GOROVE SLADE
Transportation Planners and Engineers

TECHNICAL MEMORANDUM

To:	Peter Gerner	VDOT
From:	Sumedh Khair, EIT Kayla Ord, PE Chad Baird	Gorove Slade
Date:	December 16, 2021	
Subject:	**PW Digital Gateway Corridor (CPA #2021-00004) – Comprehensive Plan Amendment Requirements**	

Contact Information

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- Mary Ann Ghadban – Applicant, on behalf of the owners
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Summary of Proposed Amendment

The proposed Comprehensive Plan Amendment will amend the Long-Range Land Use for the subject 2,133 acre area from AE (Agricultural or Estate) + ER (Environmental Resource) to T/F (Technology/Flex) + ER (Environmental Resource). The Plan Amendment was initiated by the Prince William Board of County Supervisors during its July 20, 2021 meeting. An overwhelming majority of the land within the corridor is owned by Applicants and supporters of this CPA effort.

The data center Targeted Industry use envisioned by this CPA will be limited to an overall floor area ratio (FAR) not to exceed 0.30, because of the Corridor's proximity to the Manassas National Battlefield to the east and low density rural uses to the west. Individual sites within the Corridor may be rezoned at higher or lower FARs than the 0.30, so long as the cumulative average within the Corridor remains no more than 0.30 FAR.

Overview of Reasoning and Purpose for Amendment

The CPA seeks to make available, subject to rezoning, a significant amount of additional land for new data center facilities in Prince William County. Data Centers are a Targeted Industry commercial tax base use, which is a critical component of the County's adopted Strategic Plan and Economic Development Initiative, that is now needed because the supply of data center planned and zoned land is quickly being outpaced by increasing demand in Prince William County. Re-classifying the corridor to allow this commercial "employment" use is critical to ensure future economic growth and vitality for Prince William County. Concentrating new additional data centers within the Corridor will allow well-suited Industrial and Employment planned land located elsewhere to remain available for a diversity of other commercial tax base and employment uses.

Final Transportation Recommendations

As summarized in the CUBE model memo (Attachment 1), Pageland Lane between Lee Highway and Sudley Road is planned to be upgraded to a four-lane divided road in order to offset the additional trips being generated by the planned development. As shown in the County's model, a north/south connection is needed in the future with or without the proposed CPA development. Without the CPA, this route could go in a number of different places and create impacts. With the CPA, the Pageland upgrade provides the needed north/south route and will be implemented with less adverse impact to the general area.

Based on the projected volumes and usage, the MA-1 section is recommended for Pageland Lane. This upgrade will be phased over an extended period, to coincide with the timing and location of new data center clusters. The preliminary concept plan is presented in Figure 1. As, a major north-south pedestrian/bicycle trail on the east side is also planned.

Attachments

- Attachment 1 – CUBE Model Study
    - Includes Planning Assumptions, Local Assessment, Needs Assessment, Recommendations,
        - CD with CUBE files included
- Attachment 2 – Signed Scoping Document with Checklist
- Attachment 3 – Supplemental Transportation Information Memorandum
    - Includes Inventory, Cost Estimates, Evacuation Routes, and Chapter 536 Requirements
- Attachment 4 – Application Submission
    - Includes Written Analysis Narrative, Trip Generation Comparison, and Associated Maps and Narratives

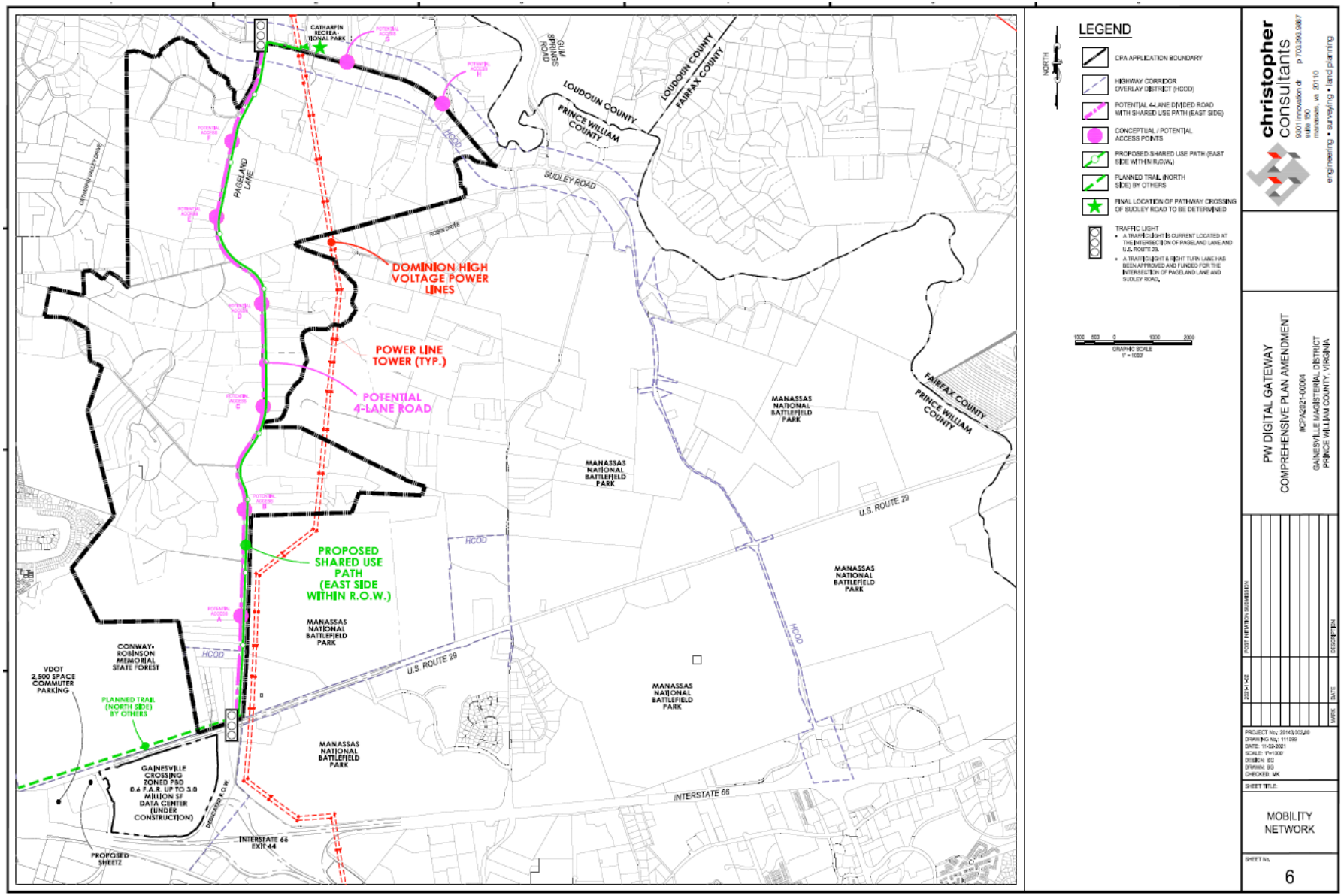


Figure 1: Mobility Network Plan

ATTACHMENT #1
CUBE MODEL

MEMO

TO: Chad Baird, Gorove Slade
Kevin Sitzman, PE, Gorove Slade
Kayla Ord, PE, Gorove Slade

FROM: Jay Evans, PE, AICP, RSG
Andrew Rohne, RSG
Joe Amoroso, RSG

DATE: December 13, 2021

SUBJECT: Digital Gateway – Baseline 2015 and 2040 Modeling

Introduction

This memo provides background and technical information on the initial 2015 and 2040 model year runs that included adjusted TAZ boundaries and land use data within the study area to accommodate analysis using the Prince William County (PWC) Cube Model of the proposed locations of data centers as a part of the Digital Gateway Comprehensive Plan Amendment study. This memo also includes the results of the model runs including the Digital Gateway development, which is the development under study.

For this study, the model was not re-validated since it was provided as a validated model. We checked the base year number of lanes in the study area against aerial photography on Google Maps and performed an assignment validation report.

The Prince William County model is a subarea model that utilizes a detailed highway network for Prince William County and a less detailed network for the surrounding counties that are part of the Metropolitan Washington Council of Governments (MWCOG) model area. Currently for the future year, the PWC model uses a 2030 highway network in conjunction with 2040 land use assumptions. Since there is a highway network and land use assumption difference, we simply refer to the 2030 network + 2040 land use as “future year” in the rest of this document.

The study included four separate scenarios that were run using the Prince William County model. First, after the necessary model modifications were made, a baseline 2015 scenario was run. Second, a future year no-build scenario, which did not include the addition of the proposed development was run. Third, a future year build scenario was run, which included the proposed development and its associated land use characteristics. This included the addition of office employees within the TAZs that contain the proposed data centers that roughly resulted in an additional 27,500 daily

trips to align with the proposed site trip generation analysis. Finally, a future year alternative build scenario was run with Pageland Road widened to four total lanes in the development area.

Model Modifications

As discussed in the previous memo, one transportation analysis zone (TAZ) was split (zone 43 was split to zone 43 and 731). As part of this, the model was modified to increase the maximum number of zones by one. Additionally, the code was checked to ensure that the zones in the subarea were not hard-coded into the script.

There is a model input file called ‘delta.trp’ that was adjusted to split the values for zone 43 between zones 43 and 731. Prior to this, the values for zone 731 were zero because the zone was unused.

The assignment model was modified to output the volumes for the zones in the Digital Gateway development. This allowed us to be able to see the trips from the development. We used this both as a quality control tool and to investigate the impacts of the development on the surrounding areas. The assignment model was checked to ensure that it was set up to compute volumes properly and was compared to un-modified outputs to ensure the revisions did not alter the behavior of the model.

In addition, all future year scenarios, including the No Build, have updated land use values to accommodate the Innovation Park Small Area Plan (SAP), as provided by Prince William County.

2015 Model Run

The base year for the PWC mode, 2015, was run with the proposed TAZ boundary and land use adjustments proposed in RSG’s previous memorandum. Figure 1 shows the 2015 number of lanes provided by Prince William County and reflecting the TAZ splits. None of the roadway cross-sections were changed in the 2015 network; changes were limited to setting up the network with the splits. Figure 2 shows the facility types on the 2015 roadway network. As with the number of lanes, none of the facility types were changed.

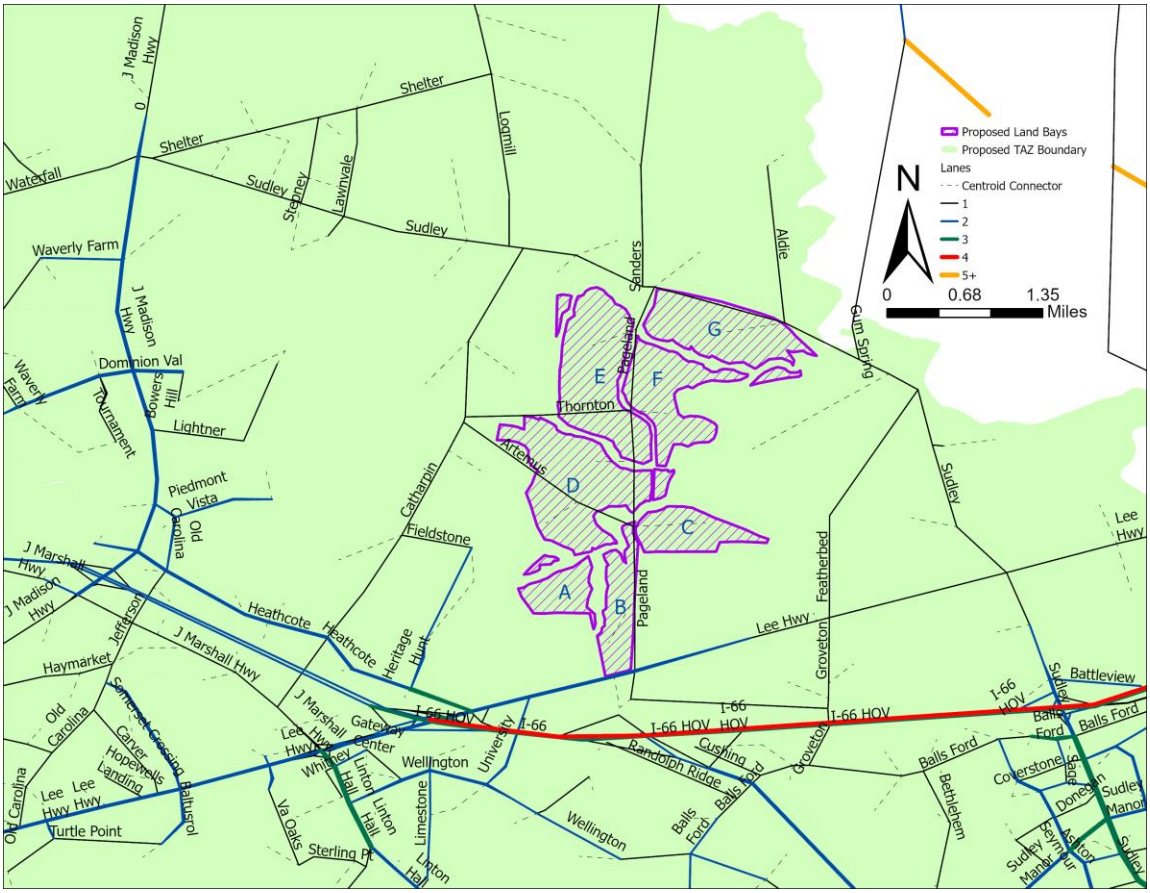


FIGURE 1: 2015 NETWORK DIRECTIONAL LANES

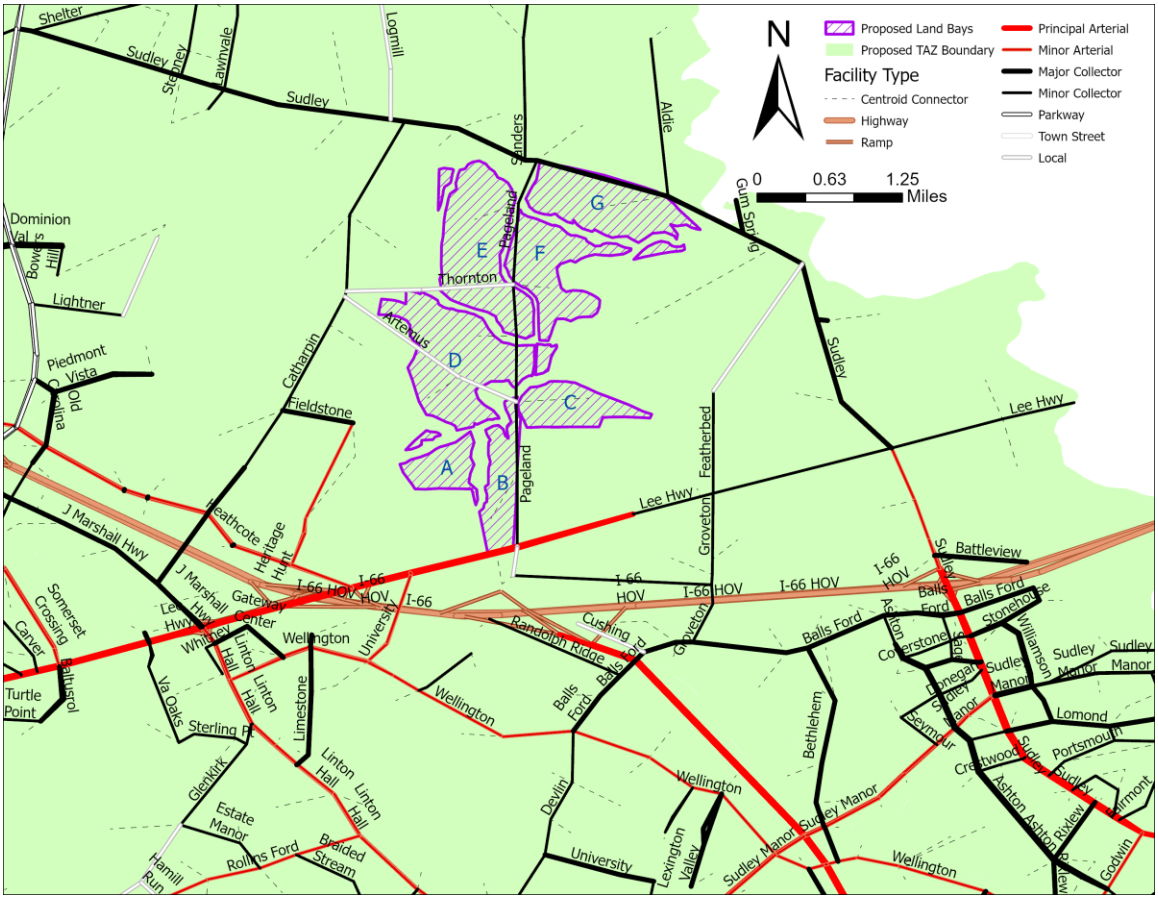


FIGURE 2: 2015 NETWORK FACILITY TYPES

Screenlines

Screenlines were developed to assist in quality control of the volumes assigned by the model and to assist with comparing alternatives. The screenlines are shown in Figure 3.

Table 1 shows differences in total volume aggregated across the five screenlines comparing the original model delivered by Prince William County to the model with the TAZ splits. With the TAZ boundary and land use adjustments, the model changed very little, the greatest change in volume being a 0.36% decrease along SL3.

