

IDYLWOOD TYSONS 230 kV RELIABILITY PROJECT

ENERGY INFRASTRUCTURE FOCUS GROUP

August 24, 2017 MEETING SUMMARY

On Thursday, August 24 2017, the second meeting of the Energy Infrastructure Focus Group (FG) for the Idylwood Tysons 230 kV Reliability Project was held from 8:00 a.m. to 1:00 p.m. at the Westin, Falls Church (Tysons Corner), Virginia. The FG series is sponsored by Dominion Energy Virginia (Dominion) and facilitated by Environmental Resources Management (ERM).

PARTICIPANTS

Dominion consulted with community leaders, environmental groups, business groups and others to identify participants who represent a cross section of public and private interests and who bring unique, diverse and technical perspectives to the process. The following organizations were represented at the second meeting:

- Dranesville District Representative
- Dunn Loring Citizens Association
- Fairfax County DOT
- Fairfax County Park Authority
- Fairfax County Park Authority Board
- Fairfax County Planning & Zoning
- Greater Tysons Green Civic Association
- Home Performance Coalition
- McLean Citizens Association Planning and Zoning Committee (former member)
- NOVA Chamber of Commerce
- NOVA Parks
- Tysons Partnership, Inc.
- VDOT - NOVA District
- VDOT Route 6 Planning Task Force

PROJECT TEAM PRESENTERS/ATTENDEES

Dominion Energy Virginia:

- Wes Keck, Project Manager
- Amanda Mayhew, Routing/Siting Manager
- Tiffany Taylor-Minor, Communications Consultant
- Mark Gill, Transmission Planning
- Matthew Rudd, Electric Transmission Engineer (Underground)
- Tim Sargeant, External Affairs Manager
- Scott Reamy, External Affairs Manager
- Steve Chafin, Director, Electric Transmission Planning & Strategic Initiatives

Consultants:

- Patty Rusten, Environmental Resources Management (ERM), Facilitator
- Liz Valsamidis, ERM, Co-facilitator

- Jon Berkin, ERM, Routing Specialist
- Dave Potter, ERM, Routing Specialist
- Ken Wagner, Dewberry, Transportation Specialist
- Peter Tirinzoni, PDC Associates, Underground Routing Specialist

MEETING AGENDA

The following agenda was used at the FG meeting (though modified slightly to account for discussion and related altered timing):

- Focus Group #1 Summary and Q&A
- Dominion Welcome, Project Update, Consultation Update
- Overhead Route Review, 2nd Round Prioritization of Constraints
- Overhead Structure Finish Review
- Underground Route Review/Overview
- Traffic Impacts Review
- Underground Utility Surveys
- Interactive Routing Constraints Exercise (Underground focus)
- Community Engagement Update
- Recap and Next Steps

MEETING SUMMARY & DISCUSSION POINTS

Below, please find notes taken during subject matter expert presentations.

FOCUS GROUP #1 SUMMARY AND Q&A

Patty Rusten opened the meeting by welcoming participants and highlighting the focus of the day (underground routes). She noted that critical constraints would be discussed and an interactive, small group exercise would be used to further define priority constraints. Patty invited all attendees to introduce themselves, as there were a few new faces in the room.

WELCOME / PROJECT UPDATE / CONSULTATION UPDATE

Wes Keck continued by introducing Mark Gill to provide the safety moment, which was focused on the importance of backing into or pulling through parking spaces, to avoid accidents that can occur in parking lots.

Wes provided the team with an overview of work conducted to date and let the group know that upfront evaluation of a variety of overhead routes must be done as part of the SCC process, though many are very difficult. He noted that it is good to get feedback from focus group participants and that the Dominion Project team has a meeting with the SCC on Friday, August 25. The team will share updates with the SCC, as well as input received from the focus group.

A recent meeting with the CIA was also discussed, based on their proximity and related impact on service. Wes explained that Dominion provided the CIA with an update on the project and the anticipated 2019 construction timeframe (pending regulatory approvals).

