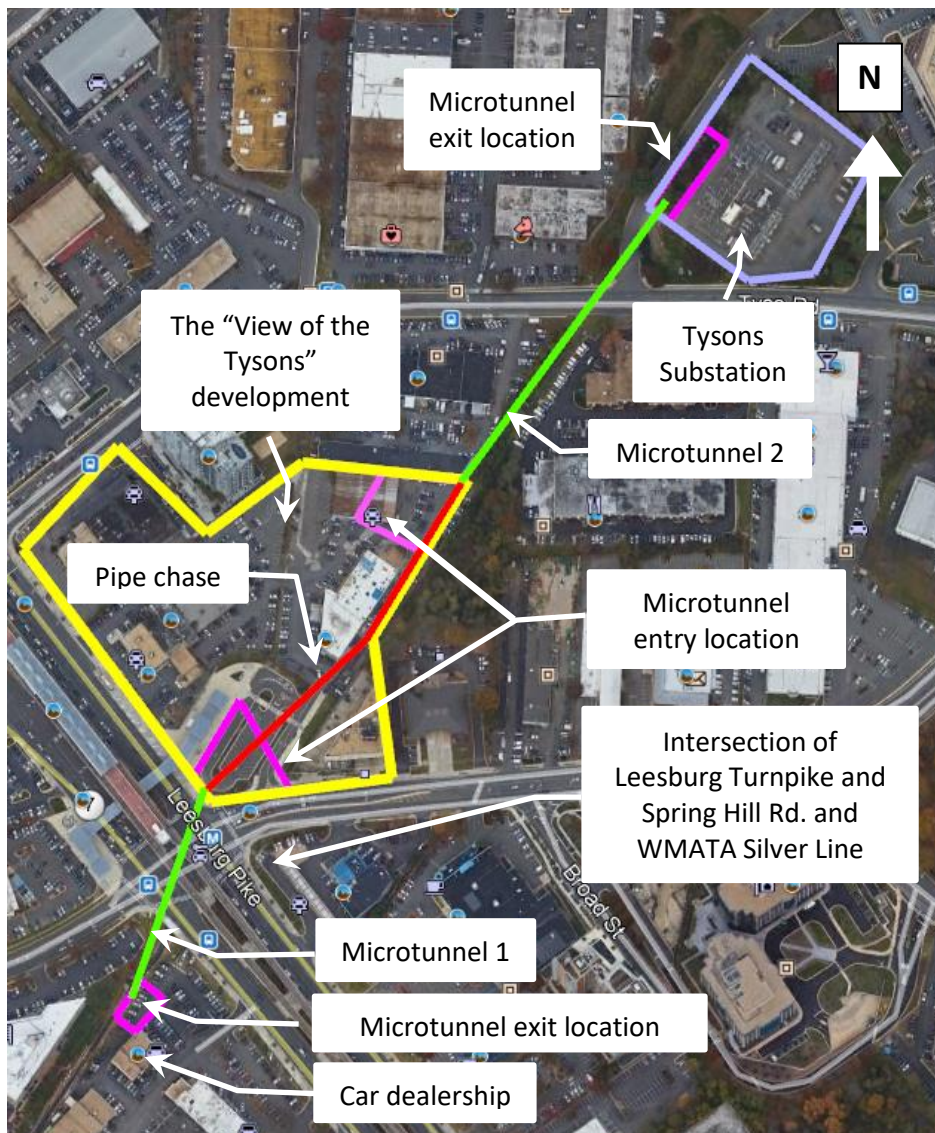


Figure 6 –Overview of the microtunnel alternative

Microtunnel 1

Microtunnel 1 starts in the excavated area for the underground garage of building C-3 of the “The View at Tysons” development, proceeds under the intersection of the Leesburg Turnpike and Spring Hill Rd., and terminates south of Leesburg Turnpike spanning a total length of approximately 430 ft as shown in Figure 7 and Appendix A.

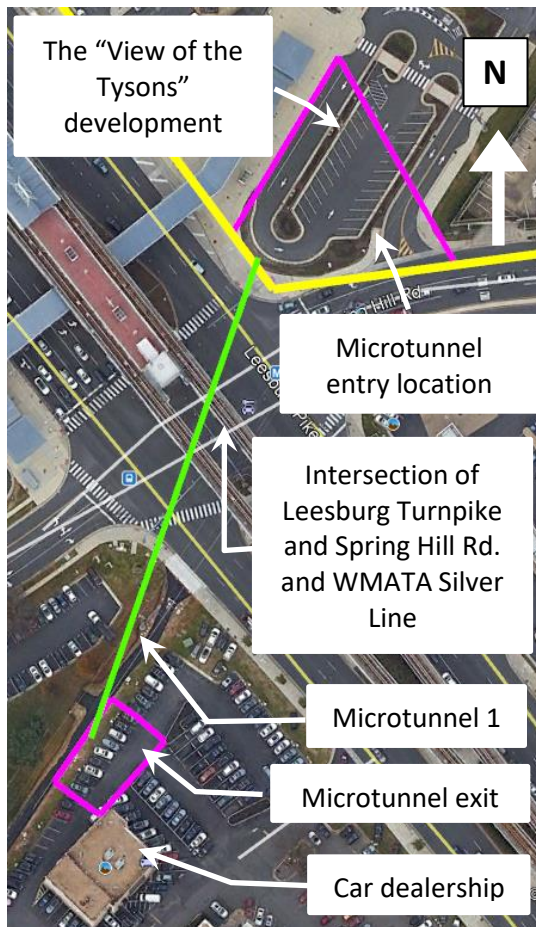


Figure 7 –Overview of microtunnel 1

Microtunnel 2

Microtunnel 2 starts in the excavated area for the underground garage of building C-2B of the “The View at Tysons” development, proceeds along the easement in the northwest direction and terminates at the Tysons Substation spanning a total length of approximately 430 ft as shown in Figure 8 and Appendix A.

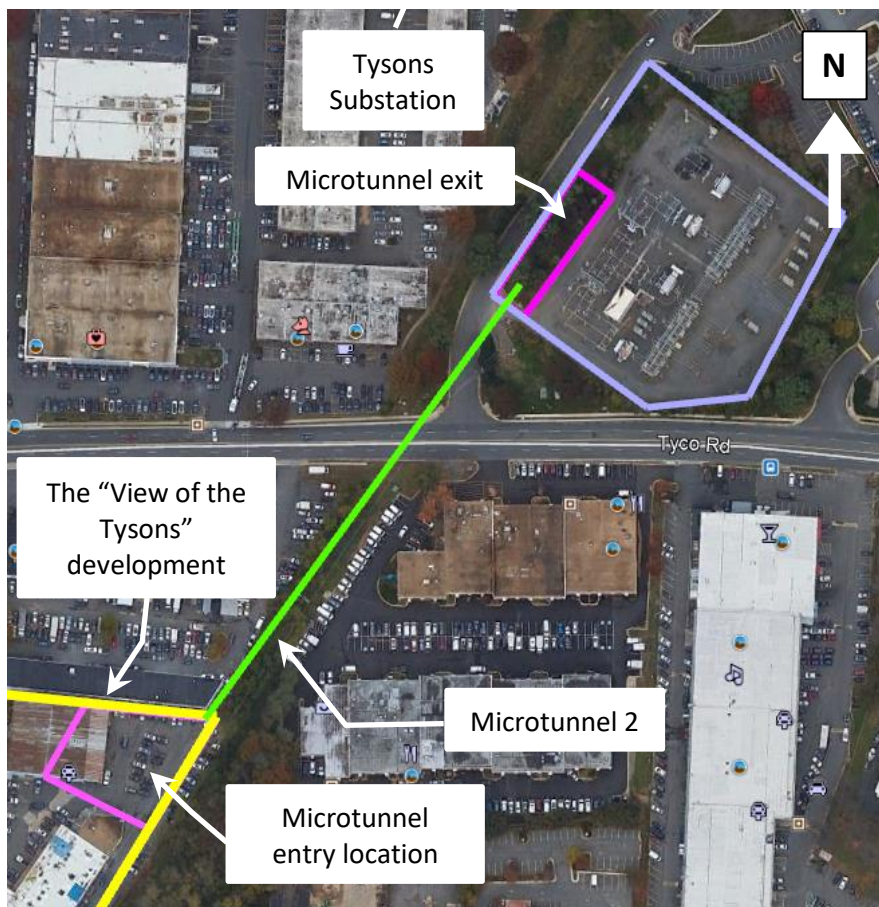


Figure 8 –Overview of microtunnel 2

Logistical Considerations

The intent of the proposed alignment is avoid known manmade subsurface features such as WMATA Silver Line foundations and building foundations to the extent possible. The jacking “shaft” is located within the excavation for both the microtunnel alignments so as to reduce construction impact and the footprint of the work area on the exit side inside the car dealership west of Leesburg Turnpike for microtunnel 1 and Tysons Substation for microtunnel 2.

The microtunnel alternative will require close coordination with the developer of “The View at Tysons”. Assuming the developer of “The View at Tysons” is in agreement and willing to coordinate, the excavation required for the 4 and 5 story underground garage would be temporarily paused to allow for

microtunneling operations being performed from the open excavations, for both alignments, as shown in Appendix A. Similar installations from building structures have been successfully completed. Figure 9 shows a microtunneling machine being launched from inside an excavation.



Figure 9 – Microtunneling from deep building excavation.

Detailed microtunnel calculations have not been performed as a part of this study. We recommend that detailed calculations be performed as a part of the final design to determine the pipe material, wall thickness and alignment geometry. The Specifics of the proposed preliminary microtunnel alignments include:

- Length: Microtunnel 1 - Approximately 445 ft; Microtunnel 2 – 740 ft
- Depth to the centerline of the microtunnel alignment: Approximately 20 to 25 ft below ground surface
- Approximate subsurface conditions: Saprolite/residual soils
- The following product pipe materials are recommended. Decision on the pipe material should be based on the final design.
 - Four 8 to 10-in. pipe for the cables
 - High Density Polyethylene (HDPE) or Fusible PVC (FPVC)
 - Two 3 to 4-in. pipes for communication
 - High Density Polyethylene (HDPE) or Fusible PVC (FPVC)
 - One 48-in. casing pipe
 - Reinforced Concrete Pipe (RCP)
 - Grout pipes – Number of grout pipes will be determined based on the length of installation

- High Density Polyethylene (HDPE) or FPVC
- Spacers – Number of spacers will be determined based on the length of installation
 - HDPE
- Thermal grout
 - Quantity based on the annular volume inside the casing pipe

Pipe Chase Between Microtunnel 1 and 2

The microtunnel alternative requires both the alignment 1 and 2 to be connected via a pipe chase. The locations of the pipe chase in the Figures and Appendix A are shown strictly for demonstration purposes only. The location and design of the pipe chase not a part of the scope of this report.

For the Building C-2 and Performing Arts Complex on the northern half of the property, the foundation wall parallels the Dominion easement and encroaches into the easement as previously noted. According to the Conceptual Development Plan for The View at Tysons prepared by VIKa and dated April 17, 2017, the limits of garage will extend 12 feet into the Dominion easement. The support of excavation wall may be an addition 10 ft into the Dominion easement. Most microtunnel jacking shafts for a 48-inch diameter (nominal) require a 12 to 15 ft shaft. If the support of excavation wall is extended an additional 5 ft into the easement, the space can be used for microtunneling and a pipe chase.

For Building C-3, a pipe chase would have to be built into the structural members of the building. Between the northern and southern microtunnel portals, the pipe chase should have limited to no extensive bends or sweeps that would impede cable installation.

The existing Dominion easement across the area of “The View at Tysons” is approximately 42 feet wide across the property with an additional 15 ft wide easement along the southwest portion of the easement as it nears the intersection of Leesburg Pike and Spring Hill Road.

According to the Conceptual Development Plan for The View dated April 17, 2017, the width of the easement will be reduced to 30 feet to allow for the “limits of the underground garage”. It is not clear if the drawings denote exterior or interior wall. Assuming this is the interior wall, the support of excavation for installing the 4 and 5 story underground garage may be an additional 10 feet effectively reducing easement with to 20 ft. It is recommended that the location of the proposed pipe chase be closely examined from the perspective of impact to the garage walls, constructability within the available space within the easements.

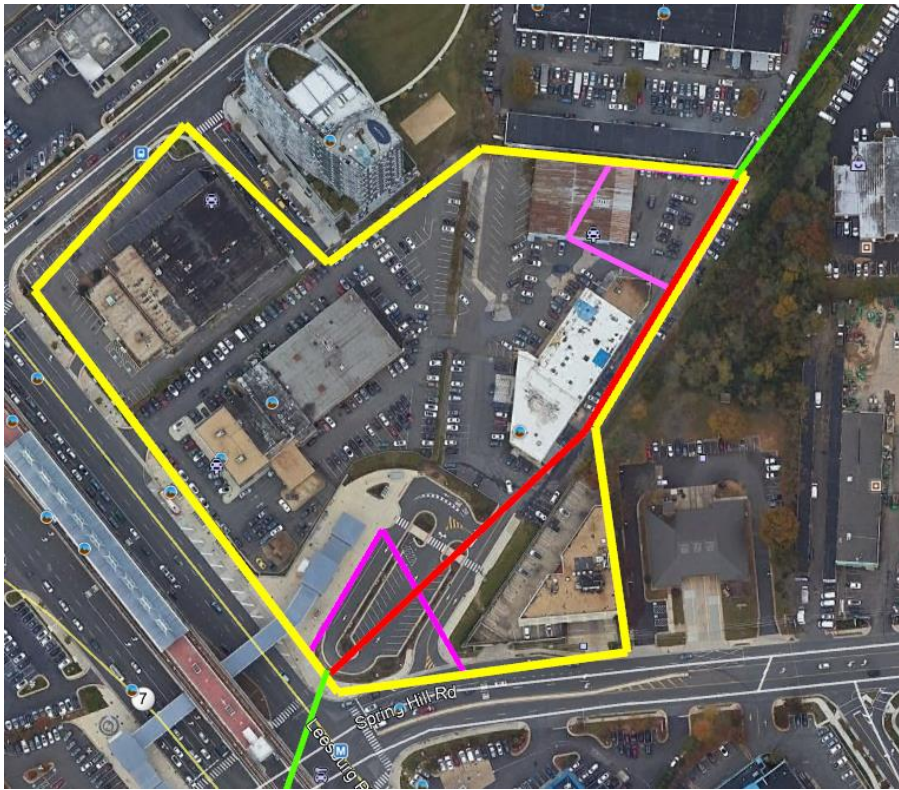


Figure 10 Conceptual pipe chase location shown in red

ALTERNATIVE 3 - DIRECT PIPE ALTERNATE

Direct pipe is to microtunnel in that a microtunnel machine is used to perform excavations at the tunnel face. However, instead of using jacking equipment to push the pipe in place, pipe thrusters are used to simultaneously thrust the pipe in place. This also makes direct pipe a surface launched system while microtunneling is performed from a jacking shaft to a receiving shaft.

Figures 11 show the direct pipe path on top, pipe thrusters on the entry side (bottom left picture) and the machine on the exit side (bottom right picture) respectively.



Figure 11 Direct pipe (images from Herrenknecht)

Direct pipe was considered as a part of this study. No drawing, cost estimate or cost estimate is provided for the direct pipe option in this report since it is not recommended due to the following reasons:

- Only steel pipes can be used for this application
- In direct pipe application, steel pipes are welded, and the entire string is held in place before thrusting it in place. There may be insufficient space to setup the steel pipes for installation.
- Considering that direct pipe is a surface launched system with a typically low angle of entry/exit, the diameter of the machine determines the potential obstruction that could be encountered

along the alignment. For this project, achieving sufficient clearance underneath roads and utilities is a challenge since the alignment may be shallow for longer distances before reaching the final depth of installation.

- Although direct pipe has been used for shorter distances in different types of subsurface conditions. Insufficient record of direct pipe project that has been executed for approximately 2,670 ft in similar subsurface conditions such as those observed on this project.
- The cost may be significantly higher than HDD costs given the project complexity.

OPINION OF PROBABLE COST, SCHEDULE, AND RANKING

Costs and schedules are affected by numerous factors including but not limited to:

- Materials cost of conduits and casings based on size and quantity;
- Number of drills/bores;
- Diameter of borehole;
- Production rates based on the geology and crossing length;
- Availability and access to workspace and pipe assembly areas;
- Environmental sensitivity and permitting issues; and,
- Construction risk and general contingencies.

Some of the costs such as mobilization/demobilization of equipment at the work site, rigs and supporting equipment, living cost for specialty contractors are common both options. Material costs such as steel pipe, HDPE pipe, and conductor sleeves were included in the estimate. Certain assumptions are made to account for items such as mitigation cost, land modification/restoration, stormwater management (and other environmental controls), acquisition of clean water service, engineering, and construction management.

Risk contingency is an added dollar-value typically applied by contractors to account for unknown risk. For this crossing, a 40 percent risk contingency is applied. This project is considered moderate-to-high risk because of the length of the crossing and the near-surface geology. A general construction contingency of 30 percent is also applied to the estimated cost to account for the many unknown details at this level of concept.

The probable cost does not include the cost of cable, thermal grouting, spacers, permitting costs or for connections from the HDD ends to Line 2010, any costs associated with revisions of the building foundations and excavations.

Alternative 1 – HDD

- The technical and logistical factors mentioned in the report highlights some of the risks that makes it challenging to perform HDD operations.
- Requires extensive coordination with:
 - “The View at Tysons” development regarding the building foundations and associated revisions to accommodate the HDD drill path between the pile foundations

- Private property owners on both sides of the HDD alignment to facilitate bundle assembly requirements and equipment setup areas for a possible intersect drill

Alternative 2 – Microtunnel

Strictly from a trenchless installation perspective this is the preferred alternative due reduced length, depth and complexity of installation compared to HDD. However, this alternative requires extensive coordination with:

- The development regarding the pipe chase pipe chase that would connect both the microtunnel drives.
- Estimate of probable cost for microtunnel assumes that instead of constructing separate jacking shafts for both the microtunnel alignments, the microtunnel boring machine (MTBM) will be launched from the excavations that would be performed as a part of the high-rise construction. This reduces costs associated with shaft construction.
- Coordinating schedule of construction activities to accommodate microtunnel operations.
- Elimination of pipe assembly areas and a lesser overall footprint would reduce coordination private property owners to some extent.

Trenchless Method	HDD	Microtunnel 1 and 2	Direct Pipe
Approx. length of installation (ft)	2,670	1,185	Not recommended
Ranking	2	1	
Difficulty ranking (See Figure 12)	8	6	
Total baseline construction	\$6,499,000	\$5,776,000	
Risk contingency factor	40%	40%	
Construction contingency factor	30%	30%	
Total construction cost including risk & construction contingency	\$11,048,000	\$9,819,000	
Duration (weeks)	16	19	

1 to 3	ANTICIPATE FEWER ISSUES WITH RESPECT TO TRENCHLESS CROSSING FEASIBILITY
4 to 6	ANTICIPATE MODERATE ISSUES WITH RESPECT TO TRENCHLESS CROSSING FEASIBILITY
7 to 9	ANTICIPATE NUMEROUS ISSUES WITH RESPECT TO TRENCHLESS CROSSING FEASIBILITY
10	NOT FEASIBLE

Figure 12 Subjective difficulty rating based on our experience

RECOMMENDATIONS FOR FUTURE EXPLORATIONS

This Conceptual Trenchless Feasibility Report was prepared based on the referenced geotechnical reports intended for foundation design of high rise building complex, existing overhead pole installation and WMATA Silver Line via duct supports. While some of the geotechnical data is valuable, the data does not go deep into competent bedrock or have test data that would typically be obtained for a trenchless installation for a high voltage power transmission project such as ground abrasivity from a trenchless point of geothermal resistivity from a cable point. Designing new cable trenchless

installations without adequate boring information is risky and reflects a small project cost considering the value of the overall crossing construction.

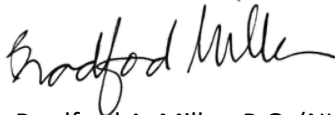
- Four borings approximately 20 to 30 ft away from the proposed trenchless alignments near STA 3+00, STA 6+50 (inside microtunnel 1 receiving shaft), STA 22+00 and STA 25+20 (in the microtunnel 2 receiving shaft) as shown in Appendix A.
- The exact locations and depth of borings are subject to change based on the details of the subsurface exploration to be performed as a part of final design.

In addition, we recommend Dominion consider supplementing the exploratory borings with an array of geophysical devices to better understand the mudline geometry, thickness and hardness of the highly weathered to weathered bedrock deposits. We would be pleased to develop a targeted exploration program in future project phases.

Closure

We appreciate the opportunity to provide trenchless engineering consulting services on this project. Please do not hesitate to call if you have any questions or comments.

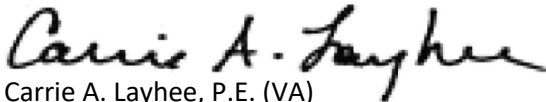
Sincerely yours,
HALEY & ALDRICH, INC.



