COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

PREFILED TESTIMONY

OF

WAYNE D. MCCOY

VIRGINIA ELECTRIC AND POWER COMPANY

**For approval and certification of electric transmission facilities:
Haymarket 230 kV Double Circuit Transmission Line
and 230-34.5 kV Haymarket Substation**

CASE NO. PUE-2015-00107

June 2, 2016

Summary of the Testimony of Wayne D. McCoy

On November 6, 2015, Dominion Virginia Power filed with the Virginia State Corporation Commission an Application for a certificate of public convenience and necessity for conversion, construction, and operation of a 230 kV double circuit transmission line and associated electrical facilities. The purpose of the project is to provide electrical service to a proposed data center. The Company asserts that the proposed project would also maintain reliable service to the Company's customers in Prince William County, in accordance with the mandatory North American Reliability Corporation Reliability Standards for transmission facilities.

Dominion offered five alignments and two variations for the proposed line in their Application. Their Proposed Route, the I-66 Overhead Route, is 5.0 miles in length and would parallel I-66 for the majority of its route. Two variations to the I-66 Overhead Route, the Walmart and Jordan Lane Variations were offered. The I-66 Hybrid Alternative Route is a mix of overhead and underground segments of the line and is 5.3 miles in length. It, like the I-66 Overhead Route, parallels the I-66 corridor. The Carver Road Alternative is an overhead alignment of 6.7 miles. The Madison Route, another overhead route, is 8.2 miles in length. Lastly, the Railroad Alternative, another overhead alignment, is 5.7 miles long.

MAE reviewed the various routes and assessed their respective impacts. Clearly, the I-66 alignments were the shortest and most direct. The other three had longer lengths and significant additional impacts, thus MAE does not recommend these alternatives. The I-66 Overhead Route is the shortest route. However, it also has significant visual impacts, as compared to the I-66 Hybrid Alternative Route. These impacts are seen in densely populated areas and in areas of historical significance. The I-66 Hybrid Alternative Route is significantly less visually impacting and offers reduced long term impact. However, it is estimated to cost $115 million more to construct.

It was MAE's task to determine the route that was least environmentally impacting. We find that the I-66 Hybrid Alternative Route offers the least impact to the project area. However, should the Commission find that the cost differential disqualifies the I-66 Hybrid Alternative Route as the approvable route, we would suggest the I-66 Overhead Route with the addition of the Walmart and Jordan Lane Variations.

PREFILED TESTIMONY

OF
WAYNE D. MCCOY

APPLICATION OF
VIRGINIA ELECTRIC AND POWER COMPANY
CASE NO. PUE-2015-00107

Q1. PLEASE STATE YOUR NAME AND AFFILIATION.

A1. My name is Wayne D. McCoy. I am the President of Mid Atlantic Environmental LLC. ("MAE").

Q2. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A2. MAE was hired by the State Corporation Commission's Division of Energy Regulation to conduct an independent assessment of the Application filed in this case by Virginia Electric and Power Company d/b/a Dominion Virginia Power ("Dominion Virginia Power" or "Company"). MAE was tasked to review and evaluate Dominion Virginia Power's proposed routes and alternatives for a 115 kV transmission line conversion, a new Haymarket 230 kV Double Circuit Transmission Line, and a new 230-34.5 kV Haymarket Substation ("Haymarket Project").

Q3. PLEASE SUMMARIZE YOUR QUALIFICATIONS.

A3. My qualifications are presented in Appendix VIII in the attached report.

Q4. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A4. The purpose of this testimony is to summarize MAE's findings and conclusions and to sponsor the attached report entitled, "Report to the Virginia State Corporation Commission on the Environmental Aspects of the Proposed Dominion Virginia Power Haymarket 230 kV Double Circuit Transmission Line and 230-34.5 kV Haymarket Substation." The attached report details MAE's review and evaluation of the Company's proposed routes and alternatives. I adopt this written testimony and the attached report as my prefiled testimony in this case.

Q5. PLEASE SUMMARIZE THE ROUTES MAE REVIEWED IN THIS PROCEEDING.

A5. This case involves the extension of a line to a proposed data center customer via several viable routes that range in length between 5.0 miles (Note: The Application states that this route is 5.1, but the Comparison Table (Table 4.1) states that it is 5.0 miles long) and 21.2 miles. The five primary, viable routes identified by the Company and reviewed by MAE are designated as the Company's Proposed Route, which parallels Interstate 66 ("I-66") for approximately 4.5 miles ("I-66 Overhead Route" or "Proposed Route"), with two variations, the Walmart and Jordan Lane Variations. The Alternative Routes include; the I-66 Hybrid Alternative Route, the Carver Road Alternative Route, the Madison Alternative Route, and the Railroad Alternative Route. The Application also describes three alternative routes rejected by Dominion Virginia Power: the New Road Alternative Route, Northern Alternative Route, and Wheeler Alternative Route. MAE reviewed these three routes and

concurs with Dominion Virginia Power's conclusion that the New Road, Northern and Wheeler alternatives are not reasonable alternatives for continued review.

Of the viable alternative routes MAE reviewed, the Railroad Alternative Route is now encumbered by the donation of land by the Somerset Crossing Home Owners Association ("Somerset Crossing") to Prince William County for a conservation easement ("Open Space"). The Carver Road and Madison Alternative Routes were developed in response to Somerset Crossing's dedication of this conservation easement to Prince William County. The line length of these alignments is 6.7 and 8.2 miles, respectively. Additionally, construction on the Railroad Alternative Route would impact a significant linear nontidal wetland that lies in parallel to the railroad and between the Somerset Crossing and Greenhill subdivisions. This natural area provides a wooded buffer and offers those who regularly walk the constructed trail a scenic view of this wetland area. MAE finds no justification for the Carver Road, Madison and Railroad Alternative routes, given that the I-66 routes are shorter, more direct, and offer reasonable collocation opportunities. This leaves the Company's Proposed Route (I-66 Overhead Route) and the I-66 Hybrid Alternative Route as the alignments that best serve the requirements of this Project.

Q6. PLEASE DESCRIBE THE TWO ROUTES MAE FINDS BEST SERVE THE HAYMARKET PROJECT.

A6. The I-66 Overhead Route is 5.0 miles in length. It offers the most direct route between the respective substations. It is also collocated for most of its mileage (4.5 miles) and runs parallel to I-66. According to the Company, it is an easier

construction and requires less coordination with and disruption to I-66. However, towers would have to be placed in close proximity to a significant number of residences and commercial properties.