Amanda Mayhew supplemented Wes' project update with further information about outreach conducted to date. She said that County supervisors have been informed of the status of the project and meetings with VDOT have been held to obtain guidance on preferred routes. Based on the SCC process,

Amanda also noted that letters will be sent to variety agency representatives and other key stakeholders with a project information and solicitation for feedback.

OVERHEAD ROUTE REVIEW / 2ND ROUND PRIORITIZATION OF CONSTRAINTS

Patty Rusten transitioned to the next agenda item, overhead (OH) routes. Jon Berkin then jumped in to review the OH routes and related considerations. He walked through each route (1, 2 and 3) via interactive GIS maps and large format printed/mounted copies of each route were shared with participants as well.

High level descriptions of the route discussion are as follows:

- OH 1 is a 13-mile line with lots of constraints.
- OH 2 is a combination of existing and new rights-of-way.
- OH 3 is a combination of rebuild and new build and follows 495 for much of the route (with many crossings and nearby development).

Jon also noted that another route had been reviewed along the W&OD Trail, but due to space constraints it is a non-starter. Jon explained that an 80” ROW is single current and a 100” ROW is double circuit, but that a larger area would be need cleared in some cases, due to parks, conservation easements, etc. In the case of rebuilds, space is also needed for temporary lines. The team has been coordinating with NOVA Parks, but a route along the W&OD Trail is also not optimal, as the trail has high pedestrian traffic.

The group broke out in small groups and had a lot of conversation and commentary around each OH route.

OVERHEAD STRUCTURE FINISH REVIEW

To close the overhead route discussion, Wes Keck returned to present potential overhead structure finish options. He first provided some background on his experience as a structural engineer and the history of electrical transmission structure finishes over the last 30+ years. He explained that weathering steel (rusty with protective coating) has been popular because it is earth toned and blends in when placed in forested areas (traditionally preferred by the Forest Service). However, the industry has found that joint lattice towers with this finish do not last. However, weathering steel and galvanized are typical offerings – just not weathering steel on lattice towers (fine on less intricate structures).

From there, individuals completed a constraints worksheet and ranked their top three constraints. Patty instructed the group to include finish option preferences (galvanized vs. weathered) on the back of the worksheet.

See below for a consolidated worksheet with priority constraints listed in order of participant selection:

CONSTRAINTS	Mark top three with an "X"
Constraints identified by focus group	
Stream/park environmental impacts	7
Residential impacts	6
Multiple beltway crossings/visual impact and maintenance issues	4
Tree clearing near residential and greenfield areas	4

Visual of road crossing and related employment impacts (corporate branding based on large commercial district)	3
Future road expansion	2
Commercial impacts (<i>Note added: Proximity/impact on Tysons corner center mall – big concern!</i>)	2
Coordination with NOVA Parks (<i>Note added: impacts to trail routing during construction + water impacts</i>)	2
Widened ROW	1
Park authority over ROW	1
Tower height (related to residential and VDOT)	1
Potomac School/Potomac School Road – aboveground line height	1
Rail and road clearance	1
Tree clearing along highways and limited access roads; related waivers (<i>Note added: which would also be near residential areas</i>)	1
Proposed pedestrian and bicycle bridge; new bridge connector	
Conceptual plans near Cloverleaf	1
Crossings not perpendicular to highway (<i>Note added: multiple crossings of highways – I-495</i>)	1
Additional constraints	
Structures on VDOT ROW	1
Structures inside of VDOT sound wall	
Need for expanded ROW at crossings of park and county conservation easements	
Need for a temporary transmission line during construction	

See below for participant voting/input on structure finish choices.