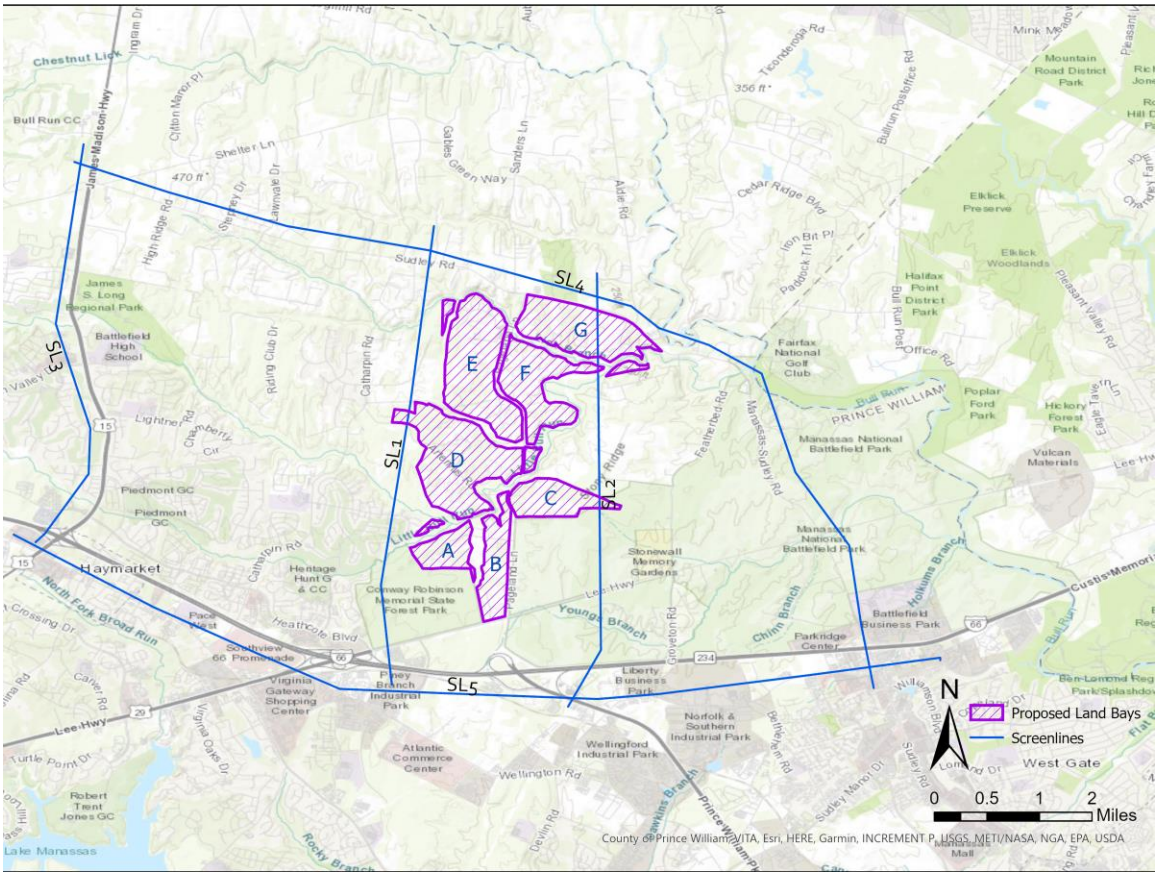


FIGURE 3: SCREENLINES

TABLE 1: 2015 VOLUME DIFFERENCES

SCREENLINE	ORIGINAL TOTAL MODEL VOLUME	ADJUST TOTAL MODEL VOLUME	MEAN ABSOLUTE DIFFERENCE	PERCENT DIFFERENCE
SL1	156,284	155,962	26.83	-0.21%
SL2	185,125	184,803	21.47	-0.17%
SL3	69,030	68,779	20.92	-0.36%
SL4	317,170	317,071	3.54	-0.03%
SL5	161,055	160,992	3.50	-0.04%

Subarea Validation

The validation statistics for the study area were checked to ensure the model was not significantly inaccurate. This validation was limited to checking the model assignment for the updated base-year network against the base-year traffic counts. The traffic counts that were used for this were included as an attribute on the network file provided by Prince William County and are shown in Figure 4. The comparison of the traffic counts

and assigned volumes is shown in Figure 5. The validation is reasonable, with very few points that are outliers that are all overassigned.

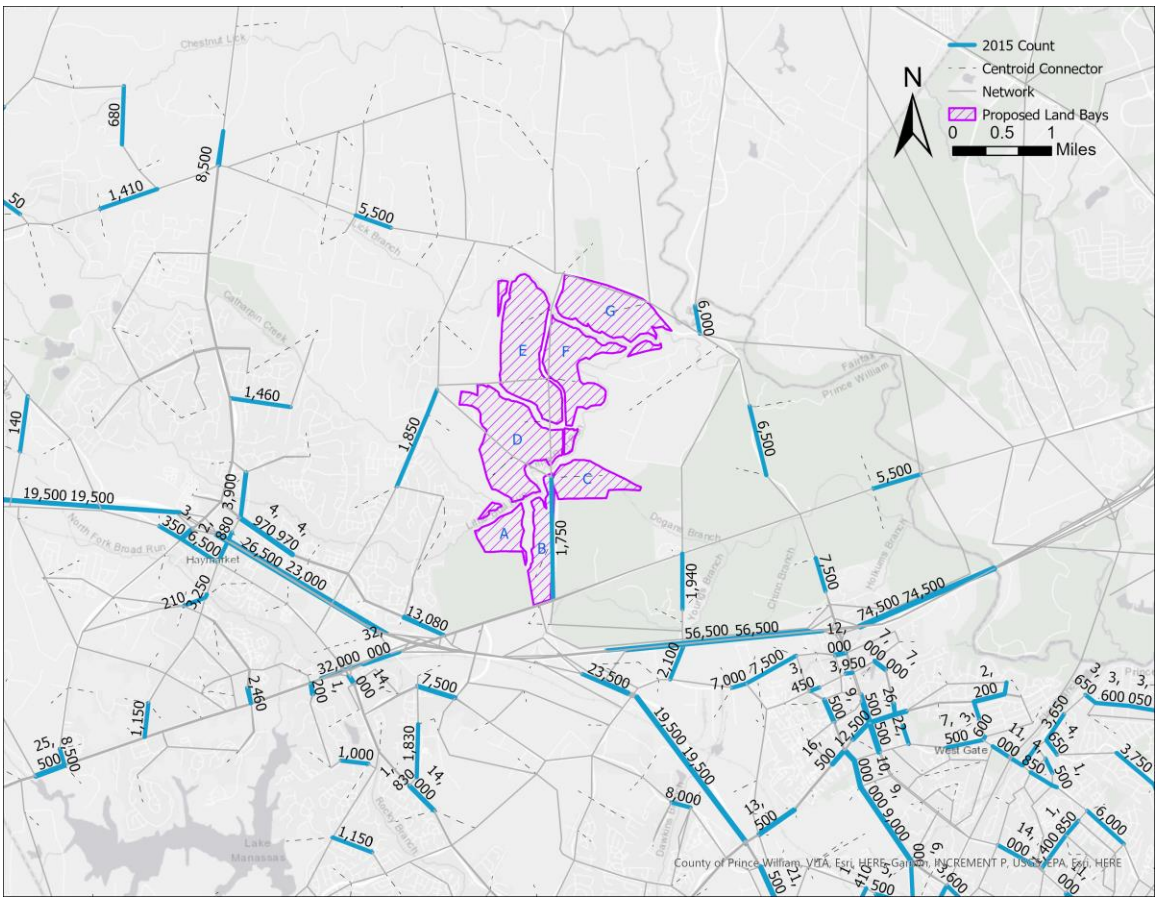


FIGURE 4: 2015 TRAFFIC COUNT LOCATIONS

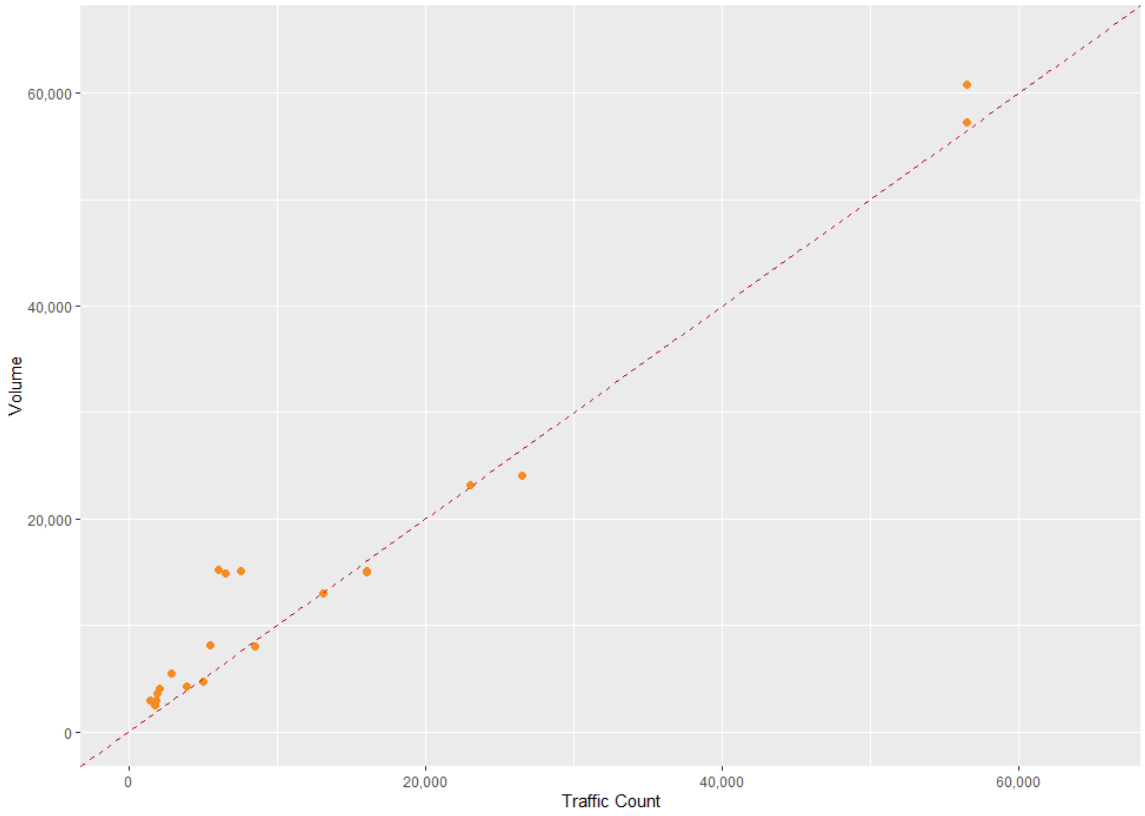


FIGURE 5: 2015 TRAFFIC COUNTS VS. DAILY VOLUMES

Base Year Network Performance

The volume to capacity ratio maps for 2015 are included in this memo to show the context of roadway performance in the base year. Based on the maps in Figure 6 (AM peak period), Figure 7 (PM peak period), and Figure 8 (daily), the study area has little congestion in the AM peak period, but some congestion on Lee Highway and Sudley Road near Lee Highway in the PM peak period. In the areas to east of the study area and outside Prince William County, there is significant congestion shown in the model.

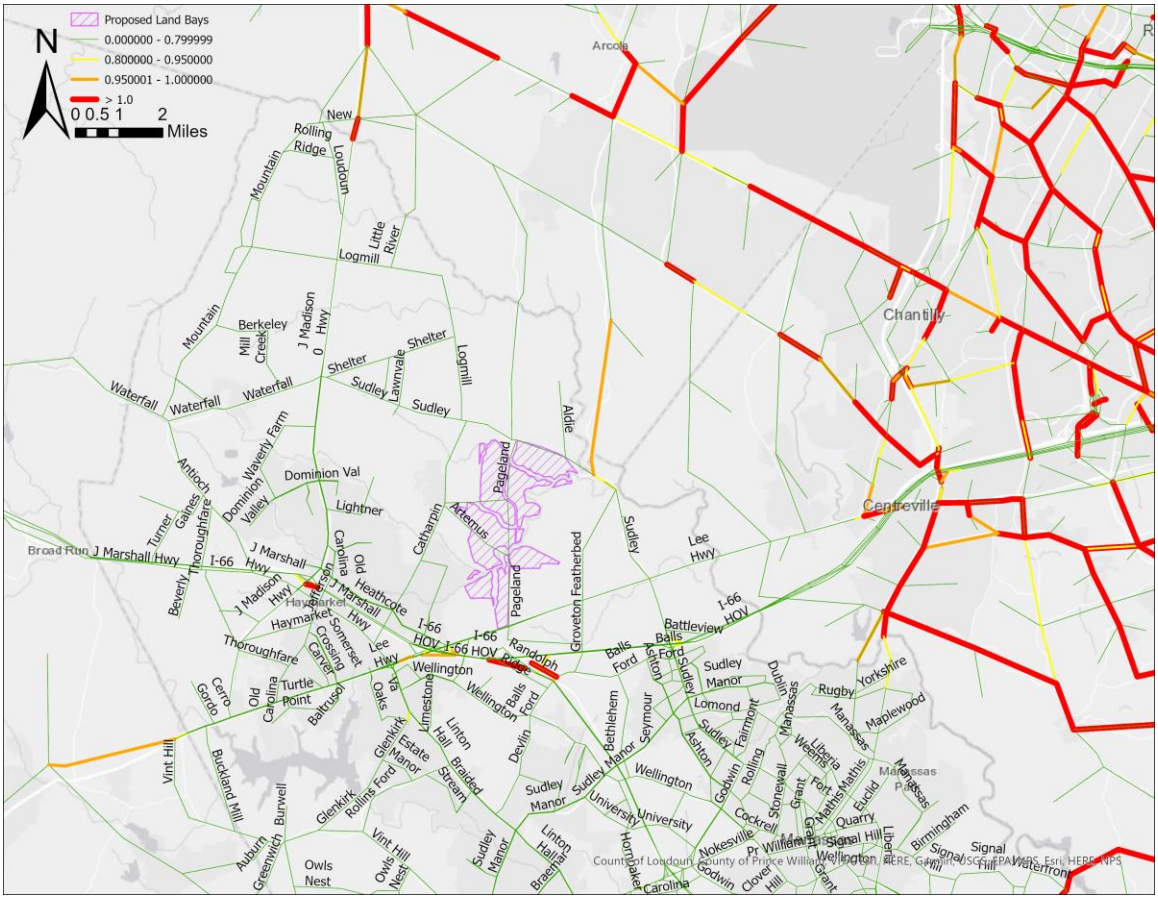


FIGURE 6: 2015 AM V/C RATIOS

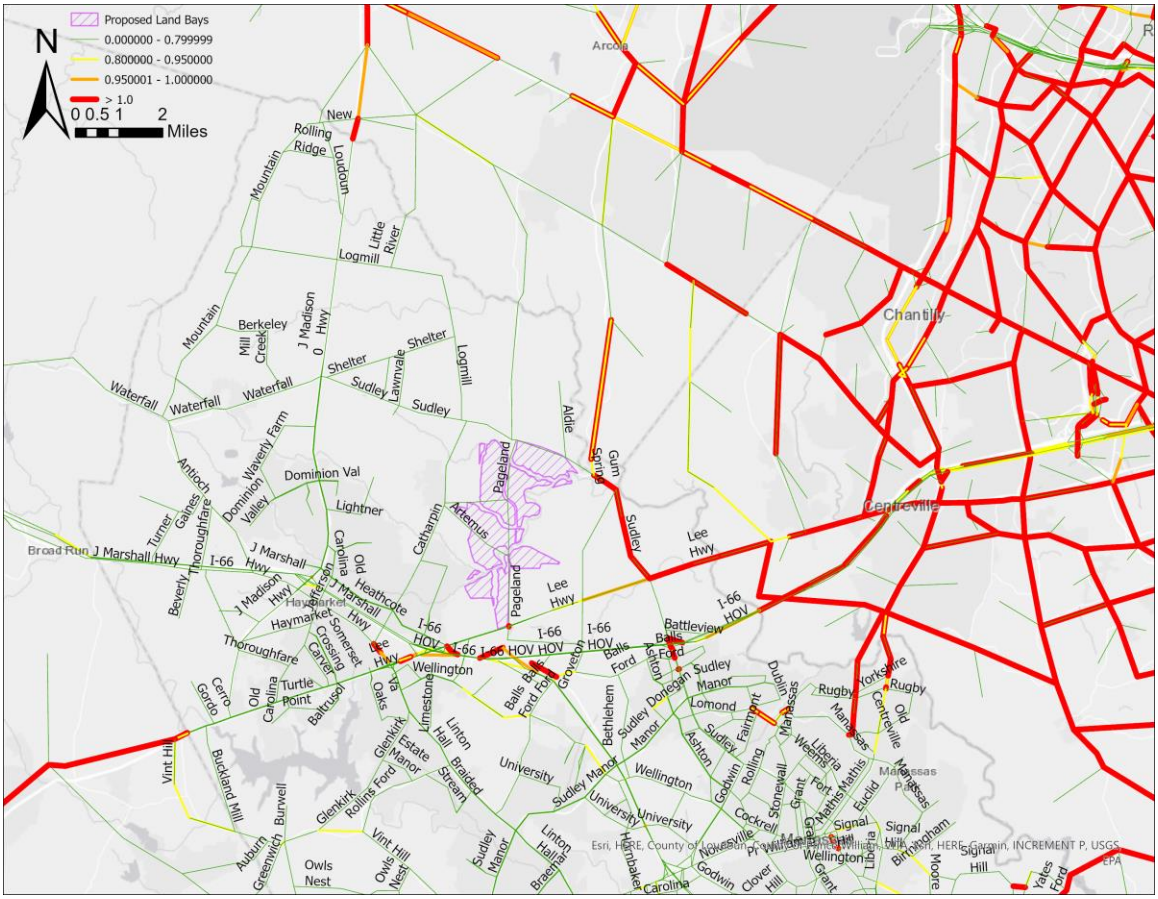


FIGURE 7: 2015 PM V/C RATIOS

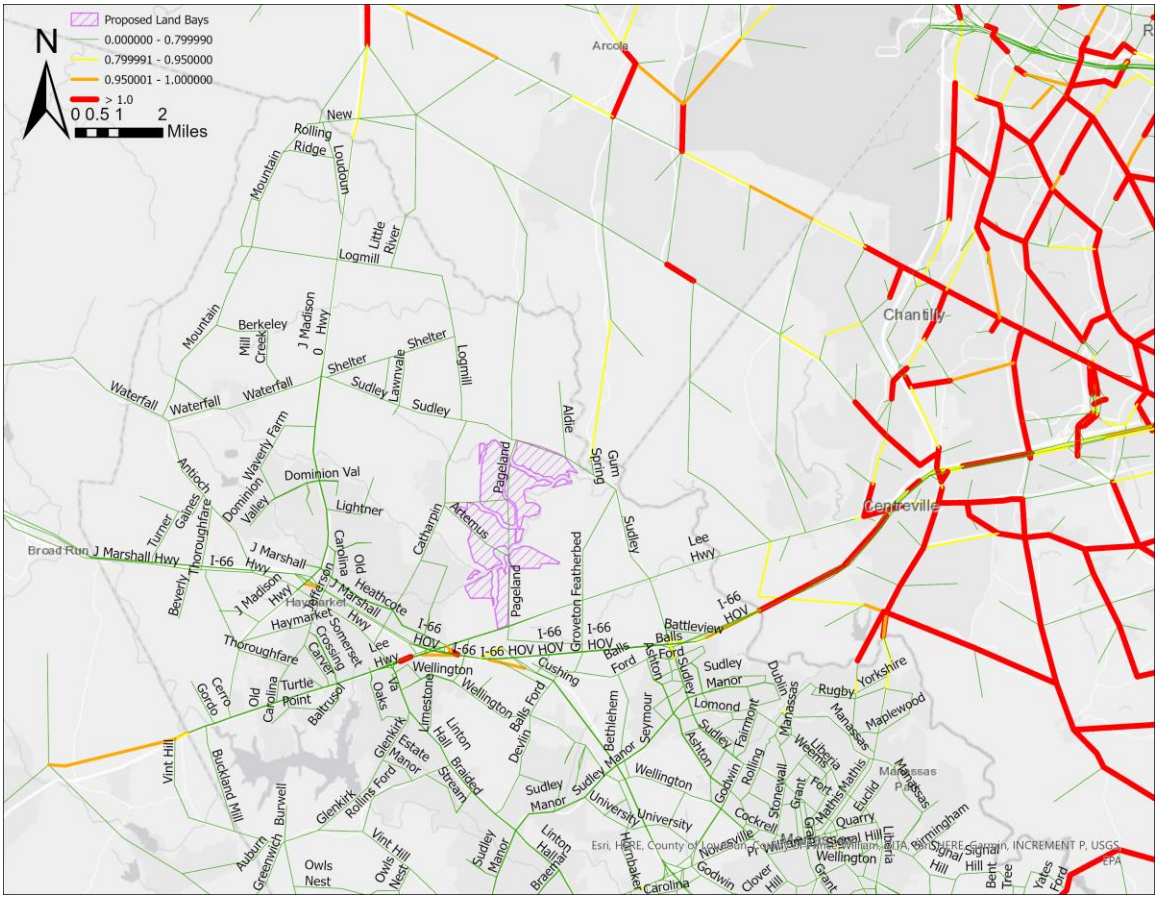


FIGURE 8: 2015 DAILY V/C RATIOS

Future Year No-Build Model Run

The Future Year No-Build Model was a model that utilized the future year networks provided by Prince William County and replicated the TAZ splits in the network and socioeconomic data file. This was done as a control to show that the TAZ splits did not change the behavior of the model.