Bradford A. Miller, P.G. (NH, PA)
Senior Technical Specialist – Geology



Abhinav Huli
Senior Engineer



Carrie A. Layhee, P.E. (VA)
Associate

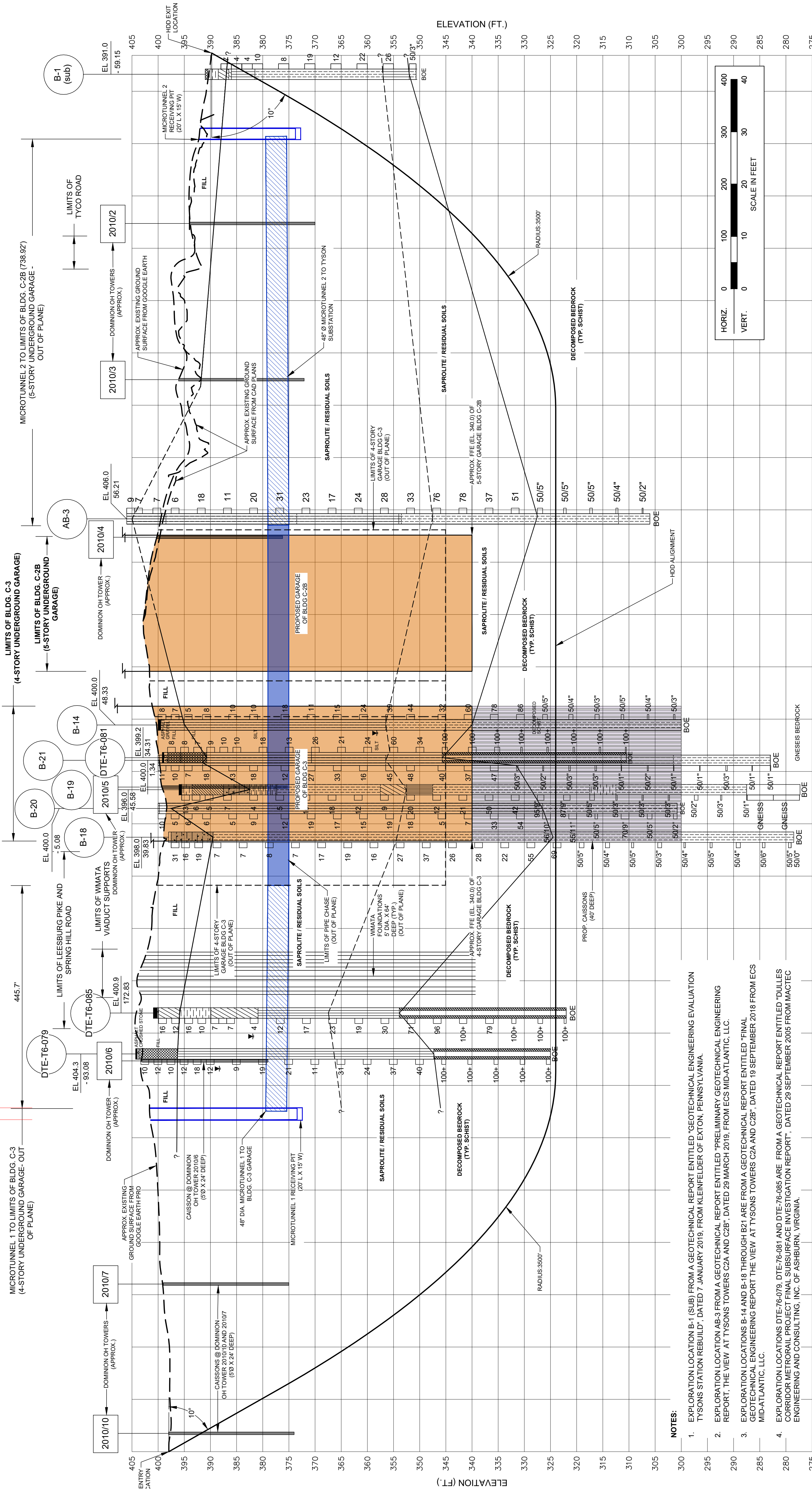
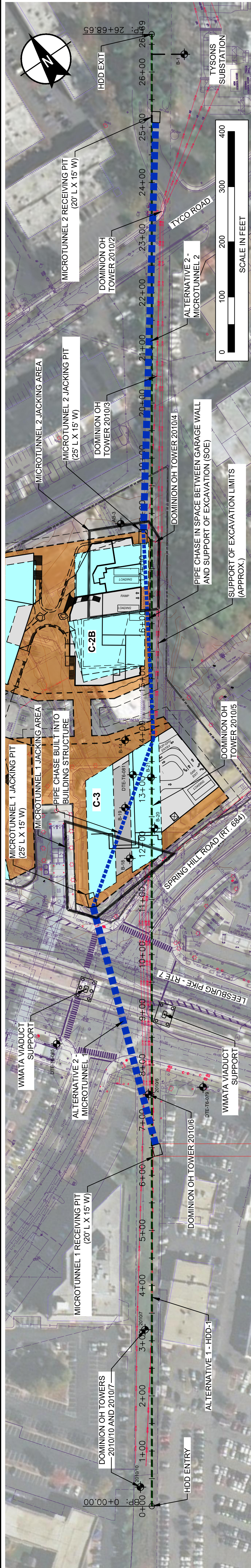
Enclosures:

Appendix A – Preliminary Plan and Profile

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APPENDIX A

Plan and Profile



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53

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: Not applicable.

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: Not applicable.

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: No electrical alternatives to the Project were considered. See Attachment I.B.1 for the alternative construction methods considered by the Company for this Project.

I. NECESSITY FOR THE PROPOSED PROJECT

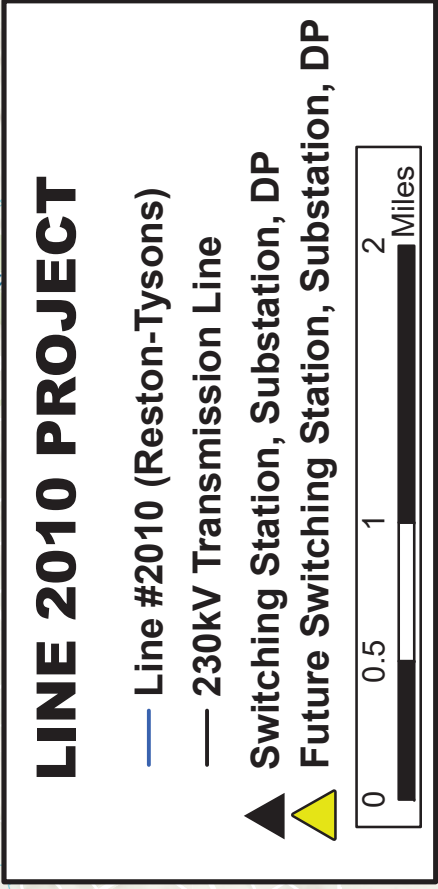
- F. Describe any lines or facilities that will be removed, replaced, or taken out of service upon completion of the proposed project, including the number of circuits and normal and emergency ratings of the facilities.**

Response: The section of Line #2010 located between Tysons Substation and the Transition Pole to be located just south of the future Spring Hill Substation will be replaced with a single circuit 230 kV underground line. This will include the removal of five single circuit wood poles and four single circuit steel poles. This will also include the removal of approximately 0.29 mile of 3-phase 1033.5 ACSS and 0.27 mile of 1351.5 ACSR conductor rated at 681 MVA and 840 MVA, respectively. Existing Structure #2010/12, located south of the Transition Pole, will also be replaced.

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.



I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: Construction of the Project is planned to commence after the installation of Line #2175, a part of the Idylwood to Tysons project, is complete. The Idylwood to Tysons project is scheduled to be completed by December 31, 2022. The desired in-service target date for this Project is December 31, 2025. The Company estimates that it will take approximately 54 months for detailed engineering, materials procurement, permitting, 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 June 30, 2021. Should the Commission issue a final order by June 30, 2021, the Company estimates that construction should begin by January 1, 2023, and be completed by December 31, 2025.

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 construction cost of the proposed Project is approximately \$30.4 million (in 2020 dollars). This cost includes approximately \$22.6 million for underground transmission line related work (with the construction costs for the Transition Pole included), approximately \$0.70 million for overhead transmission line removal and related work (with the construction costs for the replacement of existing Structure #2010/12 included), and approximately \$7.10 million for substation-related work at the Tysons Substation.

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 Project is classified as a supplemental project (Supplemental Project DOM-2020-0010) initiated by the Company in response to the Underground Pilot Program. The Project was submitted to PJM on April 14, 2020, and the solution slide was submitted to PJM on May 12, 2020. See Attachments I.J.1 and I.J.2, respectively. The Company is currently waiting for PJM to conduct its do-no-harm analysis and accept the Project in the Local Plan.

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

Need Number: DOM-2020-0010

Process Stage: Need Meeting 04/14/2020

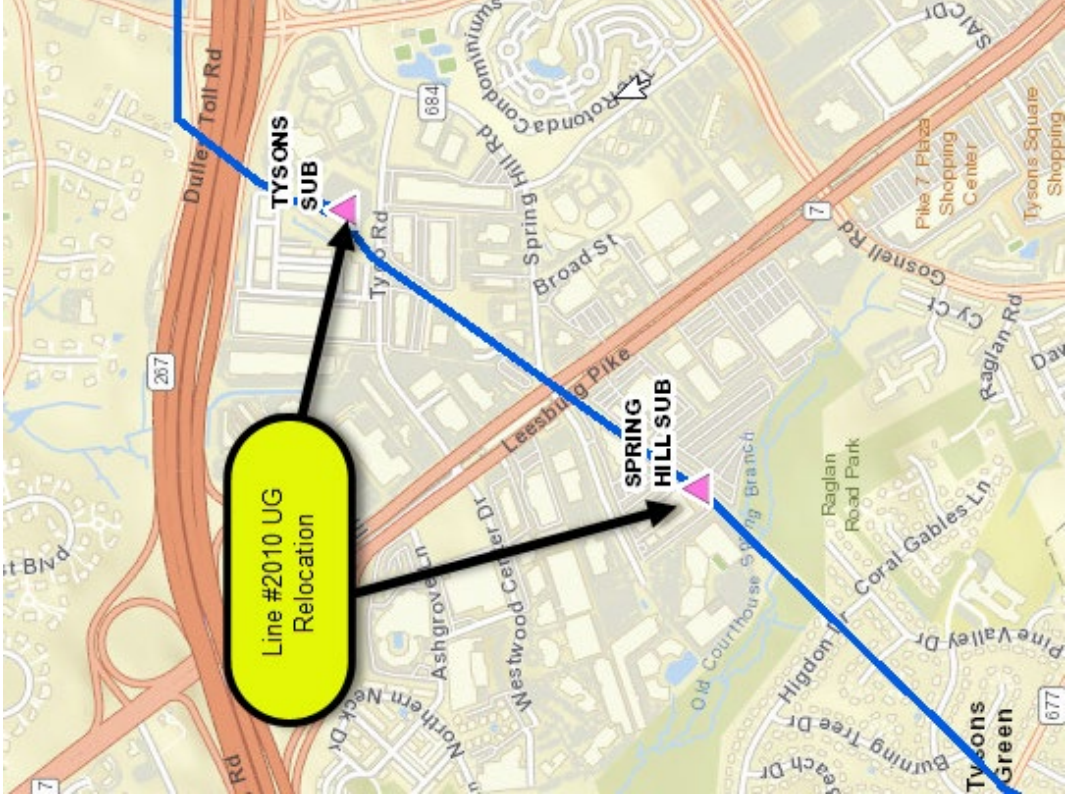
Project Driver: Other

Specific Assumption References:

Line relocation request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.

Problem Statement:

Section 56-585.1:5 of the Virginia Code, which was enacted as part of the 2018 Grid Transformation and Security Act was amended recently by the General Assembly of Virginia and signed into Law by the Governor on March 4th 2020 to allow for additional projects to qualify for the underground transmission line pilot program authorized therein. Pursuant to this amendment, a Customer and Fairfax County have requested that the Company relocate a portion of Transmission Line #2010 between Spring Hill Substation and Tysons Substation underground to enable construction of a planned mixed use development which currently encroaches on the existing overhead transmission line.



Need Number: DOM-2020-0010

Process Stage: Solutions Meeting 5/12/2020

Previously Presented: Need Meeting 04/14/2020

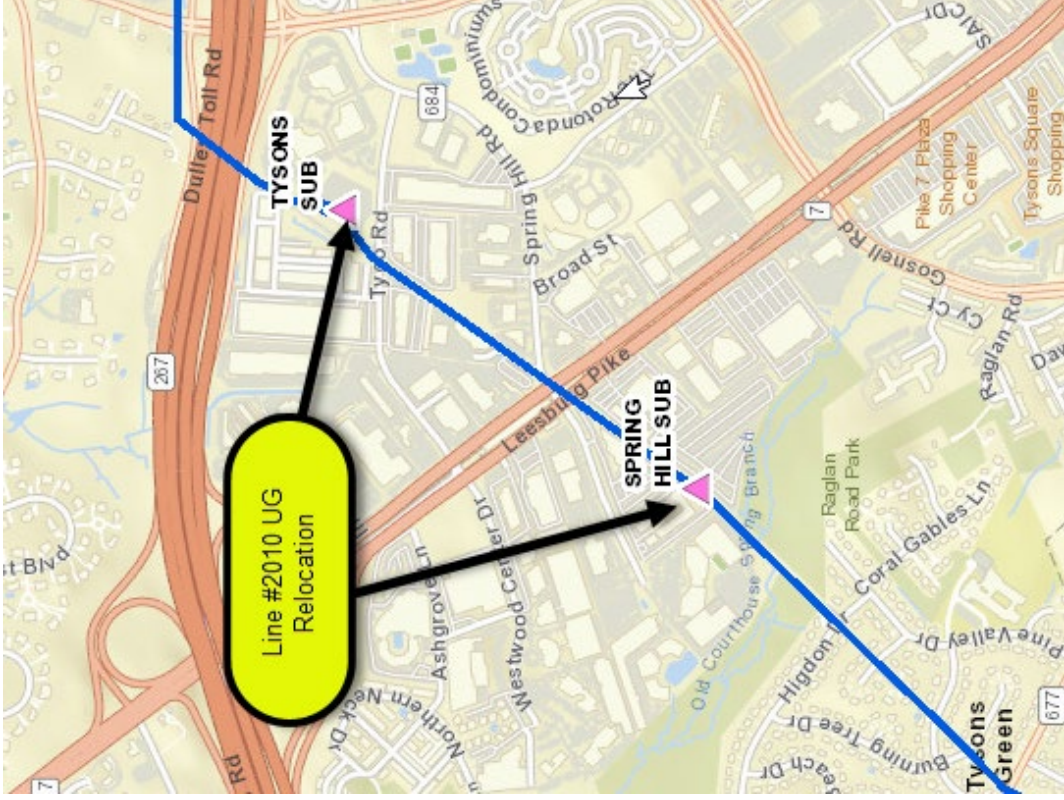
Project Driver: Other – Legislative requirement

Specific Assumption References:

Line relocation request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.

Problem Statement:

Section 56-585.1:5 of the Virginia Code, which was enacted as part of the 2018 Grid Transformation and Security Act was amended recently by the General Assembly of Virginia and signed into Law by the Governor on March 4th 2020 to allow for additional projects to qualify for the underground transmission line pilot program authorized therein. Pursuant to this amendment, a Customer and Fairfax County have requested that the Company relocate a portion of Transmission Line #2010 between Spring Hill substation and Tysons Substation underground to enable construction of a planned mixed use development which currently encroaches on the existing overhead transmission line.



Dominion Transmission Zone: Supplemental

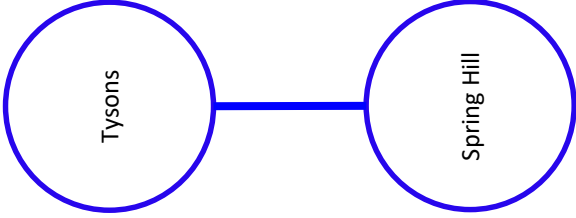
Line #2010 Underground Relocation

Need Number: DOM-2020-0010

Process Stage: Solutions Meeting 05/12/2020

Proposed Solution:

In accordance with the legislation described, construct one 230kV underground (UG) line from Tysons Substation to a new substation named Springhill Substation to replace the portion of existing OH Line #2010. Install a 230kV, 50-100MVAR Variable Shunt Reactor at Tysons substation.



Estimated Project Cost: \$40. M

Alternatives Considered:

No feasible alternatives

Projected In-service Date: 12/31/2025

Project Status: Conceptual

Model: 2025 RTEP

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: Although not submitted for approval in this Application, the County-approved, future Spring Hill Substation described herein will provide distribution level load relief for the development area, serving the Tysons West and Tysons Central 7 Metrorail Stations, as well as development along the south side of Leesburg Pike and Tysons Corner Center. The engineering of the Transition Pole takes into consideration the plans for the future Spring Hill Substation.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

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

Response: The Proposed Route is approximately 0.58 mile. There are no route alternatives provided as this Project is being proposed as an overhead to underground conversion on existing right-of-way with exception of the area being relocated to accommodate The View, a future mixed-use development in the area.

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, which includes existing features and the right-of-way to be relocated, and notes the portion of existing right-of-way that will be quitclaimed. The Company will make the digital Geographic Information Systems (“GIS”) shape files available to interested persons upon request to counsel, as listed in the Application, for the Company.

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: As shown on Attachment II.A.2, the Proposed Route will utilize the existing overhead Line #2010 right-of-way corridor for approximately 0.48 mile of the approximate 0.58 mile route. The Proposed Route departs from the existing corridor for approximately 0.10 mile to avoid crossing the proposed development site of The View, a mixed-use future development.

Specifically, the Line will exit the existing Tysons Substation across Tyco Road via VDOT permit and continue southwest for approximately 0.20 mile on existing 42-foot right-of-way. Temporary construction easements will be needed along this segment, as will a VDOT permit. At this point, the Line will depart from the existing right-of-way and turn south within a private service road for approximately 0.05 mile on a newly acquired 30-foot easement until it reaches Spring Hill Road (Route 684). Temporary construction easement will be required along this segment. At Spring Hill Road, the Line will turn west within Spring Hill Road for approximately 0.05 mile via a VDOT permit until it reaches Leesburg Pike (Route 7). These two 0.05 mile sections of the Line are being relocated outside of the existing right-of-way to accommodate The View, a future development. At Leesburg Pike, the Line turns southwest crossing under the elevated Metro Train Line and crossing Leesburg Pike via a VDOT permit for approximately 0.05 mile and then continues on existing 42-foot right-of-way for approximately 0.14 mile where it turns southeast and goes around the east side of the future Spring Hill Substation site within an existing easement and the future substation parcel. Temporary construction easements will be required along this segment. Just south of the future Spring Hill Substation parcel, the Line will re-join the existing Line #2010 42-foot right-of-way and finally terminate at a Transition Pole. The replacement of existing Structure #2010/12 will occur within the Line’s existing right-of-way corridor.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

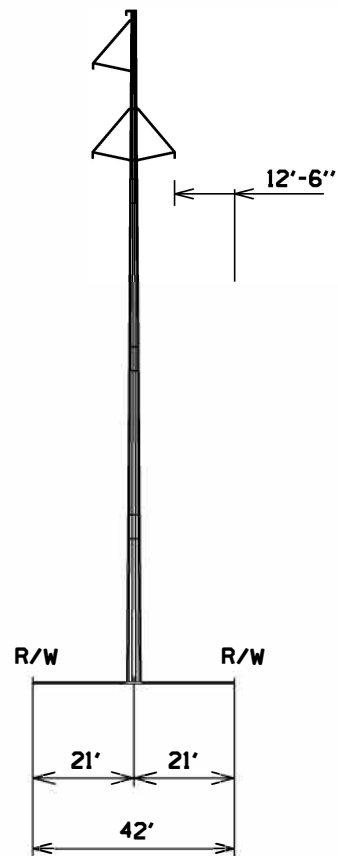
- 5. Provide drawings of the ROW cross section showing typical transmission line structure placements referenced to the edge of the ROW. These drawings should include:**
 - a. ROW width for each cross section drawing;**
 - b. Lateral distance between the conductors and edge of ROW;**
 - c. Existing utility 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:

- a. See Attachment II.A.5.a.1 for the existing configuration of a typical corridor looking toward Spring Hill Substation. See Attachment II.A.5.a.2 for cross sections showing the horizontal configuration of the XLPE cable system utilizing the Open Trench/Duct bank Construction method. See Attachment II.A.5.a.3 for the proposed replacement structure for Structure #2010/12. See Attachment II.A.5.a.4 for the proposed Transition Pole.
- b. See Attachment II.A.5.a.2.
- c. Due to the urban nature of the area in which this Line is to be installed, a variety of existing utilities will be crossed by the proposed Line including water, gas, sewer, communications, and electric power. The mapping/surveying of these existing utilities is ongoing for the Proposed Route.
- d. See Sections II.A.5.a through II.A.5.c.

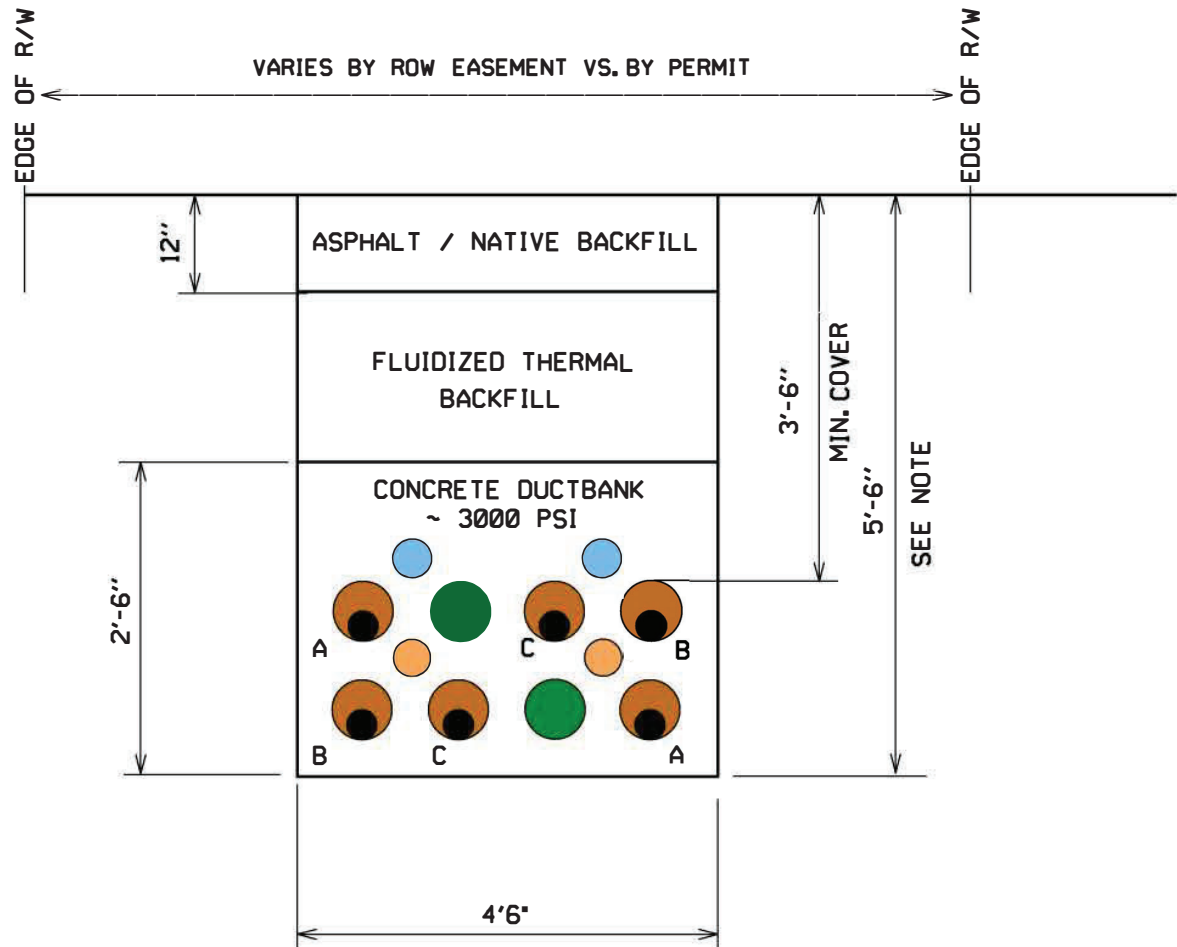
TYSONS - SPRING HILL

EXISTING
230KV CIRCUIT
(LINE #2010)



EXISTING CONFIGURATION
TYPICAL CORRIDOR LOOKING TOWARD SPRING HILL

Tysons - Future Spring Hill Proposed 230kV XLPE Cable System Open Trench (Horizontal Configuration)



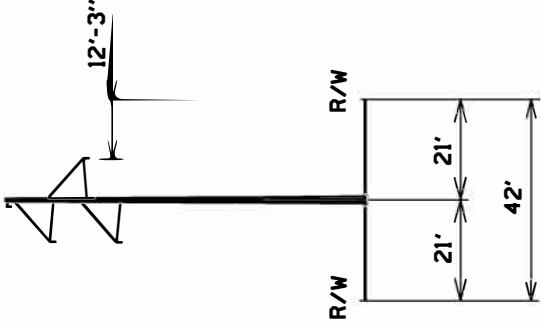
- 2 INCH PVC CONDUIT FOR SHEATH BONDING CABLE
- 2 INCH PVC CONDUIT FOR PROTECTIVE RELAYING
- 8 INCH PVC CONDUIT FOR ENERGIZED 230KV CABLE WITH PHASE POSITION
- 8 INCH PVC CONDUIT FOR SPARE