The I-66 Hybrid Alternative Route is 5.3 miles in length. The associated transmission line would consist of overhead construction from its tap point at Haymarket Junction to the transition station located just west of Lee Highway. The transmission line would then consist of underground construction from the transition station located just west of Lee Highway to its termination point at the Haymarket Substation. Use of underground construction would minimize the visual impact on the existing multifamily, townhome and single family residences in this area. The I-66 Hybrid Alternative Route, while still disruptive during construction, alleviates the long term visual impact to the adjacent residences and those who travel on I-66. Based upon testimony at the Public Hearings, this alignment has the support of both the local municipality and citizenry. However, it is considerably more expensive to construct than any of the entirely overhead routes. Specifically, the cost of this option is $166 million, or approximately $115 million more than the Company's proposed I-66 Overhead Route.

Q7. WHAT ARE MAE'S FINDINGS AND CONCLUSIONS?

A7. Dominion has offered five potentially viable routes (including the Company's proposed route and four alternatives), as well as two "minor" variations for the proposed route, to connect the Gainesville Substation to a proposed Haymarket Substation. As stated above, the Company's Proposed Route parallels I-66 for approximately 4.5 miles. As an overhead line, there will be a significant visual

impact from both the I-66 side and from the adjacent subdivisions. Additionally, visual impacts from the Town of Haymarket will be significant, especially where the line crosses into Haymarket and terminates at the proposed Haymarket Substation. The I-66 Hybrid Alternative Route also parallels the I-66 corridor for approximately the same length; however, after it crosses I-66, it would transition into an underground line at the intersection of I-66 and Lee Highway to the west of the highway.

Based upon MAE's analysis, in order to mitigate the visual and natural resource impacts of the transmission line, we recommend the I-66 Hybrid Alternative Route as the preferred route. However, if the Commission does not select this alternative because of the significantly higher cost, we recommend the I-66 Overhead Route as the best of the overhead alternatives. Additionally, we recommend using the Walmart and Jordan Lane Variations, should the I-66 Overhead Route be chosen.

Q8. DOES THIS CONCLUDE YOUR TESTIMONY?

A8. Yes, it does. Thank you.

REPORT TO THE

VIRGINIA STATE CORPORATION COMMISSION

ON THE ENVIRONMENTAL ASPECTS OF THE

PROPOSED DOMINION VIRGINIA POWER

HAYMARKET 230 KV DOUBLE CIRCUIT TRANSMISSION LINE

AND 230-34.5 KV HAYMARKET SUBSTATION

CASE NO. PUE 2015-00107

PREPARED FOR

THE STAFF OF

THE VIRGINIA STATE CORPORATION COMMISSION

MAE PROJECT #15-504

June 2, 2016

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REPORT TO THE

VIRGINIA STATE CORPORATION COMMISSION

ON THE ENVIRONMENTAL ASPECTS OF THE

Dominion Virginia Power
Haymarket 230 kV Double Circuit Transmission Line
and 230-34.5 kV Haymarket Substation

Table of Contents

I. Background and Introduction

On November 6, 2015, Virginia Electric and Power Company ("Dominion Virginia Power," "Dominion" or "Company") filed with the Virginia State Corporation Commission ("SCC" or "Commission") an application ("Application") for a certificate of public convenience and necessity for conversion, construction, and operation of certain 230 kilovolt ("kV") double circuit transmission lines and associated electrical facilities. The purpose of the project is to provide electrical service to a proposed data center. The Company asserts that the proposed project would also maintain reliable service to the Company's customers in Prince William County, in accordance with the mandatory North American Electric Reliability Corporation Reliability Standards for transmission facilities.

Specifically, the Company proposes to construct in Prince William County a new 230-34.5 kV Haymarket Substation; convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation ("Line #124 conversion"); and construct in Prince William County and the Town of Haymarket a new approximately 5.1 mile overhead 230 kV double circuit transmission line from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the Line #124 conversion ("Haymarket Junction") to the new Haymarket Substation (the "Haymarket Loop"). Dominion states in its Application that the proposed Haymarket Loop will be constructed on new right-of-way ("ROW"). Dominion has identified a preferred alternative, two variations of the preferred alternative, as well as four alternative routes, for the Commission's consideration.

Mid Atlantic Environmental L.L.C. ("MAE") was retained by the Commission Staff to independently review and assess the Company's Application. As part of its review and assessment, MAE (i) performed ground reconnaissance, both with and without Company representatives; (ii) reviewed the documentation and testimony offered by the respondents in the case; (iii) reviewed various Department of Environmental Quality ("DEQ") reports; and (iv) used the available databases, such as the Virginia Department of Historical Resources, Virginia Game and Inland Fisheries, U.S. Fish and Wildlife Wetland Mapper, etc. to confirm the findings of Dominion's routing contractors. In addition to reviewing and assessing the Application, MAE attended public hearings at Battlefield High School on February 24, 2016; March 14, 2016; and May 2, 2016, and examined transcripts from the public hearing at the SCC on May 10, 2016. A summary of the Company's routing evaluation and the details of MAE's assignment are provided in Appendices I and II, respectively, of this report. MAE offers the following conclusions based on its review and assessment.

The Application identifies the Company's preferred route, two variations to the preferred route, and four alternative routes. The Company's preferred route parallels Interstate 66 ("I-66") and is identified as the I-66 Overhead Route ("Proposed Route" or "I-66 Overhead Route"). This route extends from a tap point on Line #124 near the terminus of Cushing Road (Haymarket Junction), runs parallel to I-66 for much of its length, within Virginia Department of Transportation ("VDOT") ROW, terminating at the proposed Haymarket Substation. At 5.0 miles, it is the shortest route considered. Additionally, two minor variations to the I-66 Overhead Route are proposed—the Walmart Variation and the Jordan Lane Variation. The Walmart Variation would move

0.65 miles of the line to behind Walmart and Kohl's, after crossing the James Madison Highway, then to the west of the shopping center. It would cross perpendicular to the James Madison Highway. The Jordan Lane Variation would cause 0.34 miles of the line to continue within the VDOT ROW and not cross Jordan Lane, as this property is still under County control.

The Company identified a hybrid alternative to the I-66 Overhead Route, consisting of both overhead and underground portions ("I-66 Hybrid Alternative Route"). The I-66 Hybrid Alternative Route is 5.3 miles in length. Similar to the I-66 Overhead Route, its origin is at Haymarket Junction. It follows the same alignment as the I-66 Overhead Route for approximately 2.1 miles, until it crosses I-66 and enters the proposed transition station located just west of Lee Highway. The line then proceeds west, utilizing a proposed underground alignment. The I-66 Hybrid Alternative Route, like the I-66 Overhead Route, utilizes the I-66 corridor to the maximum extent possible. This alternative remains underground for approximately 3.2 miles, until its termination at the proposed Haymarket Substation.