Figure 9 shows the number of directional lanes in the future year network. These are as provided by Prince William County. Figure 10 shows the network facility types. As with the number of lanes, these are as provided by Prince William County.

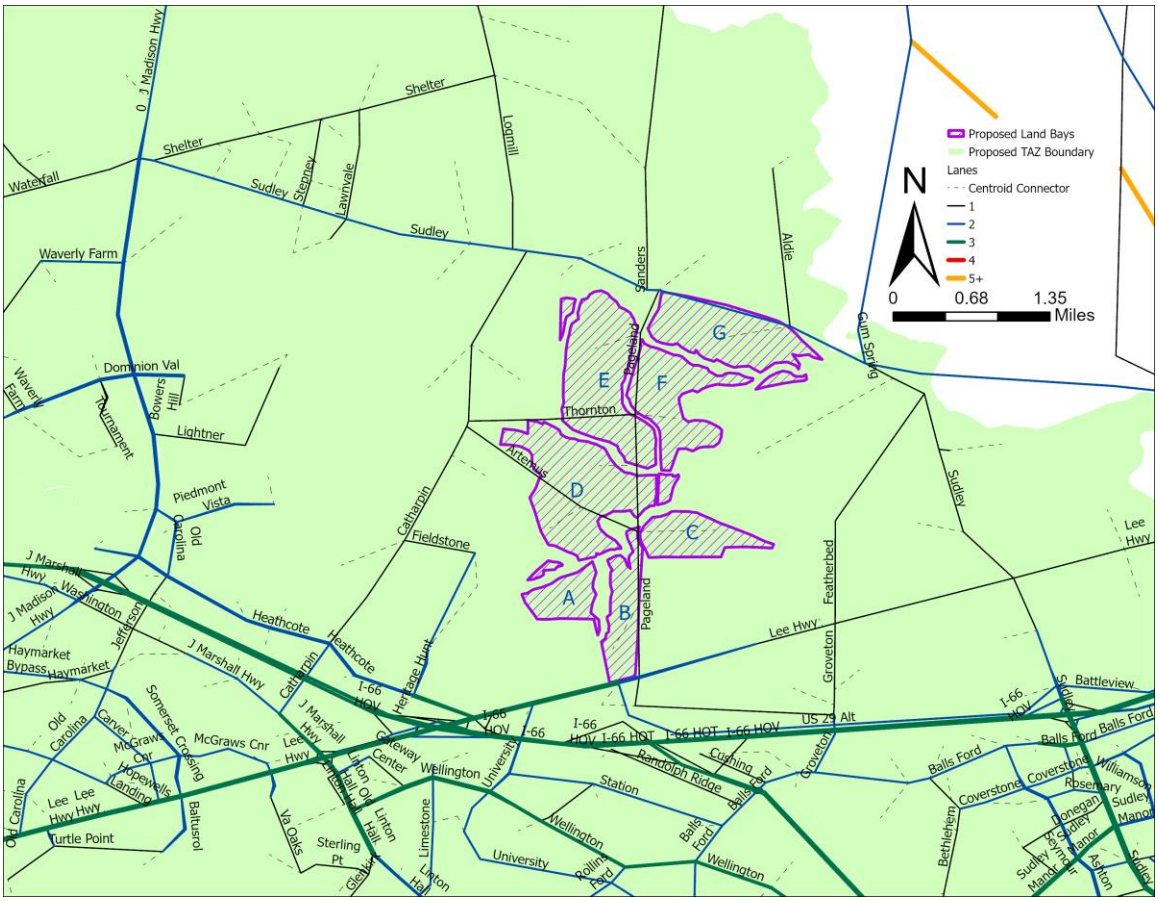


FIGURE 9: FUTURE YEAR NO-BUILD NETWORK DIRECTIONAL LANES

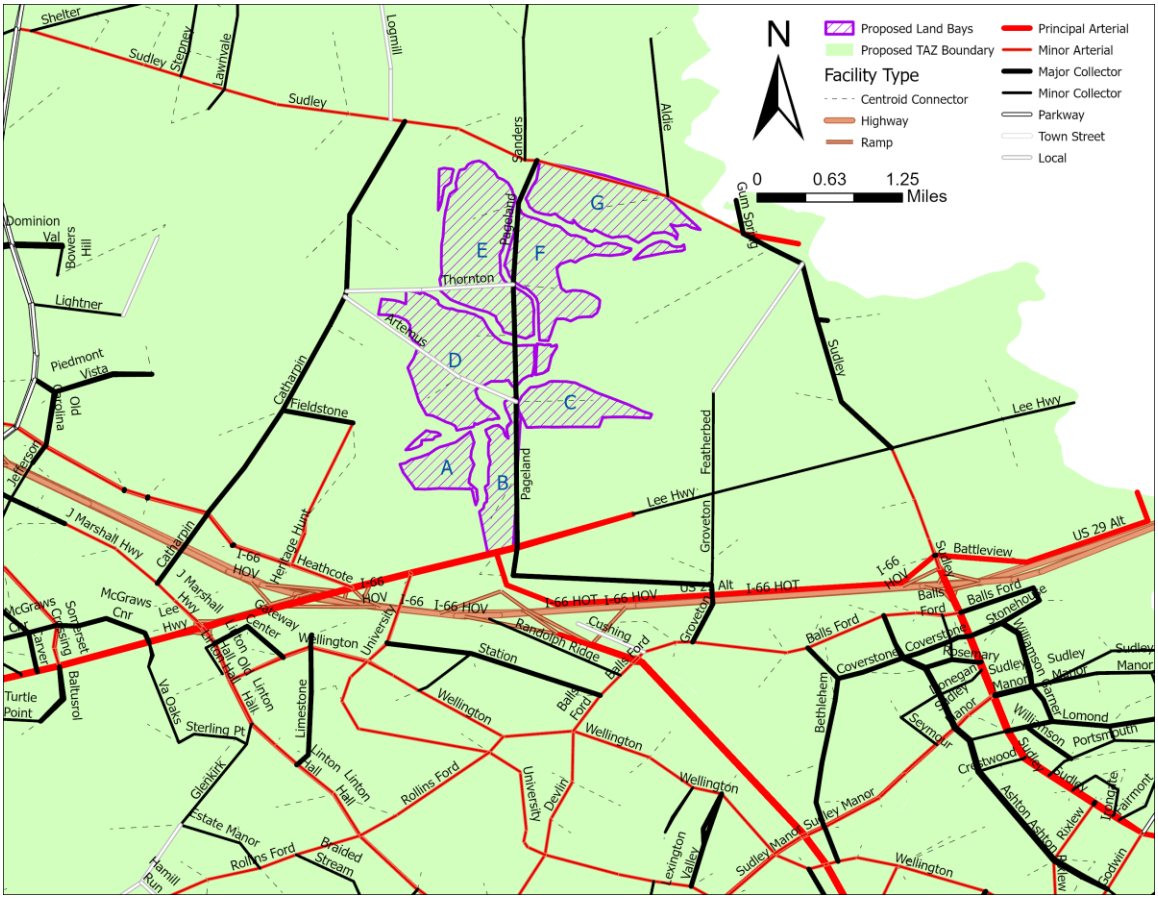


FIGURE 10: FUTURE YEAR NO-BUILD NETWORK FACILITY TYPES

Future Year No-Build Network Performance

Table 2 shows the difference in model volumes aggregated by screenline for the future year. As with the 2015 results, the future year model has changed very little after TAZ boundary and land use adjustments. A map of the five screenlines are shown in Figure 3. The volume to capacity ratio maps are shown in Figure 11 (AM peak period), Figure 12 (PM peak period), and Figure 13 (daily). The AM peak and daily congestion is isolated to spots around some of the ramps in the southern portion of the study area. The PM peak congestion does show some congestion at the northern and southern ends of Pageland Road and that Pageland Road will be approaching capacity during the PM peak period. This is primarily due to through traffic from areas to the north accessing I-66 using the existing and planned connections in the current comprehensive plan.

TABLE 2: FUTURE YEAR NO-BUILD VOLUME DIFFERENCES

SCREENLINE	ORIGINAL TOTAL MODEL VOLUME	ADJUSTED TOTAL MODEL VOLUME	MEAN ABSOLUTE DIFFERENCE	PERCENT DIFFERENCE
SL1	243,795	243,616	14.92	-0.07%
SL2	222,407	222,699	22.46	0.13%
SL3	120,791	120,515	23.00	-0.23%
SL4	365,805	366,775	34.64	0.27%
SL5	260,622	261,982	75.56	0.52%

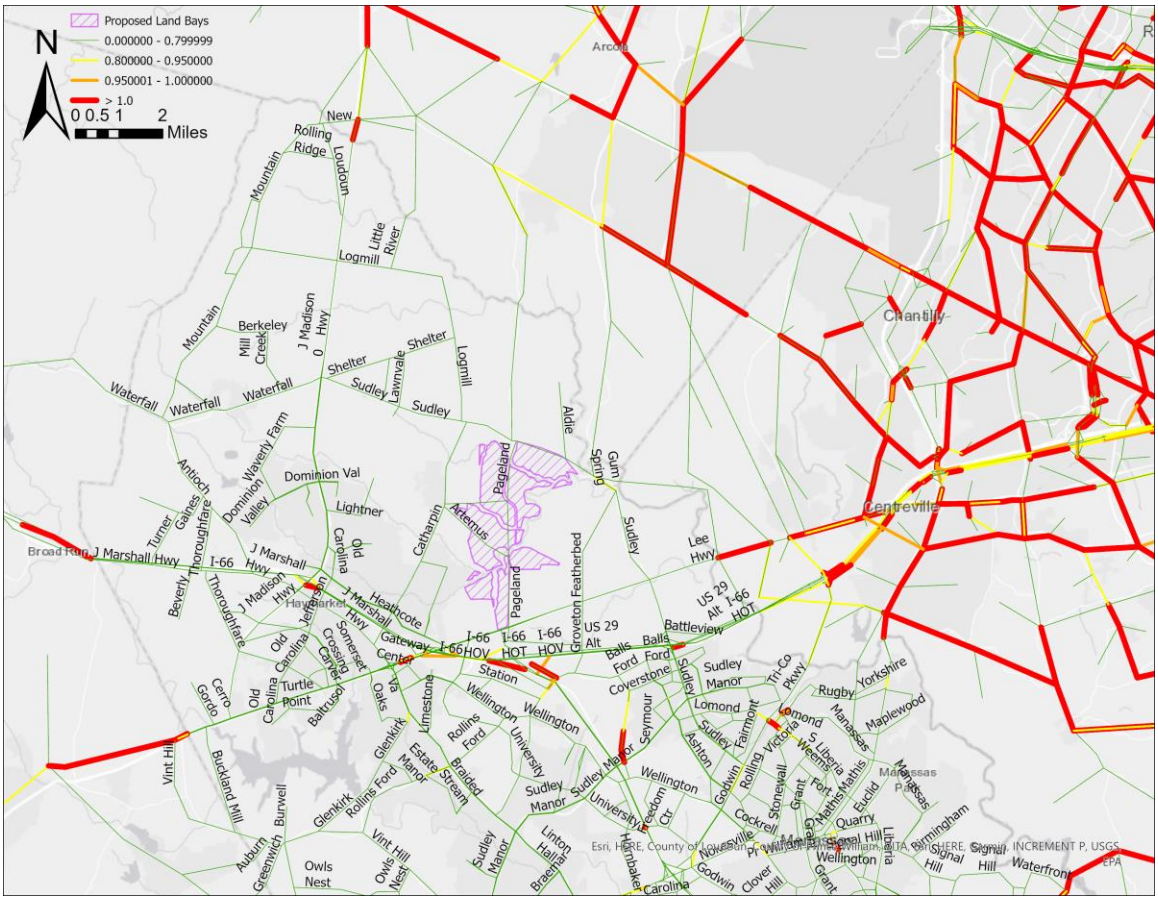


FIGURE 11: FUTURE YEAR NO-BUILD AM V/C RATIOS

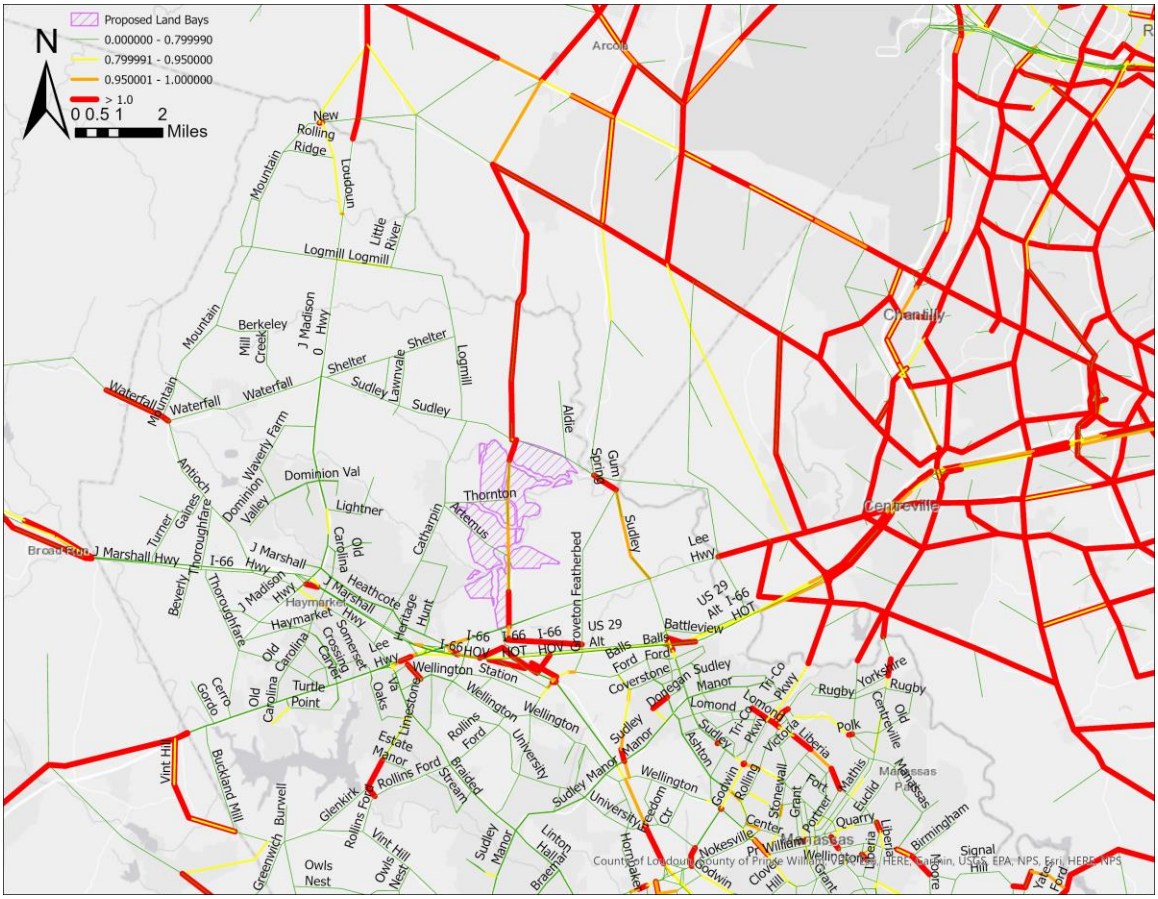


FIGURE 12: FUTURE YEAR NO-BUILD PM V/C RATIOS

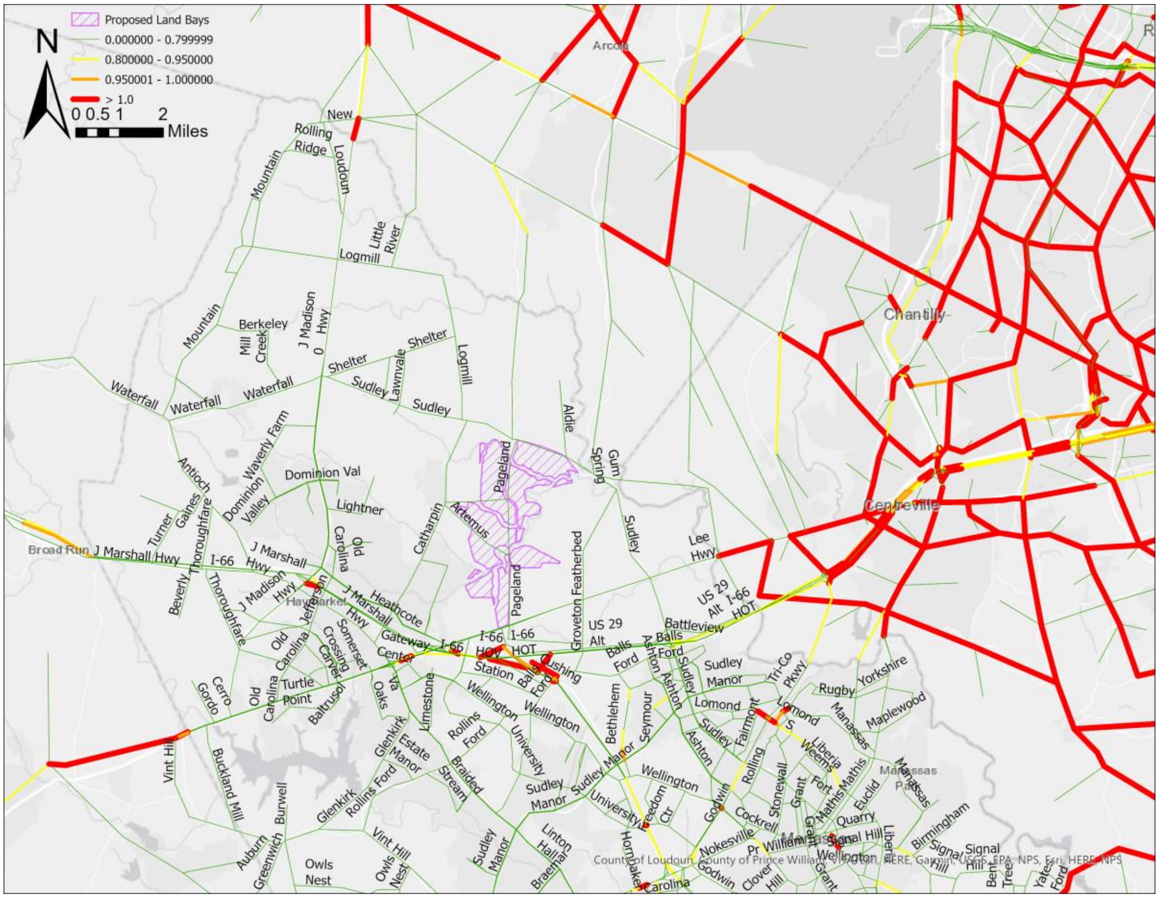


FIGURE 13: FUTURE YEAR NO-BUILD DAILY V/C RATIOS

Future Year Build Scenario Model Runs

Two build scenarios included the Digital Gateway development. The first of the two scenarios included the future year roadway network as delivered by Prince William County. The second scenario included the widening of Pageland Road to four lanes to accommodate the additional traffic caused by the development.