NOTES:

1. THIS DIMENSION WILL VARY DEPENDING ON CLEARANCES NEEDED WHEN CROSSING OTHER FACILITIES.
2. PROPOSED CONSTRUCTION METHOD FOR APPROXIMATELY 3.7 MILES.
3. LETTERS A,B, & C ADJACENT TO CONDUITS DENOTE CABLE PHASING
4. INFORMATION IS PRELIMINARY AND SUBJECT TO FINAL ENGINEERING

STRUCTURE 2010/12 REPLACEMENT

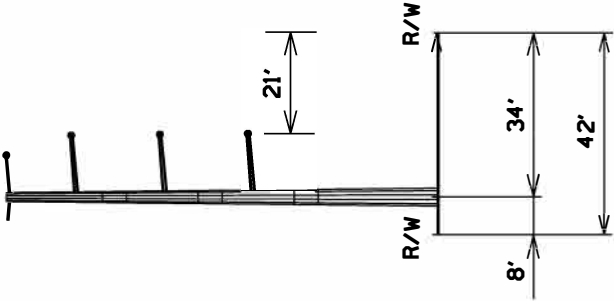
230KV CIRCUIT
(LINE #2010)



EXISTING CONFIGURATION
STRUCTURE 2010/12 LOOKING FROM SPRING HILL

STRUCTURE 2010/12 REPLACEMENT

230KV CIRCUIT
(LINE #2010)

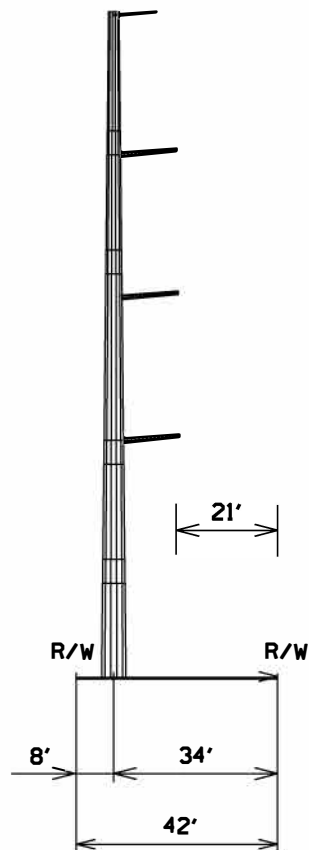


PROPOSED CONFIGURATION
STRUCTURE 2010/12 LOOKING FROM SPRING HILL

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

TRANSITION POLE

PRELIMINARY

230KV CIRCUIT
(LINE #2010)

PROPOSED CONFIGURATION
TRANSITION POLE LOOKING FROM SPRING HILL

NOTE:

1. 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

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: See Attachment II.A.6. The Line will exit the existing Tysons Substation across Tyco Road via VDOT permit and continue southwest for approximately 0.20 mile on existing 42-foot right-of-way. Temporary construction easements will be needed along this segment as will a VDOT permit. At this point, the Line will depart from the existing right-of-way and turn south within a private service road for approximately 0.05 mile on a newly acquired 30-foot easement until it reaches Spring Hill Road (Route 684). Temporary construction easement will be required along this segment. At Spring Hill Road, the Line will turn west within Spring Hill Road for approximately 0.05 mile via a VDOT permit until it reaches Leesburg Pike (Route 7). These two 0.05 mile sections of the Line are being relocated outside of the existing right-of-way to accommodate The View, a future development. At Leesburg Pike, the Line turns southwest crossing under the elevated Metro Train Line and crossing Leesburg Pike via a VDOT permit for approximately 0.05 mile and then continues on existing 42-foot right-of-way for approximately 0.14 mile where it turns southeast and goes around the east side of the future Spring Hill Substation site within an existing easement and the future Substation parcel. Temporary construction easements will be required along this segment. Just south of the future Spring Hill Substation parcel, the Line continues on existing 42-foot right-of-way to terminate at a Transition Pole. The replacement of existing Structure #2010/12 will occur within the Line’s existing right-of-way corridor.

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: Clearing for the Project will be minimal. Approximately 0.48 mile of the Project will be built on the existing Line #2010 overhead corridor. This existing right-of-way is currently cleared and maintained for operation of the existing transmission facilities. No clearing will be required on this section. The relocation section will be built approximately 0.05 mile in easement provided by the developer and approximately 0.05 mile within a roadway, Spring Hill Road (Route 684). Erosion control devices will be used on an ongoing basis during all clearing and construction activities. Site rehabilitation during the Project is a continuous operation.

Erosion control devices will be maintained, and temporary stabilization for all soil disturbing activities will be used, until the right-of-way has been restored. Installation, inspection, and reports of the erosion control devices and storm water best managed practices (“BMPs”) will be performed as required by regulations for both erosion and sediment control and for the Virginia Stormwater Protection Permit. 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 and Sediment Control and Stormwater Management for Construction and Maintenance of Linear Electric Transmission Facilities that is submitted yearly for approval by the Department of Environmental Quality (“DEQ”). Time-of-year restrictions and weather conditions may affect the timing of permanent stabilization and rehabilitation.

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 (*i.e.* per Vesper License – Transmission Encroachment Agreement TE#015043001, as shown in Attachment II.A.8) that:

- is in accordance with the terms of the easement agreement for the ROW;
- is consistent with the safe maintenance and operation of the transmission lines;
- shall not restrict future lien design flexibility; and,
- shall not permanently interfere with future construction.

Typical permitted uses, with conditions, of the ROW include:

- 1) Agriculture
- 2) Limited recreational uses
- 3) Fences
- 4) Parking lots
- 5) Perpendicular road crossings
- 6) Perpendicular utility crossings
- 7) Wildlife/Pollinator Habitat

Dominion Virginia Power
701 East Cary Street, Richmond, VA 23219

Mailing Address: P.O. Box 26666
Richmond, VA 23261

dom.com



Document prepared by:
Dominion Virginia Power
One James River Plaza, 12th Floor
701 East Cary Street
Richmond, Virginia 23219

TE# 015043001

CONSENT AGREEMENT

THIS CONSENT AGREEMENT ("Agreement"), made this 8th day of Dec., 2016, by and between VIRGINIA ELECTRIC and POWER COMPANY, a Virginia public service corporation operating as Dominion Virginia Power, ("**Dominion**") and BOARD OF SUPERVISORS OF FAIRFAX COUNTY, a Virginia body, corporate and political ("**County**");

RECITALS

A. Dominion has previously acquired certain interests in land by easement in Fairfax, Virginia, for the construction and operation of future and/or existing facilities for the transmission and distribution of electric power, said existing facilities are currently known and identified by Dominion for its own purposes as Electric Transmission Lines 2010 along the C.I.A. - Chantilly - Bull Run Corridor [COR0060/27], Such easement is hereinafter referred to as the "**DVP Easement**" and is recorded in the Circuit Court of Fairfax County, Virginia in Deed Book 3550, Page 692. The portion of property encumbered by the DVP Easement is hereinafter referred to as the "**DVP Right-of-Way.**"

B. As provided for and in accordance with the DVP Easement, the County desires to construct, operate and maintain the following improvements and structures and associated activities (collectively the "**County Facilities**") within the DVP Right-of-Way starting at Leesburg Pike (State Route 7) and extending to Higdon Drive (Route 1544) on land known to Fairfax County as Map # 0293 01 0005. '

- **One ten (10) foot wide pedestrian trail, roughly parallel in the easement for approximately one thousand eight hundred (1,800) feet and associated minor grading.**
- **Two truck turn-arounds.**
- **Twenty-two light pole structures with underground conduit for service and service panels.**
- **Storm Water culvert and outfall.**
- **Drainage ditch and associated minor grading.**
- **Handrails and guardrails.**
- **Various bollards.**

C. As provided for and in accordance with the DVP Easement, the parties are entering into this Agreement to document Dominion's consent to the construction, operation and maintenance of the County Facilities within the DVP Right- of-Way subject to the County's

agreement to abide by the terms and conditions of this Agreement and, further, subject to the County's continued commitment to cooperate with Dominion in good faith related to Dominion's acquisition of a substation site and associated development rights for the proposed Springhill substation which Dominion plans to develop on property a portion of which is owned by the County (the "**Springhill Substation Project**").

NOW, THEREFORE, for and in consideration of the mutual covenants and agreements herein contained and other good and valuable consideration, the receipt and sufficiency whereof is hereby acknowledged, Dominion and the County hereby agree as follows:

AGREEMENT

The foregoing Recitals are incorporated into this Agreement by reference.

1. **Subject Premises:** The portion of the DVP Right-of-Way subject to this Agreement ("**Subject Premises**") shall consist of a twelve (12) foot wide strip of land being six (6) feet on either side of the centerline of the proposed shared use path, and those locations necessary for placement of light poles, railings/fences and storm water drainage as shown on site plan sheets provided by Requestor on September 28, 2016 and numbered 3, 4, 5 and 6 of plan by Fairfax County of Virginia for Project No. 1400120-2013, sealed and dated 8/15/2016, and entitled "Vesper Street Shared Use Plan", which are attached hereto as **Exhibits "A through "D"**.

2. **County Facilities:** Dominion hereby consents to the County's installation, operation and maintenance of the County Facilities provided that the County complies with all terms, covenants and provisions of this Agreement. The County Facilities will be installed as shown on the above referenced Exhibits "A" thru "D" and the additional sheets provided by County of plan provided by Fairfax County of Virginia for Project No. 1400120-2013 entitled "Vesper Street Shared Use Plan" as described below:

- Typical Sections, Standard Details and Connection Details, sheets 2, 2B, 2B(3) sealed and dated 8/15/2016, attached hereto as **Exhibits "E "F" and "G"**. .
- Grading Plans and Profiles, sheets 3(1) ,3A, 4(1) 4A, 5(1) and 5A and 6(1) and 6A signed and sealed 8/15/2016, attached hereto as **Exhibits "H" through "O"**.
- Lighting and Electrical Distribution Plans, sheets 11(1) through 11(4), 11(ES3), 11 (ES5) all sealed and dated 5/13/2016, attached hereto **with Dominion Notes added as Exhibits "P" through "T", "T1"**.
- "Vesper Street Shared Use Path Project, Offset to Proposed Lighting" dated January, 2016 provided by Fairfax County 1/11/2016, attached hereto **Exhibit "U"**.
- Pavement Markings and Signage Plans, sheets 9, 9(1) and 9(3), signed and sealed 8-15-16, , attached hereto as **Exhibits "X", X1 and "Y"**.

Exhibits A through U, X , X1 and Y are hereinafter collectively referred to as the "County's Plans".

3. Scope of Consent: County acknowledges and agrees to the following.

- a. This Agreement does not alter, modify or amend the terms and conditions of the DVP Easement and Dominion reserves all rights under the DVP Easement including the right to install additional facilities within the DVP Right of Way and the right to inspect, rebuild, remove, repair, improve and relocate the existing Dominion facilities within the DVP Right-

of-Way. In the event Dominion's activities within the DVP Right of Way are reasonably excepted to adversely impact the County Facilities in such a manner that would require modification or rearrangement of the County Facilities Dominion shall, prior to conducting such activities, notify the County of the proposed activities and cooperate with the County in good faith to minimize the adverse impact to the County Facilities. If, despite Dominion's good faith efforts to minimize impacts to the County Facilities, modifications or rearrangements of the County's Facilities are still required, the County will be responsible for the cost thereof, as necessary and subject to annual appropriations by the Board of Supervisors, to enable Dominion to exercise its rights under the DVP Easement. Dominion shall not be in breach of the foregoing notice and cooperation requirements in the event it exercises its rights under the DVP Easement in connection with emergency repairs or outage restoration.

Notwithstanding the foregoing, in the event the County's uses of the County Facilities are interrupted by Dominion in connection with the development of the Springhill Substation, Dominion shall construct and maintain, at its cost and expense, a temporary alternate pedestrian trail (comparable to the pedestrian trail constructed by the County) which will allow for ongoing pedestrian use of the trail around the construction site, and around the Springhill Substation construction access route, if such access route is to be located along and upon the completed County trail from the Substation site to Route 7, for the duration of the construction of the Springhill Substation Project. Dominion's obligation to construct the temporary pedestrian trail is contingent on the County, in coordination with Dominion, making every good faith effort to facilitate the conveyance of the necessary land rights from the adjacent landowners affected by the temporary rerouting of the pedestrian trail. Upon the completion of the Springhill Substation Project, Dominion will restore the pedestrian trail constructed by the County to the condition that existed prior to Dominion's construction of the Springhill Substation Project.

b. The scope of this Agreement is limited to the use of the Subject Premises only for the purpose of constructing, operating and maintaining the County Facilities in accordance with the County's Plans. No part of the County Facilities shall extend above the surface of the ground unless expressly depicted on the County's Plans. Nothing contained herein shall give County, its contractors, employees, successors or assigns the right to place trailers, sheds, dumpsters or other structures of any nature (other than the County Facilities), temporary or permanent, on the Subject Premises or to store materials, vehicles, equipment or flammable or explosive material thereon, except as expressly permitted in writing by Dominion..

c. County shall not assign, grant by license, permit or otherwise convey to any other party any rights, privileges or encroachments of any nature in, on, or with respect to the Subject Premises without the prior written approval of Dominion, which will not be unreasonably withheld. No assignment, agreed upon by Dominion, shall be effective until the assignee notifies Dominion in writing of its acceptance of the obligations and requirements of County under this Agreement. The obligations and requirements to which County is subject under this Agreement shall be binding upon the successors and assigns of County.

d. County shall at all times conduct its activities on, and with respect to, the Subject

Premises, including the construction, operation and maintenance of the County Facilities, in such manner as not to conflict or interfere with the lawful use of the Subject Premises, or any other property in or over which Dominion has an easement or other interest, by Dominion, its successors or assigns.

e. Dominion reserves the right to make periodic inspections of the manner in which County is using the Subject Premises and its equipment and facilities on the Subject Premises.

4. Conditions: The County and Dominion acknowledge and agree to the following:

- a. County shall construct, operate and maintain the County Facilities in a safe manner and shall keep it in good repair at all times, as determined solely by the County provided the County will reasonably consider any requests from Dominion related to the condition of the County's Facilities.
- b. The County Facilities shall at all times be in compliance with all applicable requirements of the then effective edition of the National Electrical Safety Code, and all applicable practices and requirements of any authority having jurisdiction. County shall comply with current OSFIA requirements for worker separation from electrical facilities. See Dominion's plan and profile drawings attached hereto as Exhibits "V" and "W" for voltage information. County shall not use, or permit the use of, any construction equipment or other equipment on the Subject Premises having wire cables, which, if broken, could come within ten (10) feet of any electrical conductor.
- c. County shall maintain at all times any minimum separation required by law or regulation between equipment on the Subject Premises and any electrical conductors. The minimum distance required by OSHA shall be maintained between electrical conductors and any part of the County Facilities or equipment used in the installation or maintenance of the County Facilities. Sag of conductors varies with changes in operating and ambient temperatures; therefore, required clearances will be based upon maximum sag. The minimum clearance for installation and maintenance of the County Facilities within DVP Rights-of-Way shall be governed by the clearance required for the 230 kV line. See Exhibits "V" and "W" for voltage information.
- d. Except in emergencies, the County shall give five (5) business days advance notice of the commencement of the initial and any future material construction activities within the Subject Premises to Dominion's Sr. rights of Way Management Representative (currently Gary Dorman at (571) 203-5085). Dominion may, at its sole discretion, have an inspector present during any type of County construction work within the Subject Premises.
- e. County shall duly note the existence of all existing underground utilities within the Subject Premises. County shall notify MISS UTILITY (1-800-552-7001) in a timely manner in advance of construction to allow all utilities to be identified within the Subject Premises.
- f. County shall notify Dominion's Field Operations Transmission Line Manager's office at current telephone number (540) 672-6113, or Field Operations Transmission Supervisor's office at current telephone number (540) 621-0844 if any counterpoise (ground wire buried 18 to 24 inches deep) or other Dominion facilities are damaged, cut or severed,

arising from construction, operation, or maintenance of the County facilities, so necessary repairs can be made by Dominion, the cost of which shall be reimbursed by the County.

g. To the extent permitted by law, County shall be responsible for all associated costs for the repairs of Dominion facilities (including but not limited to structures, guys, anchors or counterpoise) damaged by County, its employees, contractors, or agents arising from the construction, operation and maintenance of the County Facilities.

h. County shall make no disturbance or excavation of the Subject Premises or other portion of DVP Rights-of-Way within fifty (50) feet of any pole, tower or other structures or any supporting guy wire or anchor or any other facility belonging to the Dominion. **An exception is made to allow protective bollards as shown on Exhibit "G" provided no soil is disturbed within two feet of the near edge of Company structure foundation identified as 2010/6. An exception is made here to allow for minor grading and installation of the County Facilities as shown on the attached Exhibits "A" through "U".**

i. Dominion and County shall both maintain locks on bollards shown at Higdon Drive and Route 7 in an interlocking scheme for gate security that will not impede Dominion's access to the DVP Right-of-Way.

j. Signs shall not exceed nine and one half feet (9.5') feet in height and shall not be within fifty (50) feet of any Company facility. **An exception is made here to allow signs as close as twenty five (25) feet to Dominion's structure #2010/6 foundation as shown on the County's Plans.**

k. County shall be responsible for erosion or settling on the rights-of-way caused by grading operations and shall restore and secure the affected area(s) should erosion or settling occur. Construction activities shall comply with all state and local erosion and sedimentation control laws.

l. Culverts shall be designed to support traffic crossings by heavy construction and maintenance equipment, and shall be capable of withstanding AASHTO designation HS20-44 wheel loadings.

m. Lighting poles and other facilities are to be no taller than sixteen feet eight and one quarter inches (16' 8 1/4"), inclusive of luminary fixture, above existing ground level, and all metallic parts shall be effectively grounded. Lighting fixtures are allowed per location shown on Exhibit "U" Electric service panels (SP-1, SP-2) as shown on Exhibits "P" and "S" shall be no more than three (3) feet wide, twenty-four (24) inches deep and six (6) feet high, and are to be located adjacent to the easterly limits of the DVP Right of Way

n. At County's expense, all metallic components of the County Facilities, or equipment used for installation, shall be grounded electrically in a manner satisfactory to Dominion, and Dominion shall have no responsibility for electrical induction effects due to Dominion's facilities on objects located on the Subject Premises or objects used by County or another in connection with any activity carried on pursuant to this Agreement.

o. County shall not conduct, or permit to be conducted, any blasting on the Subject Premises or other portions of DVP Rights-of-Way. If County determines blasting is the only practical means of excavation for the installation of the County Facilities, a blasting plan must be submitted and approved prior to any blasting activities.

p. County, its contractors or agents shall not burn or bury debris on the Subject Premises or other property in which Dominion has an interest identified in this Agreement.

q. No toxic substances and/or hazardous wastes, particularly those used in or generated as a result of the construction, installation, inspection, operation, maintenance, repair, alterations, replacement or removal of the County Facilities, shall be disposed of on the Subject Premises, or on any property identified in this Agreement in which Dominion has an interest. Any spills or leakage of such substances and waste on property in which Dominion owns an interest shall be reported to the Dominion within twenty four (24) hours and thereafter cleaned up pursuant to all applicable local, state and federal requirements of law.

r. After County's Facilities are installed and, except in emergency situations, County shall give five (5) business days advance notice of construction work being performed within the DVP Rights of Way to Dominion's Sr. Rights of Way Management Representative (currently Gary Dorman at (571) 203-5085 or to such other persons and in such a manner as Dominion may from time to time specify to County.

s. County shall begin physical installation of the County Facilities within two (2) years of the date of execution of this Agreement. If installation does not begin within that period, this Agreement shall terminate and a new request for the proposed County Facilities must be submitted before further consideration. For the avoidance of doubt, Company's consent for the County Facilities in no way implies or assures that Company will reissue consent for the proposed County Facilities in the future should this Agreement terminates in accordance with this Section 8.

t. County shall, at its expense, provide the Dominion with complete As-Built drawings and specifications for the County Facilities within six (6) months after completion of the construction of the County Facilities. County shall provide Dominion with a minimum of six (6) months notice prior to any modification, alteration or relocation of the County Facilities. Such modification, alteration or relocation shall be subject to review and approval by Dominion.

u. The County agrees to continue its efforts to cooperate with Dominion in good faith related to Dominion's acquisition of a substation site and associated development rights for the Springhill Substation Project.

5. Unsafe Conditions: In the event that any of County Facilities are determined to be unsafe at any time, the County will work cooperatively with Dominion to correct any such unsafe condition that may exist. If the unsafe condition persists, following written notice from Dominion and a reasonable period of time for the County to remedy the unsafe condition, Dominion shall have the right to remedy the unsafe condition at the County's expense.

6. Insurance: The County shall maintain the insurance as specified in its Statement of Insurance/Self-Insurance dated July 6, 2016, which is attached hereto. In addition the County shall require its contractors and subcontractors performing work on the County Facilities to indemnify, defend and hold Dominion harmless against any loss, damage or liability arising from work performed on the Subject Premises and, further, to require its contractors and subcontractors performing work on the County Facilities to obtain and keep, in full force and effect, with respect to its/their work on the Subject Premises, insurance coverage with insurance companies authorized to do business in the Commonwealth of Virginia, as follows:

- a. Workers compensation insurance as required by the statutory benefit laws of the Commonwealth of Virginia with employers liability insurance with limits of \$100,000.00;
- b. Commercial general liability insurance with coverage limits of \$2,000,000.00; and
- c. Automobile liability insurance covering bodily injury and property damage with a total limit of \$1,000,000.00 per accident. Such insurance shall cover liability arising out of any auto (including owned, hired and non-owned autos).

The insurance required for the County's contractors and subcontractors in paragraph (b) above shall (1) name Dominion, its officers, directors and employees as an additional insured; (2) be primary coverage with respect to any liability coverage carried by Dominion; and (3) provide for claims by one insured against another such that, except for the limits of insurance, the insurance shall apply separately to each insured against whom a claim is made or suit is brought.

Before the County's contractors and sub-contractors enter upon the Subject Premises, and thereafter upon the renewal of their insurance policies, all contractors and sub-contractors, shall provide certificates of insurance to Dominion evidencing the coverage and limits required by this Agreement and that Dominion, its officers, directors and employees are an additional insured. Failure of Dominion to demand such certificates or other evidence of full compliance with these insurance requirements or failure of Dominion to identify a deficiency from evidence that is provided shall not be construed as a waiver of the obligation of the County's contractors and sub-contractors to maintain such insurance. The County and its contractors, sub-contractors and assigns, or their respective agents, representatives or insurers shall provide thirty (30) days prior written notice of cancellation to Dominion, except for non-payment of premium to which ten (10) day notice shall apply.

7. Termination of Consent: Dominion may terminate this Agreement by giving notice to the County, if any of the following shall occur:

- a. The County commits a material breach of this Agreement and fails to cure the breach within a reasonable period of time following written notice from Dominion; or
- b. The County shall attempt to transfer or assign this Agreement without the prior written consent of Dominion.

8. Remedies: Upon termination of this Agreement in accordance with the requirements of Section 7, the County shall remove or relocate any items that remain on the Subject Premises or other portions of DVP Rights-of-Way, at the County's sole cost and expense, and restore the DVP Rights-of-Way in a satisfactory manner, if the County has not restored the DVP Rights-of-Way within one hundred (180) days of termination of this Agreement, Dominion may elect to

remove any items remaining on the DVP Rights-of-Way and restore the DVP Rights-of-Way. Should Dominion exercise its remedies under this condition, then County shall reimburse Dominion for all costs and expenses incurred in removing structures, restoring the DVP Rights-of-Way.