Three other potentially viable overhead route alternatives include the longer Carver Road, Madison and Railroad Alternative Routes. In MAE's opinion, none of these three routes are desirable, when shorter, more direct and less impacting alternatives have been identified. MAE discusses the environmental impacts of the various routes in more depth in the body of this report. A detailed description of the various routes is provided in Appendix III.

As with any transmission line case, there are many factors that must be considered. Clearly, the public hearing witnesses expressed consistent themes, be it from

the homeowners, homeowner associations, or elected officials. Their desires, should the need for the line be proven, are that it be placed underground and that the potential data-center customer pay for it. Some public witnesses felt the data center should not be in Haymarket, given the availability of Innovation Park, an area designated by Prince William County as the area for industrial use, which is located near the City of Manassas and adjacent to the George Mason University's Manassas campus. In addition, testimony was given regarding the historic nature of the area, in general, and Haymarket, in particular. While not recognized by the Department of Historic Resources ("DHR") as a Historic District, Haymarket has declared itself, through a zoning action, to be a Historic District. This is reflected in Haymarket's architectural controls on commercial development. While not immune to modern development, clearly an effort has been made to maintain its character. MAE included these concerns in its analysis of the Application.

II. Overview of the I-66 Routes

The proposed I-66 Overhead Route is the most direct of the proposed routes. It includes 4.5 miles, or 90% of its alignment, of collocation. For the most part, the towers would be placed within VDOT ROW. This is of concern to the adjoining neighbors. Dominion has identified approximately 286 residences and 13 commercial properties that would have a direct view or abut the towers and lines.[1] Further, because of the height of the towers, there is a visual impact for an extended distance.

Two variations to the I-66 Overhead Route have been offered by the Company. Since the County still owns the Jordan Lane ROW, Dominion has offered the Jordan

[1] *See* Company Response to Staff Interrogatory No. 4-41, attached in Appendix V.

Lane Variation, which would avoid County-owned property by staying in alignment with I-66 and "up on the hill" until it crosses Jefferson Highway and eventually intercepts the proposed Overhead Route alignment. The County has indicated that it would not allow Dominion to cross its landholdings, unless necessary for construction of the I-66 Hybrid Alternative Route.

The Walmart Variation is proposed where the I-66 Overhead Route crosses James Madison Highway, but continues behind the Walmart and Kohl's stores and then turns south towards John Marshall Highway and to the Haymarket Substation. This variation appears to have the support of both Dominion and FST Properties, LLC ("FST"), a commercial business and landholder that would otherwise be affected by the proposed alignment and is a participant in this case. This Variation reduces the visual impact of the line by remaining behind the shopping center and crossing perpendicular to the John Marshall Highway. Additionally, it avoids the intersection of the John Marshall Highway and the James Madison Highway. Currently, this corner is forested and available for development. One potential concern with this alignment is a conflict with the helicopter pad at Novant Health UVA Haymarket Medical Center. Dominion has coordinated with the hospital and they have agreed that it would be a nonfactor to flight operations.

Lastly, FST, a commercial entity that is adjacent to the proposed substation, has proffered an alternative alignment that decreases the impact to its highway frontage. We were not able to evaluate this alignment, due to the illegible nature of the submission. We will attempt to get a better copy of the alignment, prior to the Evidentiary Hearing. We do note that neither Staff nor Dominion objected to this modification.

The I-66 Hybrid Alternative Route is the second of the I-66 routes offered by Dominion. This alternative route would be visible for 2.1 miles of its length prior to transitioning to underground and would follow the same initial alignment as the I-66 Overhead Route for the overhead portion. Once reaching the transition station, just west of the junction of I-66 and Lee Highway, it would be placed underground for approximately 3.2 miles. There has been testimony that this alternative would cost an additional $115 million to construct, would require more time to construct, and would impact traffic on I-66. Conversely, the impact to the residential communities and the Town of Haymarket would be significantly reduced compared to the I-66 Overhead Route.

In the conduct of its environmental assessment of the various routes, MAE relied, in part, on the Environmental Features Comparison Table ("Impact Matrix" or "Matrix") provided in the Environmental Routing Study attached to the Application. MAE performed its own analysis to verify, though not to the same extent as National Resources Group, LLC ("NRG"), the numbers proffered in the Application. Although the I-66 Overhead Route and the I-66 Hybrid Alternative Route follow the same general path, the post-construction impacts may be significantly different than pre-construction appearances. For example, consider the number of "Townhomes/Condos (structures)" within 100 feet of the ROW identified in the Matrix: 17 for the I-66 Overhead Route versus 21 for the I-66 Hybrid Alternative Route. A casual review of these figures could create a false impression that the impact on residences is greater with the I-66 Hybrid Alternative Route; however, the post-construction impact on residences would be completely different. Though the initial construction activities would be, at best,

inconvenient for both routes, any visual impacts along the underground section of the route would be retained with the I-66 Overhead Route but be non-existent with the I-66 Hybrid Alternative Route. As a result, impacts that appear in the Matrix to be higher with the I-66 Hybrid Alternative Route would be mitigated by burying the line. Subsequent Company responses to Staff Interrogatories indicate that additional structures would be visually impacted. Some of this variance from the initial Application can be explained due to the length of time between preparing the Application and current conditions. We have included the updated numbers in Appendix V, derived from Dominion's Response to Staff Interrogatory Nos. 1-3 and 1-4. Another example of long term visual impact is found in the Jordan Lane area. Aside from the newer homes on Keavy Ridge Court and Wallasey Court that would potentially have a direct view of the line, there are 10 residences on Jordan Lane that would be visually impacted by the I-66 Overhead Route. While actual construction of the I-66 Hybrid Alternative Route would be initially disruptive to these same citizens, once construction is complete, the line would be buried and not have the same long term visual impact to these citizens as the I-66 Overhead Route.

In order to develop recommendations for this report, MAE visited the project area on multiple occasions to evaluate the local visual impacts that an overhead line would impose on the associated residential and commercial structures. Additionally, MAE visited, during "leaf-off" conditions, sites identified by the National Register of Historic Places, since the Company's evaluation of visual impacts and photographic analysis was performed during a "leaf-on" condition, which could potentially reduce the impact.

MAE does generally agree with the findings of Dominion's Historic Resource Consultant, Dutton + Associates, LLC ("Dutton"). One site of particular concern is the Manassas Battlefield. The initiation of the Haymarket project in Gainesville would traverse tangentially near the southwest corner of the Battlefield. However, this area near the Manassas Battlefield is already encumbered by I-66, existing powerlines and development. Thus, MAE concurs that a new transmission line in this area would impose only an incremental impact. MAE is also concerned that the visual impact to the St. Paul's Church and its associated graveyard, in particular, might be greater during the leaf-off season. The Dutton report only depicts the impact during leaf-on season.