Future Year Build Scenario

The Future Year build scenario utilized the Future Year No-Build network assumptions, including the number of lanes shown in Figure 9 and the facility types in Figure 10, so the only change was the socioeconomic data, which included the Digital Gateway employment.

The volume to capacity ratio maps are shown in Figure 14 (AM peak period), Figure 15 (PM peak period), and Figure 16 (daily). Except for one section of Sudley Road, near the intersection of Gum Springs, all volume to capacity (V/C) ratios are under 0.8 for the AM period. For the PM period in the build scenario, Pageland Road is over capacity within the development area. For daily V/C ratios the findings are largely the same as in the

AM period. However, there is an additional roadway section that shows a V/C ratio greater than 0.8, on Pageland Road near the intersection of Artemis Road.

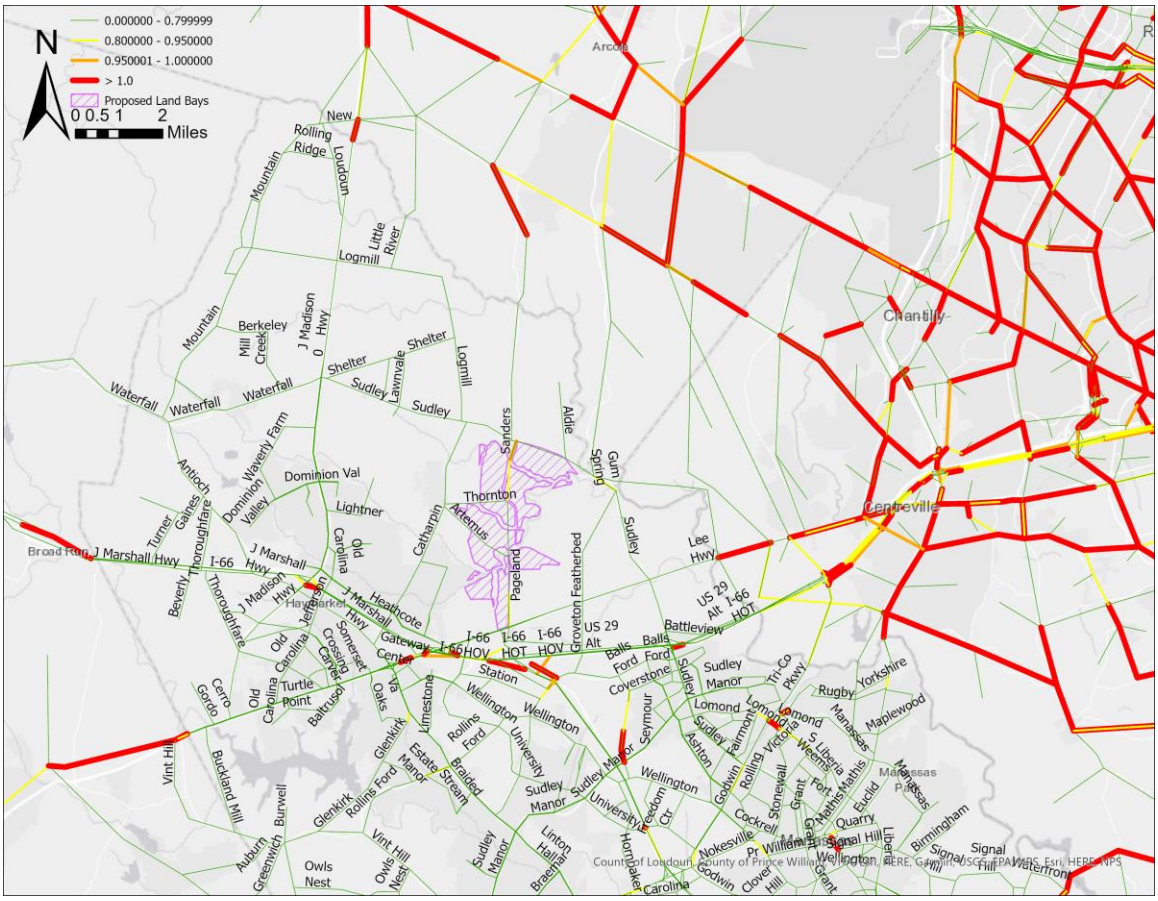


FIGURE 14: FUTURE YEAR BUILD AM V/C RATIOS

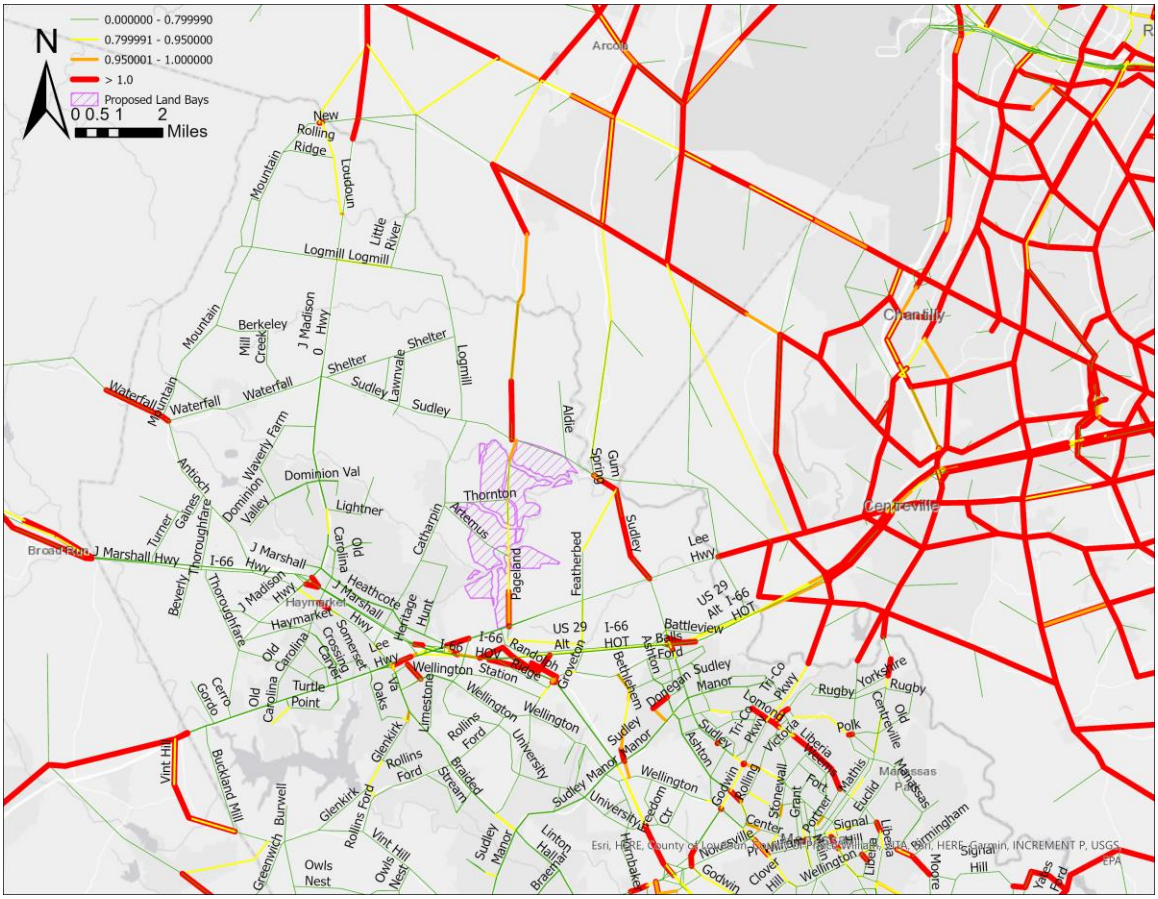


FIGURE 15: FUTURE YEAR BUILD PM V/C RATIOS

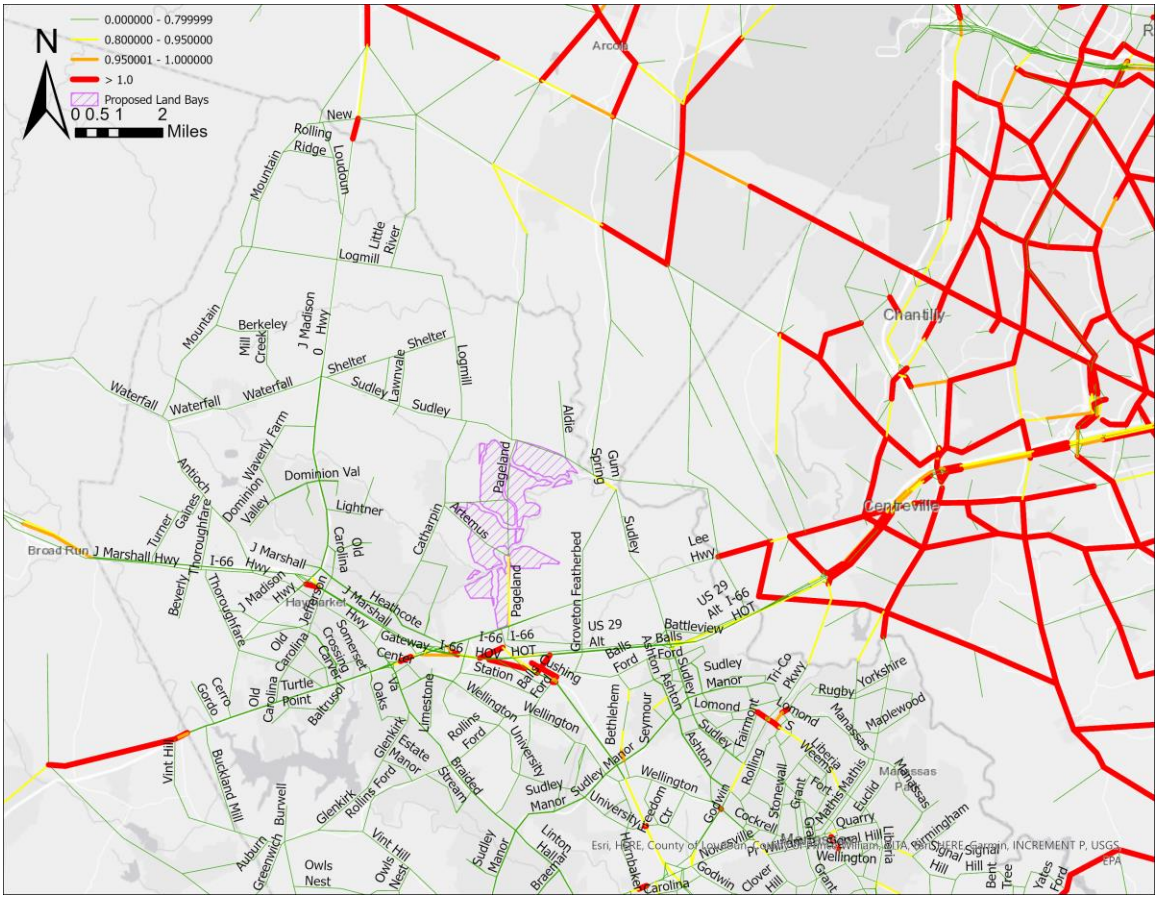


FIGURE 16: FUTURE YEAR BUILD DAILY V/C RATIOS

Future Year Build + Pageland Widening

In addition to the base, no build, and build scenarios ran for the study, an alternate scenario which widens Pageland Road to four total lanes within the development area was evaluated. The number of lanes for this scenario is shown in Figure 17, and the network facility types are shown in Figure 18.

The V/C ratio maps are shown in Figure 19 (AM peak period), Figure 20 (PM peak period) and Figure 21 (daily). The AM peak period is largely free of congestion; however, the PM peak period does approach capacity on most of Pageland Road. This suggests that intersection geometry and signal timing should be factors reviewed as part of final design to ensure adequate operational performance.