Scores gathered at the meeting:

STRUCTURE FINISH	Votes
Weatherized	1
Galvanized	2
No preference	1
No answer	10

Scores gathered via a follow-up email to participants (in an attempt to obtain further input):

STRUCTURE FINISH	Votes
Weatherized	2
Galvanized	2
No preference	2
No answer	6

UNDERGROUND ROUTE REVIEW

Jon Berkin transitioned the discussion to underground route review. He walked the group through seven different options at a high level and noted that each would be discussed in more detail later on. He said that most routes are along existing rights-of-ways (roads), but that there are two main considerations in this case – utilities and traffic. He showcased a pie chart of constraints, including: cost, community concerns, constructability, environmental impacts, schedule, traffic and underground utilities.

TRAFFIC IMPACTS REVIEW

Ken Wagner of Dewberry then took the group through the current status of their traffic review. He showed a map with all seven underground route options outlined on a map. He then explained that traffic volumes, roadway widths and lane closures are the typical concerns when it comes to a traffic impacts. Ken outlined that data collected included the average daily traffic (ADT) available from published VDOT data. From there, Dewberry projected numbers from 2019 to 2021 (anticipated construction timing) and assumed one percent population growth. Ken explained that the number of vehicles, segment length, roadway crossings and level of service all influence traffic. From there, Ken reviewed how different construction methods increase or decrease traffic impacts: 1) bored/tunneled and off-peak work hours help to reduce impacts; and 2) trenched/open cut construction and complex traffic control can increase impacts. Ken explained that traffic flow is reviewed and rated as follows: 1) Level A, Free Flow; Level B, Reasonably Free Flow; Level C, Stable Flow; Level D, Approaching Unstable Flow; Level E, Unstable Flow; and Level F, Breakdown Flow.

Ken closed his presentation with a route scoring summary and review of scoring results on a map that was color-coded based on the ratings outlined above. The scoring summary was shown as follows:

- Favorable Routes
 - Had low numbers of minor road crossings.
 - Were not specific to Residential or Commercial areas
- Less Favorable Routes
 - Had a high number of minor or major crossings
 - Were generally in more commercial areas
- Neutral Factors Skewed Data
 - W&OD Trail: no motor vehicles
 - Residential two-lane roads: no Level of Service for lane closure
 - Work along the side of the Beltway: difficulty defining potential impacts

UNDERGROUND UTILITY SURVEYS

Matt Rudd led the next presentation on survey work being done to evaluate underground route options. He said that survey work is approximately 35 percent complete across the project study area. He also outlined the survey work process – explaining details associated with both field and office work, which will ultimately result in base mapping information. Matt also shared an example from a previous project where one route was chosen over another based on clear utility constraints.

Participants began having a conversation around usage of roadways and related approvals. The CTB was brought up as being a group of individuals tasked with reviewing transportation projects, drafting policy, reviewing and voting on related issues, etc. CTB members are appointed by the Governor. The group discussed and agreed that they believe all public utility projects go through CTB for approval as well.

During Matt's presentation, a sample of various transmission line cables was reviewed with participants.

Sample photo below:



INTERACTIVE ROUTING CONSTRAINTS EXERCISE (UNDERGROUND FOCUS)

Focus group participants worked in small groups with project team members to conduct a review of potential underground routes. The purpose was to identify constraints and opportunities for each of the potential routes.

Following review of the routes, participants were asked to note which constraints were most prominent in their small group discussions. At the end of the session, each participant noted (with placement of a dot sticker) which constraints were of highest priority to them (or their organization). Constraints and associated tallied numbers are as follows:

CONSTRAINTS (identified by focus group participants)	Voting results
W&OD trail	6
Idylwood Park disturbance	3
Private property use impact	3
International Drive impact	3
Gallows Road traffic	2
Future phase development	2
Traffic	2
Gallows Road widening plans (6 lanes)	1
Staying away from residential (positive of Route 3)	1
Gosnell Road congestion	1