9. Notices: All notices, requests, demands and other communications required or permitted to be given hereunder shall be deemed to have been duly given if in writing and delivered personally, or mailed first class, postage prepaid, registered or certified mail, as follows:

If to County:
Fairfax County Department of Transportation 4050
Legato Road, Suite 400
Fairfax Virginia, 22033-2895
Attention: Director

If to Dominion:
Dominion Virginia Power
One James River Plaza, 12th Floor
701 East Cary Street
Richmond, Virginia 23219
Attention: Electric Transmission Rights-of-Way

In the case of change of any such mailing address, the party so changing a mailing address shall give notice thereof to the other party. In the absence of any such notice, notice mailed in accordance with the foregoing section shall be deemed sufficiently given and served for all purposes.

10. All headings used in this Agreement are for convenience and shall have no interpretive or binding effect upon the provisions of this Agreement.

11. The failure of Dominion at any time or times to require performance of any provisions of this Agreement shall in no manner affect the right at a later time to enforce the same. No waiver by Dominion of any condition, or of any breach of any term, covenant or representation contained in this Agreement, in any one or more instances, shall be deemed to be, or construed as, a further or continuing waiver of any such condition or breach or a waiver of any other condition or of breach of any other term, covenant, or representation.

12. Should any one or more of the terms, provisions, covenants or conditions of this Agreement be held to be void, invalid, illegal or unenforceable in any respect, the same shall not affect any other term, provision, covenant or condition contained herein.

13. In exercising the rights granted by, and undertaking activity pursuant to, this Agreement, County shall act in accordance with the laws of the State of Virginia and any other governmental body, state or federal having jurisdiction over such matters.

14. It is the responsibility of the County to ensure that all contractors, sub-contractors and assigns, or their respective agents or representatives are aware, informed of and abide by these conditions.

[SIGNATURES TO FOLLOW]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed on their behalf by their duly authorized representative as of the date first above written.

VIRGINIA ELECTRIC AND POWER COMPANY

By  (SEAL)
Michael Kirk
Supervisor, Right of Way Management
Electric Transmission Authorized
Representative

**COMMONWEALTH OF VIRGINIA
CITY OF RICHMOND, to wit:**

I, MICHAEL DEAN OBAUGH, the undersigned Notary Public in and for the Commonwealth of Virginia at large, do hereby certify that **Michael H. Kirk**, whose name is signed to the foregoing document on behalf of Virginia Electric and Power Company, appeared before me in the jurisdiction aforesaid and personally acknowledged the foregoing Agreement.

GIVEN under my hand and seal this 2nd day of December 2016.

My commission expires: 4/30/2019.


Notary Public

Registration #
220132



[SIGNATURE PAGE TO FOLLOW]

BOARD OF SUPERVISORS OF FAIRFAX COUNTY

By: Edward L. Long, Jr. (SEAL)
Authorized Representative

Edward L. Long, Jr., County Executive
Print Name and Title

COMMONWEALTH OF VIRGINIA

CITY/COUNTY OF Fairfax, to wit:

I, Susan Stanners Robinson, the undersigned Notary Public in and for the Commonwealth of Virginia at large, do hereby certify that Edward L. Long Jr., whose name is signed to the foregoing document on behalf of Fairfax County Department of Transportation, appeared before me in the jurisdiction aforesaid and personally acknowledged the foregoing Agreement.

GIVEN under my hand and seal this 13th, day of December 2016.

My commission expires: March 31, 2019.



Susan Stanners Robinson
Notary Public

Registration # 7646782



DEPARTMENT OF FINANCE

Risk Management Division
12000 Government Center Parkway, Suite 215
Fairfax, Virginia 22035-0021
Telephone (703) 324-3040 Fax (703) 324-3951 Toll Free 1-800-999-0709

STATEMENT OF INSURANCE/SELF-INSURANCE

TO WHOM IT MAY CONCERN:

Reference: Leonard Clark, Insurance Manager 703-324-3051
Contact Name or Number

Addressee: To Whom It May Concern
Name of Person/Organization to Whom Issued

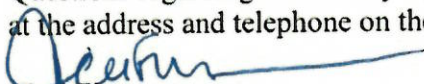
This will certify that Fairfax County, Virginia, a local government with AAA Bond rating, self-insures, with a self-insured retention of \$1,000,000 and an excess coverage with a \$10 million limit, for the following:

- Commercial Automobile Liability and Uninsured/Under Insured Motorist
- Commercial General Liability
- Public Officials' Liability
- Professional Liability including malpractice
- Employer's Liability
- Law Enforcement Liability
- Environmental Impairment Liability is also self-insured, however is excluded under the excess liability
- Workers' Compensation is covered for statutory limits with a \$2,000,000 self-insured retention.

The property risks are commercially insured with a self-insured retention of \$250,000. Fairfax County agrees to assume all risks customarily covered by the Commercial General Liability Insurance, the ISO Standard for Commercial Automobile Liability Insurance, and Employer's Liability on Workers' Compensation pursuant to statutory requirements. Volunteers are covered for general liability in the amount of \$1,000,000 and automobile liability in the amount of \$500,000 (excess of personal insurance) through a separate commercial insurance policy. Fairfax County is prescribed by law from extending its self-insurance to outside parties. Uninsured/Under Insured Motorist coverage is self-insured with the limit of \$25,000, as required under Virginia law.

This statement shall serve to certify both the accuracy of the foregoing information as well as the financial ability of the County to meet the obligation imposed by the retention levels. Coverages noted (✓) above are provided to satisfy the requirements of the above-referenced contract/agreement.

Questions regarding the County's property and casualty insurance/self-insurance may be directed to me, at the address and telephone on the above letterhead.


Teri Flynn
Risk Manager

Date of Issue: July 6, 2016

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 Company’s route selection began with a review of existing rights-of-way. This approach generally minimizes impacts on the natural and human environments. This approach is also consistent with Attachment 1 to these Guidelines, which states that existing rights-of-way should be given priority when adding new transmission facilities, and §§ 56-46.1 and 56-259 of the Va. Code, which promote the use of existing rights-of-way for new transmission facilities.

As shown on Attachment II.A.2, the Proposed Route will utilize the existing overhead Line #2010 right-of-way corridor for approximately 0.48 mile of the route. The Proposed Route departs from the existing right-of-way and turns south within a private service road for approximately 0.05 mile on a newly acquired 30-foot easement until it reaches Spring Hill Road (Route 684). At Spring Hill Road, the Line will turn west within Spring Hill Road for approximately 0.05 mile via a VDOT permit until it reaches Leesburg Pike (Route 7). These two departures from use of the existing right-of-way are necessary to avoid the area proposed for new mixed-use development, The View.

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: Construction of the Project is planned to commence after the installation of Line #2175, the Idylwood to Tysons project, is complete. The Idylwood to Tysons project is scheduled to be completed by December 31, 2022. Assuming a final order by June 30, 2021, as requested in Section I.H, the current plan is to start construction by January 1, 2023, and to complete construction of the Project by December 31, 2025.

The Company intends to leave Line #2010 in place during construction in order to allow for a quick return to service, if required. Line #2010 is part of the Tysons Loop which is approximately 20.8 miles in length, consisting of four 230 kV single circuit transmission lines—Line #2010 from Reston Substation to Tysons Substation, Line #2108 from Tysons Substation to Swinks Mill Substation, Line #2029 from Swinks Mill Substation to CIA Substation, and Line #2035 from CIA Substation to Idylwood Substation—and, as of October 22, 2019, serves approximately 27,830 customers via the CIA, Reddfield, Swinks Mill, and Tysons Substations that are served from it. See Attachment II.A.10 for a map of the Tysons Loop.

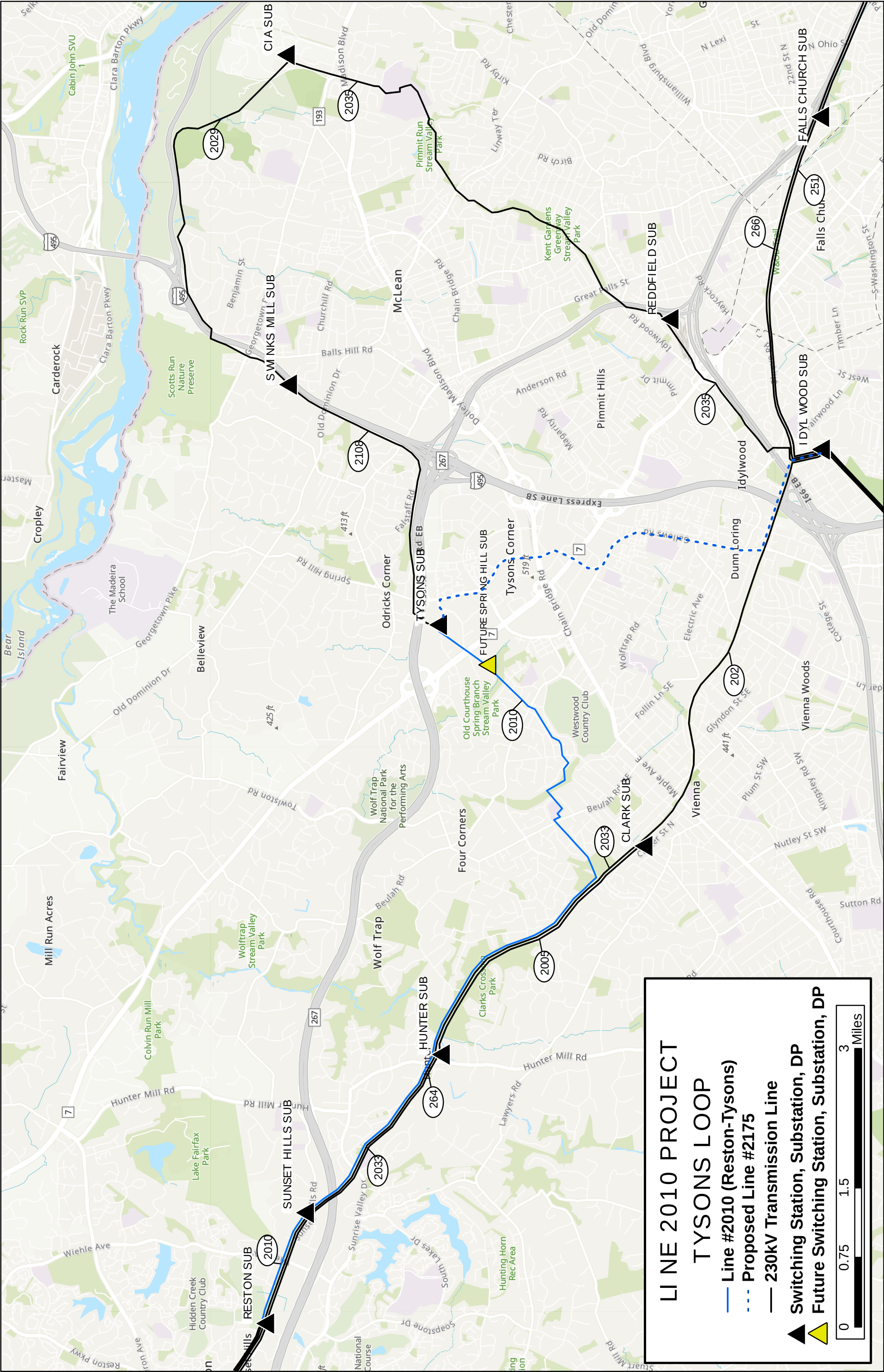
A long duration outage of Line #2010 that could occur (*i.e.*, up to three years), should the Line be unable to be returned to service during construction of the Project, runs the risk of being out of compliance with NERC Reliability Standards to prevent the unintended loss of 300 MW or more of load during an N-1-1 loss of Line #2035 and Line #2175. In addition, having Line #2010 out of service for a long duration could mean any planned or unplanned outage of Line #2035 or Line #2175, while loads exceed 300 MW, would result in that load, including governmental agencies, being fed radially out of Idylwood Substation. This is an unacceptable risk to reliability and could lead to new violations of NERC Reliability Standards. A long duration outage of Line #2010 during construction would place the Company in the same circumstances that led to the need for Line #2175; that is, without the third source into the Tysons Loop, an N-1-1 loss of Line #2035 and Line #2175 would drop more than 300 MW.⁵

The first step in the construction of the Project is to take an outage on Line #2010, which runs between Tysons Substation and Reston Substation. This outage will be scheduled to begin in the first quarter of 2023. The Company will then commence

⁵ See *Application of Virginia Electric and Power Company, For approval and certification of electric facilities: Idylwood-Tysons 230 kV Single Circuit Underground Transmission Line Tysons Substation Rebuild and Related Transmission Facilities*, Case No. PUR-2017-00143, Application (Nov. 8, 2017).

the construction of the Project. After the new underground transmission line is installed, the Company will connect it to the GIS system at Tysons Substation. The Company will also make the connection to the overhead transmission system at the Transition Pole. Following energization of the Project, the Company will remove the corresponding overhead portion of Line #2010.

The Company requested approval of the scheduled outage from PJM for Line 2010 on July 22, 2020. The eDart Number for this outage is: 888362. It is customary for PJM to not grant approval of the outage until shortly before the outage is expected to occur and, therefore, the outage 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: Attachment 1 to these Guidelines contains 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 some of the existing transmission corridor.

By utilizing the existing transmission corridor, the proposed Project will minimize impact to any site possibly listed on the National Register of Historic Places (“NRHP”). Thus, the Project is consistent with Guideline #2 (where practical, rights-of-way should avoid sites listed on the National Register of Historic Places). No NRHP-listed or NRHP-eligible properties were found to be located within 1.0 mile of the Project area. See Section III.A for the Stage I Pre-Application Analysis prepared by Draper Aden Associates, which is included with the DEQ Supplement as Attachment 2.H.1. The Company will coordinate with the Virginia Department of Historic Resources (“DHR”) through review of the Stage 1 Pre-Application Analysis regarding any findings and ways to minimize the impact to historic properties possibly listed or eligible for listing on the NRHP.

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 applicant should contact the agencies early in the planning process). See Section III.B 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 Project is located in Fairfax County, Virginia. The Proposed Route of the Project is located entirely within the Company’s service territory.
- b. Three color copies of the Virginia Department of Transportation “General Highway Map” of Fairfax County are marked as required and filed with the Application in this case. See Attachment II.A.12.b for a reduced-size copy of the map.

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: Along the Proposed Route, the Project will be built to the Company's 230 kV underground design standards. For the single underground circuit to operate at the targeted continuous rating of 900 MVA, a total of six power cables are required (two cables per electrical phase). See Attachment II.A.5.a.2.

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: Along the Proposed Route, the Project involves the installation of a new approximately 0.58-mile single circuit underground 230 kV transmission line.

The open trenching segments of the Line (approximately 0.58 mile) will be comprised of six 5000 kcmil copper, XLPE solid dielectric cables (two cables per phase). This type of cable will be used because this cable system gives the Company the best ability to meet the required ampacity with two cables per phase. See Attachment II.A.5.a.2 for the proposed configuration.

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:

Overhead Line

For the responses in reference to the overhead line, see Attachment II.B.3.a.

Underground Line

For the responses in reference to the underground line, please see the following:

- a. The Open Trench/Duct bank Construction method is used for the entire route.
- b. This question is not applicable to underground; however, the Company selected the Open Trench/Duct bank Construction method because it is an industry standard and the most cost-effective solution. See the engineering analysis included as Attachment I.B.1.

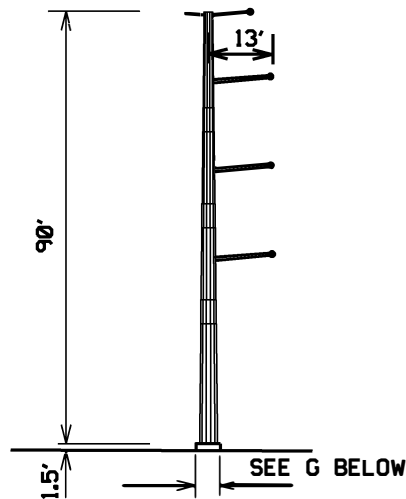
- c. This question is not applicable to underground; however, see Attachment II.A.5.a.2 for the typical duct bank cross section. The Proposed Route consists of approximately 0.58 mile of variable width right-of-way.
- d. This question is not applicable to underground; however, the material for this Project is concrete. The Company selected this material because a concrete-encased duct bank is industry standard, protects the cables, and supplies good thermal components for heat dissipation.
- e. The foundation material is 3000 psi concrete encased 8-inch PVC conduits for power cables, 2-inch PVC conduits for sheath bonding cables, and protective relaying cables.
- f. Not applicable.
- g. This question is not applicable; however, see Attachment II.A.5.a.2 for the duct bank cross section.
- h. Not applicable.
- i. The average span length is approximately 0.3 mile between manholes; however, the span length is subject to change depending on field conditions.
- j. This question is not applicable to underground; however, the minimum conductor-to-ground clearances under maximum operating conditions is approximately 42 inches from the top of PVC conduits containing energized cables to the surface of the ground.

Transition Pole

For the responses in reference to the Transition Pole, see Attachment II.B.3.b.

STRUCTURE 2010/12 REPLACEMENT SINGLE CIRCUIT DOUBLE DEADEND STEEL POLE

PRELIMINARY



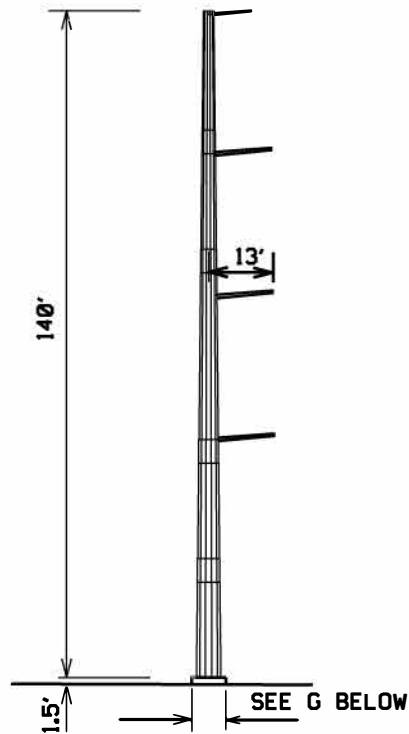
PROPOSED STRUCTURE

- 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 PLACES THE EXISTING LINE IN THE CENTER OF THE EXISTING R/W CORRIDOR.
- c. NUMBER OF EACH TYPE OF STRUCTURE AND LENGTH OF EACH PORTION OF THE R/W:
1 AND 0 MILES
- d. STRUCTURE MATERIAL AND RATIONALE FOR THE SELECTION OF SUCH MATERIAL:
GALVANIZED STEEL TO MATCH RECENTLY INSTALLED STEEL POLES
- e. FOUNDATION MATERIAL: PIPE PILE
- f. AVERAGE WIDTH AT CROSSARM: 14'
- g. AVERAGE WIDTH AT BASE: 5' DIAMETER
- h. MAX, MIN, AND AVERAGE STRUCTURE HEIGHTS: 90 FEET, 90', AND 90'
(DOES NOT INCLUDE FOUNDATION REVEAL)
- i. AVERAGE SPAN LENGTH: 269 FEET
- j. MINIMUM CONDUCTOR-GROUND CLEARANCE UNDER MAXIMUM OPERATING CONDITIONS: 22.5'

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

PRELIMINARY

TRANSITION POLE

PROPOSED STRUCTURE

- 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 PLACES THE EXISTING OVERHEAD LINE IN THE CENTER OF THE EXISTING R/W CORRIDOR AND ALLOWS THE TRANSITION FROM OVERHEAD TO UNDERGROUND.
- c. NUMBER OF EACH TYPE OF STRUCTURE AND LENGTH OF EACH PORTION OF THE R/W:
1 AND 0 MILES
- d. STRUCTURE MATERIAL AND RATIONALE FOR THE SELECTION OF SUCH MATERIAL:
GALVANIZED STEEL TO MATCH RECENTLY INSTALLED STEEL POLES
- e. FOUNDATION MATERIAL: PIPE PILE
- f. AVERAGE WIDTH AT CROSSARM: 14'
- g. AVERAGE WIDTH AT BASE: 7' DIAMETER
- h. MAX, MIN, AND AVERAGE STRUCTURE HEIGHTS: 140 FEET, 140', AND 140'
(DOES NOT INCLUDE FOUNDATION REVEAL)
- i. AVERAGE SPAN LENGTH: 160 FEET
- j. MINIMUM CONDUCTOR-GROUND CLEARANCE UNDER MAXIMUM 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

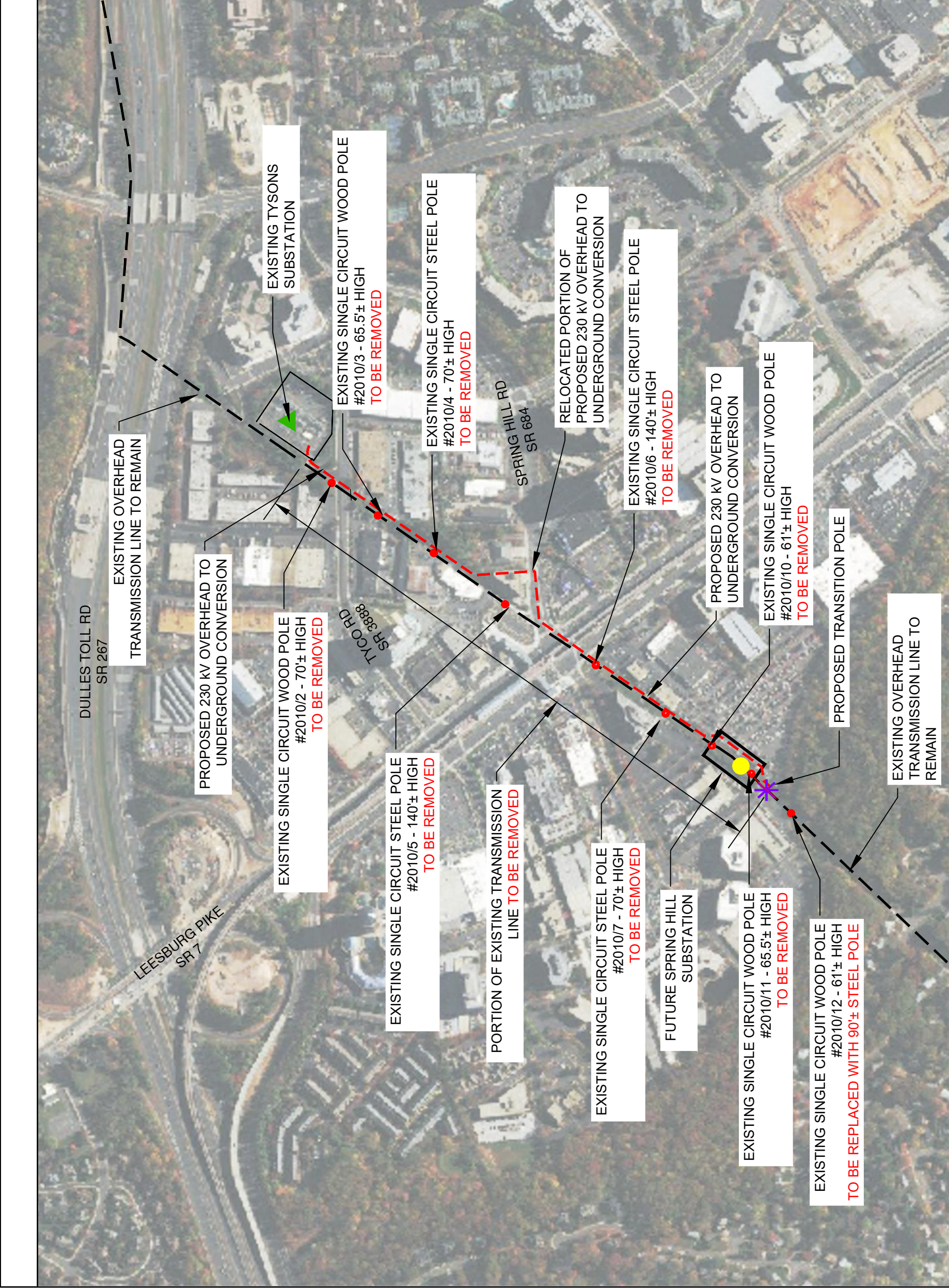
5. For lines being rebuilt, provide mapping showing existing and proposed structure heights for each individual structure within the ROW, as proposed in the application.