III. Identification of Potential Impacts

Typically, the identification of routes for proposed transmission lines in the Northern Virginia area is complicated by the existence of densely populated communities, historic assets and natural resources. The impacts associated with competing routes for the project were identified by NRG and summarized in Table 4-1 on Page 60 in the Application. MAE relied on this table as the basis for comparison for the databases that could be compared, such as the Department of Historic Resources, U.S. Fish and Wildlife and Virginia Game and Inland Fisheries, Google Earth and Prince William County GIS Mapping databases. MAE found no variance in this data. Some data generated by NRG and Dominion to identify impacts were not available for comparison in the available databases, such as Dominion's interpretation of visual impacts and number of structures visually impacted. MAE recognizes that some interpretation of the impact numbers is required. For example, the number of residences affected was identified in Table 4.1 of the Application. However, this does not give a

clear picture as to the long term impacts of the project if the project is built using underground versus overhead lines.

As discussed earlier in this report, once completed, the I-66 Hybrid Alternative Route would have no visual impact on the residences and commercial structures that abut the I-66 corridor alongside the underground portion. Thus while it is true that there would be impact during the construction phase, the post construction impact would be negligible. MAE asked Dominion to assess the difference for those residences and commercial structures that abut the I-66 corridor and their response was 286 single family and townhome residences, along with 13 commercial structures.[2]

The Proposed I-66 Overhead Route

The Proposed Route is 5.0 miles in length and is the shortest and most direct of the proposed alignments. The I-66 Overhead Route utilizes collocation with the I-66 corridor for approximately 90% of its length. It initiates at a tap point in Gainesville, crosses over I-66 and then parallels I-66 on its north side. It remains on the north side of I-66 until the crossing of Jefferson Street, where it angles to the south of I-66 and crosses over James Madison Highway. Just west of James Madison Highway, it angles south, crosses John Marshall Highway, where it turns west and terminates at the proposed Haymarket Substation. Two variations have been proposed for this alignment. The first, the Jordan Road Variation, was developed because Jordan Road has not been dedicated to VDOT and thus is still owned by Prince William County. The County has indicated that it would not allow a crossing of their land holdings. As a result, this alignment stays

[2] *See* Company Response to Staff Interrogatory Nos. 1-3 and 1-4, attached as Appendix V.

within the VDOT ROW and parallel to I-66 until it passes the County-owned Jordan Lane property and then intercepts the Proposed Route.

A second possible variation, the Walmart Variation, passes to the rear of the Walmart and Kohls retail stores, then turns south toward John Marshall Highway, turns west for approximately 450 feet and turns south to cross John Marshall Highway and terminate at the proposed Haymarket Substation. The Walmart Variation limits the amount of tree removal along John Marshall Highway (SR 55) across the frontage of the three parcels immediately east of the proposed substation parcel. This variation decreases the visual impact to the front of the shopping center and the associated highways, as well as the Town of Haymarket.

The I-66 Overhead Route is the most direct, shortest alignment and utilizes VDOT ROW for 3.2 of its 5.0 mile length. It has a collocation opportunity for a total of 4.5 miles, total, or 90% of its alignment. It has limited wetland impact at 0.5 miles or 5.9 acres. One of the advantages to tower projects is the ability to span wetland areas. Impacts to forested acreage would be significant, as trees and powerlines generally do not easily coexist. For example, in many cases, while the transmission line will span wetland areas, forested wetlands are converted to scrub shrub habitat and, while they continue to function as wetland habitat, the species that occupy the various habitats may vary.

Historic and archeological assets were evaluated by Dutton. Their study indicated 12 resources within one mile of the proposed I-66 Overhead Route. Because the Proposed Route is overhead, the residual effects of towers and lines will remain after construction. The Dutton report notes that the line would have minimal to no impact to these historic and archeological assets. The only resource identified as being subject to

moderate impact is the Manassas Battlefield. However, the National Register of Historic Places does not consider it eligible for historic status, due to the amount of development that has occurred in the area. MAE notes that both the overhead portion of the I-66 Hybrid Alternative and Overhead Routes pass by the southwest corner of the Manassas Battlefield. Both routes would be visible from the park property; however, because this general area is well developed, including a major interstate highway, neither the Proposed Route nor the I-66 Hybrid Alternative Route would significantly impact the visual appearance of this important historic asset.

Lastly, the Town of Haymarket has declared itself, through zoning action, to be a Historic District. MAE confirmed with DHR that it is not recognized as such by DHR. Due to the fact that several of the original historic assets have been destroyed, it is not eligible for Historic District status. Notwithstanding, as the Town of Haymarket has grown, there has been an attempt to maintain the colonial atmosphere through architectural controls. The I-66 Overhead Route would be visible on the western border of the town, in particular, as it crosses I-66 and turns south, parallels James Madison Highway and then turns west in parallel to John Marshall Highway.

The Walmart Variation

As stated previously, two variations to the I-66 Overhead Route have been proffered. The Walmart Variation would deviate from the Proposed Route just prior to the crossing of James Madison Highway, proceeding behind several stores in the Haymarket Village Shopping Center, primarily Kohl's and Walmart, following the property line between the shopping center and VDOT ROW for 0.4 mile. It would generally follow the western edge of the shopping center property, south for 625 feet,

with a 450 foot segment extending west before crossing John Marshall Highway (SR 55) and entering the proposed Haymarket Substation. As mentioned earlier, Dominion offered the Walmart Variation to limit the amount of tree removal along John Marshall Highway (SR 55) across the frontage of the three parcels immediately east of the proposed substation parcel. This variation decreases the visual impact to the shopping center and the associated highways, as well as the Town of Haymarket.

The Jordan Lane Variation

In order to avoid crossing Prince William County ROW, the Company offered the Jordan Lane Variation, which involves the location of one structure inside the proposed sound wall along I-66, near the east end of Jordan Lane. For approximately 675 feet along Jordan Lane, which parallels I-66 within Haymarket Township, Dominion would work with local governments to negotiate an overhang easement within the dedicated road easement. This variation is not visible on the notice map and would not result in material changes to the length or impacts of the Proposed Route with the exception of eliminating the crossing of the Jordan Lane dedicated road. This minor change keeps the line within VDOT ROW, until it intersects the I-66 Overhead Route and then crosses the James Madison Highway. It would potentially reduce the impact to the homes located on Jordan Lane, as the Proposed Route would otherwise crossover Jordan Lane in front of several residences and cross more closely to these structures.