Highest cost – impact on rate payers	1
Maintenance and access	1
Location inside/outside soundwall	1
Community concerns	1
Gallows/Old Courthouse Road/Gosnell vs. neighborhood	
Sensitive neighborhood	
New route/I-66 plans	
Mall impact (Tysons Corner)	
Metro crossing	
VDOT ROW outside road bed	
Underground utilities	
Loss of trees along 495 and 267	
Space issues for work platforms (HDD)	
ROWS in southern residential section	
ROWS in northern part of Dulles toll road (residential)	
Private and commercial ROW – vegetation, need to maintain permanently	

COMMUNITY ENGAGEMENT UPDATE

Tiffany Taylor-Minor shared with the group an update on opportunities for public input and education. She highlighted the project website, which is now live and being updated as the project progresses. She also highlighted the upcoming open house dates and noted that focus group members would receive invitations and would be encouraged to share with their respective organizations. She also offered the group the opportunity to contact her directly, should they wish to have someone from Dominion provide a presentation and/or answer questions about the project with their organization(s).

RECAP AND NEXT STEPS

Patty Rusten closed the meeting by reiterating next steps, outlining the outstanding questions for follow-up and asking the group for final feedback on the summary report from the first focus group. She also requested initial input on timing of the third focus group.

QUESTIONS

The following questions were asked by the focus group participants during the meeting. The questions and their answers are organized by topic, below.

Overhead Route and Finish Review:

Q: What period of time will a weathering steel structure last?

A: It is typically a 10-year life span due to issues with the base shoes of the structure. Aeration is an issue due to vegetation at that level and the team has seen bolts popping due to expansion of the structure.

Q: Are white structures are an option?

A: That involves painting and will rust in approximately five years, so while Dominion tries to select the best option for the location and rate-payer, painted structures are more expensive and maintenance intensive.

Q: Is stress level highest at the base of the structure?

A: Usually, but have stopped using slip joints with bolts jacked in, as that equates to 10,000+ lbs. of force.

Q: How long would it take to construct the W&OD Trail segment?

A: This depends on several key factors. Soil conditions being the key driver as this segment includes (HDD) horizontal directional drilling activities. Accessibility and site preparation for staging the drill rig along a section of the W&OD being another. This may require a short distance of the trail to be temporarily re-routed. Inclement weather is a factor that also plays an important role. Finally the length of the segment to be drilled pertaining to route selection. For example; routes 4, 5, and 6 along the W&OD Trail, westward to Gallows, I would propose construction time somewhere around 2-3 months, with 3 months being on the more conservative end. Due to the length along the W&OD of proposed underground route 1, construction would take much longer than proposed routes 4, 5, and 6.

Traffic Impacts Review:

Q: How do two lane roads play into the equation?

A: The team would try to do work in off-peak hours to avoid congestion along two lane roads.

Q: Does Dewberry have a chart to show lane closure affects?

A: No. Just traffic and the other constraints noted previously.

Q: When constructing underground, would you use the shoulder area of the road or an area with less utilities based on survey work conducted?

A: The line would be constructed in a fashion where it maintains the greatest separation distance available from surrounding utilities. This location and spacing will be dictated by existing infrastructure identified during survey work being conducted.

Q: Are purple routes (on the Dewberry traffic map) neutral?

A: Lane closures come into play with purple routes, as the team can't evaluate or model that detail, so they will look at in more detail when surveys are completed. Work hours (day or night) would determine constructability impacts (softer details).

Q: Has Dominion found preferred routes based on this traffic and survey data?

A: Not at this point. We have just received the CAD files for the first section of survey information around Idylwood Substation. We will begin to process that information and attempt to identify what obstacles exist and the best path for our underground transmission line. This process will continue as we receive additional survey information.

Q: Can't do it without blocking off the trail – some areas would be different in terms of constructability vs. traffic, but how will you account for this?

A: Dewberry is looking at ways to count pedestrian and biker numbers as a comparison to traditional traffic. Weekends will likely be looked at as the highest traffic timeframe.

Q: What is the timeframe for construction?

A: Two years or six months on certain segments. It all depends on the length of the route. Open trench construction helps.