Response:

Engineering:

See Attachment II.B.5 for existing structure locations. The existing structure heights do not include foundation reveal.

Structure Number	Existing Structure Height (ft)	Proposed Structure Height (ft)
2010/2	70	N/A
2010/3	65.5	N/A
2010/4	70	N/A
2010/5	140	N/A
2010/6	140	N/A
2010/7	70	N/A
2010/10	61	N/A
2010/11	65.5	N/A
Transition Pole	N/A	140
2010/12	61	90



II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

6. [1] Provide photographs for typical existing facilities to be removed, [2] comparable photographs or representations for proposed structures, and [3] 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] *Photographs for existing facilities*

See Attachments II.B.6.a.1 through 9 for photographs of each of the following typical existing structures:

Single Circuit Wood Pole #2010/2 (Attachment II.B.6.a.1)
Single Circuit Wood Pole #2010/3 (Attachment II.B.6.a.2)
Single Circuit Steel Pole #2010/4 (Attachment II.B.6.a.3)
Single Circuit Steel Pole #2010/5 (Attachment II.B.6.a.4)
Single Circuit Steel Pole #2010/6 (Attachment II.B.6.a.5)
Single Circuit Steel Pole #2010/7 (Attachment II.B.6.a.6)
Single Circuit Wood Pole #2010/10 (Attachment II.B.6.a.7)
Single Circuit Wood Pole #2010/11 (Attachment II.B.6.a.8)
Single Circuit Wood Pole #2010/12 (Attachment II.B.6.a.9)

[2] *Comparable photographs or representations for proposed structures*

The Project is a proposed relocation and conversion from overhead to underground construction for the segment of Line #2010 from Tysons Substation to the future Spring Hill Substation site. As stated in Section I.B, the Company intends to build a Transition Pole just south of the future Spring Hill Substation site. The Company also intends to replace the existing Structure #2010/12 located south of the future Spring Hill Substation. See Attachment II.B.6.b for representative photographs of the proposed Transition Pole and the proposed replacement structure for Structure #2010/12.

[3] *Visual simulations from historic and other key locations*

Visual simulations showing the appearance of the proposed Transition Pole are provided for identified key locations where expected to be visible. Research identified no National Historic Landmarks (“NHL”)-listed resources within the 1.5-mile buffer; no NRHP-listed properties, battlefields, or historic landscape properties within the 1.0-mile buffer; no NHRP-eligible sites within the 0.5 mile buffer; and no archaeological sites

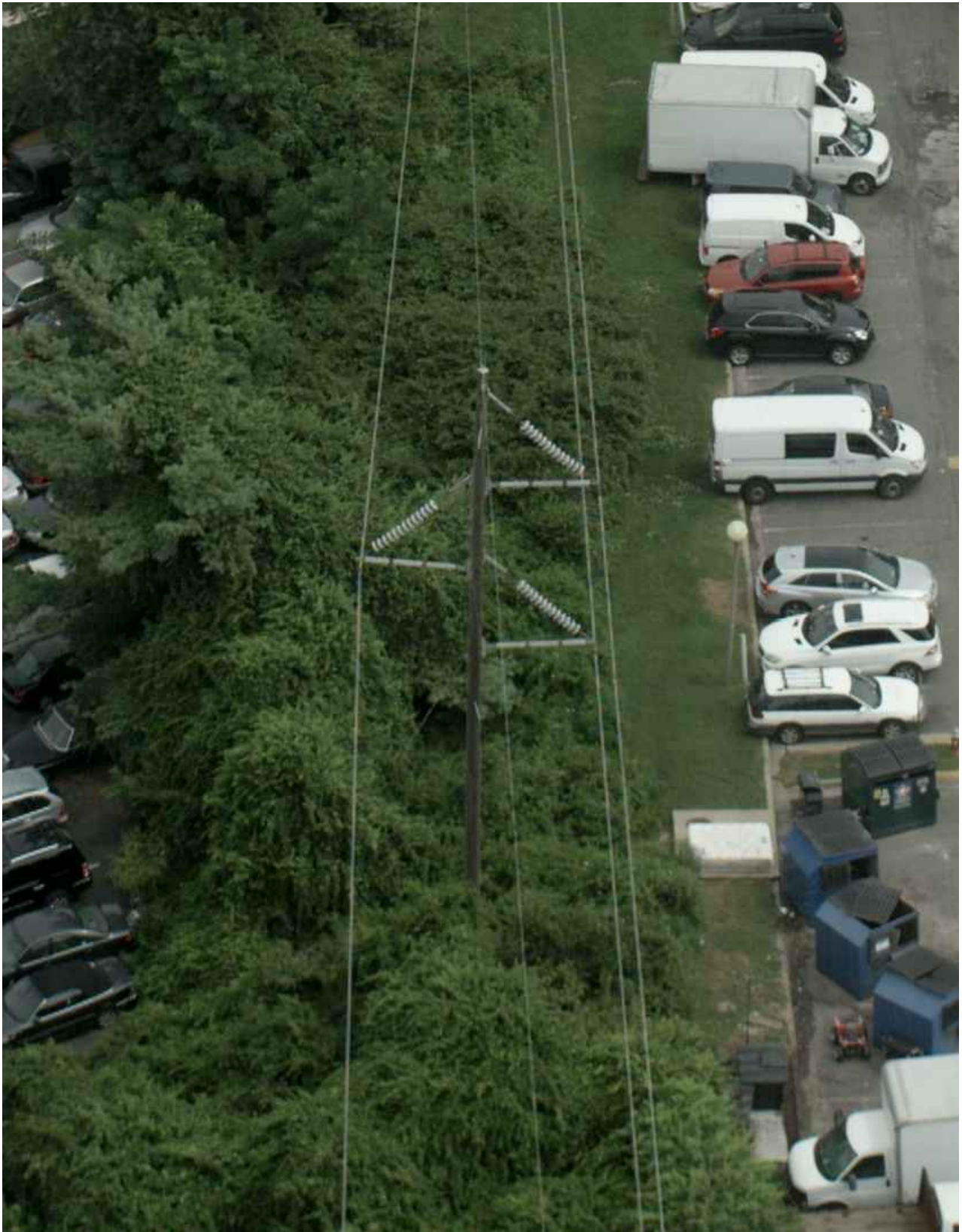
within the right-of-way; therefore, all simulations are from key locations. See Attachment III.B.5 for visual simulations of key locations evaluated.



LOOKING NORTHWEST – EXISTING TRANSMISSION STRUCTURE #2010/2 – 70'± HIGH
SINGLE CIRCUIT WOODEN POLE

Photograph provided by Dominion

**Existing Structure Type:
Single Circuit Wood Pole**



LOOKING NORTHWEST – EXISTING TRANSMISSION STRUCTURE #2010/3 – 65.5'± HIGH
SINGLE CIRCUIT WOOD POLE

Photograph provided by Dominion

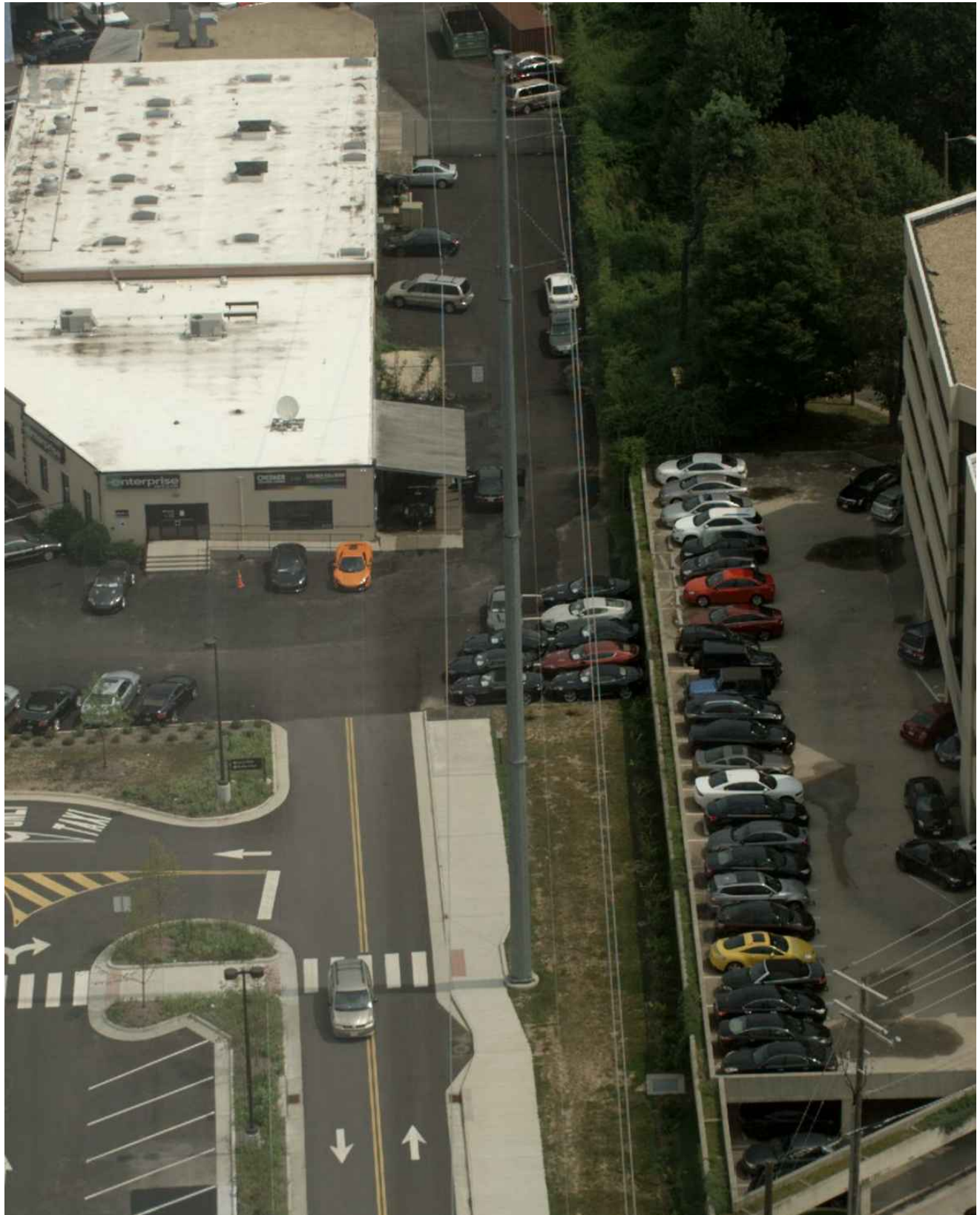
**Existing Structure Type:
Single Circuit Wood Pole**



LOOKING NORTHWEST – EXISTING TRANSMISSION STRUCTURE #2010/4 – 70'± HIGH
SINGLE CIRCUIT STEEL POLE

Photograph provided by Dominion

Existing Structure Type:
Single Circuit Steel Pole



LOOKING NORTHEAST – EXISTING TRANSMISSION STRUCTURE #2010/5 – 140'± HIGH
SINGLE CIRCUIT STEEL POLE

Photograph provided by Dominion

**Existing Structure Type:
Single Circuit Steel Pole**



LOOKING NORTHEAST — EXISTING TRANSMISSION STRUCTURE #2010/6 — 140'± HIGH SINGLE CIRCUIT STEEL POLE

Photograph provided by Dominion

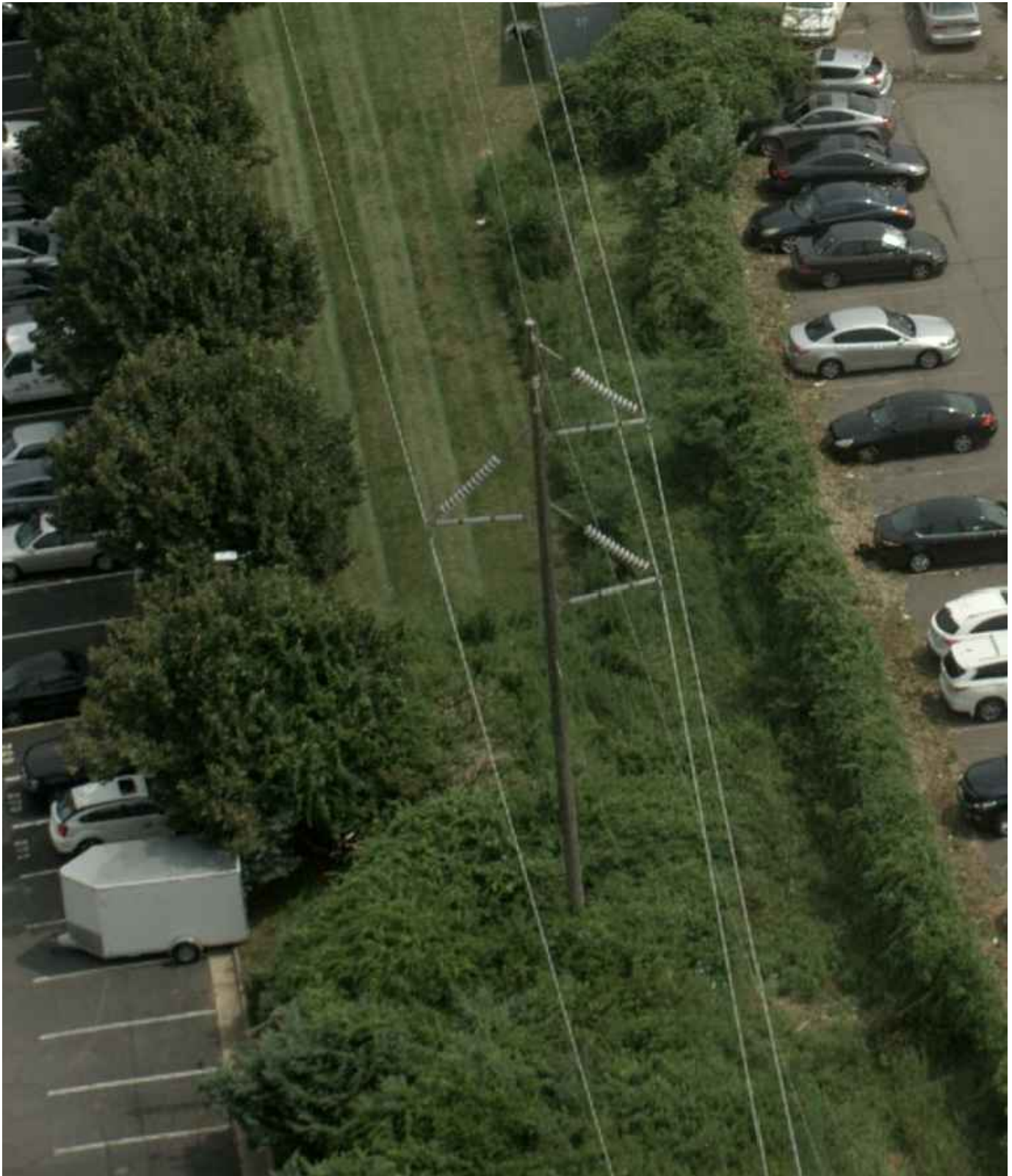
**Existing Structure Type:
Single Circuit Steel Pole**



LOOKING NORTHEAST – EXISTING TRANSMISSION STRUCTURE #2010/7 – 70'± HIGH SINGLE
CIRCUIT STEEL POLE

Photograph provided by Dominion

**Existing Structure Type:
Single Circuit Steel Pole**



LOOKING NORTHEAST — EXISTING TRANSMISSION STRUCTURE #2010/10 — 61'± HIGH SINGLE
CIRCUIT STEEL POLE

Photograph provided by Dominion

**Existing Structure Type:
Single Circuit Steel Pole**



LOOKING NORTHEAST – EXISTING TRANSMISSION STRUCTURE #2010/11 – 65.5'± HIGH
SINGLE CIRCUIT WOOD POLE

Photograph provided by Dominion

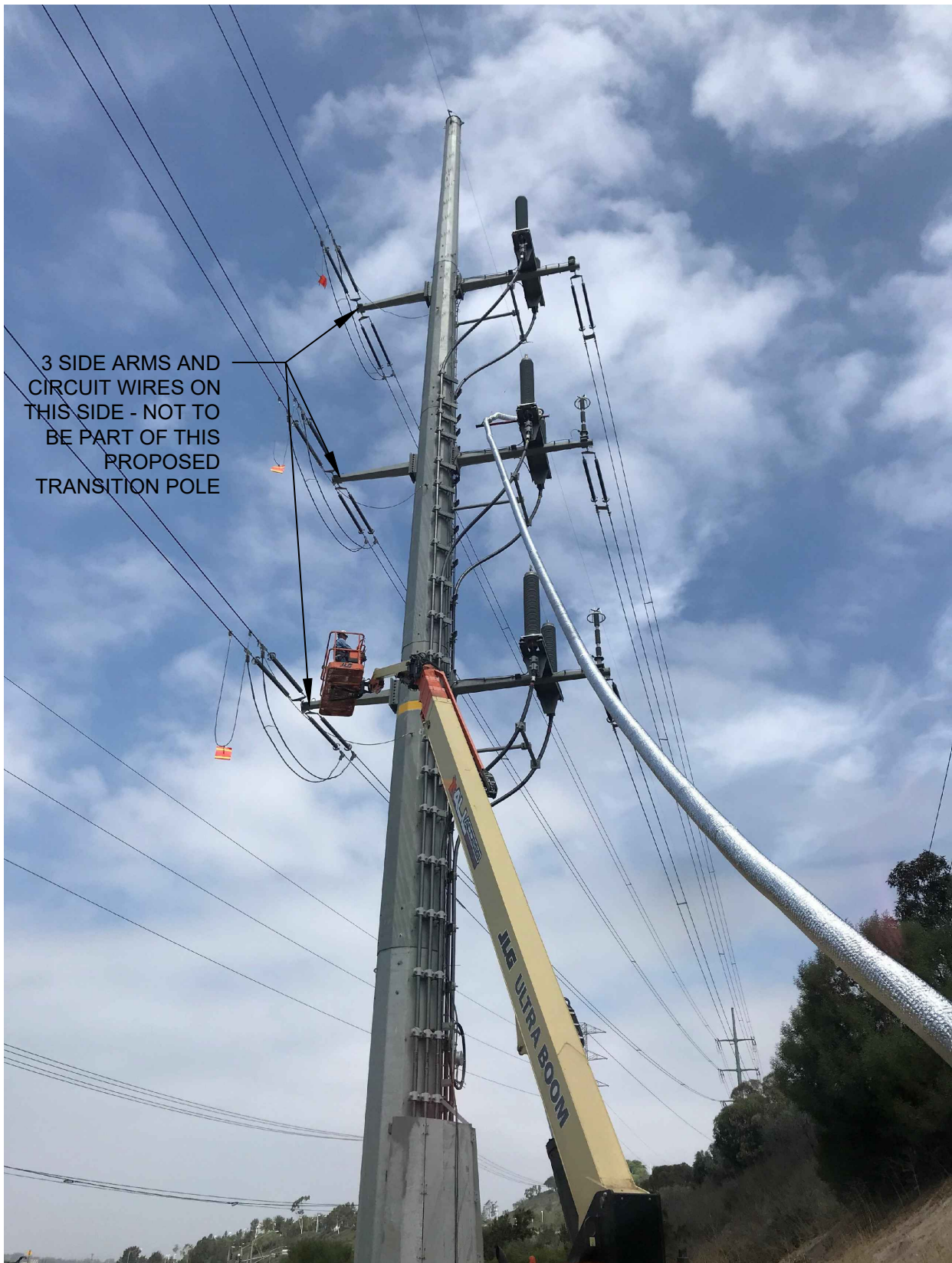
**Existing Structure Type:
Single Circuit Wood Pole**



LOOKING NORTHEAST — EXISTING TRANSMISSION STRUCTURE #2010/12 — 61'± HIGH SINGLE
CIRCUIT WOOD POLE

Photograph provided by Dominion

**Existing Structure Type:
Single Circuit Wood Pole**



PROPOSED SINGLE CIRCUIT UNDERGROUND TO OVERHEAD TRANSITION STEEL
POLE – 140'± HIGH

Photograph provided by Dominion

**Proposed Structure Type:
Single Circuit Underground to Overhead
Transition Steel Pole**



PROPOSED TRANSMISSION STRUCTURE REPLACEMENT #2010/12 – 90'± HIGH –
SINGLE CIRCUIT STEEL POLE

Photograph provided by Dominion

**Proposed Structure Type:
Single Circuit Steel Pole**

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: **Tysons Substation**

The Project will impact Tysons Substation as follows:

The Project will require removal of one 230 kV line wave trap, upgrading of the 230kV bus, and replacing existing 230 kV 2000 Amp switch with 230kV 3000 Amp switch in order to meet Line #2010 rating requirements and accommodate converting Line #2010 to an underground line.