The I-66 Hybrid Alternative Route

This alternative includes both overhead and underground line construction. The total length of this alternative is 5.3 miles, 0.3 miles longer than the I-66 Overhead Route. The I-66 Hybrid Alternative Route would be constructed as an overhead transmission line

for approximately 2.6 miles. The initiation is at a tap point at Haymarket Junction. As such, it follows the same route as the I-66 Overhead Route, until it crosses I-66 and enters a transition station west of Lee Highway and south of I-66. It then traverses 2.7 miles as an underground line until entering the proposed Haymarket Substation. The opportunity to collocate with other linear facilities is 5.0 miles of the 5.3 mile alignment. It offers the highest percent of collocation at 94%.

By transitioning to underground, the I-66 Hybrid Alternative Route avoids a significant amount of visual impacts associated with the I-66 Overhead Route. This is especially true of the densely populated residential areas such as Heritage Village, Heritage Hunt, and Parks at Piedmont, etc. The line would be buried between the affected property owners' back fence and the I-66 sound wall. The NRG Study generated impact data that showed numbers of structures within the 500, 200 and 100 foot corridors and potentially impacted by construction. However, as mentioned previously, the Matrix did not take into account that the I-66 Hybrid Alternative Route, once completed, would no longer be visible. Therefore, the I-66 Hybrid Alternative Route's visual impact would be reduced to zero within the most populated areas once completed.

Dominion has estimated that the I-66 Hybrid Alternative Route would cost approximately $115 million more than the I-66 Overhead Route. Additionally, it would be more difficult to construct, with greater impact to traffic on I-66. On balance, there was considerable testimony regarding the significant loss of home values. While the cost impacts are uncertain, the visual impact in the intensely developed area adjacent to I-66 would be significantly less for the I-66 Hybrid Alternative Route and thus, home value loss would be reduced.

The potential impact on historic resources by the I-66 Hybrid Alternative Route is less than the I-66 Overhead Route. While Table 4.1 of the Application indicated comparable impacts to cultural resources by both the I-66 Hybrid Alternative Route and the I-66 Overhead Route, this is misleading because, again, it fails to consider the long term impact to these resources of an underground alignment.

The I-66 Hybrid Alternative Route may have a greater potential impact to archeological sites, since the line will be placed underground, where such archeological sites reside. Dominion has identified two archeological sites within the alignment. Coordination with DHR will be necessary to catalog the site assets.

Wetland impacts from the I-66 Hybrid Alternative Route are essentially comparable to the I-66 Overhead Route. The I-66 Hybrid Alternative Route has slightly less total wetland impact at 5.1 acres, versus 5.9 acres for the I-66 Overhead Route. Generally, an overhead project has more ability to span over wetlands as compared to an underground project. However, both would restrict the growth of forested communities, in favor of emergent and scrub shrub habitats.

Other Alternative Routes

Railroad Alternative

The Railroad Alternative utilizes the Norfolk Southern Railroad's ROW as a collocation opportunity. This alternative route has a total length of 5.7 miles, with 4.5 miles of collocation, or 80% of its length. While the Railroad Alternative provides an opportunity to collocate with other existing linear facilities, it would have the most severe impact on wetlands of the potential alignments brought forward in the Application. At 1.5 miles, or 20.8 acres of wetland impact, the Railroad Alternative has an identified

impact to 18.9 acres of palustrine forested wetlands. Much of this impact would lie between the Somerset Crossing Subdivision and the residential area to the north of the railroad, such as the Greenhill Subdivision. Somerset Crossing has constructed a nature trail along its border that overlooks the linear forested wetland that parallels the railroad. The proposed line along the Railroad Alternative route would require the partial clearing of this wooded buffer along the 100-foot ROW. This would require converting forested wetland to emergent or scrub shrub habitat, and removing a buffer between the railroad and the residences on the opposite side of this area. Additionally, MAE believes that the towers aligned along the Railroad Alternative route would be visible to the Town of Haymarket and St. Paul's Church in the Old Carolina Road area. Finally, the Somerset Crossing Home Owners Association ("Somerset Crossing") has donated the open space along the nature trail as a conservation easement ("Open Space") to Prince William County, making construction of the Railroad Alternative impossible without County approval.

Carver Road Alternative

The Carver Road Alternative is the second longest in length at 6.7 miles, 4.4 miles of which, would be available for collocation. It would have a longer crossing impact on Eligible (for listing) Battlefield, as this would be a towered, overhead project. Like the Madison Alternative described below, the Carver Road Alternative would have less impact to residences, as compared to the I-66 Overhead Route. However, its impact on wetlands is increased at 11.5 acres versus both the I-66 Overhead Route and the I-66 Hybrid Alternative Route.

Madison Alternative

The Madison Alternative was developed in response to the potential of Prince William County not granting an easement for crossing its easements and landholdings. This is of particular issue in the Railroad Alternative, where Somerset Crossing has donated the Open Space easement to Prince William County. At 8.2 miles it is the longest alternative. The historic and archeological impacts would be comparable to the I-66 Overhead Route and I-66 Hybrid Alternative Route alignments. The Madison Alternative would have less impact to residences as compared to the I-66 Overhead Route. However, the potential wetland impacts are elevated for the Madison Alternative compared to the I-66 Overhead Route and I-66 Hybrid Alternative Route at 11.3 acres, as are impacts to forested lands at 61.6 acres.

IV. Public and Agency Input

Open Houses and Local Public Hearings

Prior to filing the Application, the Company held open houses to receive input from the public. Local public hearings were held at Battlefield High School in Haymarket on February 24, 2016, March 14, 2016, and May 2, 2016. MAE attended these Hearings. An additional public hearing was held at the Commission on May 10, 2016. MAE reviewed the transcript for this hearing. At the public hearings, witnesses testified about their respective concerns regarding the proposed Haymarket project. MAE identified several consistent themes to their testimony. Specifically, the public witnesses expressed (1) that the line should be buried, (2) that the customer who will benefit from this line extension should bear the cost of the project, and (3) that instead of the proposed location of the data center, it should be located in the Innovation Center, a facility that Prince William County has identified and provided infrastructure for this type

of use. In addition, a number of public witnesses questioned why there had been no replies to inquiries sent to the Customer. Of greater concern is that Freedom of Information Act requests to the Board of Supervisors and Prince William County Officials have not been answered. Many people expressed concern regarding the secretive nature of this proposed Haymarket Project. Delegate Bob Marshall expressed concern that this proposed Haymarket Project may send a message that data centers could be located anywhere, despite zoning ordinances. Councilman Joseph Passanello and Robert Weir challenged Dominion's position that the I-66 Hybrid Alternative would cost an additional $115 million. Martin Crim, Esq. spoke on behalf of the Town of Haymarket, as the town attorney. Mr. Crim expressed concern regarding the historic impact analysis performed by Dutton. It was his position that the Dutton report "underplays all of the overhead options impacts." Mr. Crim also stated that the I-66 Hybrid Alternative Route mitigated many of the impacts to the Town and historic resources. Several homeowners and realtors expressed concerns about the potential decrease in property values from transmission lines being located in close proximity to homes. The general understanding of the public witnesses was that a 12–30% decrease in property value was common. In some cases, this would be a devastating financial loss to the homeowner. Again, generally these homeowners would support the I-66 Hybrid Alternative Route, should the Company's identified need for the proposed Haymarket project be confirmed.