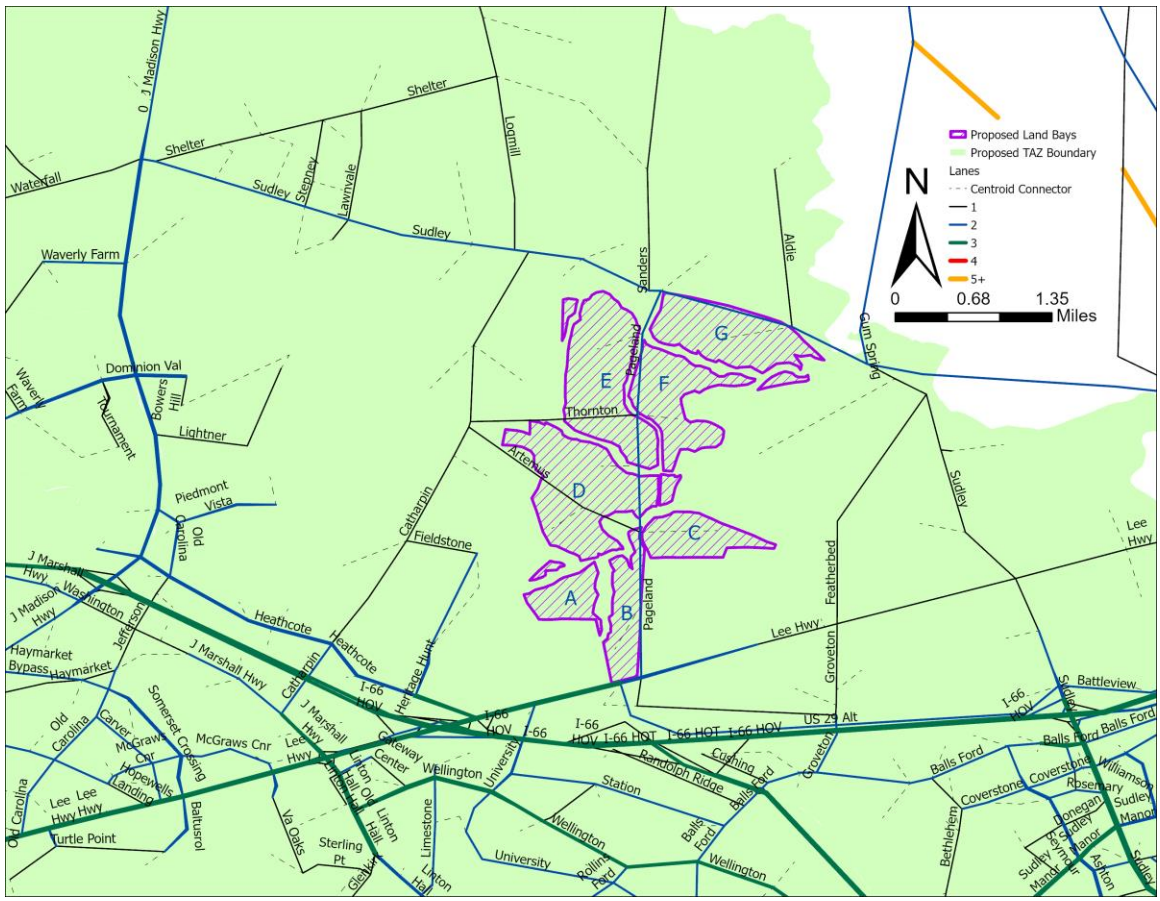


FIGURE 17: FUTURE YEAR BUILD + PAGELAND WIDENING NETWORK DIRECTIONAL LANES

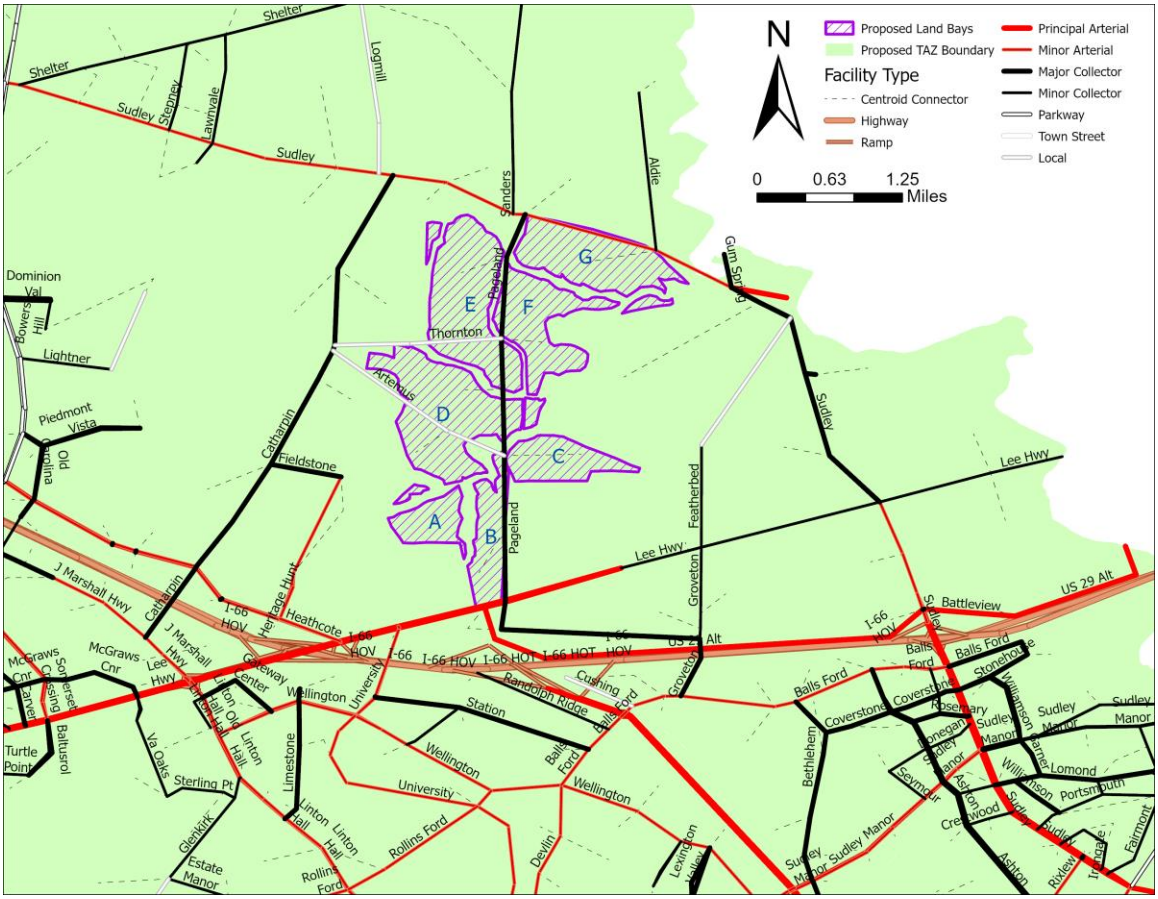


FIGURE 18: FUTURE YEAR BUILD + PAGELAND WIDENING NETWORK FACILITY TYPES

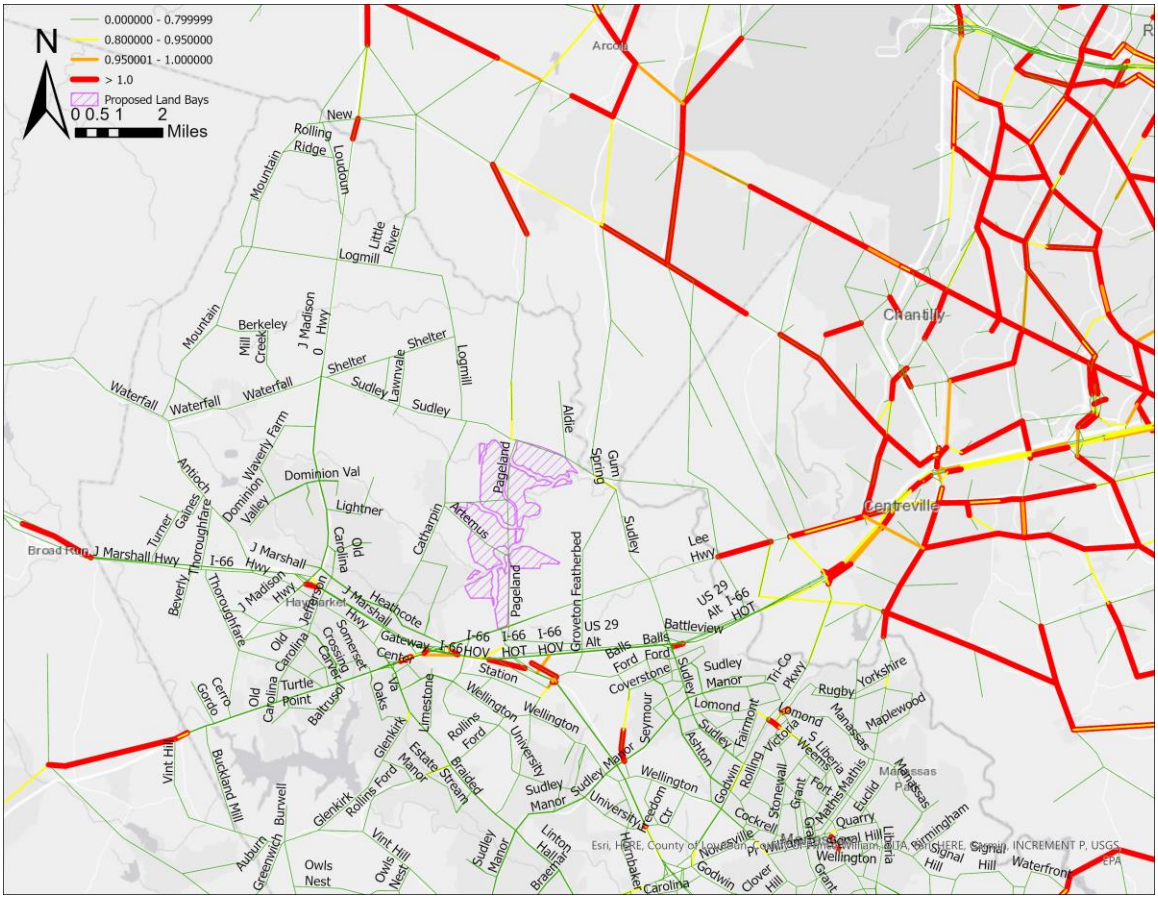


FIGURE 19: FUTURE YEAR BUILD + PAGELAND WIDENING AM V/C RATIOS

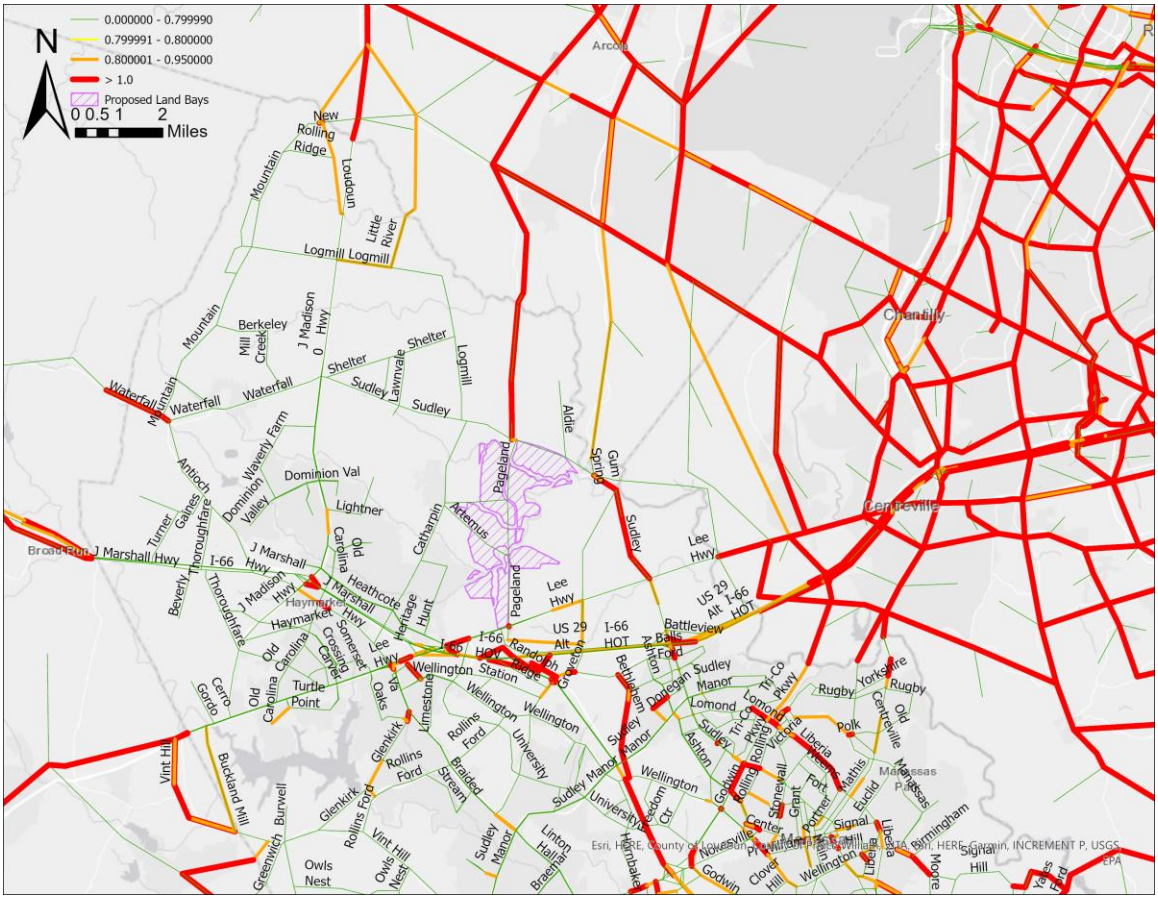


FIGURE 20: FUTURE YEAR BUILD + PAGELAND WIDENING PM V/C RATIOS

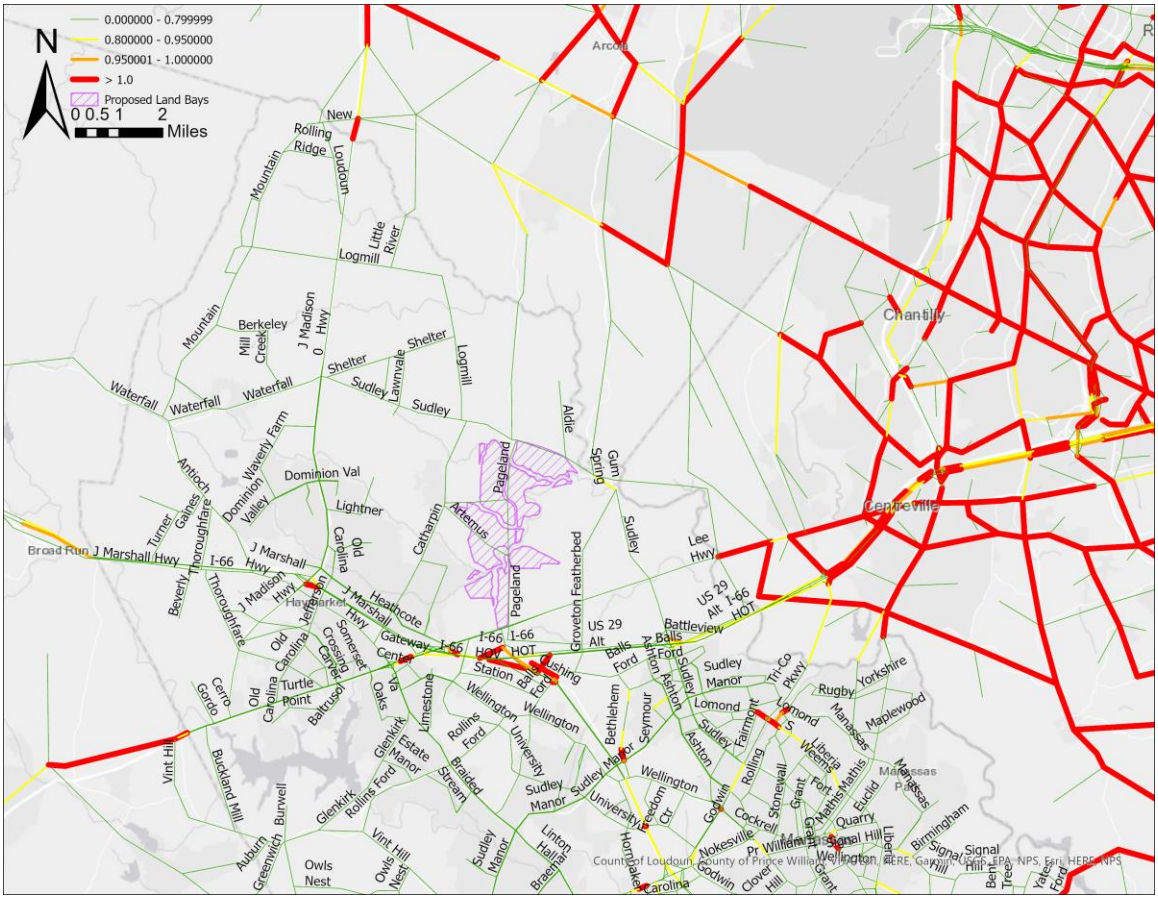


FIGURE 21: FUTURE YEAR BUILD + PAGELAND WIDENING DAILY V/C RATIOS

Digital Gateway Impact Analysis

The proximity of the Digital Gateway Development to Prince William County boundary prompted questions about the impact of the development on the area to the north of the development, which includes Loudon County. To facilitate this, we ran a select zone analysis for the Digital Gateway Development zones to see where the model assigned traffic. Figure 22 shows the daily traffic volume of the paths from the development zones for the Future Year Build scenario and Figure 23 shows the Future Year Build + Pageland Widening scenario. In both cases, traffic primarily moves to and from the southern portion of Prince William County and other counties south, followed by traffic heading to and from the east, closer to Washington DC. Some traffic does move to and from the north, but it is not a major impact.

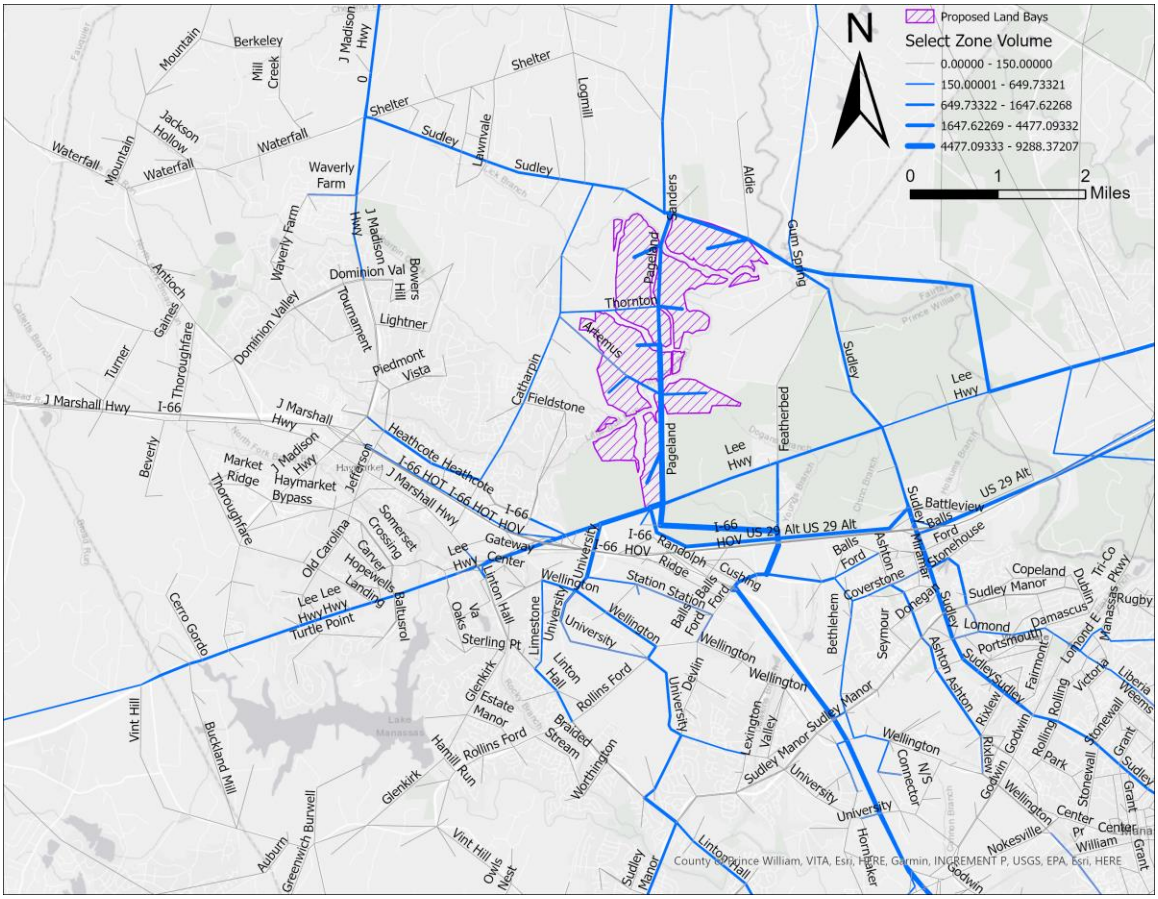


FIGURE 22: FUTURE YEAR BUILD SCENARIO SELECT ZONE DAILY VOLUME PATHS

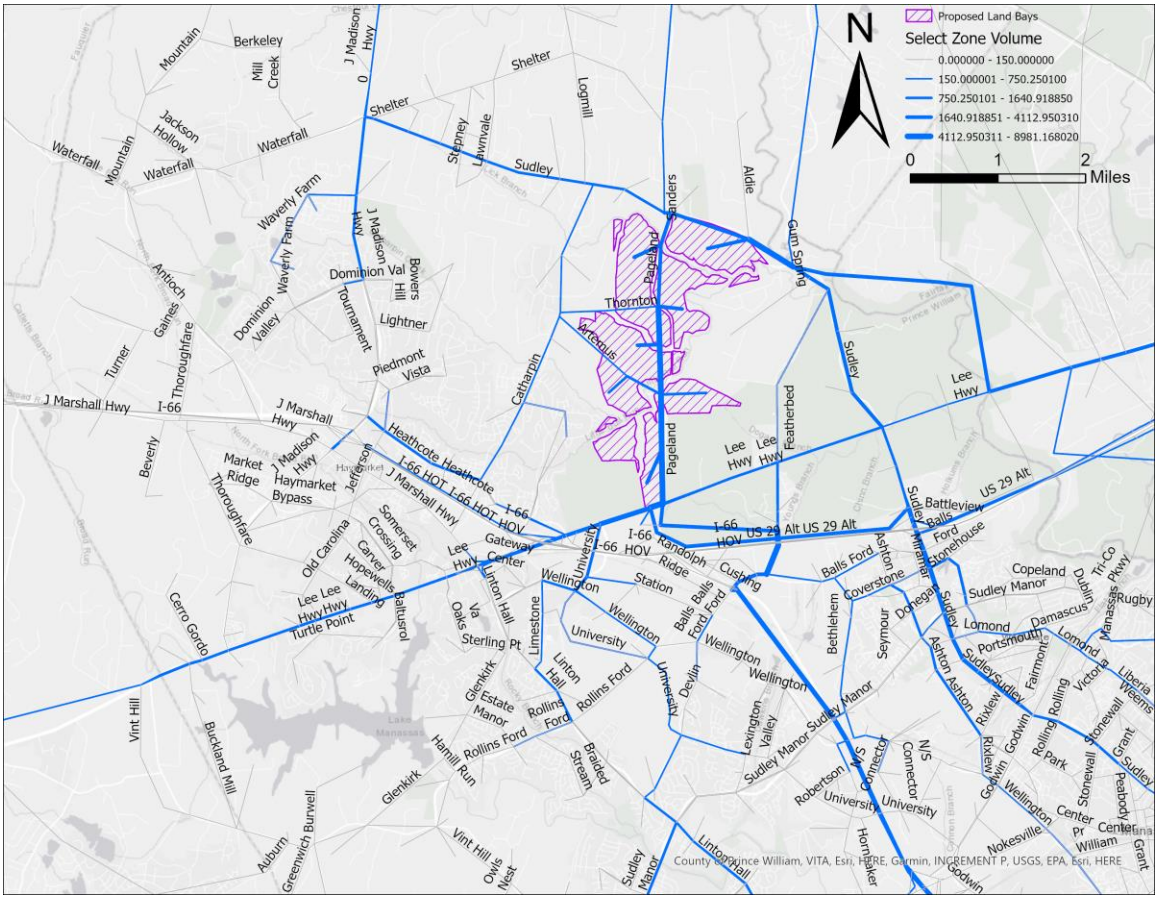


FIGURE 23: FUTURE YEAR BUILD + PAGELAND WIDENING SELECT ZONE DAILY VOLUME PATHS

Summary and Conclusions

This study evaluated the impacts of the Digital Gateway development on the future year 2030 highway network using the 2040 land use and socioeconomic data. The analysis found that in the future year, Pageland Road will be approaching congestion and for this reason, we recommend the final design of Pageland Road be evaluated to ensure intersection configurations and traffic signal timings are adequate to move traffic, and this is due to the PM peak period only.

One of the things that we noticed during this analysis is all the congestion outside of Prince William County. Since these conditions are present in the no-build scenario and since the model is designed to be used to primarily evaluate in-county performance measures, we did not investigate further. Additionally, we noticed some spot congestion on a few ramps on I-66 and Prince William Parkway. That said, these did not seem unusual since ramp capacities tend to be generalized and very sensitive to lane geometry and operational design.

One important note must be made to the model validation. The model was calibrated and validated prior to the COVID-19 pandemic. With the workplace changes we are seeing in the short-term, such as increased teleworking and reduced office trip generation, there exists some uncertainty around future year traffic levels and patterns. However, early indications are that due to peak spreading and hybrid work schedules, we would not expect volumes to be worse than the model currently forecasts.