Q: What about level of service (maintenance) differences between underground and overhead routes?

A: Should only be a short period of time. Dominion will look at routes that are more practical than others from a service standpoint. Manholes will become segments to look at. It was also noted that in colder weather, no plates are allowed on open trenches (Nov-Apr approx.). Jersey barriers must be used or the area must be covered and uncovered. Night work requires county zoning ordinance consideration.

One participant mentioned the American Legion Bridge and explained that construction is already building up in other areas due to cut-through traffic to avoid tolls. He said that there are different arteries that should be considered in terms of traffic vs. main roads.

Underground Utility Surveys/Cable Sample Review

Q: What percentage of survey work has been complete to date?

A: Survey work is about 35 percent complete overall, not specific to any certain route(s).

Q: To what extent does Dominion anticipate these routes will require the use of private property?

A: All routes are mostly within roadways and related rights-of-way, not private property.

Q: Are we talking about Virginia legacy easements?

A: Mostly park land, but there are a few private easements in some cases.

Q: What would the underground lines cost per foot?

A: Estimating is still underway, as we continue to evaluate underground route options and associated civil and cable installation activities associated with commercial and residential portions of each of the proposed routes. There are many unknown factors at this point that could have a significant impact on costs. Once more detailed information is available and more complete engineering is done, appropriate cost figures for this specific project may be provided.

Q: What is the line made of?

A: Dominion uses cross-linked polyethylene as the standard cable of choice. For distribution projects, cable wire is typically used in residential areas.

Q: No copper?

A: No. Aluminum within insulated cable.

Q: In some cases, could public infrastructure be improved where fiber optic cable accompanies an underground electric transmission line installation?

A: Yes, we have accompanied outside entities i.e.: (Arlington County) on previous projects.

Q: How is maintenance handled on underground transmission lines?

A: Dominion does a good job managing maintenance. We patrol all lines by foot on a weekly basis. Manholes are inspected every five years. One of the biggest challenges is salt on the streets infiltrating manholes – which results in replacements of what holds the cables in place. What you may not know is that permits are required to access the manholes.

Q: How much construction is done at a time?

A: Construction work is managed in segments. Though there may be multiple segments underway at one time, each segment is typically 600-1,000 feet per day (trench). It all depends on the utilities that exist and may need to be relocated.

Underground Route Review

Q: Why would Dominion choose to go through residential areas vs. staying along 495?

A: There are problems with things being close to the highway – many features to avoid. Dominion also needs access for maintenance of the ROW and there isn't always room for more infrastructures along highways. The temporary impact of road work vs. permanent impact of mandatory ROW maintenance outside the 495 barrier/soundwall is the comparison we take into account.

Q: What are the permanent ROW vegetation options?

A: Trees must be cleared there may be no regrowth.

Q: Permanent tree removal?

A: Yes.

Q: Obviously you need to exhaust all options but have you done on the optimal option for UG routes?

A: Because only 35 percent of the survey work is done, no, we don't have an optimal or preferred route yet. Survey and traffic data will help, as well input from the focus group.

Q: Like in D.C., power distribution is manhole to manhole. This would have traffic implications in the future, right (due to manholes in the street)?

A: Yes, but manholes may be off to the side or even on a sidewalk.

Q: Would residents have access to the park during construction?

A: Yes. Dominion would re-route with ropes/fencing, but parking would be difficult. Dominion would try to look at constructing the line during a time of year when crowds would be minimal, if possible.

Q: How far along are the surveys around Tysons regarding utilities?

A: This work is just beginning.

Q: Is the route at the mall (Tysons) access road?

A: Yes.

Q: Does anyone care about Tysons mall? Shouldn't we be more concerned with residential areas?

A: Multiple participants weighed in saying that they are interested in the impact a new line would have on commercial areas like the mall. It was noted that Tysons mall attracts more than 20 million people per year. The Galleria will be announcing 10 new restaurants coming soon, which will attract even more people (and traffic) to the area, especially between the hours of 5 p.m. and 2 a.m.