Prince William County also appeared at local hearings and requested that the Commission take into account its Comprehensive Plan. At the Hearing on May 10th at the Commission, Chris Price, Director of Prince William County's Planning Office gave

testimony on the proposed project alignments. He indicated that none of the alignments were located within the corridors identified by the County's Comprehensive Plan. The I-66 Hybrid Alternative Route was the only alternative consistent with the County's Comprehensive Plan, due to its reduced impact to Prince William County's many assets due to the fact that it is underground. He further testified that placing utilities underground is not only a community preference, it is a defined goal and action item identified within the Comprehensive Plan.

DEQ Environmental Impacts Review

The DEQ is tasked with coordinating the State Agency Review and preparing an umbrella report with the various agencies' comments and recommendations. MAE included that report in Appendix VI of this report. The findings in DEQ's report are generally mixed, as each department or municipality can make recommendations relative to their area of responsibility. In this case, the Summary of Recommendations offers three specific recommendations and 11 general recommendations. The first specific recommendation concerns wetland impacts. The Office of Wetlands and Stream Protection recommends the I-66 Overhead Route "as it has a significantly lower probability of wetlands than the remaining alternatives."[3] MAE is unsure as to the basis of this comment, given that the Matrix indicates that the I-66 Hybrid Alternative Route would "cross" fewer acres of wetland than the I-66 Overhead Route (5.1 versus 5.9 acres).

[3] *See* letter from Bettina Sullivan, Program Manager, Environmental Impact Review and Long-Range Priorities, DEQ, to Joel H. Peck, Clerk of the Commission, dated January 20, 2016, attachment at 6.

The second specific recommendation comes from DHR, which recommends the I-66 Hybrid Alternative Route. DHR states this alternative "appears to have the least overall potential impact to recorded historic resources."[4]

The third specific recommendation comes from Prince William County, who "concludes that the I-66 Hybrid [A]lternative is the only alternative that adequately minimizes negative impacts to the County's cultural resources and to existing and planned residential communities and businesses."[5] Furthermore, the County adopted a resolution (15-508) that expressed support only for new or proposed lines buried in the I-66 ROW.

V. Conclusions

Transmission line cases require great diligence of thought and design, especially in areas of significant development and cultural resources. The Staff did not task MAE to evaluate need for the proposed project, but only whether the proposed routes and alternative alignments for the proposed project were suitably studied and feasible. More specifically, MAE was tasked with analyzing the relative impacts of various routes. MAE believes that the Company and its consultants performed a reasonable level of research and study, consistent with professional practices. Because an applicant does not know if a proposed project will be approved, performance of in-depth studies could result in an inefficient expenditure of resources. Assuming a project is approved by the Commission, then the Company must perform additional studies and coordinate with regulatory agencies to provide data and obtain the appropriate permits.

[4] *Id.*

[5] *Id.*

MAE also reviewed the feasibility of the routes. This case, like all cases, has unique constraints. More specifically, this case involves a balance between impacts to residences and commercial properties, environmental/historic/cultural resources and cost. Much of the testimony heard at the public hearings involved citizens' concerns for their financial wellbeing, as a result of a line being placed behind and in close proximity of their homes. Interestingly, most did not suggest that the project not be built, assuming need, but rather that the line be buried. Dominion must provide reliable service to customers, present and future. The Company acknowledges that the I-66 Hybrid Alternative Route is more expensive and more difficult to construct. The I-66 Hybrid Alternative Route utilizes the VDOT ROW to the maximum extent possible (94%), and construction along the I-66 Hybrid Alternative Route is presumed to have greater impact to traffic on I-66, as lane closures and the work times will be increased. Prince William County has indicated through testimony that the I-66 Hybrid Alternative Route is the only alignment consistent with their Comprehensive Plan.

The alternative routes, other than the I-66 alignments, pose their own problems. The Railroad Alternative was, at one time, the preferred route. However, the potential impacts to wetlands are sizeable. Similar to the I-66 routes, the Railroad Alternative would result in significant visual impacts to residences. There is not the same level of residential density, as this area primarily has single family homes, and it is not as visually encumbered as the I-66 corridor. However, the impact to wetlands is significant at 20.8 acres. The nature trail system that overlooks this natural area, between the Greenhill and Somerset Crossing subdivisions is well used by the local residents and would be significantly impacted, when removing the current wooded buffer. Finally, the potential

for visual impact to the Town of Haymarket and historic/cultural resources is far greater with the Railroad Alternative. As a result, MAE cannot recommend the Railroad Alternative.

The Madison and Carver Alternatives were offered to avoid Prince William County landholdings. They are longer—8.2 and 6.7 miles, respectively—than the more direct I-66 routes. In addition, as compared to the I-66 alignments, they cross, generally, double the private lands and triple the private parcels and impact significantly greater wetlands as compared to the I-66 alignments. It is for the aforementioned reasons that MAE also cannot recommend these two alternatives.

Based upon MAE site visits, attendance at public hearings, reviewing public comments filed with the Commission, review of available databases and reviewing the Application, MAE believes that the I-66 Hybrid Alternative Route would be the least impacting alignment, long term. However, if the Commission does not select this alternative because of the significantly higher cost, we recommend the I-66 Overhead Route as the best of the overhead alternatives. Additionally, if the Commission approves the I-66 Overhead Route, we support the Walmart Variation as a means to decrease the impact along the James Madison and John Marshall Highways, especially the wooded area adjacent to the John Marshall Highway at its intersection with James Madison Highway. FST Properties, LLC, a commercial business, would prefer this variation, also, as the I-66 Overhead Route with the Walmart Variation would not cross FST's highway frontage nor restrict its ability to develop its parcel. FST has proffered its own alignment. We offer no opinion on this alignment, although we note that Dominion does not object to this alignment.

Lastly, should the Commission find in favor of the I-66 Overhead Route, the Jordan Lane Variation avoids crossing the Prince William County-owned Jordan Lane because Prince William County has stated that it would not grant an easement across Jordan Lane for the I-66 Overhead Route.