ATTACHMENT #2
SIGNED SCOPING DOCUMENT WITH CHECKLIST

VDOT Virginia Department of Transportation	PRE-SCOPE OF WORK MEETING FORM Information on the Project Traffic Impact Analysis Base Assumptions

The applicant is responsible for entering the relevant information and submitting the form to VDOT and the locality no less than three (3) business days prior to the meeting. If a form is not received by this deadline, the scope of work meeting may be postponed.

Contact Information				
Consultant Name: Tele: E-mail:	Chad Baird, Gorove Slade Associates, Inc. 571-248-0992 chad.baird@goroveslade.com			
Developer/Owner Name: Tele: E-mail:	Digital Gateway			
Project Information				
Project Name:	Digital Gateway	Locality/County:	Prince William County	
Project Location: (Attach regional and site-specific location map)	Approximately +/-2,167 acres in northern Prince William County between Route 29 and Sudley Road. Please see Figure 1 for the site area.			
Submission Type	Comp Plan ☒	REZ/SUP ☐	Site Plan ☐	Subd Plat ☐
Project Description: (Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary)	A comprehensive plan amendment is being proposed to allow additional density for approximately +/-2,167 acres in Prince William County. The currently planned scenario would allow for data centers up to/no more than 0.30 FAR. In order to accommodate this comp plan change, the County's CUBE model will need to be updated to understand the currently planned roadway network limitations and what additional roadway improvements may be needed.			
Proposed Use(s): (Check all that apply; attach additional pages as necessary)	Residential ☐	Commercial ☐	Mixed Use ☐	Other ☒
			Data Center Use CUBE Assumptions Data Center Socioeconomic Factor: Potentially based on ITE and SF. To be coordinated with Prince William County and/or VDOT during the process.	
Total Peak Hour Trip Projection:	Less than 100 ☐	100 – 499 ☐	500 – 999 ☐	1,000 or more ☒

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Traffic Impact Analysis Assumptions					
Study Period	Existing Year: 2015		Buildout Year: N/A		Planning Year: 2040
Study Area Boundaries (Attach map)	Please see Figure 1				
External Factors That Could Affect Project (Planned road improvements, other nearby developments)	N/A				
Consistency With Comprehensive Plan (Land use, transportation plan)	No, this is for a comprehensive plan amendment. The current comprehensive plan land use for this subject area is primarily agricultural and residential. The proposed comprehensive plan amendment would allow data centers at up to a 0.30 FAR.				
Available Traffic Data (Historical, forecasts)	Prince William County CUBE Model				
Trip Distribution	Accounted for in CUBE Model				
Annual Vehicle Trip Growth Rate: (See Note 3.)	Accounted for CUBE Model	Peak Period for Study (check all that apply)	☐ AM ☐ PM ☐ SAT ☒ Daily		
		Peak Hour of the Adj. (to be used in study)	N/A		
Study Intersections and/or Road Segments (Attach additional sheets as necessary) **(Please refer to attached Figure 2 for area)**	1.	Please see Figure 1 and Figure 2	7.		
	2.		8.		
	3.		9.		
	4.		10.		
	5.		11.		
	6.		12.		
Trip Adjustment Factors	Internal allowance Reduction: N/A ☐ Yes ☐ No		Pass-by allowance Reduction: N/A ☐ Yes ☐ No		
Software Methodology	☐ Synchro ☐ HCS (v.2000/+) ☐ SIDRA ☐ CORSIM ☒ Other CUBE				

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Traffic Signal Proposed or Affected (Analysis software to be used, progression speed, cycle length)	N/A
Improvement(s) Assumed or to be Considered	Planned Comprehensive Plan Roads
Background Traffic Studies Considered	Cooperative land use forecasts
Plan Submission	☐ Master Development Plan (MDP) ☐ Generalized Development Plan (GDP) ☐ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan)
Additional Issues to be Addressed	☐ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☐ Merge analysis ☐ Bike/Ped Accommodations ☐ Intersection(s) ☐ TDM Measures ☒ Other (___Link V/C_____)

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

NOTES on ASSUMPTIONS:

1. The CUBE model will be obtained from Prince William County.
    a. The 2015 Model outputs will be verified.
2. The scenarios to be included in the study are listed below. The 2040 land use is being used for the horizon year, consistent with what is currently in the Prince William County Comprehensive Plan and model.
    a. 2040 No-Build
    b. 2040 Build Scenario (up to/no more than 0.30 FAR Data Centers with current comp plan roads)
    c. 2040 Build – Mitigated Scenario (up to/no more than 0.30 FAR Data Centers with necessary road improvements)
        i. The mitigated scenario will include the road improvements needed to offset the proposed development, which could potentially include the widening of Pageland Road and/or a connection to I-66.
3. The following MOE's will be presented from the CUBE model:
    a. Model traffic volumes on study area roadways
    b. Model volume to capacity (v/c) ratios on study area roadways
4. Screen lines to be coordinated with Prince William County and/or VDOT throughout the process or in a separate document.
5. Methodology needed to address potential zone splits to be coordinated with Prince William County and/or VDOT throughout the process or in a separate document
6. We will follow the attached Comp Plan Amendment checklist
7. Chapter 536 and Evacuation Routes will be included
8. A comparison with the available 2019 data will be included
9. A potential connection to I-66 would fall within the North-South Corridor of Statewide Significance as adopted by the 5/18/2011 CTB resolution.

SIGNED: _____ DATE: 11/12/2021
Applicant or Consultant

PRINT NAME: Chad A. Baird
Applicant or Consultant

SIGNED: _____ DATE: 11/16/21
VDOT Representative

PRINT NAME: Peter Gerner
VDOT Representative

SIGNED: _____ DATE: 11/16/21
Local Government Representative

PRINT NAME: Elizabeth D. Scullin
Local Government Representative

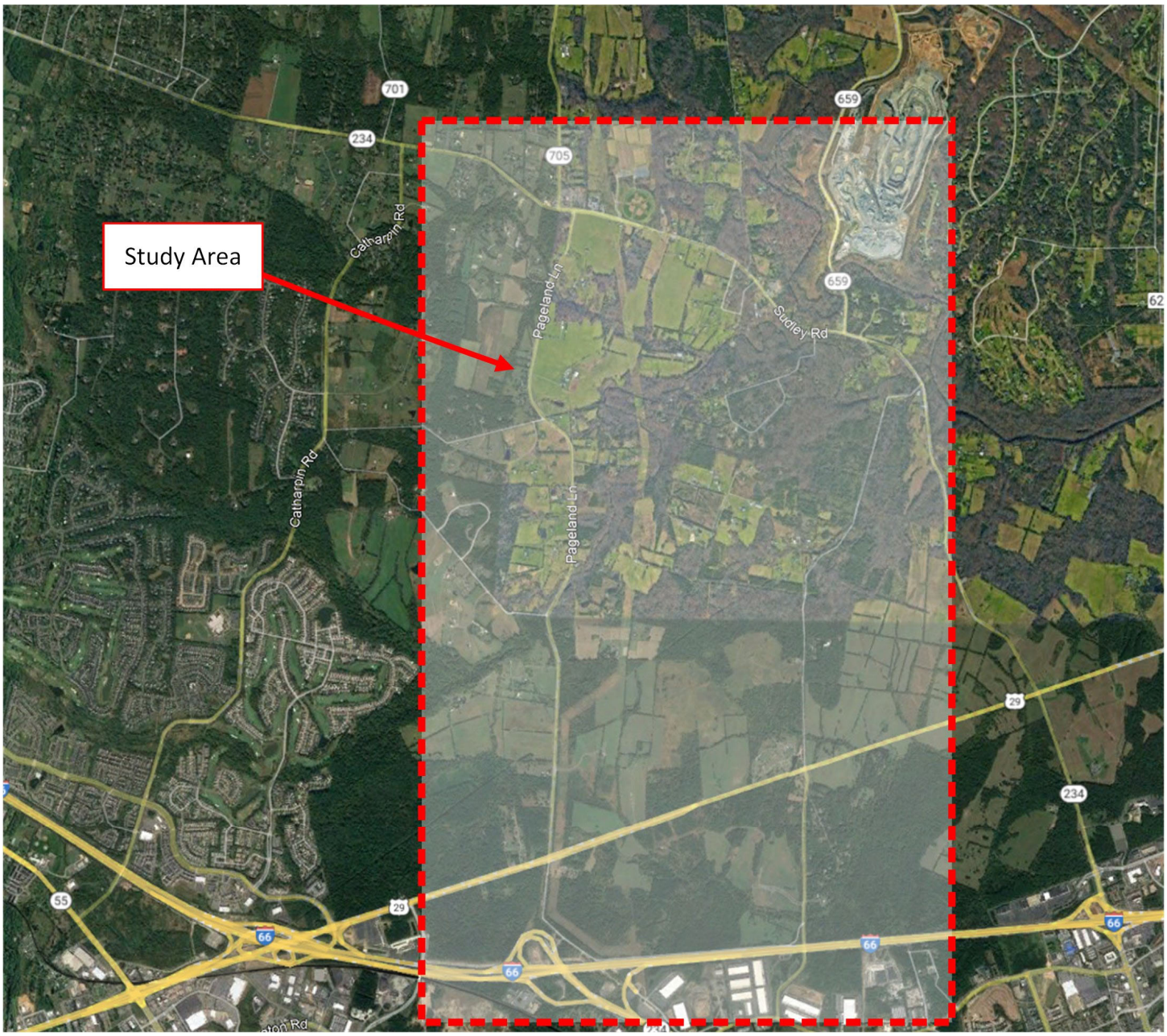
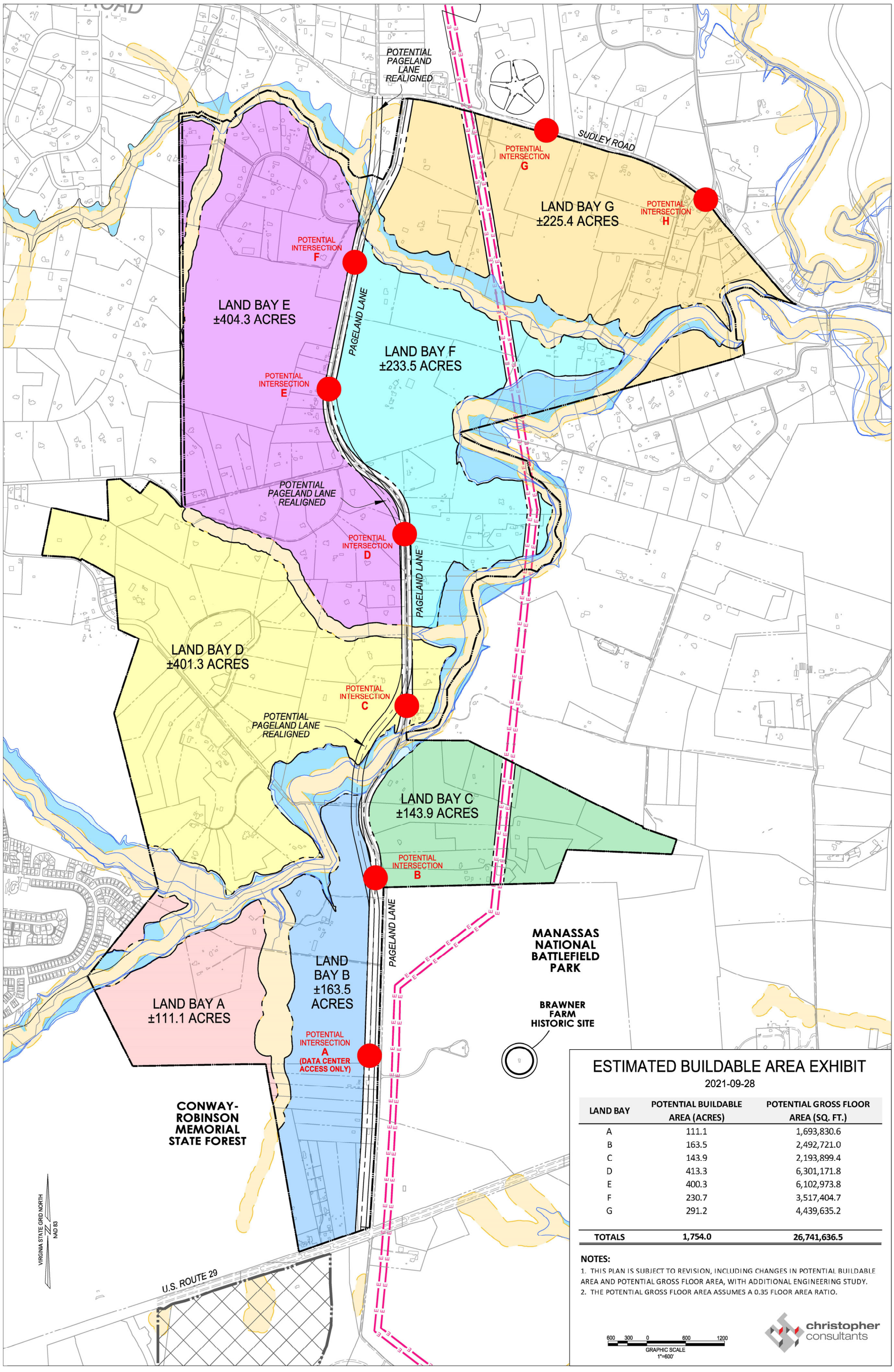


Figure 1: Study Area



LAND BAY	POTENTIAL BUILDABLE AREA (ACRES)	POTENTIAL GROSS FLOOR AREA (SQ. FT.)
A	111.1	1,693,830.6
B	163.5	2,492,721.0
C	143.9	2,193,899.4
D	413.3	6,301,171.8
E	400.3	6,102,973.8
F	230.7	3,517,404.7
G	291.2	4,439,635.2
TOTALS	**1,754.0**	**26,741,636.5**

Figure 2: Site Location (Preliminary Draft – For Information Purposes Only)

Comprehensive Plan or Plan Amendment Package Checklist
Traffic Impact Analysis Regulations: 24VAC30-155-50

For a comprehensive plan or a transportation plan, the locality shall provide:

☐ **A COVER SHEET**, containing:

- ☐ **CONTACT INFORMATION** for the locality, and
- ☐ **SUMMARY OF MAJOR CHANGES** made to the comprehensive plan or transportation plan;

☐ **THE PROPOSED COMPREHENSIVE PLAN OR TRANSPORTATION PLAN** and the following elements:

- ☐ **INVENTORY** – An inventory (written or graphic) of the existing transportation network, which shall include at a minimum all roadways within the Federal Aid system (any roadway classified as a Major or Urban Collector or higher functional classification or is included within the Federal Highway Administration's National Highway System). VDOT District staff can provide assistance regarding which roadways must be included in the inventory.

- ☐ **ASSUMPTIONS** – Planning assumptions directly influence the demand placed on the transportation system. Details on the planning assumptions shall include, but need not be limited to population growth, employment growth, and location of critical infrastructure such as water and sewer facilities.

- ☐ **NEEDS ASSESSMENT** – Written or graphic evaluation of the transportation systems current and projected performance and conditions. This evaluation should compare the existing transportation system with the future land use policies and maps in order to determine how future growth will affect the transportation system.

  The needs assessment will identify specific deficiencies based on current conditions as well as future improvements to serve the quantity, type, location, and density of anticipated development based on the future land use policies and maps.

  It is not necessary to have the identification of specific deficiencies prepared by a transportation professional. It could be a list of transportation facilities that, in the experience of the citizens, Planning Commission, or governing board, are deficient.

- ☐ **RECOMMENDATIONS** – Proposed improvements or additions to transportation infrastructure.

  Recommendations should be specific so that the need, location and nature of the proposed improvements are clear and understandable. The recommendations should address some or all of the needs identified in the needs assessment step, above.

  Proposed transportation additions/improvements consistent with the future land use policies and map.

  Localities are encouraged to include pedestrian, bicycle, transit, rail and other multi-modal recommendations as they deem appropriate.

  - ☐ **MAP** - The transportation plan shall include a map showing road and transportation improvements, taking into account the current and future needs of residents in the locality while considering the current and future needs of the planning district within which the locality is situated.

  - ☐ **COST ESTIMATES** - Recommended improvements shall include any VDOT cost estimates.

☐ **FEES (SEE BELOW)**

For an amendment to a comprehensive plan or transportation plan, the locality shall provide:

- ☐ **A COVER SHEET**, containing:
  - ☐ **CONTACT INFORMATION** for the locality;
  - ☐ **SUMMARY OF PROPOSED AMENDMENT** or amendments to the comprehensive plan or transportation plan; and
  - ☐ **OVERVIEW** of reasoning and purpose for amendments.
- ☐ **APPLICATION FORMS** and documentation presented to or prepared by the local jurisdiction,
- ☐ **ASSOCIATED MAPS OR NARRATIVES** that depict and detail the amendment under consideration,
- ☐ **ANY CHANGES** to the planning assumptions associated with the amendment, and
- ☐ **LOCAL ASSESSMENT** of the potential impact it may have on the transportation system.
- ☐ **ELEMENTS IDENTIFIED ABOVE** (4th checkbox) that VDOT determines are needed in order to review and comment on impacts to state-controlled highways.
- ☐ **FEES (SEE BELOW)**

For a small area plan amendment to a comprehensive plan, the locality shall provide:

- ☐ **A COVER SHEET**, containing:
  - ☐ **CONTACT INFORMATION** for the locality;
  - ☐ **SMALL AREA PLAN DETAILS**:
    - ☐ **LOCATION**;
    - ☐ **HIGHWAYS** and **TRANSIT FACILITIES** adjacent to the site;
    - ☐ **PARCEL NUMBER** or NUMBERS; and
    - ☐ PROPOSAL SUMMARY with development names, size, and proposed zoning.
- ☐ A TRAFFIC IMPACT STATEMENT prepared in accordance with 24VAC30-155-60.
- ☐ A PLAN OF DEVELOPMENT for the area encompassed by the small area plan.

Fees

- ☐ A $1,000 FEE paid by the applicant for the initial or second review of a comprehensive plan, an amendment to the plan, or a small area plan amendment to the comprehensive plan.
- ☐ A $1,000 FEE paid for a third or subsequent submission of a comprehensive plan, plan, or a small area plan amendment that is requested by VDOT on the basis of the failure of the applicant to address deficiencies previously identified by VDOT.

NOTE: NO FEE is charged by VDOT if the comprehensive plan, plan amendment, or **small area plan** amendment is initiated by a locality or public agency.

NO FEE is charged by VDOT to a citizens' organization or neighborhood association that proposes comprehensive plan amendments through its local planning commission or local governing body.

ATTACHMENT #3
SUPPLEMENTAL TRANSPORTATION INFORMATION MEMORANDUM

TECHNICAL MEMORANDUM

To:	Peter Gerner	VDOT
From:	Chad Baird Kayla Ord, PE Sumedh Khair, EIT	Gorove Slade
Date:	December 16, 2021	
Subject:	**PW Digital Gateway Corridor (CPA #2021-00004) – Supplemental Transportation Memo**	

Introduction

This memorandum serves as a supplement to the Comprehensive Plan Amendment application, including the elements required as part of the submission to Virginia Department of Transportation (VDOT) required by the guidelines (24VAC30-155). This memorandum aims to provide supplemental information so that VDOT may evaluate the system of new and expanded transportation facilities, outlined in the transportation plan, that are needed to support the current and planned development of the territory covered by the plan. For the Comprehensive Plan Amendment, the following checklist items are included with this memorandum:

1) Inventory
2) Cost Estimates

In addition to the above items, the memorandum will satisfy the VDOT Chapter 536 requirements and the Homeland Security Evacuation Route requirements.