Q: Is most of the demand for this new line coming from Tysons?

A: A participant responded noting that Dominion had said Tysons only accounted for 50 percent of demand. Dominion weighed in saying that a certain amount of the load will transfer to adjacent stations, but that 50 percent of demand is coming from existing infrastructure.

Q: What is the driver for the new 230 kV line?

A: The 2008 master plan and development growth projections would be served by this project and Reddfield.

Recap and Next Steps

Q: Who will pay – now or people who will benefit in the future?

A: Everyone.

“PARKING LOT” TASKS/REQUESTS

The group reviewed the list of items on the parking lot and they are noted below:

Task/Request	Responsibility
Underground construction – trench vs. boring	Dominion team
Construction timing – timing along W&OD Trail	Answered within Q&A above
Clarify location/name of Idylwood Station	Wes Keck – Completed during wrap-up (explained that some stations are not named based on exact geographic location. Idylwood Station is located along Shreve Road, not to be confused with Reddfield Station near Shreveview Elementary.
CTB process and guidelines overview	Dominion team
ROW restoration process	Dominion team
Add W&OD Trail to list of roads (shared in UG routing presentation)	Jon Berkin; complete
How to share public input opportunities with respective organizations	Patty Rusten/Tiffany Taylor-Minor – Completed during wrap-up (open house save-the-dates to be shared with participants; contact Tiffany if you would like Dominion to join you for a presentation to your organization)
What happens if there is a fault in an underground line?	Dominion team
Map request (OH and UG)	Participant route tour scheduled for 9/13
Consider sharing visuals/messaging regarding neighborhood impacts – construction, vegetation impacts	Dominion team

MEETING EVALUATION

At the conclusion of the focus group meeting, participants were asked to complete a meeting evaluation form in which they were asked the following questions (responses in italics):

1. What do you feel worked well for this meeting?
 - *Overall briefing is always helpful and informative. Breakout session by table with interaction with experts was very useful and productive.*
 - *The meeting was organized in a concise and methodical way and the presenters did an excellent job of explaining complicated material.*

- *It was a good discussion. I think we made some progress.*
 - *Good support by ERM and Dominion on Q&A. Show & Tell good.*
 - *Thanks for taking our feedback on the days schedule, snacks and wifi.*
 - *Presenters were collaborative and well prepared.*
 - *Structure was good; overall collaboration – SME input was very helpful.*
2. What would you do differently?
- *Have more data/survey results informing other utilities and obstacles in underground options.*
 - *Show metro line and stations on the maps.*
 - *Show cost and risk per each route.*
 - *Maybe shorten overall meeting time 8-12? Helpful for finding alternative participants.*
3. Do you have suggestions on discussion items for the next meeting?
- *Discussion/facilitation about any consensus points on options or choices informing them.*
 - *Not allow participants to veer too far off the main issue at hand.*
 - *Obviously, we need to work on eliminating options.*
 - *Narrow selections down. Ultimate cost of routes.*
 - *Cost and risk depicted for each route OR same metric to score alternatives.*
 - *Follow on? Next steps? Ongoing communication.*
4. Other feedback?
- *Amount of subject matter experts and resources attending and available at our meetings is impressive and appreciated. Great job!*
 - *There was a good mix of perspectives and differing stakeholder groups that will be impacted by this project.*
 - *Liked the pie chart on underground routing considerations – very helpful! Good use of the parking lot to get back on topic.*
 - *Great and interesting process to be involved with overall*

NEXT STEPS

As the meeting came to a close, the group agreed that the next focus group would be held on Thursday, September 28, 2017 from 8 a.m. to 1 p.m. at the same location (pending venue availability). *NOTE: Since that time, the focus group meeting date has changed to Thursday, October 5, 2017.*

Dominion/ERM will send the meeting summary to all focus group participants.

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