APPENDIX I

COMPANY'S ROUTING EVALUATION

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A study team consisting of staff from Dominion, National Resources Group, LLC ("NRG"), and Dutton + Associates, LLC ("Dutton") were tasked to identify and study the potential alignments and impacts. An in-house Dominion team investigated the constructability of identified alignments and NRG was tasked with identifying study corridors within the selected study area. Dominion, NRG and Dutton performed studies in the various areas of environmental impact, such as cultural resources, scenic impacts, natural resources, wetland, geology, recreation and water resources. NRG provided routing studies. Dutton performed cultural and archeological investigations to identify the impact to cultural resources and prepared photographic simulations. In addition, Dominion coordinated public information meetings or Open Houses.

Open Houses were held in September of 2014 and September of 2015 at Battlefield High School. Additionally, Dominion presented at the Green Hill Crossing Homeowners Association Meeting on May 26, 2014, the Haymarket Town Council Meeting on May 25, 2014 and the Haymarket Planning Commission Meeting on Sept. 8, 2014. These efforts afforded public input and additional data for the routing team. Dominion coordinated with federal, state and municipal entities to derive their data as well. The Company coordinated with DEQ to receive comments on the proposed alignments. The Company then utilized the information derived from agency comments and information derived from available databases to develop their report. In addition, the Company performed field studies to confirm findings. Once the studies were completed, the Company analyzed constraints and impacts to develop viable alternative alignments. These data then became the basis for the submission of the routes included in the Application.

APPENDIX II

MAE'S ASSIGNMENT

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Mid Atlantic Environmental LLC ("MAE") was retained by the Commission Staff ("Staff") to review the route selection and the potential environmental impacts within the Commonwealth of Virginia. More specifically, MAE was assigned three tasks. The first task was to evaluate Dominion Virginia Power's preferred route and all environmental impacts associated within that area and state any potential impacts that may have been omitted in the Application. The second task was to review and evaluate possible alternative routes, including verification of environmental impacts that may have been omitted, and provide recommendations to Staff on reducing the impacts in sensitive areas. The third task was to develop and prepare a balanced report, by reviewing respondents' filings, attending the public hearings, reviewing commenting agencies' filings, reviewing databases, visiting the potential alignment sites and presenting the findings. MAE was not tasked with issues related to the need for the line. MAE performed its duties assuming a need for the line. Additionally, issues related to electromagnetic fields were not part of MAE's assignment.

The Company prepared its Application pursuant to Commission Staff guidelines and §§ 56-46.1 and 265.2 (Utility Facilities Act) of the Code of Virginia. The Staff's guidelines define baseline parameters for applications to the Commission. Section 3 of the guidelines identifies the parameters most relevant to this report, i.e. "Impact of Line on Scenic, Environmental and Historic Features." MAE used Section 3 of the guidelines as a minimum standard by which to evaluate whether Dominion was diligent and complete in pursuit of appropriate corridors. Therefore, the statistical data that MAE presents in this report is derived from information prepared by the Company for the Application. MAE also performed independent GIS analysis and mapping. Additionally,

we reviewed available databases and reviewed public comments. We have attended all the local public hearings, reviewed the transcripts of the Hearing held at the SCC on May 10, 2016, reviewed documentation submitted to the Clerk of the Commission by interested parties and respondents and toured the potential alignments in an effort to verify application and research information.

MAE was not tasked to review and analyze if, but rather where, the proposed line would be best placed. MAE had to assume the need for the line had been defined, and therefore MAE's study was based upon finding the best alignment within the area. MAE did not feel constrained to review only the alignments proffered in the Application. For example, there were three additional alignments identified in the Application. The alternatives included New Road, Northern and the Wheeler Alternatives. After further review and input during public information meetings, these alignments were not brought forward as viable options by the Company. We did not conduct a full investigation of these alignments, but rather assessed if they were less impacting routes. We concur that these are not viable, since better, less impacting routes have been identified. Additionally, it was important to assure that all the readily available impact data was identified and used. Should the Commission find the need for this line and an acceptable route, it is anticipated that an in-depth study of the approved alignment will be performed by Dominion. Full analysis of specific alignments would be cost prohibitive during the initial phases of the application. If approved, MAE believes inventories of attributes, such as historic resources, natural heritage and archeological assets would be performed and appropriate action taken by the Company to preserve them, as the proposed Haymarket project's permits would require.

As a first step, MAE performed a systematic review of the Application. Included within the documents was the DEQ's initial coordination review. MAE downloaded the GIS database information and began its review of the identified features. On February 24, 2016, March 14, 2016, and May 2, 2016, Wayne McCoy attended the public hearings held at Battlefield High School in Haymarket on behalf of MAE and reviewed the transcript for the May 10, 2016 hearing.

MAE performed field work in Prince William County and identified key targets to evaluate, such as historical sites. MAE viewed the project area from the ground by day and in some cases at night to evaluate the potential visual impact of the proposed alignments. MAE also viewed the project during "leaf off" conditions to consider any enhanced impacts. Representatives from Dominion and the Commission Staff accompanied MAE on a ground tour. In addition, MAE drove the alignment, unaccompanied, to view the areas in more depth and, in some cases, speak to owners of property in the area. MAE also visited sites of historical value and interest. Finally, MAE attended the Hearing Examiner's tour of the proposed alignments.

In addition, MAE was in receipt of various interrogatories and responses, during the course of its review. It reviewed the documents relating to the routing, as they were received. MAE recognizes its responsibility to provide a fair, unbiased report. To that end, MAE has coordinated with the Company, reviewed county comprehensive plans, heard and reviewed testimony and submissions by the public and coordinated with third party agencies, which have no vested interest in this proposed project. This report is the summation of that effort.

APPENDIX III

ROUTE DESCRIPTIONS

Proposed Route (I-66 Overhead)

The 1-66 Overhead Route would consist of a new 230 kV double circuit transmission line from the Haymarket Junction to the proposed Haymarket Substation, which originates at the proposed tie-in location on the converted 230 kV Line #124 near the end of Cushing Road and extends for about 5.0 miles, terminating at the proposed Haymarket Substation. The 1-66 Overhead Route was developed to provide an opportunity to maximize collocation (90%) with existing infrastructure (1-66 and Norfolk Southern Railroad) and provide the shortest and most direct route to the proposed substation location. From the tie-in location, the route follows the same path as the Carver Road Alternative Route for about 2.1 miles until it crosses Lee Highway (U.S. 29) and various 1-66 on/off ramps. At this point the route deviates from the Carver Road Alternative Route and heads southwest for 0.1 mile before heading northwest 1.9 miles following the northern side of 1-66 and crossing Catharpin Road (SR 676). The route then crosses 1-66 and heads in a southwest direction for 0.3 mile crossing James Madison Highway (U.S. 15). The 1-66 Overhead Route then meets up with the 1-66 Hybrid Alternative Route on the west side of the James Madison Highway (U.S. 15) and follows this route alignment for the remaining 0.6 mile before terminating at the proposed Haymarket Substation.