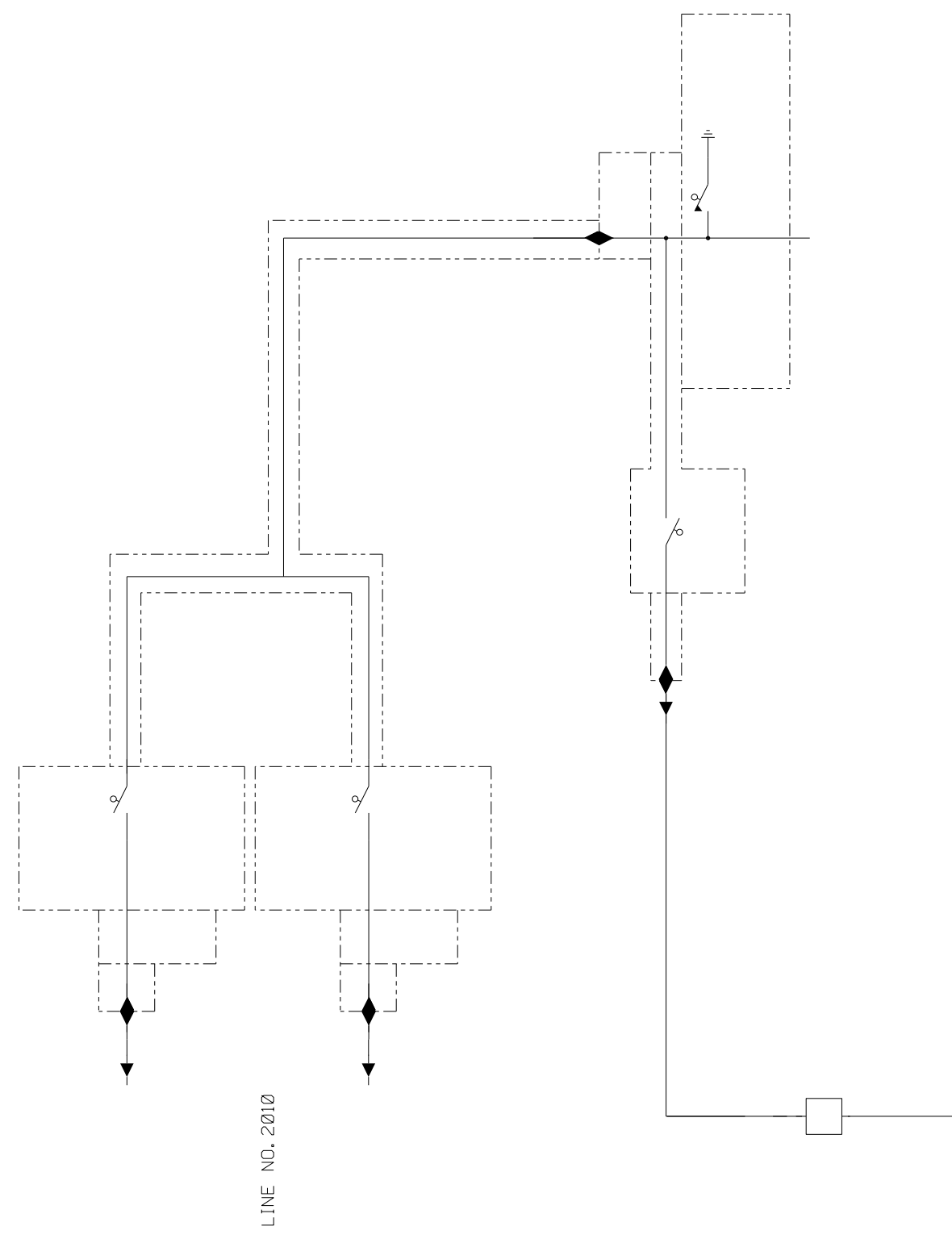
In addition, the Project will require the installation of two 230kV 3000 Amp switches, one 230kV circuit breaker, one 230kV RL switcher, three 230kV metering coupling capacitors, and one 230kV, 50-100 MVAR Variable Shunt Reactor at Tysons Substation.

See Attachment II.C for the one-line diagram of the proposed arrangement for Tysons Substation.

Future Spring Hill Substation

The Project will impact the future Spring Hill Substation site as follows:

The Project will proceed down the existing Line #2010 right-of-way to the future Spring Hill substation site. The underground line will then proceed along the southeastern border of the future Spring Hill Substation site and ultimately into the foundation of the proposed Transition Pole where the foundation will have the conduits for the underground line located on the side of the Transition Pole. The cable will exit the foundation of the Transition Pole and also proceed up the side of the Transition Pole where the cable will be supported out to the termination support arms. The cable will then be clamped up the sides of the Transition Pole and guarding will be placed around the Pole for security. The cable will terminate on the termination support arms and connect to the Line #2010 overhead line.

[illegible]

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 cover categories crossed by the Project are predominantly developed or future development (0.58 mile). Other land uses crossed by the Proposed Route, consist of roadways, an elevated metro line near a metro stop, and trail. Fairfax County has designated an Agricultural and Forestal District (“AFD”); however, no AFDs would be crossed by the Proposed Route.

The Proposed Route is expected to have minimal impacts on agricultural and forest resources, since it is largely located within the existing ROW and roadways and is located in an urban area. The Proposed Route will impact operation of the Vesper Trail which was constructed under a negotiated encroachment agreement between the Company and the Board of Supervisors of Fairfax County within the existing transmission easement between Spring Hill Substation and Leesburg Pike (Route 7). The Proposed Route and ROW would impact zero acres of wetlands. No additional clearing will be required to construct the Project on the Proposed Route. The proposed Route would not cross any Virginia Scenic Byways or Scenic River. Additionally, the Proposed Route does not cross or parallel any other private recreation areas, other than the above described Vesper Trail.

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 Draper Aden Associates. This report was forwarded to DHR initially in August 2020 and again in September 2020 with an updated Project area, and is included as Attachment 2.H.1 to the DEQ Supplement. The background archival research identified no NHL-listed resources within the 1.5-mile buffer; no NRHP-listed properties, battlefields, or historic landscape properties within the 1.0-mile buffer; no NHRP-eligible sites within the 0.5 mile buffer; and no archaeological sites within the right-of-way.

Online database searches for threatened and endangered species in the vicinity of the proposed Project—including the U.S. Fish and Wildlife (“USFWS”) Information, Planning, and Conservation (“IPaC”) system, the Virginia Department of Wildlife Resources (“VDWR”) Virginia Fish and Wildlife Information Service (“VAFWIS”), Virginia Department of Conservation and Recreation (“DCR”), Natural Heritage Data Explorer (“NHDE”), and the Center for Conservation

Biology (“CCB”) Bald Eagle Nest Locator—were conducted, which identified a few federal- and state-listed species that have the potential to occur within the proposed Project area. These resources are identified in the report included as Attachment 2.F.1 to the DEQ Supplement. Although site observations and research reveal the preferred habitat for these species is not present in the vicinity of the proposed Project, the Company intends to reasonably minimize any impact on these resources and coordinate with pertinent agencies, as appropriate.

The Proposed Route currently has a total of 785 apartment dwellings in two buildings within 500 feet of the centerline. One of the buildings, named “Adaire,” has 405 units located west of the Proposed Route off of Tyco Road. The second building, named “Ascend,” has 380 units and is located east of the Proposed Route off of Spring Hill Road.

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 accordance with § 15.2-2202 E of the Code of Virginia, letters were delivered to the County Administrator or County Executive in the county where the Project is located, advising of the Company's intention to file this Application and inviting the locality to consult with the Company about the Project. See Section V.D of this Appendix.

In August 2020, the Company launched an internet website dedicated to the proposed Project: www.dominionenergy.com/springhill. The website includes a description and benefits of the proposed Project, an explanation of need, route maps, photo simulations, a project overview video, and information on the Commission review process. Key information about the Project also was translated and posted in Spanish and Vietnamese.

In August 2020, the Company sent project announcement mailers to 200 property owners within 500 feet of the Project. Each mailer included a letter and overview map. The letters provided a brief overview of the respective proposed Project and advised that due to COVID-19, the Company would not host traditional in-person open house events, but would host a virtual community meeting. In addition, the communication indicated that detailed materials would be posted to the dedicated Project website and explained how to contact the Project Team to provide any feedback or questions. Copies of the letter and overview map are included as Attachment III.B.1.

Also in August 2020, the Company sent informational postcards to the same property owners inviting them to the virtual community meeting and to visit the dedicated Project page. The postcard is included as Attachment III.B.2. Newspaper print advertisements regarding the Project and virtual open house were placed in the McLean Connections (circ. 20,529), Fairfax Times (circ. 129,980), and Fairfax Suns Gazette (circ. 32,000). An example of such an ad is included as Attachment III.B.3. In addition, digital and social media advertisements ran on TysonsReporter.com, NextDoor, Google AdWords, Twitter, FaceBook, Instagram, and Spotify targeting Fairfax County residents in zip codes within close proximity to Project. An example of the ad is provided as Attachment III.B.4.

Traditional open house materials have been posted on the website for the proposed Project, including simulations of the proposed Project from key locations. These key location simulations are included as Attachment III.B.5.

The Company also met with the Fairfax County Supervisor for the Providence District on September 2, 2020, and the Fairfax County Supervisor for the Hunters

Mill District on September 4, 2020, to update both Supervisors on the status of this Project. In addition, the Company informed both Supervisors of the Company's planned outreach and the virtual open house scheduled for the evening of September 9, 2020. Both Supervisors were supportive of the Project and the Company's planned outreach. See Section III.K for details on the virtual open house.

In addition, the Company researched the demographics of the surrounding communities using the 2017 U.S. Census American Community Survey data to determine that there are 11 Census Block Groups within the Project area that fall within a mile of the existing transmission line. A review of minority, income, and education census data identified populations within the study area that meet the Virginia Environmental Justice Act defined threshold for Environmental Justice protections ("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 converting 0.56 mile of the existing Line #2010 230 kV overhead line to underground. The Proposed Route of 0.58 miles consists of variable width right-of-way between Tysons Substation and just south of the future Spring Hill Substation site. It largely will be on existing Company owned right-of-way and deviates for approximately 0.10 mile to accommodate the future site of The View development. The Line will require several temporary construction easements but will not require: (1) the construction of a temporary line, or (2) an increase in operating voltage. Based on the analysis of the Project, the Company does not anticipate disproportionately high or adverse impacts to the surrounding community and the EJ Communities located within the study area, consistent with the Project design to reasonably minimize such impacts.

In addition to its evaluation of impacts, the Company has worked with the County, local Chambers, and businesses to provide information on the Project (in English, Spanish, and Vietnamese—the largest identified populations in the immediately impacted area) and will continue to engage the EJ Communities in a manner that allows them to meaningfully participate in the Project development and approval process so that the Company can take their views and input into consideration.

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



Aug.19, 2020

Proposed Tysons-future Spring Hill Underground Electric Transmission Project

Dear Neighbor:

At Dominion Energy, we are dedicated to finding the best solution for long-term energy needs in the communities we serve. As a result of rapid growth and local comprehensive planning, Dominion Energy is proposing to place a portion of existing overhead 230 kilovolt (kV) electric transmission line underground and construct a new substation source in the Tysons area of Fairfax County.

The existing and future line is located between our Tysons Substation on Tyco Road and a future Spring Hill Substation southwest of Leesburg Pike and Spring Hill Road in Fairfax County.

Prior to filing an application with the Virginia State Corporation Commission (SCC), we would like to take the opportunity to share more information about the project and gather feedback from the community.

Due to the ongoing public health concerns resulting from the spread of 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.

Wednesday, Sept. 9, 2020

6:30-7:30 p.m.

DominionEnergy.com/springhill

Please be on the lookout for future communications and additional materials posted to this web page to keep you informed and up-to-date on the project.

You may also contact us by sending an email to powerline@dominionenergy.com or calling 888-291-0190 with any questions.

Thank you for your patience and understanding as we work to maintain reliable electric service and keep our communities energized.

Sincerely,

The Electric Transmission Project Team

Enclosure

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



**Dominion
Energy®**

Actions Speak Louder

**YOU'RE INVITED TO
A VIRTUAL COMMUNITY MEETING
DETAILS ENCLOSED**



Dominion Energy image. Not project specific.

IMPORTANT

Local Power Line Project Information

Tysons-future Spring Hill Underground Transmission Line Project — Virtual Community Meeting

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



AT DOMINION ENERGY, we are committed to staying connected with our neighbors 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 Tysons-future Spring Hill Underground Transmission Line Project in Tysons, Virginia. As a result of rapid growth and local comprehensive planning, Dominion Energy is proposing to place a portion of an existing overhead 230 (kV) electric transmission line underground and construct a new substation.

Upon approval from the Virginia State Corporation Commission (SCC), construction is scheduled to begin in mid-2021 and completed by December 2025. Our virtual community meeting will review details of the project, including timelines, visual simulations, and the project's impact on your community. You can also ask questions and interact with our project team.

You can access the meeting for free using a mobile device, tablet, computer, or you can simply dial-in with your telephone. Please visit DominionEnergy.com/springhill for details.

In addition, we want to inform you that 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 to provide reliable energy.

Please know that we are dedicated to working safely and courteously in your community.

CONTACT US

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

VIRTUAL COMMUNITY MEETING

Wednesday, Sept. 9, 2020
6:30 – 7:30 p.m.

Visit DominionEnergy.com/springhill
for more information.

Check out our new virtual photo simulations
and project video! Launching Sept. 8, 2020, at
DominionEnergy.com/springhill



You are invited to our Virtual Community Meeting

Hear from experts about the future of the overhead 230 kV transmission line connecting Dominion Energy's Tysons and future Spring Hill substations.

Join us live online on Wednesday, September 9 at 6:30 p.m.
Find event details at DominionEnergy.com/springhill



**Dominion
Energy®**

Actions Speak Louder





Dominion Energy
Tysons-future Spring Hill Underground Transmission Line Project
Post-Event: Spotify & Nextdoor

Post-Event Ad: Nextdoor

- **Headline:** Tysons-future Spring Hill Underground Transmission Project
- **Body Copy:** Dominion Energy's virtual community meeting for this project was held Sept. 9. In case you missed it, click here to watch the recording.
- **Link Description:** Miss the live event? Watch it now.
- **Call to Action Button:** Learn More

Post-Event Script: Spotify

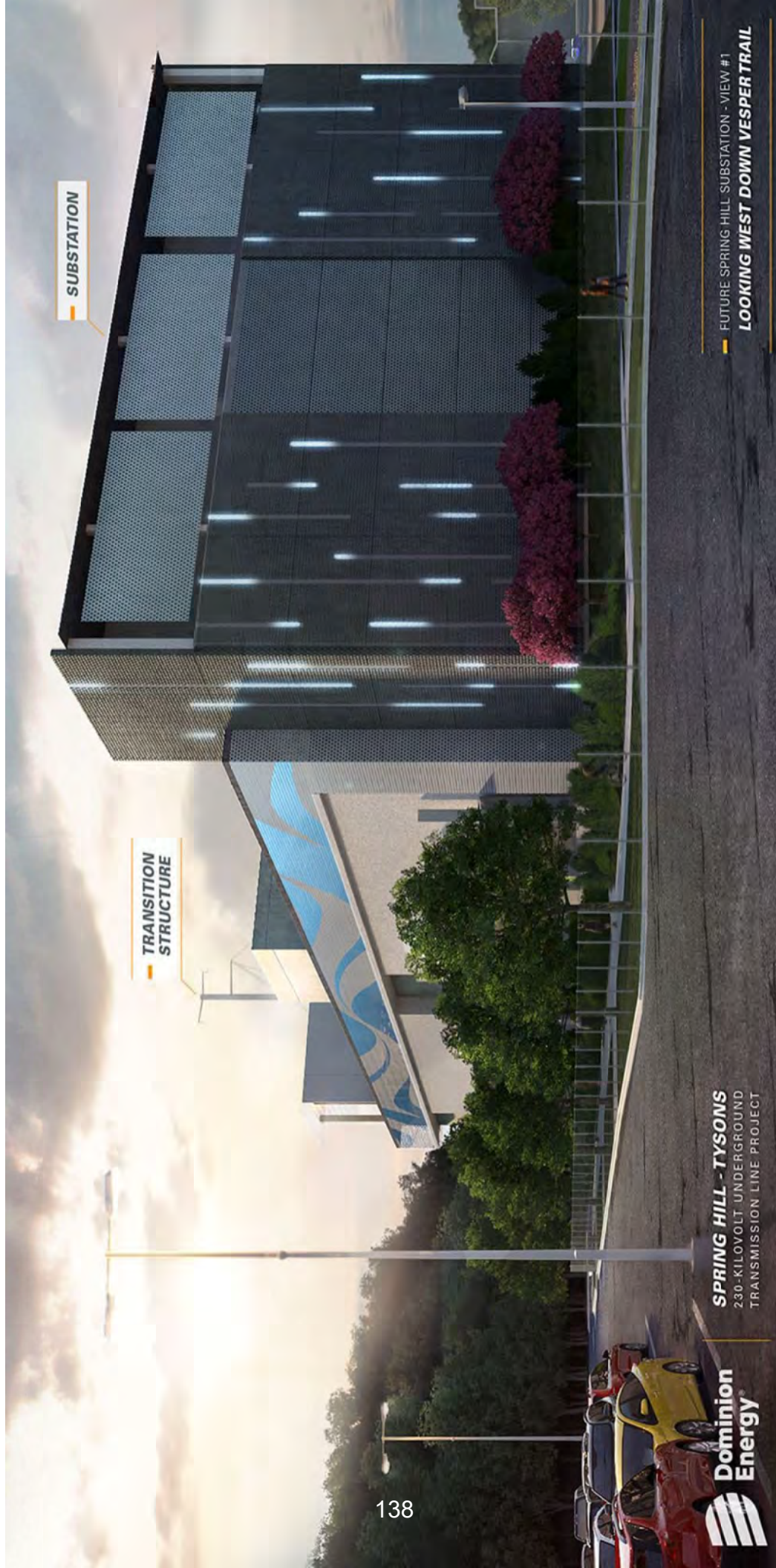
(:30 seconds/70 words max.)

Did you miss our event? We've got you covered.

Dominion Energy held a virtual community meeting on September 9th to discuss the upcoming Tysons-to-future Spring Hill Underground Transmission Line Project.

If you didn't attend, you can still watch the recording and hear our project experts answer questions from the community.

To watch the recording, visit DominionEnergy.com/springhill.





SPRING HILL - TYSONS
230-KILOVOLT UNDERGROUND
TRANSMISSION LINE PROJECT

FUTURE SPRING HILL SUBSTATION - VIEW #2
LOOKING NORTHEAST



SPRING HILL - TYSONS
230-KILOVOLT UNDERGROUND
TRANSMISSION LINE PROJECT



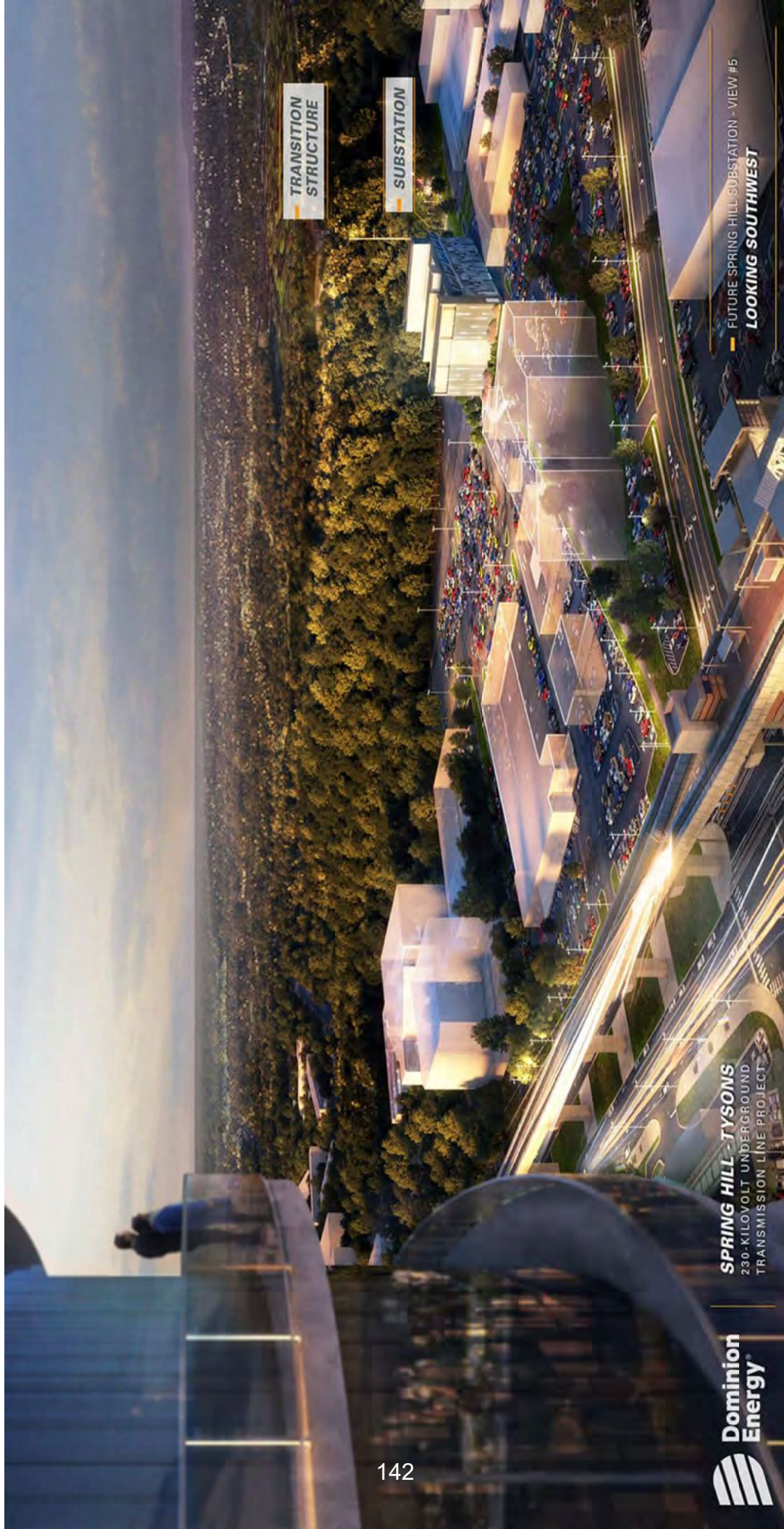
FUTURE SPRING HILL SUBSTATION - VIEW #3
DETAIL VIEW LOOKING NORTHEAST



SPRING HILL - TYSONS
230-KILOVOLT UNDERGROUND
TRANSMISSION LINE PROJECT

— SUBSTATION

— FUTURE SPRING HILL SUBSTATION - VIEW #4
LEESBURG PIKE AND SPRING HILL RD



TRANSITION
STRUCTURE

SUBSTATION

SPRING HILL - TYSONS
230-KILOVOLT UNDERGROUND
TRANSMISSION LINE PROJECT

FUTURE SPRING HILL SUBSTATION - VIEW #5
LOOKING SOUTHWEST

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: Not applicable.

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 Proposed Route consists of approximately 0.58 mile of variable width right-of-way along existing Line #2010 between Tysons Substation and just south of the future Spring Hill Substation site. It will largely be on existing Company owned right-of-way and deviates for approximately 0.10 mile to accommodate the future site of The View development. The Line will exit the existing Tysons Substation across Tyco Road via VDOT permit and continue southwest for approximately 0.20 mile on existing 42-foot right-of-way. Temporary construction easements will be needed along this segment as will a VDOT permit. At this point, the Line will depart from the existing right-of-way and turn south within a private service road for approximately 0.05 mile on a newly acquired 30-foot easement until it reaches Spring Hill Road (Route 684). Temporary construction easement will be required along this segment. At Spring Hill Road, the Line will turn west within Spring Hill Road for approximately 0.05 mile via a VDOT permit until it reaches Leesburg Pike (Route 7). These two 0.05 mile sections of the Line are being relocated outside of the existing right-of-way to accommodate The View, a future development. At Leesburg Pike, the Line turns southwest crossing under the elevated Metro Train Line and crossing Leesburg Pike via a VDOT permit for approximately 0.05 mile and then continues on existing 42-foot right-of-way for approximately 0.14 mile where it turns southeast and goes around the east side of the future Spring Hill Substation site within existing easement and the future Substation parcel. Temporary construction easements will be required along this segment. Just south of the future Spring Hill Substation parcel, the Line continues on existing 42-foot right-of-way to terminate at a Transition Pole. The replacement of existing Structure #2010/12 will occur within the Line's existing right-of-way corridor.