Inventory

An inventory of the existing transportation network is given below in Table 1, which includes all roadways within the study area, as well as roadways classified within the National Highway System:

Table 1: Inventory of Surrounding Transportation Network

Roadway	RTE #	VDOT Classification	Prince William County Classification	# of Existing Lanes(2021)	Speed Limit (mph)	2019 AADT (vpd)	Road Segment Between:	
Sudley Rd	VA-234N	Major Collector	Minor Arterial	2	50	11,000	76-659 Gum Springs Rd	US 15 James Madison Hwy
Catharpin Rd	SC-676N	Major Collector	Major Collector	2	40	5,200	SR 55 John Marshall Hwy	SR 234 Sudley Rd
Pageland Ln	SC-705N	Major Collector	Major Collector	2	45	6,800	US 29 Lee Hwy	SR 234 Sudley Rd
Gum Spring Rd	SC-659N	Local Road/Not Classified	Local Road	2	45	18,000	SR 234 Sudley Rd	Loudoun County Line
Sanders Ln	SC-705N	Local Road/Not Classified	Local Road	2	45	1,600	SR 234 Sudley Rd	Loudoun County Line
Lee Hwy	US-29	Urban/Rural Minor Arterial	Principal Arterial/Major Collector	4	45	21,000	I-66 E of Gainesville	76-705 Pageland Lane

Chapter 536 Requirements and Evacuation Routes

Chapter 536 Requirements

Per the Chapter 536 Code, the v/c ratio for the higher classification roads are provided. The table below shows the daily v/c ratios of the four scenarios from the CUBE study (Attachment #1), which include Base Year, Future Year No Build, Future Year Build, and Future Year Build with Pageland Lane Widened to 4 lanes. It is observed that the v/c Ratios for these 4 scenarios are all less than 1.00, denoting enough capacity on the roadways.

Table 2: Comparison of V/C Ratios for the Roadways in the Study Area

Roadway Segment	Daily V/C Ratio(Base Year)	Daily V/C Ratio(Future No Build)	Daily V/C Ratio (Future Year Build)	Daily V/C Ratio (Future Year Build w/Pageland Widening)
Pageland Ln	0.00-0.79	0.00-0.79	0.79-0.95	0.00-0.79
Sanders Ln	0.00-0.79	0.00-0.79	0.00-0.79	0.00-0.79
Sudley Rd	0.00-0.79	0.00-0.79	0.00-0.79	0.00-0.79
Catharpin Rd	0.00-0.79	0.00-0.79	0.00-0.79	0.00-0.79
Gum Springs Rd	0.00-0.79	0.00-0.79	0.00-0.79	0.00-0.79
Lee Hwy	0.00-0.79	0.00-0.79	0.00-0.79	0.00-0.79

Homeland Security Evacuation Routes

As identified by the VDOT Evacuation Study shown in Figure 1 (obtained from the VDOT Safety, Security, & Emergency Management Section), Sudley Rd, Gum Springs Rd and Lee Hwy are identified in purple as Primary Evacuation Routes. These routes are planned to be used in the event of a Homeland Security emergency and serve the study area. In order to assess the potential impacts on evacuation in an emergency event and the potential need for mitigations, Table 2 provides the daily v/c ratios for these 3 primary evacuation routes in the study area to understand their capacity. As shown, all the three roadways are anticipated to operate acceptably, having enough capacity as determined by v/c ratios given in Table 2. Therefore, no mitigations to these evacuation routes are planned.

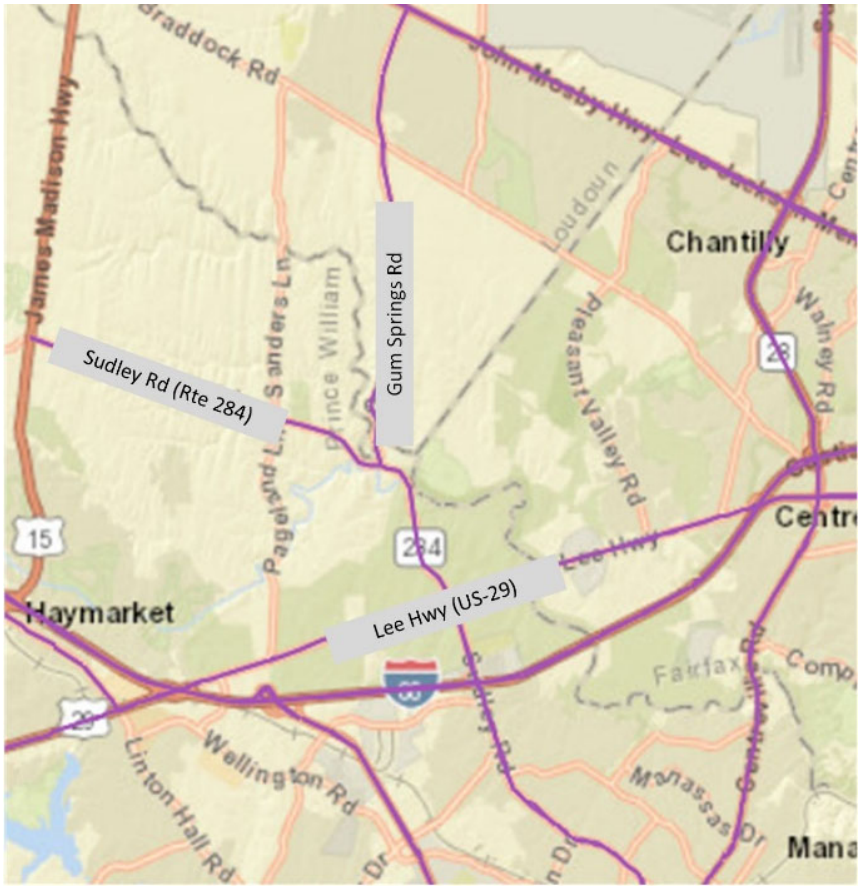


Figure 1: Evacuation Routes Map (VDOT)

Cost Estimate

This section provides a preliminary cost estimate for the proposed Pageland Lane widening. As noted, the planned improvement would widen the road to four lanes and include intersections and a pedestrian path on the east side. The preliminary cost estimate is shown in Table 3, and as shown the recommended improvement is anticipated to cost approximately $90M.

Table 3: Preliminary Cost Estimate

TRANSPORTATION INFRASTRUCTURE IMPROVEMENTS

OPINION OF PROBABLE COST - PROPOSED PUBLIC INFRASTRUCTURE

PW Digital Gateway

Prince William County, Virginia

December 16, 2021

PAGELAND LANE	**QUANTITY**[1]	**UNIT**	**ANTICIPATED COST**	**BUDGET**
MA-1 Typical Section (4 Lanes)	73,920	LANE/FT	$ 750.00	$ 55,440,000.00
Demo of Existing Road	42,000	SY	$ 50.00	$ 2,100,000.00
Major Stream Crossing	3	Crossing	$ 750,000.00	$ 2,250,000.00
New Unsignalized intersections with Turn Lanes	11	Intersections	$ 200,000.00	$ 2,200,000.00
New Major Intersections with Turn Lanes	6	Intersections	$ 600,000.00	$ 3,600,000.00
Existing Signal Modifications	2	Signal	$ 500,000.00	$ 1,000,000.00
New Signals	6	Signal	$ 500,000.00	$ 3,000,000.00
			Subtotal	$ 69,590,000.00
			30% Contingency[2]	$ 20,877,000.00
			Opinion of Probable Cost	**$ 90,467,000.00**

Notes:

1. Quantities based on the an approximate 3.5 mile 4-lane road and engineering judgement

2. Accounts for ROW, utility, and other

ATTACHMENT #4
APPLICATION SUBMISSION

christopher consultants

November 2, 2021

SENT BY HAND-DELIVERY AND EMAIL
Mr. Bryce Barrett
Senior Planner
Prince William County Planning Office
5 County Complex Court, Suite 210
Prince William, Virginia 22192

RE: Submission of Post Initiation Materials for Comprehensive Plan Amendment
(CPA #2021-00004) PW Digital Gateway Corridor
christopher #20143.002.00

Dear Mr. Barrett:

Please find attached the following items:

A. One (1) copy of the modified Adjacent Property Owners List (both PDF and Excel) and Affidavit
B. One (1) signed addendum to the CPA initiation request form identifying an additional Agent
C. One (1) Special Power of Attorney identifying Odin, Feldman & Pittleman, P.C. (John L. McBride, Esq. and Noah B. Klein, Esq.) as additional agents for this application
D. Twenty-five (25) copies of a Comprehensive Plan Written Analysis Narrative (including Area Characteristics)
E. Twenty-five (25) copies of a description of the Environmental Resources; and
F. Twenty-five (25) copies of a Project Exhibit Brochure (Sheets 1-10).

We look forward to working with you and other County staff on this CPA review. Thank you for your courtesies in this regard.

Sincerely,

Michael Kitchen, PE
Vice President

Enclosures
cc: Mary Ann Ghadban
Steven Grant
John McBride
Chad Baird
Russ Forno
Noah Klein

ADDENDUM TO THE
Comprehensive Plan Amendment Initiation Request Form
TO THE BOARD OF COUNTY SUPERVISORS OF PRINCE WILLIAM COUNTY, VIRGINIA

Project Name: PW DIGITAL GATEWAY CORRIDOR (CPA2021-000040)

Application Type (check one): ☐ **Annual CPA Review** ☒ **Out of Turn CPA**

The undersigned, being all of the owner(s), contract purchasers, or the respective duly authorized agent thereof, do hereby petition to change the Comprehensive Plan as shown on the accompanying plans, maps, and graphics which are made part of this application, as follows[1]:

GPIN	From:	To:	Acres
		Total Acreage:	NO NEW GPIN'S TO BE ADDED TO THIS ADDENDUM.

Property Location (Describe the location of the property by distance, in feet or portion of a mile, and direction from an intersection of two (2) public roads or streets):

[1]Applicable only to Long-Range Land Use Map changes. GPINs not required for text change requests.

The name(s), mailing address(es), and telephone number(s) of owner(s), authorized agent(s), contract purchaser(s)/lessee(s), and engineer(s) as applicable are:

☐ **Owner of Property***

Name:
Mailing Address:
City/State/Zip:
Phone:
Email:

☐ **Authorized Agent(s)***

Name: JOHN L. McBRIDE AND NOAH B. KLEIN
Mailing Address: c/o ODIN, FELDMAN & PITTLEMAN, P.C. 1775 WIEHLE AVENUE, SUITE 400
City/State/Zip: RESTON, VIRGINIA 20190
Phone: 703 218 2133
Email: JOHN.MCBRIDE@OFPLAW.COM

☐ **Contract Purchaser/Lessee***

Name:
Mailing Address:
City/State/Zip:
Phone:
Email:

☐ **Engineer***

Name:
Mailing Address:
City/State/Zip:
Phone:
Email:

*Check the box next to the contact to which correspondence should be sent.

I have read this application, understand its intent, and freely consent to its filing. Furthermore, I have the power to authorize and hereby grant permission to Prince William County officials and other authorized government agents on official business to enter the property as necessary to process this application.

Signed this 20th day of October, 2021.

Signature of ~~Owner~~ MARY ANN GHADBAN, AUTHORIZED AGENT FOR OWNER

(If anyone other than owner is signing, Power of Attorney must be attached.)

Special Power of Attorney Affidavit

COMMONWEALTH OF VIRGINIA
COUNTY OF PRINCE WILLIAM

This 26TH (day) day of October (month), 2021 (year),

I, MARY ANN GHADBAN, AGENT FOR, owner of
GPIN'S IN CPA2021-000040 (describe land by Grid Parcel Identification Number (GPIN))
make, constitute, and appoint JOHN L. McBRIDE, ESQ. AND NOAH B. KLEIN, ESQ. OF ODIN, FELDMAN & PITTLEMAN, P.C.,
my true and lawful attorney-in-fact, and in my name, place and stead giving unto said
JOHN L. McBRIDE, ESQ. AND NOAH B. KLEIN, ESQ. OF ODIN, FELDMAN & PITTLEMAN, P.C. full power and authority to do and perform all
acts and make all representation necessary, without any limitation whatsoever, to make application for said
Comprehensive Plan Amendment.
The right, powers, and authority of said attorney-in-fact herein granted shall commence and be in full force and effect on
OCTOBER 29, 2021, and shall remain in full force and effect
thereafter until actual notice, by certified mail, return receipt requested is received by the Office of Planning of Prince
William County stating that the terms of this power have been revoked or modified.

~~Owner~~
MARY ANN GHADBAN, AGENT FOR OWNER

COMMONWEALTH OF VIRGINIA:

County of Prince William

Subscribed and sworn to before me this 26TH day of October, 2021 in my
county and state aforesaid, by the aforenamed principal.

Notary Public

My commission expires: 2/28/2023

KATHRYN S. NEAL
NOTARY PUBLIC
REG # 7608069
MY COMMISSION EXPIRES
2/28/2023
COMMONWEALTH OF VIRGINIA

Written Analysis Narrative and Suggested Plan Policies
PW Digital Gateway Corridor
CPA #2021-00004

I. Introduction and Summary

Adoption of this Plan Amendment (CPA #2021-00004) will amend both the text and Long-Range Land Use Map classifications (from Agricultural or Estate (AE) + Environmental Resource (ER) to Technology/Flex (T/F) + Environmental Resource (ER)) in the current Comprehensive Plan on approximately 2,133 acres located in western Prince William along Pageland Lane (the "Corridor"), as shown on the separate Application "Brochure Sheet 8". The Corridor will be removed from the "Non-development" Area and added to the "Development Area" by an adjustment to the Rural Area Boundary. This Plan Amendment was initiated by resolution of the Prince William Board of County Supervisors ("BOCS") during its July 20, 2021 meeting. The BOCS Resolution is attached as Exhibit A. A majority of the land within the Corridor is owned by Applicants and supporters of this CPA effort, as shown on Brochure Sheet 2.

The vicinity of the land subject to this CPA is shown on Brochure Sheet 1. Approved nearby development and uses are shown on Brochure Sheet 3 and described in the *Area Characteristics* section herein. Photographs of land within the Corridor are shown on Brochure Sheets numbered 4 and 5. The existing topography and other natural features of land within the Corridor are shown on Brochure Sheet 7 and described in a separate *Description of Environmental Resources* (prepared by Christopher Consultants).

These Long Range Land Use Map and Plan text amendments (the "CPA") seek to make available, subject to rezoning, a significant amount of additional land for new data center facilities (with ancillary offices) in Prince William. Data centers are a *Targeted Industry* commercial tax base use, which is a critical component of the County's adopted *Strategic Plan* and *Economic Development Program*. Approval of this CPA is a significant *Economic Development Initiati*ve, that is needed now because the supply of data center planned and zoned land is quickly being outpaced by increasing demand in Prince William. Re-classifying the Corridor to allow this commercial "employment" use is critical to ensure future economic growth and vitality for Prince William. Concentrating new additional data centers within the Corridor will allow well-suited Industrial and Employment planned land located elsewhere to remain available for a diversity of other commercial tax base

and employment uses - like light industrial, flex commercial and specialized logistics/supply chain facilities. This will prevent a "data center only" economy.

The data center *Targeted Industry* use envisioned by this CPA will be limited to an overall floor area ratio ("FAR") not to exceed 0.30, because of the Corridor's proximity to the Manassas National Battlefield Park to the east and low density rural uses to the west. This maximum FAR is significantly lower than the 0.54 maximum FAR recently approved for the adjacent Gainesville Crossing Data Center Campus (located across Route 29) and the 1.0 maximum FAR allowed within the Data Center Opportunity Zone Overlay District (located across I-66). Individual sites within the Corridor may be rezoned at higher or lower FARs than 0.30, so long as the cumulative average within the Corridor remains no more than a 0.30 FAR. Building heights will range between 1-2 floors proximate to the Manassas National Battlefield Park and the Heritage Hunt Community to the west, and shall be no greater than three (3) floors elsewhere in the Corridor. The maximum height of buildings will be determined at the time of each rezoning by site-specific line of sight analyses, digital imaging and balloon testing, so as to minimize their visibility to eight key locations within the Manassas National Battlefield Park and to abutting homes within Heritage Hunt.

Pageland Lane within the Corridor will be upgraded to a four-lane divided Parkway, with a major north-south pedestrian/bicycle trail on its east side. This upgrade will be phased over an extended period, to coincide with the timing and location of new data center clusters. This upgrade will reduce and consolidate access locations along Pageland Lane, thereby helping to relieve the current traffic congestion. After the establishment of data centers within the Corridor and completion of the Pageland Lane upgrade, consideration should be given to prohibiting heavy commercial through-truck traffic on Old Sudley Road between Route 29 and Gum Springs Road.

Specific Plan text amendments are suggested herein. These Plan text amendments establish action strategies and criteria to ensure the protection of the natural environment, nearby residences and historic cultural assets. These amendments are intended to ensure that appropriate and context-sensitive: (i) building design, non-reflective colors and materials, height and setbacks; (ii) berming and other visual screening; (iii) reforestation & preservation of existing forest open space corridors; and (iv) other Manassas National Battlefield and Heritage Hunt viewshed protection measures, are all addressed in the site-specific

rezonings that will be necessary to establish new data center *Targeted Industry* uses within the Corridor.

It is proposed that the Data Center Opportunity Zone Overlay District not be expanded to include this Corridor, so that site-specific, conditional zonings will be required and vetted through the public review process for this unique area and unique economic development opportunity This will ensure proffered conformance with Plan text guidance. Rezonings will provide proffered conditions in order to meet Plan text criteria and to mitigate site-specific impacts. The FAR allowed by this CPA is significantly lower than that allowed in the zoning text amendment (ZTA) study. This Comprehensive Plan Amendment (CPA), by design and BOCS direction, is separate and distinct from the County's Zoning Text Amendment (ZTA) of the Data Center Opportunity Zone Overlay District.

Over an extended period of time, this CPA may result in the phased establishment of up to approximately 27.6 million square feet of data center building GFA, appropriately and carefully distributed over 2,133 acres. Because of a substantially reduced maximum overall FAR of 0.30 and three (3) floor height limitation: (1) the data center buildings will be able to be set back from RPA and other sensitive natural area corridors, so they can be preserved as protected open space and (2) extensive berming and reforestation/preservation of existing forest can be employed to preserve viewsheds from (i) Manassas National Battlefield Park (to the east), (ii) Heritage Hunt (to the west), and (iii) Old Sudley Road (to the north).

This *Economic Development Initiative* seeks to replace up to 750 existing and future homes with the most County tax revenue positive commercial use – data centers. Data Centers require little in County services. Loudoun County claims that, for every $10 in tax revenue paid, data centers use only 50 cents in County services! After build-out in 2040, approximately 700 Million (in today's dollars) will be paid each year to Prince William in Real Estate and Computer Personal Property taxes by data centers. Most importantly, data centers will become an important driver of overall economic growth in Prince William. Approval of the CPA will enable and incentivize approximately $30 Billion dollars in private capital to be invested in Prince William instead of in other jurisdictions. Thousands of prevailing wage and union construction jobs will be added to the local Prince William job market over each of the next 5-20 years, along with thousands of high salary tech jobs.