The Jordan Lane Variation

The Company presents a minor "Jordan Lane Variation" that involves the location of one structure inside the proposed sound wall along I-66, near the east end of Jordan Lane. This variation is not visible on the notice map and would not result in material changes to the length or impacts of the Proposed Route with the exception of eliminating the

crossing of the Jordan Lane dedicated road. Additionally, this variation prevents the crossing of County-held land.

The Walmart Variation

Dominion offers the Walmart Variation to limit the amount of tree removal along John Marshall Highway (SR 55) across the frontage of the three parcels immediately east of the proposed substation parcel. The Walmart Variation would deviate from the Proposed Route just prior to the crossing of James Madison Highway (U.S. 15), proceeding behind several stores in Haymarket Village Center, primarily Kohl's and Walmart. The variation would generally follow the property line between the shopping center and VDOT ROW for 0.4 mile and would generally follow the western edge of the shopping center property south for 0.1 mile, with a 0.1 mile segment extending west before crossing John Marshall Highway (SR 55) and entering the proposed substation. By utilizing this variation, the visual impact to the shopping center and the associated highways would be decreased.

I-66 Hybrid Alternative Route

The I-66 Hybrid Alternative Route extends from the Haymarket Junction for 5.3 miles through Prince William County and the Town of Haymarket and terminates at the proposed Haymarket Substation. The I-66 Hybrid Alternative Route would utilize both overhead and underground transmission facilities. From Haymarket Junction, the route follows the same path as the Proposed Route for 2.1 miles until it reaches the transition station, where an overhead to underground transition would occur. The transition station is proposed to be located on the west side of the intersection of I-66 and Lee Highway (U.S. 29). At this point the 1-66 Hybrid Alternative Route (underground segment) is

offset by approximately 25 feet from the proposed sound wall along the I-66 corridor, heads northwest and continues along the southern side of I-66 for 0.7 mile, utilizing VDOT ROW to the extent feasible.

After crossing Catharpin Road (SR 676), the route continues northwest, crossing I-66, for approximately 1.2 miles following the northern side of I-66. The route then crosses I-66 and follows the southern side of I-66 and associated eastbound on-ramp for about 0.3 mile. After crossing James Madison Highway (U.S. 15) the route follows the western side of the highway for approximately 0.1 mile, crosses John Marshall Highway (SR 55), and then continues northwest on the south side of John Marshall Highway (SR 55) for approximately 0.3 mile before heading south and terminating at the proposed Haymarket Substation.

The Carver Road Alternative Route

The Carver Road Alternative Route would consist of a new 230 kV double circuit transmission line from the Haymarket Junction to the proposed Haymarket Substation, which originates at the proposed tie-in location on the converted 230 kV Line #124 near the end of Cushing Road and extends for 6.7 miles, terminating at the proposed Haymarket Substation. This alternative offers the opportunity for 4.4 miles of potential for collocation. From the tie-in location the route travels northwest for about 0.3 mile, crossing I-66, before heading in a westerly direction for another 1.7 miles paralleling the north side of 1-66. This segment of the route crosses multiple on/off ramps of the interstate, Lee Highway, and University Boulevard. The route then turns southwest for about 0.5 mile, crossing I-66 and generally paralleling the north side of Lee Highway.

After crossing Daves Store Lane the route follows the northern side of Daves Store Lane for 0.2 mile and then crosses Daves Store Lane a second time.

The route then continues northwest for 0.2 mile, crossing Daves Store Lane and John Marshall Highway (SR 55). From here, the route heads southwest for about 0.2 mile before heading northwest along the Norfolk Southern Railroad tracks for about 0.1 mile. The route then crosses the tracks and continues in a southwest direction for about 0.7 mile crossing Yountville Drive and Somerset Crossing Drive. The route then travels southwest for about 0.3 mile, crossing Carver Road and then heading in a general northwest direction for 0.5 for mile before crossing Old Carolina Road. From here, the route generally continues northwest for 0.6 mile passing through forested areas surrounding residences and crossing Haymarket Drive. The route then heads northeast for 0.2 mile before turning west for another 0.2 mile. The route then follows the eastern side of James Madison Highway (U.S. 15) for 0.1 mile, crosses James Madison Highway (U.S. 15), and heads southwest for approximately 0.3 mile before heading northeast for about 0.2 mile and where it terminates at the proposed Haymarket Substation.

The Madison Alternative Route

The Madison Alternative Route extends from the Haymarket Junction for 8.2 miles and terminates at the proposed Haymarket Substation. From Haymarket Junction, the route follows the same path as the Carver Road Alternative Route for 4.7 miles to a point on the south side of Carver Road before crossing Old Carolina Road. At this point, the Carver Road Alternative Route heads northwest to follow Carver Road, while the Madison Alternative Route deviates from the Carver Road Alternative Route and heads southwest for about 1.6 miles. This segment of the route crosses Old Carolina Road and

Thoroughfare Road. The route then crosses James Madison Highway (U.S.15) and continues northeast for 0.7 mile, following the west side of the highway and crossing Thoroughfare Road, Hokie Place, and Market Ridge Boulevard. Continuing northeast, the route then crosses James Madison Highway (U.S. 15) and follows the eastern side of the highway for about 0.5 mile before meeting back with the Carver Road Alternative Route just south of North Fork Broad Run. The route then follows the same path as the Carver Road Alternative Route for the remaining 0.6 mile and terminates at the proposed Haymarket Substation.

The Railroad Alternative Route

The Railroad Alternative Route was developed to identify a potential route utilizing open space as well as avoid the I-66 ROW and to provide an opportunity to maximize collocation with the Norfolk Southern Railroad. The Railroad Alternative Route would consist of a new 230 kV double circuit transmission line from the Haymarket Junction to the proposed Haymarket Substation, which originates at the proposed tie-in location on the converted 230 kV Line #124 near the end of Cushing Road and extends for 5.7 miles, terminating at the proposed Haymarket Substation. From the tie-in location, the route follows the Carver Road Alternative Route for the first 3.5 miles to a point west of the John Marshall Highway (SR 55) and Norfolk Southern Railroad crossings. The route then follows the southern side of the railroad and the northern side of North Fork Broad Run for 1.0 mile. This segment of the route passes through the Town of Haymarket. After crossing Jefferson Street, the route crosses North Fork Broad Run and continues on the south side of the stream for 0.3 mile before the route intercepts the Carver Road

Alternative Route and follows it for the remaining 0.8 mile into the proposed Haymarket Substation.