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

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

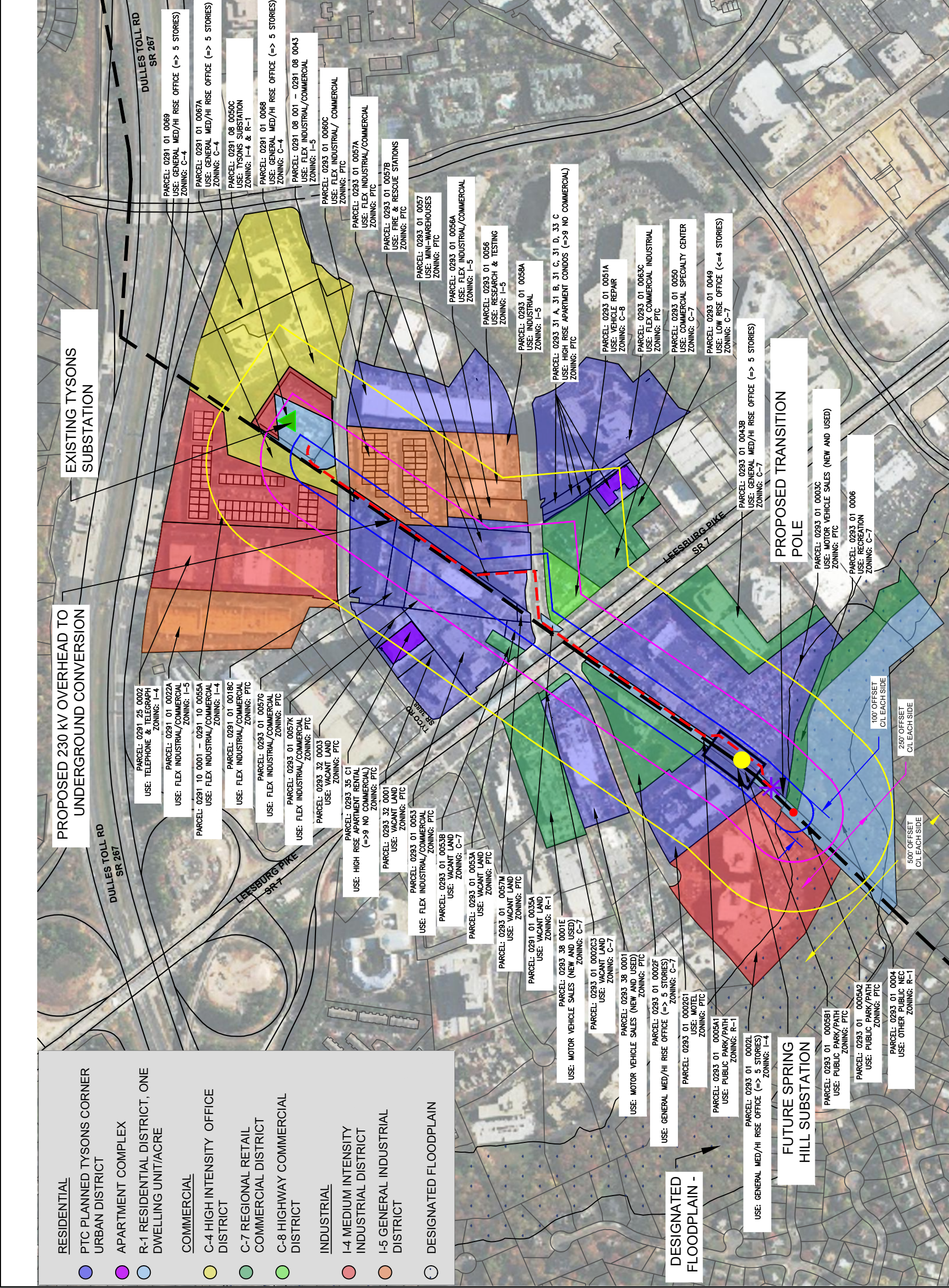
Response: The Company reviewed the Comprehensive Plan for Fairfax County to determine potential impacts. Specifically, the Comprehensive Plan for Fairfax County was reviewed to evaluate the potential effect the Project could have on future development. The Project is located within the Tysons Urban Center, and the Comprehensive Plan language guiding Public Facilities in the Tysons Urban Center specifically states that in order to “ensure a pedestrian friendly environment and to promote a logical pattern of development, DVP’s high voltage line between the existing substation on Tyco Road and the new Spring Hill Substation should be placed underground.” As such, the Project is consistent with the Tysons Urban Center Plan recommendations and minimally affects any proposed land use.

Further, the placement and construction of electric transmission lines is also addressed in Fairfax County’s Policy Plan. The objectives in the Policy Plan discuss maximizing the service available but minimizing the impact on the environment and the community. The Project was designed specifically to avoid impacts to future development, including The View. As the Project relocates overhead transmission lines to underground, the Project avoids areas identified for potential development and is aligned to be within future park areas, existing public rights-of-way, and existing roads.

The Proposed Route will cross land predominately uncategorized, consisting of existing electric utility easements (0.58 mile), transportation rights-of-way of varying width by permit from VDOT by permit (0.05 mile), and easement provided by the developer (0.05 mile). The Proposed Route will also cross land zoned Industrial, Office, Commercial and Mixed-Use (Office/Commercial/ Residential).

Based on the present Comprehensive Plans of Fairfax County, the construction of the Proposed Route should have no impacts on future land use along the route. By converting the existing overhead line to underground and relocating for future development, this Project will accommodate the economic development priorities of the Commonwealth, including the economic development priorities and the Comprehensive Plan of Fairfax County.

See Attachment III.E for Fairfax County zoning and land use surrounding the Proposed Route.

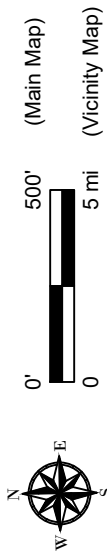


Partial Line #2010 230kV Single
Circuit Transmission Line
Underground Pilot Program (Tysons
- Future Spring Hill Substation)

Fairfax County Zoning & Land
Use Surrounding Proposed Route

- Existing Substation
- Future Substation (Spring Hill)
- Proposed Transition Pole
- Proposed #2010/12 Pole Replacement
- Proposed 230 kV Underground Pilot Program
- Existing 230 kV Overhead Line - To Be Removed

Fairfax County



- RESIDENTIAL
 - PTC PLANNED TYSONS CORNER URBAN DISTRICT
 - APARTMENT COMPLEX
 - R-1 RESIDENTIAL DISTRICT, ONE DWELLING UNIT/ACRE
- COMMERCIAL
 - C-4 HIGH INTENSITY OFFICE DISTRICT
 - C-7 REGIONAL RETAIL COMMERCIAL DISTRICT
 - C-8 HIGHWAY COMMERCIAL DISTRICT
- INDUSTRIAL
 - I-4 MEDIUM INTENSITY INDUSTRIAL DISTRICT
 - I-5 GENERAL INDUSTRIAL DISTRICT
- DESIGNATED FLOODPLAIN

DESIGNATED
FLOODPLAIN -

FUTURE SPRING
HILL SUBSTATION

PROPOSED TRANSITION
POLE

PROPOSED 230 kV OVERHEAD TO
UNDERGROUND CONVERSION

EXISTING TYSONS
SUBSTATION

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. Fairfax County has designated important farmland within their jurisdiction through the implementation of AFDs. The Virginia Agricultural and Forestal Districts Act provides for the creation of conservation districts. These districts are designed to conserve, protect, and encourage the development and improvement of a locality's agricultural and forested lands for the production of food and other products, while also conserving and protecting land as valued natural and ecological resources. These districts are voluntary agreements between landowners and the locality, and offer benefits to landowners when they agree to keep their land in its current use for between four and ten years. AFDs are established under the guidelines set forth by the Va. Code § 15.2-4300; a district must contain at least 200 acres. Conservation efforts, such as AFDs, are informed by the soils surveys and classifications under the Virginia Agricultural Model, which is used to determine the agricultural value of lands crossed by the proposed routes. The Virginia Agricultural Model was developed to quantify the relative suitability of lands for agricultural activity across the state and is assessed primarily based on inherent soil suitability, but also accounts for current land cover as well as travel time between agricultural producers and consumers. The model ranks land into five classes based on the suitability determination (Class I being low suitability and Class V being high suitability).

No AFDs would be crossed by the Proposed Route. The Proposed Route is located entirely within land classified as low suitability within the Virginia Agricultural Model. Additionally, no land classified as important farmland by the U.S. Department of Agriculture Natural Resources Conservation Service

would be crossed by the Proposed Route. This land is not being used for agricultural purposes; therefore, no impacts to important farmlands would occur from construction of the Proposed Route.

2. Not applicable.

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. None.
2. None.
3. None.
4. None.
5. None.
6. None.
7. None.
8. None.
9. None.
10. None.
11. The section of existing right-of-way between Leesburg Pike (Route 7) Highway and the Transition Pole is owned by the Fairfax County Board of Supervisors.
12. The section of existing right-of-way between Leesburg Pike (Route 7) Highway and the Transition Pole is used as a Multi-Use Trail (Vesper Trail) / recreational area / park owned by the Fairfax County Board of Supervisors. The proposed Structure #2010/12 pole replacement, located within existing right-of-way, is in close proximity to the Old Courthouse Spring Branch Stream Valley Park. The Old Courthouse Spring Branch Stream Valley Park is owned by Fairfax County Park Authority and listed as a public park with trails and open space. There are no other federal, state, or local battlefields, parks, forests, game or wildlife preserves, recreational areas, or similar facilities that lie within the right-of-way or adjacent to the Proposed Route.

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 nearest heliport is the private Roubin and Janeiro Incorporated Heliport located approximately 3.9 miles from the Proposed Route. The nearest public airport is the Dulles International Airport located approximately 10.5 miles from the Proposed Route. The Company is removing nine overhead structures in this Project; however, the existing approximately 61-foot Structure #2010/12 will be replaced with an approximately 90-foot structure. In addition, a new approximately 140-foot Transition Pole will be added to make the underground to overhead transition.

On September 2, 2020, and September 21, 2020, the Company sent updated correspondences to the FAA and the Virginia Department of Aviation ("DOAV") to provide information on the addition of the Transition Pole and Structure #2010/12 for this Project. See Attachments III.H.1 and III.H.2 for the Company's correspondences to the FAA and DOAV, respectively. On September 3, 2020, the DOAV responded to the Company's updated correspondence. See Attachment III.H.3. In addition, on September 21, 2020, the FAA responded to the Company's correspondence.

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



July 31, 2020

BY EMAIL

Mr. Doug Felix
Federal Aviation Administration,
Obstruction Evaluation Group, AJV-A520, Tetra Tech AMT Support
10101 Hillwood Parkway
Fort Worth, Texas 76177

**RE: Dominion Energy Virginia's Proposed Partial Line #2010 230 kV Single Circuit
Transmission Line Underground Pilot Program (Tysons–Future Spring Hill Substation),
Tysons Corner, Fairfax County, Virginia
Notice Pursuant to Va. Code § 15.2-2202 E**

Dear Mr Felix,

Dominion Energy Virginia (the “Company”) is proposing the Partial Line #2010 230 kV Single Circuit Transmission Line Underground Pilot Program Project (Tysons–Future Spring Hill Substation) (“Project”) located in Fairfax County, Virginia. The Project proposes to remove an approximate 0.44 mile segment of its existing overhead 230 kV Reston-Tysons Line #2010 (the “Existing Facilities”), and relocate the line underground (the “Relocated Facilities”). The proposed 230 kV underground transmission line will be constructed along the Proposed Route through means of open trenching, and other suitable methods, on new 30-foot wide right-of-way permanent easements, transportation rights-of-way of varying width by permit, and on the Company’s existing rights-of-way.

The Project is necessary in order to support economic development priorities of the Commonwealth, including the economic development priorities and the comprehensive plan of Fairfax County. Section 56-585.1:5 of the Virginia Code (“Va. Code”), which was enacted as part of the 2018 Grid Transformation and Security Act, was amended recently by the General Assembly of Virginia and signed into law by the Governor on March 4, 2020, to allow for additional projects to qualify for the underground transmission line pilot program authorized therein. Under this amendment, the Company plans to relocate and convert a portion of Transmission Line #2010 (230 kV) between existing Tysons Substation and the future Spring Hill Substation from overhead to underground to facilitate the construction of a large, planned mixed-use development. The portion of the Project that is proposed to be relocated currently transverses the area planned for development.

The Company is preparing an application for a certificate of public convenience and necessity (“CPCN”) from the State Corporation Commission (“SCC”). Pursuant to Va. Code § 15.2-2202, the Company is writing to notify you of the specific plans for the proposed Project in advance of the SCC filing. We respectfully request that you submit any comments or additional information you feel would have bearing on the Project within 30 days of this letter. Enclosed is a Project Overview Map depicting the Proposed Route and Project location.

If you would like to receive a GIS shapefile of the Proposed Route to assist in your Project review or if you have any questions, please do not hesitate to contact me at (804) 771-4458 or Charles.H.Weil@dominionenergy.com.

Dominion Energy Virginia appreciates your assistance with this Project review and looks forward to any additional information you may have to offer

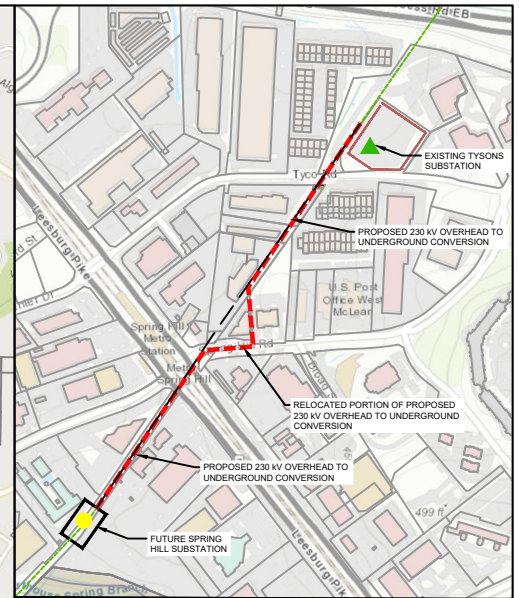
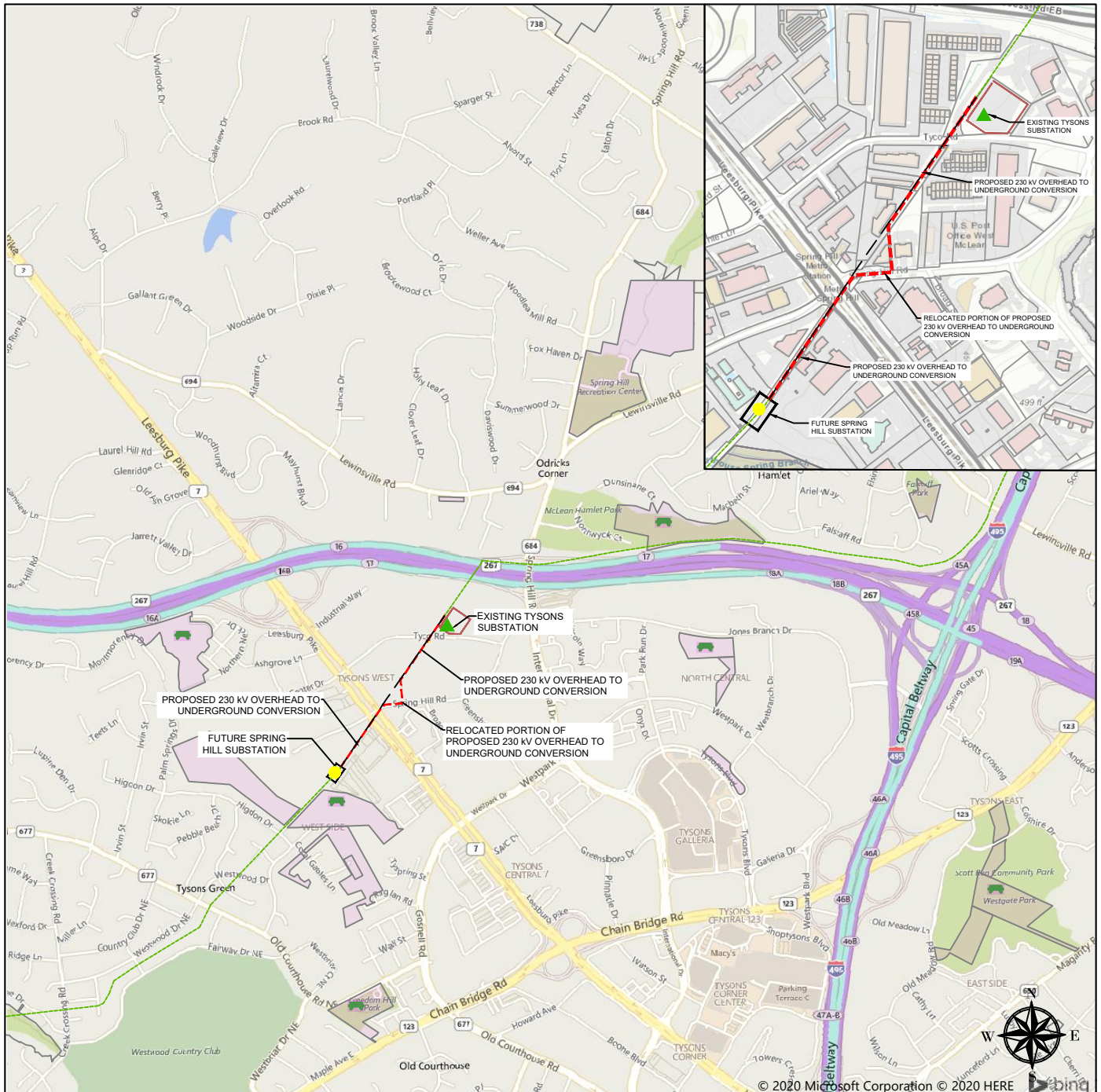
Sincerely ,

Dominion Energy Virginia

A handwritten signature in black ink, appearing to read "Charles H. Weil". The signature is fluid and cursive, with the first name "Charles" and last name "Weil" clearly distinguishable.

Charles H. Weil, PE
Engineer II, Siting and Permitting

Attachment: Project Overview Map



- ▲ Existing Substation
- Future Substation (Spring Hill)
- Partial Proposed Underground Pilot Program
- Existing Overhead Line
- Partial Existing Overhead Line - To Be Removed

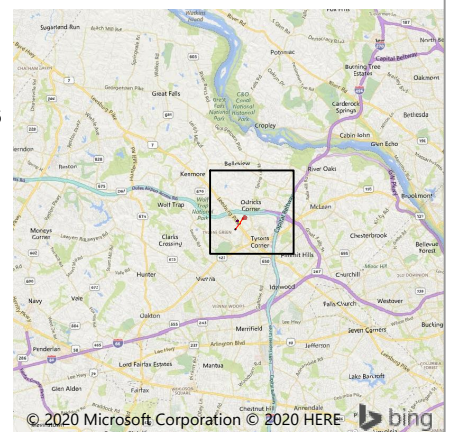
Partial Line #2010 230kV Single Circuit Transmission Line Underground Pilot Program (Tysons - Future Spring Hill Substation)

Notice Map

Fairfax County



0' 1000' (Main Map)
0' (Vicinity Map)



From: [Charles H Weil \(Services - 6\)](#)
To: doug.felix@faa.gov
Subject: #2010 230kV Single Circuit Transmission Line Underground Pilot Program - Updated Project Map
Date: Friday, September 4, 2020 7:31:00 AM
Attachments: [V.A - Notice Map_Spring Hill - Tysons COLOR.pdf](#)
[image001.png](#)

Good afternoon Mr. Felix,

I wrote to you on July 31 regarding our Underground 230kV relocation project in Fairfax County (Spring Hill Substation to Tysons Substation). We updated our project map to include a new transmission structure (2010/12) and transition pole just south of our Spring Hill Substation that I wanted to make you aware of. Please see the attached updated map. This is just a preliminary notice for our application process and we will be filing a formal FAA notification closer to construction time. If you have any questions or concerns, please let me know.

Thank you,

Chuck Weil, PE

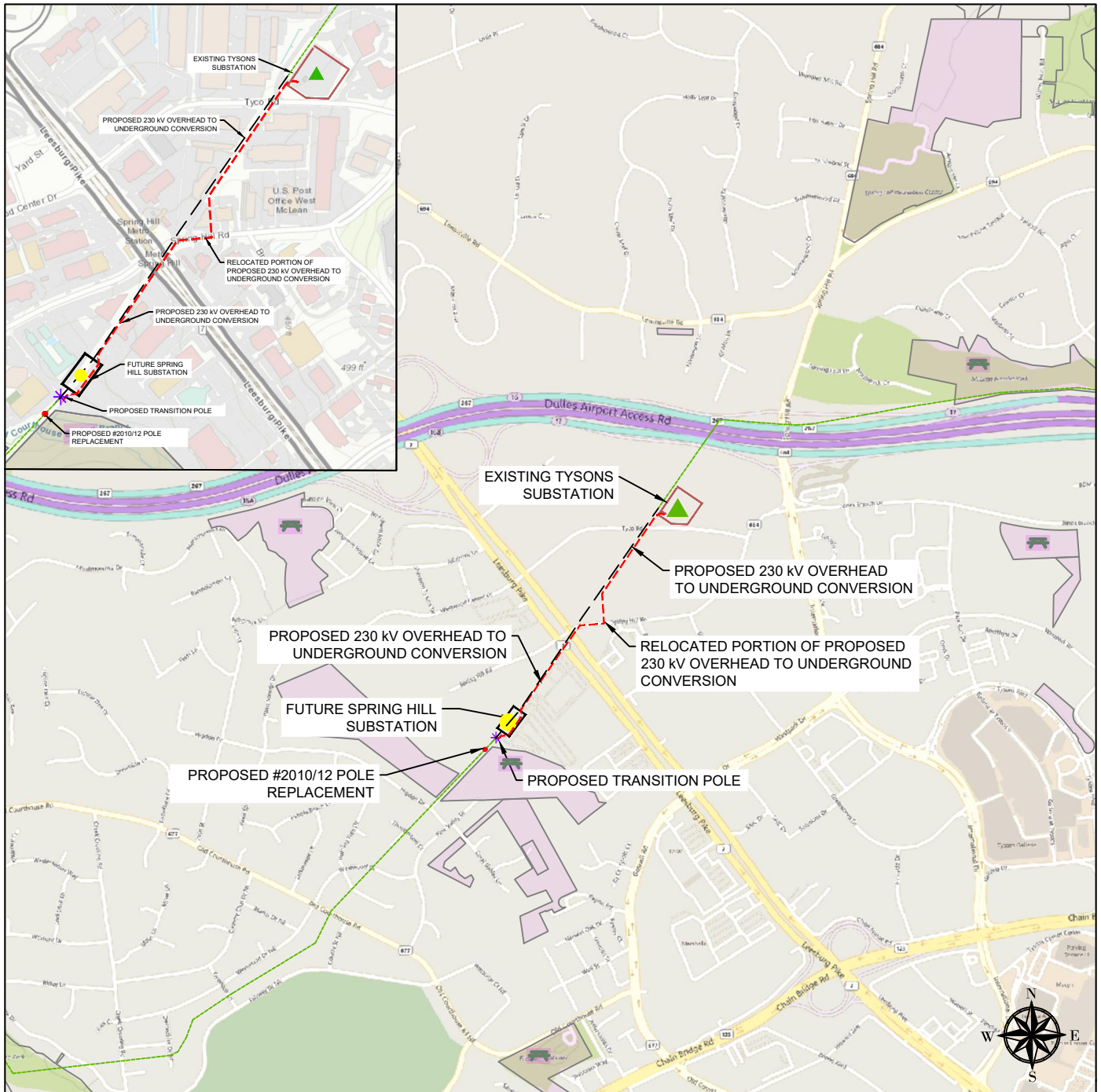
Engineer II

Siting & Permitting, Electric Transmission

10900 Nuckols Rd, 4th Floor, Glen Allen, VA 23060

O: 804-771-4458 M: 804-239-6450



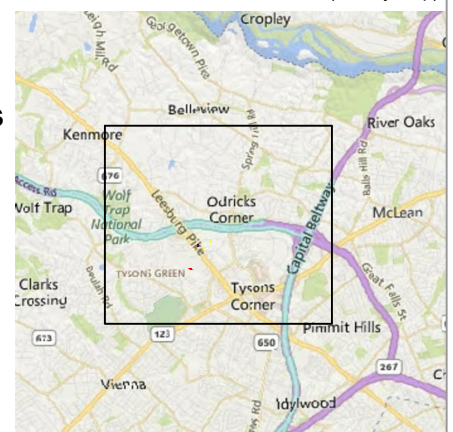


- ▲ Existing Substation
- Future Substation (Spring Hill)
- * Proposed Transition Pole
- Proposed #2010/12 Pole Replacement
- Partial Proposed Underground Pilot Program
- Existing Overhead Line
- Partial Existing Overhead Line - To Be Removed

Partial Line #2010 230kV Single Circuit Transmission Line Underground Pilot Program (Tysons - Future Spring Hill Substation)

Notice Map
Fairfax County

0' 700' (Main Map)
0 7000' (Vicinity Map)



September 21, 2020

BY EMAIL

Ms. Joan Tengowski
Federal Aviation Administration,
Obstruction Evaluation Group, AJV-A520, Tetra Tech AMT Support
10101 Hillwood Parkway
Fort Worth, Texas 76177

**RE: Dominion Energy Virginia's Proposed Partial Line #2010 230 kV Single Circuit
Transmission Line Underground Pilot Program (Tysons–Future Spring Hill Substation),
Tysons Corner, Fairfax County, Virginia
Notice Pursuant to Va. Code § 15.2-2202 E**

Dear Ms. Tengowski,

Dominion Energy Virginia (the “Company”) is proposing the Partial Line #2010 230 kV Single Circuit Transmission Line Underground Pilot Program Project (Tysons–Future Spring Hill Substation) (“Project”) located in Fairfax County, Virginia. The Project proposes to remove an approximate 0.44 mile segment of its existing overhead 230 kV Reston-Tysons Line #2010 (the “Existing Facilities”), and relocate the line underground (the “Relocated Facilities”). The proposed 230 kV underground transmission line will be constructed along the Proposed Route through means of open trenching, and other suitable methods, on new 30-foot wide right-of-way permanent easements, transportation rights-of-way of varying width by permit, and on the Company’s existing rights-of-way.

The Project is necessary in order to support economic development priorities of the Commonwealth, including the economic development priorities and the comprehensive plan of Fairfax County. Section 56-585.1:5 of the Virginia Code (“Va. Code”), which was enacted as part of the 2018 Grid Transformation and Security Act, was amended recently by the General Assembly of Virginia and signed into law by the Governor on March 4, 2020, to allow for additional projects to qualify for the underground transmission line pilot program authorized therein. Under this amendment, the Company plans to relocate and convert a portion of Transmission Line #2010 (230 kV) between existing Tysons Substation and the future Spring Hill Substation from overhead to underground to facilitate the construction of a large, planned mixed-use development. The portion of the Project that is proposed to be relocated currently transverses the area planned for development.

The Company is preparing an application for a certificate of public convenience and necessity (“CPCN”) from the State Corporation Commission (“SCC”). Pursuant to Va. Code § 15.2-2202, the Company is writing to notify you of the specific plans for the proposed Project in advance of the SCC filing. We respectfully request that you submit any comments or additional information you feel would have bearing on the Project within 30 days of this letter. Enclosed is a Project Overview Map depicting the Proposed Route and Project location.

If you would like to receive a GIS shapefile of the Proposed Route to assist in your Project review or if you have any questions, please do not hesitate to contact me at (804) 771-4458 or Charles.H.Weil@dominionenergy.com.

Dominion Energy Virginia appreciates your assistance with this Project review and looks forward to any additional information you may have to offer

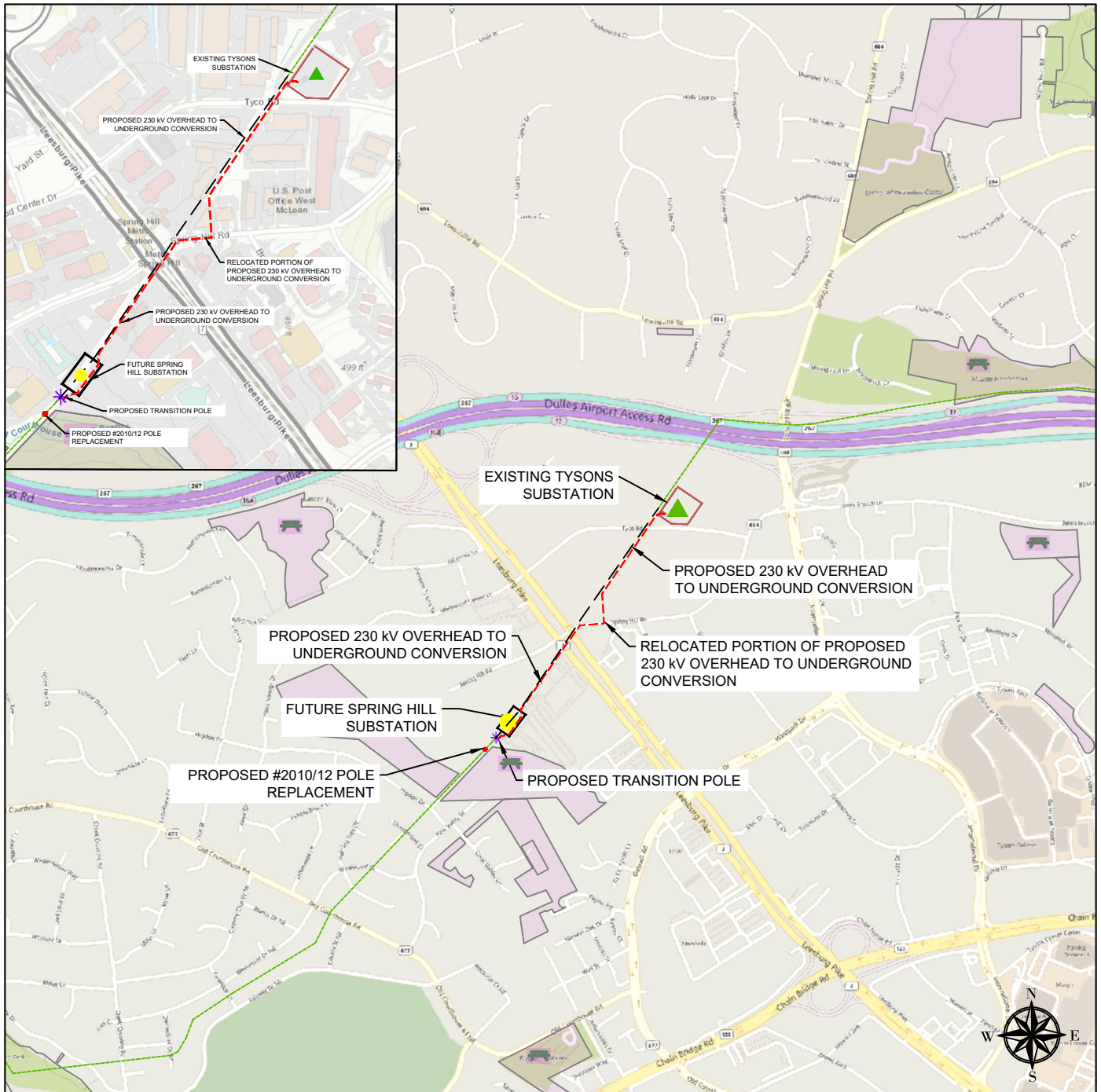
Sincerely ,

Dominion Energy Virginia

A handwritten signature in black ink, appearing to read "Charles H. Weil". The signature is fluid and cursive, with the first name "Charles" and last name "Weil" clearly distinguishable.

Charles H. Weil, PE
Engineer II, Siting and Permitting

Attachment: Project Overview Map



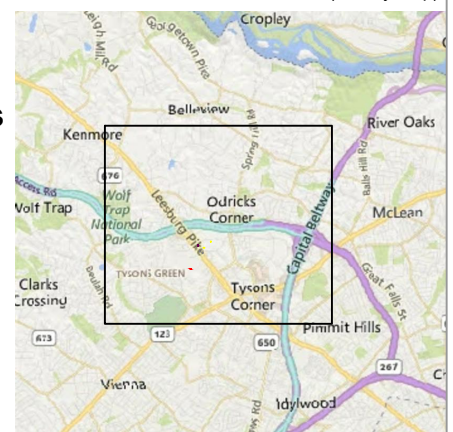
- ▲ Existing Substation
- Future Substation (Spring Hill)
- ✱ Proposed Transition Pole
- Proposed #2010/12 Pole Replacement
- Partial Proposed Underground Pilot Program
- Existing Overhead Line
- Partial Existing Overhead Line - To Be Removed

Partial Line #2010 230kV Single Circuit Transmission Line Underground Pilot Program (Tysons - Future Spring Hill Substation)

Notice Map

Fairfax County

0' 700' (Main Map)
0 7000' (Vicinity Map)



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



July 31, 2020

BY EMAIL

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

RE: Dominion Energy Virginia's Proposed Partial Line #2010 230 kV Single Circuit Transmission Line Underground Pilot Program (Tysons–Future Spring Hill Substation), Tysons Corner, Fairfax County, Virginia Notice Pursuant to Va. Code § 15.2-2202 E

Dear Mr.Denny,

Dominion Energy Virginia (the “Company”) is proposing the Partial Line #2010 230 kV Single Circuit Transmission Line Underground Pilot Program Project (Tysons–Future Spring Hill Substation) (“Project”) located in Fairfax County, Virginia. The Project proposes to remove an approximate 0.44 mile segment of its existing overhead 230 kV Reston-Tysons Line #2010 (the “Existing Facilities”), and relocate the line underground (the “Relocated Facilities”). The proposed 230 kV underground transmission line will be constructed along the Proposed Route through means of open trenching, and other suitable methods, on new 30-foot wide right-of-way permanent easements, transportation rights-of-way of varying width by permit, and on the Company’s existing rights-of-way.

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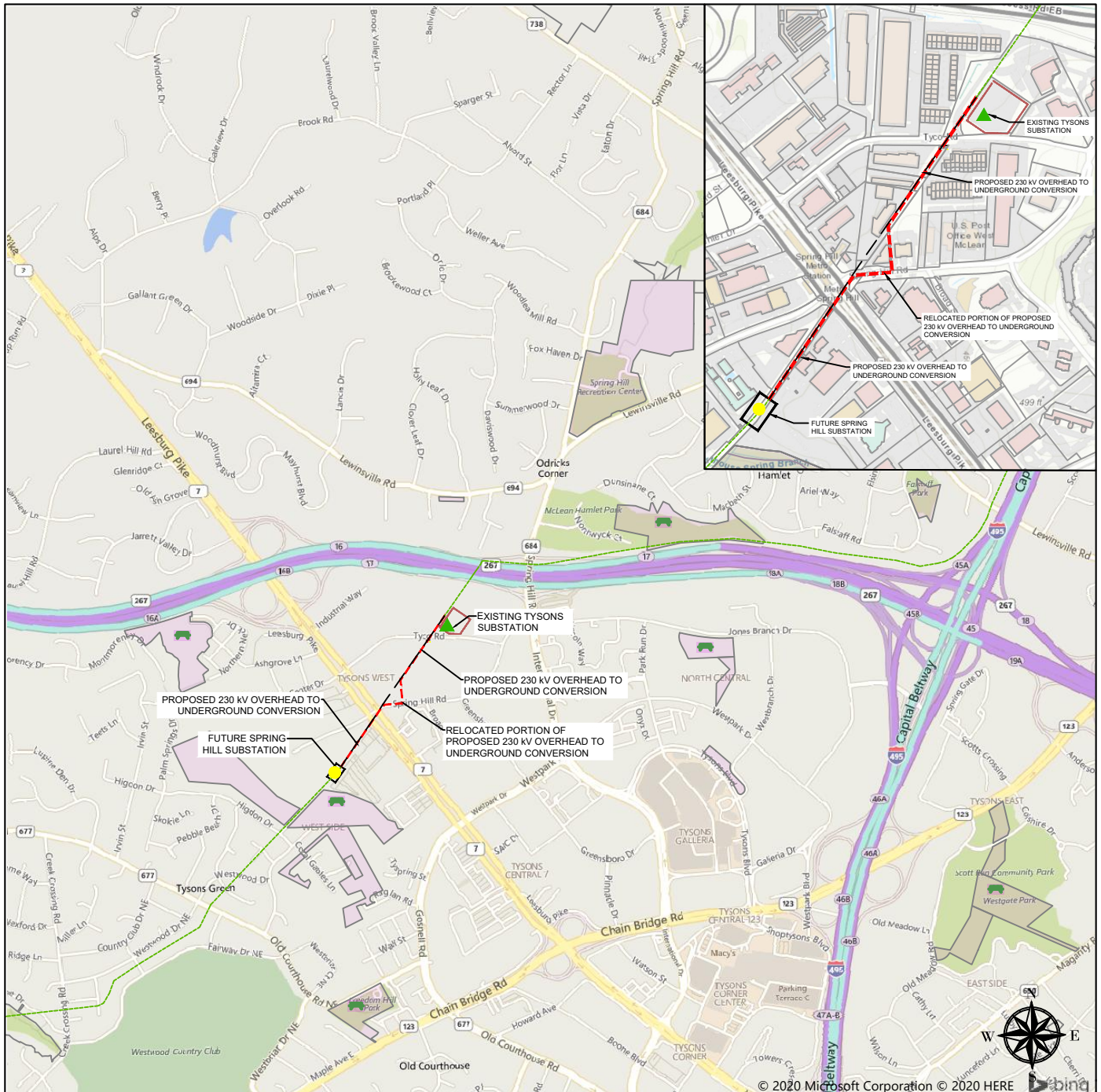
Sincerely ,

Dominion Energy Virginia

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Charles H. Weil, PE
Engineer II, Siting and Permitting

Attachment: Project Overview Map



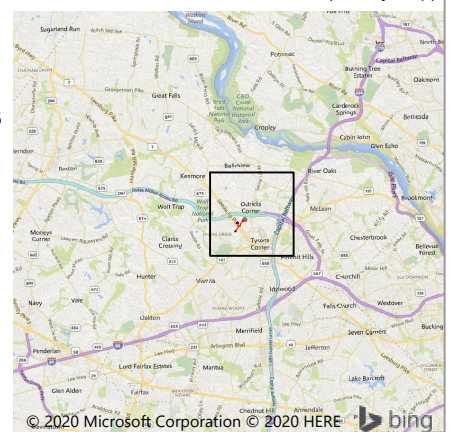
- ▲ Existing Substation
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- Partial Proposed Underground Pilot Program
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- Partial Existing Overhead Line - To Be Removed

Partial Line #2010 230kV Single Circuit Transmission Line Underground Pilot Program (Tysons - Future Spring Hill Substation)

Notice Map
Fairfax County



0' 1000' (Main Map)
0' (Vicinity Map)



From: [Charles H Weil \(Services - 6\)](#)
To: ["Scott Denny"](#)
Subject: #2010 230kV Single Circuit Transmission Line Underground Pilot Program - Updated Project Map
Date: Wednesday, September 2, 2020 4:41:00 PM
Attachments: [image001.png](#)
[V.A - Notice Map_Spring Hill - Tysons COLOR.pdf](#)

Good afternoon Mr. Denny,

I wrote to you on July 31 regarding our Underground 230kV relocation project in Fairfax County (Spring Hill Substation to Tysons Substation). We updated our project map to include a new pole (2010/12) and transition pole just south of our Spring Hill Substation that I wanted to make you aware of. Please see the attached map. If you have any questions or concerns, please let me know.

Thank you,

Chuck Weil, PE

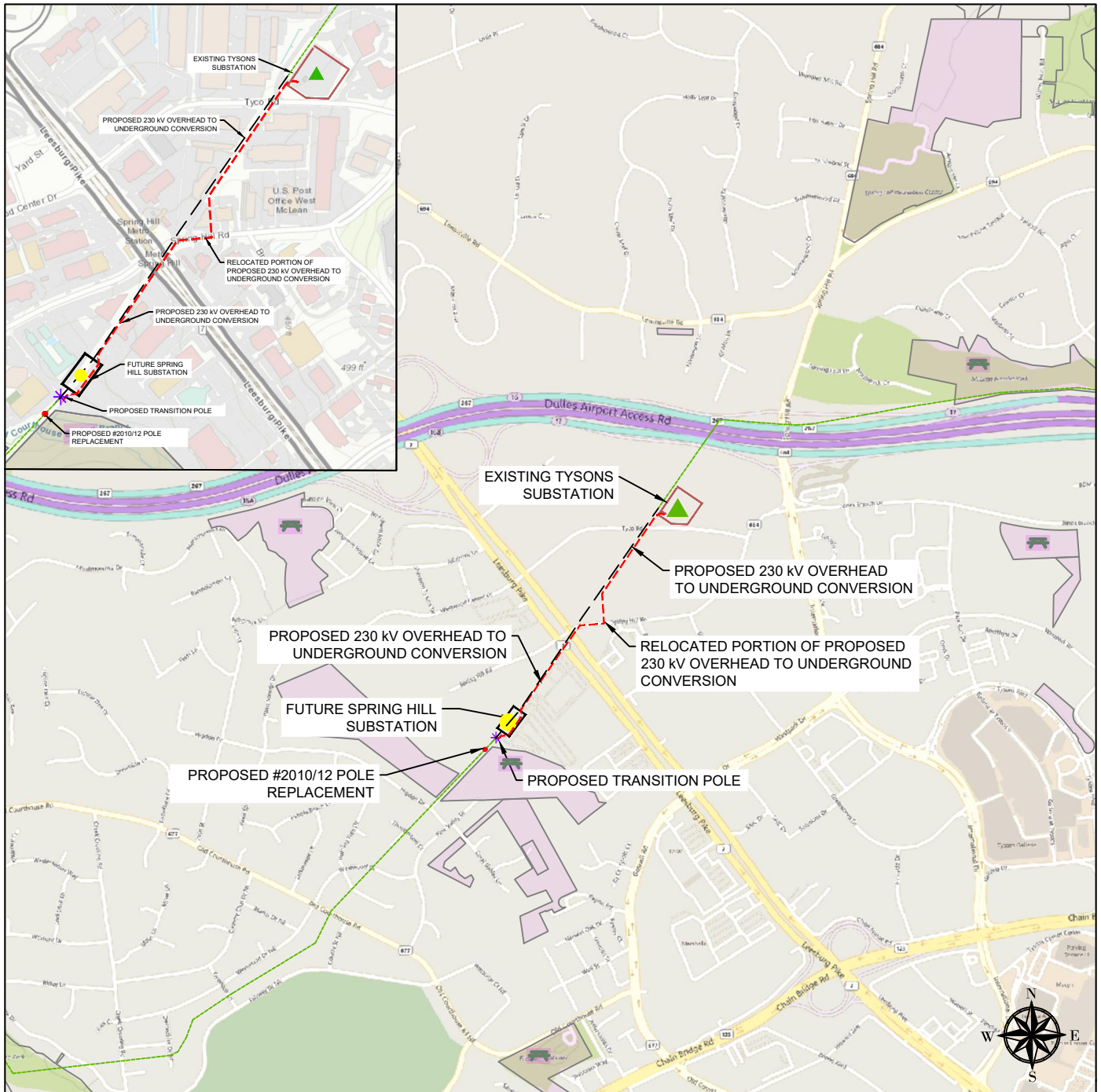
Engineer II

Siting & Permitting, Electric Transmission

10900 Nuckols Rd, 4th Floor, Glen Allen, VA 23060

O: 804-771-4458 M: 804-239-6450





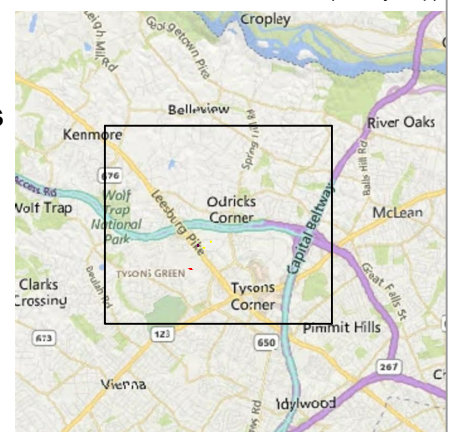
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Partial Line #2010 230kV Single Circuit Transmission Line Underground Pilot Program (Tysons - Future Spring Hill Substation)

Notice Map

Fairfax County

0' 700' (Main Map)
0 7000' (Vicinity Map)



From: [Scott Denny](#)
To: [Charles H Weil \(Services - 6\)](#)
Subject: [EXTERNAL] Re: #2010 230kV Single Circuit Transmission Line Underground Pilot Program - Updated Project Map
Date: Thursday, September 3, 2020 2:06:39 PM
Attachments: [image001.png](#)

Mr. Weil:

Following our review of the revised transmission line layout of the Tysons -Future Spring Hill Substation, the Virginia Department of Aviation has determined that the proposed site is not located 20,000 linear feet from a public-use airport. Therefore, a 7460 form will only need to be submitted to the FAA for evaluation if any structure, be it temporary or permanent, reaches a height of 200' above ground level or greater. Please note that this threshold includes any cranes that may be used in the course of construction. Please feel free to contact me if you have any questions regarding this matter.

Sincerely,

S. Scott Denny
 Senior Aviation Planner
 Virginia Department of Aviation

On Wed, Sep 2, 2020 at 4:41 PM Charles.H.Weil@dominionenergy.com
 <Charles.H.Weil@dominionenergy.com> wrote:

Good afternoon Mr. Denny,

I wrote to you on July 31 regarding our Underground 230kV relocation project in Fairfax County (Spring Hill Substation to Tysons Substation). We updated our project map to include a new pole (2010/12) and transition pole just south of our Spring Hill Substation that I wanted to make you aware of. Please see the attached map. If you have any questions or concerns, please let me know.

Thank you,

Chuck Weil, PE

Engineer II

Siting & Permitting, Electric Transmission

10900 Nuckols Rd, 4th Floor, Glen Allen, VA 23060

O: 804-771-4458 M: 804-239-6450



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--

S. Scott Denny
Senior Aviation Planner
Virginia Department of Aviation
804-236-3638
scott.denny@doav.virginia.gov

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: Not applicable. The Proposed Route does not cross and is not in the vicinity of any scenic byways. The nearest scenic byway is the Old Georgetown Pike (SR 193), approximately 2.4 miles north of the Proposed Route.