A change from Agricultural or Estate to Technology/Flex (Data Center) uses is appropriate for the Corridor, is supported by the owners of most of the land within

the Corridor and will result in a significant increase in the financial resources available each year to the County. This Small Area Plan to provide Data Center opportunities, with its change in the alignment of the Rural Area Boundary, is warranted by the significant public benefits for Prince William that would result.

A May 2021 memo to the Board of County Supervisors from Ms. Winn addressing the availability of land for data centers, acknowledges that based on numerous criteria to measure market viable sites and the fact that most data center projects use 100 acres or more of contiguous land, only two remaining parcels within the existing Data Center Opportunity Zone Overlay District would meet the criteria of being market viable and at least 100 acres of contiguous land.

As a reminder, the Data Center Opportunity Zone Overlay District is not proposed to be expanded to include the Corridor, so that site-specific conditional zonings will be required and vetted through the public review process. Rezonings will provide proffered conditions in order to not only meet Plan text criteria, but also mitigate site-specific impacts. The FAR proposed by the CPA is also significantly lower than that allowed in the ZTA study of the Data Center Opportunity Zone Overlay District.

One of the most important aspects to the lifelong farmers/stakeholders/residents is their initiative creates an opportunity to significantly lower the residential tax burden while providing overwhelming and sustained public benefits through for the next 15-20+ years to support families, neighbors, and future generations of citizens in a way that will likely never be seen again in Prince William. The County's own, independent consultant (bae urban economics – www.bae1.com) recently estimated 1,700 prevailing wage and union construction jobs will be needed for each 250,000 square feet data center constructed in Prince William. With 25+ million square feet of data centers planned 15+ years within this Digital Gateway Corridor, the county can secure tens of thousands of construction, contracting, labor and employment opportunities for Prince William residents.

According to the Loudoun County Economic Development Authority, with its existing base of 25 million square feet of data centers, Loudoun will receive over $**580 million dollars per year** in annual tax revenue. Prince William is uniquely well positioned to capitalize on the readily available power and fiber optic infrastructure that already exists to replicate the Loudoun model of financial success. Prince William can, within the foreseeable future, dramatically increase its

commercial tax base through a clean energy, high-tech, incredibly tax positive, low traffic and truck generating industry that wants to locate within the Corridor.

In addition to the noteworthy data center ecosystem that would result, this initiative will be an important driver of overall economic growth throughout Prince William by attracting other investment and industries, as has been documented in Loudoun (Data Center Alley - Loudoun County Economic Development, VA). Approval of the CPA will allow for nearly $30 billion dollars in private capital to be invested in Prince William for construction of these data centers alone. Prince William's economic consultant notes that a typical, 250,000 data center results in a minimum of $275,000,000 (per data center) – resulting in $30 billion in basic construction expenditures over the next 15-20 years. By way of comparison, Amazon's HQ2 headquarters in Arlington, Virginia is estimated to bring about 25,000 jobs and $2.5 billion over the next decade.

II. Area Characteristics – Background and History

The Corridor includes a diverse set of stakeholders, including lifelong farmers/residents of Pageland Lane whose families have owned land for 40 - 150 years, long before the 1998 AE Plan classification was established. Thirty years ago, Pageland Lane was a farming community, and the Brawner Farm was the Davis Tract. Eventually it was purchased and added to the Manassas National Battlefield Park (MNBP). The Dominion High Voltage lines originally consisted of an intermittent pole here and there. In 2008 this changed. All of the electric transmission lines were moved to the edge of the Brawner farm along Pageland Lane and the lines were expanded and upgraded to become part of Dominion's East Coast Backbone High Voltage Transmission Line Corridor, which now primarily serve Loudoun and Fairfax. These multiple, high voltage lines and their towers are shown in the photographs on Brochure Sheets 4 and 5.

The following points highlight current conditions:

- Dominion Towers & Facilities - A major Dominion sub-station is located not far to the north of the Corridor, as shown on Brochure Sheet 3. The Corridor is bisected for its entire length by Dominion's East Coast Backbone Transmission Lines, which intrude on farms and residential yards. The 250-foot wide right-of-way corridor powers Loudoun County's 26+ million square feet of existing data centers. The towers consist of (3) 500 KV; (2) 230KV; (1) 110 KV lines, rising 75 and 150-feet high. They not

only can lower property values, they also can compromise human and farm animal health. The Coalition to Save Prince William County stated when they fought to keep 100-foot 230 KV line out of their backyards at Thunder Oaks, "transmission towers not only damage the "ruralness" of an area, but they also damage property values, lives, and increase the odds for illness."

- South - Across Route 29 and immediately to the south is Gainesville Crossing (link to retail flyer: id:27283 (propertycapsule.com), a development that was approved in December 2019 to allow for up to 3 million square feet of mostly data center use. This data center campus is now actively under construction (see Brochure Sheet 5). This project also includes an expanded commuter parking lot (up to 2,079 parking spaces by the end of 2022) and several retail pad sites (including a Sheetz to be delivered in the 4th quarter of 2022). Gainesville Crossing is located at the corner of Pageland Lane and Route 29, at the edge of the Rural Area and the Manassas National Battlefield Park (See Brochure Sheets 3, 5 and 6).

- North - To the north of the Corridor is Gum Springs Road, which connects to Loudoun's Luck Stone Quarry and the South Riding Planned community. Loudoun's Comprehensive Plan calls for increasing high-density development and an expansion of extractive industry (quarry) uses adjacent to PWC on Gum Springs Road.

- West - To the west is Heritage Hunt, a dense residential, retail and commercial mixed-use planned community, which is served by public water and sewer. This land was once the Marsh Farm and abuts Pageland Farm. A small section of Heritage Hunt abuts the Corridor, as shown on Brochure Sheets 3, 7 and 8.

- Within the Corridor - Land within the Corridor is primarily zoned A-1 (minimum 10 acre lots), with some SR-5 zoning (minimum 5 acre lots) also being present. The lots range in size from under 1 acre to over 100 acres. The smaller lots are lawfully nonconforming due to either having been grandfathered (established before the current minimum lot sizes were established) or having been family subdivisions. Current zoning and family subdivision regulations could result in up to 750 homes being established over an extended period.

- Southeast - Bordering the Corridor to the southeast is Conway Robinson State Forest.

- Southwest - To the southwest is the Brawner Farm portion of the Manassas Battlefield Park, which is marred by the 250-foot wide right of way and 150 ft high transmission towers of the Dominion Transmission line corridor.

- Columbia Gas line - A Columbia Gas east coast main transmission line is located on the northern boundary lines of the Ghadban/Underwood land and an additional natural gas transmission line is located in the SE corner of Ghadban/Battlefield Brawner farm, continuing through the Brawner Farm and through Pageland Farm. These are shown on Brochure Sheet 4.

- Cell Towers - Two cell towers (allowed up to 150 feet in height) are located on the southern border between the Ghadban/Underwood properties.

- Pageland Lane Transformation - Pageland Lane is a two-lane secondary road that has become a much-traveled commuter corridor, with backups sometimes one-mile long at the Route 234 and Route 29 intersections during peak commuting to jobs in Loudoun and Fairfax Counties. This roadway is also a heavily used alternative truck route for commercial, construction and quarry traffic between Loudoun and Prince William Counties which now cuts through the Manassas Battlefield National Park. A right turn lane and a traffic signal is funded for the intersection of Rt. 234 and Pageland Lane. Construction is scheduled to begin in 2022. Due to the existing heavy commuter and truck traffic, Pageland Lane will soon have a traffic signal at both the northern and southern ends of the Corridor.

- Commuter Parking - The largest commuter parking lot in Western Prince William (2,500 parking spaces) is located only a quarter mile from the intersection of Pageland and Route 29. It's adjacent to the edge of the planned Rural Area, to Conway Forest Park, and to the Manassas Battlefield National Park.

Landowners within the Corridor have experienced first-hand the negative impacts that have resulted from the transformation of a wholly rural environment to

the present-day situation of high voltage transmission lines that feed data centers and nearby high density residential/commercial development to the north in Loudoun and to the south in Prince William. The Pageland Lane Corridor is no longer rural. It is stuck between a rock (Luck Quarry on Gum Springs Road) and a hard place (Gainesville commuter parking lot), carrying heavy traffic from nearby commercial, industrial and higher-density residential development (Heritage Hunt and South Riding). The two-lane Pageland Lane now serves primarily non-rural uses and experiences non-rural traffic volume.

III. Land Use – Data Centers are well-suited for the Corridor

Data Centers are a *Targeted Industry* that is critical to attaining and sustaining the goal of a 35% commercial tax base. But where should additional data centers be located? What makes land suitable for them?

The Corridor is uniquely well suited for Data Centers:

- Land within the Corridor will utilize an existing high voltage electric multiple line corridor that has capacity to serve new data center facilities in the Corridor.
- Land within the Corridor will utilize existing multi-carrier fiber on Pageland Lane that is easily expandable to add new carriers. The Corridor has abundant fiber options available. It is suitable for data center facilities from a high-speed connectivity standpoint. With multiple options available for Metro, Long Haul and Dark Fiber, data center users within the Corridor will range from Retail to Wholesale Colocation to Build-to-Suit or a Power-based shell. The objectives of carrier-neutrality and having the ability to access multiple carriers can easily be met within the Corridor.
- Public water and sewer are available by extension from nearby facilities within the Gainesville Crossing data center campus and Heritage Hunt. Rural Area sewer policies will not be affected or changed because the Corridor will be remapped by extending the contiguous "Development Area" through a realignment of the Rural Area Boundary. Water and sewer lines will not "leapfrog" across Rural Area designated land because the Corridor abuts the "Development" Area.
- The Corridor is not well suited for a new mixed-use, walkable community. Therefore, data center uses at this location will remove nor impact land better suited for new mixed-use, walkable communities.

- The Corridor is not served by current or planned public transit. Areas served by public transit are better suited for uses that depend upon and support such transit.
- The Corridor is not well suited for distribution and fulfillment centers or other specialized supply chain companies. Therefore, data center uses at this location will not utilize other land better suited for new distribution and fulfillment centers or other logistics uses. Much of the M-1 zoned land along the Prince William Parkway and Wellington Road, which is planned for "employment", is now being purchased by Data Center uses. Innovation Park is selling more and more of its R&D land to data center uses. If these trends continue, a majority of the remaining land intended and needed for employment centers will be absorbed by data center users.
- The Corridor is in an area of the County where light pollution above the horizon is discouraged. Data Centers emit low levels of light above the horizon.
- The land within the Corridor is extremely attractive to, and suitable for, Information Communications Technologies (ICT) companies. Prince William County needs to strategically re-plan so that additional land appropriate for new data centers can be made available where both high-tension power lines and multiple fiber conduits are already in place.
- The Corridor provides opportunities to invest approximately $30 Billion dollars in private capital and to create 3,024 permanent technology jobs, in a manner which utilizes the conditional zoning process to (i) preserve environmental features (like stream valleys and mature forests) and (ii) to mitigate or avoid impacts to the Battlefield and Heritage Hunt.
- The power line and fiber infrastructure that exists within the Corridor is a vivid example of an uneven landscape within the broad Rural Area. A stark contrast exists between properties in the Corridor, which are impacted by High Voltage transmission lines, shallow depth fiber conduit infrastructure and a heavily congested two-lane road, versus other portions of the Rural Area, which retain the bucolic environment and limitless farming potential that was a foundational characteristic associated with Rural Area designation 23 years ago.

IV. Consistency with the Adopted Comprehensive Plan Chapters, Countywide Economic Development Initiatives and the Strategic Plan

A. Strategic Plan and Economic Impact

The adopted 2017-2020 Prince William County Strategic Plan outlines five strategic goal areas: Robust Economy, Mobility, Wellbeing, Safe and Secure Community, and Quality Education and Workforce Development.

Data Center Campuses create an economic development and jobs growth Ecosystem. Data centers provide a significant influx of tax revenue that would substantially help Prince William County meet other *Strategic Plan* goals. For example, in Loudoun, the date center ecosystem has resulted in 3,500 technology companies and 10,000 technology jobs being located within the county. To prepare young adults to thrive in the workforce of the future, the size of the PW Digital Gateway Corridor ecosystem provides an extraordinary, unprecedented opportunity to collaborate with GMU and NOVA to train Prince William students to excel at these stable, high wage jobs within Prince William. Providing Prince William youth with the tools and knowledge be confident and successful in a competitive technology workforce will be one of the greatest achievements and benefits to this initiative.

Loudoun County next year is projected to receive almost $700 Million in annual tax revenue because of their long-range planning to allow data centers along existing transmission lines. Using this example, 27.6 Million square feet of data centers operating at buildout (2040) in the Corridor would results in $700 Million in tax revenue to Prince William each year thereafter (in today's dollars) from data centers.

B. Robust Economy

The adopted 2017-2020 Prince William County Strategic Plan includes the goal of creating and sustaining a robust economy, and notes that "in all actions of the Board, strong consideration should be given to make certain they foster a diverse local economy that creates a culture of innovation and achieves more quality jobs, economic opportunities and an expanded commercial tax base."

Approval of this CPA will have a significant and unprecedented positive impact upon the local Prince William economy. Extrapolating directly from the

Economic Impact Analysis prepared by the County's data center consultant, yields the following stunning statistics:

- $30 Billion dollars in private capital (not including computer equipment) will be invested in the Corridor by buildout.

- 3,024 permanent high-paying high-tech jobs will have been created in Prince William by buildout.

- 1,700 design and construction contractor and union jobs will be created for each 250,000 SF of data center building under construction. This CPA will likely result in approximately 1 Million square feet under construction per year.

Data centers in Prince William County and surrounding jurisdictions like Loudoun County have generated a total of hundreds of millions of dollars in annual tax revenue, a significant portion of which can support public schools, key capital improvements, and other high priority initiatives to enhance the quality of life such as public health programs, community services and programs for currently under-served communities. A stream of high-quality jobs is created from construction through operation of the data center facilities, which further enhances the local economy in both direct and indirect ways.

The Strategic Plan specifically confirms that particular attention should be directed to growing targeted industry businesses (including data centers) by County initiatives and other actions.

V. The Comprehensive Plan Chapters

Technology and Connectivity Chapter

This CPA is consistent with the recommendations and Action Strategies of this chapter. "Data storage is a critical infrastructure component in the 21st Century digital economy. As more businesses locate in Prince William County, their ability to securely store and manage their data will be a key success factor. Companies, institutions, and governments worldwide are shifting their data storage needs to 'The Cloud'. Rather than owning the servers where their data resides, they rent that storage. As 'The Cloud' grows virtually and physically, new types of data centers,

of varying shapes and sizes, will be needed that provide greater flexibility in more locations". (p6 Adopted 11/26/19).

Action Strategy TC16 states the County should "promote and encourage 5G technology infrastructure in and around major facilities, population centers, small area plan project areas, and County attractions including but not limited to: Innovation Park, Small Area Plan project areas, Jiffy Lube Live Amphitheater, Potomac Mills Mall, Manassas National Battlefield, Prince William Forest Park, Hylton Performing Arts Center, County historic sites, County Parks, and County facilities/schools." In order to meet this goal, planning for additional data centers now is critical to ensure the demand to move data faster for individual consumers and various businesses and industries can be met and keep pace with the global acceleration to 5G wireless network technology and beyond.

Action Strategy TC13 recommends the County "promote a competitive environment to ensure that multiple companies can provide robust, redundant cellular/wireless and fiber-optic infrastructure to ensure reliable communications for public safety responsiveness and other functions."

The existing Prince William Data Center Opportunity Zone Overlay District has run very low and is virtually out of viable land options. Economic Development Director Christina Winn has stated, "*I think it's fair to say that a continued move towards cloud computing, in addition to a growth in remote work during the pandemic, has fueled a demand for the bandwidth our data centers help provide… we have had to turn away data centers due to lack of land*."

The logical and strategic designation of new areas that can accommodate data centers support directly the Information and Communications Technology ("ICT") needs of our residents and businesses, as described in and called for under the Technology and Connectivity Chapter of the Comprehensive Plan. Data Centers, a critical Targeted Industry, are necessary to fulfill the County's long-standing goal of strengthening and expanding the reliability of ICT systems. Data Centers create and increase the capacity to embrace new technologies and generate highly educated, specialized work forces, all critical to Prince William's economic success. It only requires 0.17 milliseconds for digital information to reach Ashburn from PW Digital Gateway, using existing fiber optic capabilities.

Land Use Chapter

The CPA will remove the Corridor from the 1998 Rural Area Plan designation and policies. It will not change the designations or policies of any other land outside of the Corridor.

Community Design Chapter

New data center buildings should look like offices when viewed from Pageland Lane, but not be visible from the periphery of the Corridor. Context driven design guidelines will be established in the Plan text, to be applied to specific data center developments in site specific rezoning applications.

These guidelines are as follows:

- Encourage building placement, design features and site design techniques that consider the building's context in a manner that relates positively to other buildings and features, such as historic and cultural resources, environmental and topographical features of the surrounding area.

- Encourage enhanced buffering and screening areas where appropriate, with techniques that may include forested buffers and dense landscaping, berms with a natural appearance, building orientation, and building heights that are sensitive to surrounding uses.

- Building heights should be evaluated in a manner that prevents impacts to viewsheds and visibility from nearby residential uses and the Manassas Battlefield National Park.

- Screening of outdoor mechanical equipment is encouraged to minimize visibility from adjacent public roadways, abutting residential properties and the Manassas Battlefield National Park.

- Building facades facing Manassas Battlefield National Park, that could be visible from the eight key historical interpretation locations shown on Brochure sheets 9 and 10 should be non-reflective and typically earth toned in color. Other colors may be considered if it will facilitate

the ability for the building facade to blend into the topography of tree line.

Architecture

On these portions of buildings that are visible from a public roadway, Architectural elements should include features that enhance the appearance and exterior ambiance of these larger buildings, such as but not limited to:

- the use of facade modulation and articulation to break up building mass and define architectural character.

- The use of horizontal and vertical planes on building facades to break up the mass of a large structure and to create visual interest.

- Changes in building material, pattern, texture or color, introduction of glass, steel, geometric and other interesting, diverse patterns.

- The use of accent colors, windows or other design elements that increase transparency and provide visual interest.

- Incorporate building and site design measures that break up building mass, with techniques that may include more significant setbacks, tapering or transitioning of building heights, additional tree planting, setbacks, or landscaping.

Cultural Resources Chapter

There are five nineteenth and early twentieth century cemeteries located within the Corridor (See Brochure Sheets 9 and 10). Because conditional zoning will be required to establish data center uses within the Corridor, archeological and historical studies will be required for each rezoning submission. Where warranted, Proffered Conditions will be voluntarily offered by rezoning applicants in order to document, preserve and protect, as well as mitigate further adverse impacts to cemeteries. These cemeteries are not protected under the current Comprehensive Plan or the current zoning.

The Corridor is adjacent to the Manassas Battlefield National Park, which is listed on the National Register of Historic Places and the Virginia Landmarks Register. There are eight historically significant locations on the western end of the Manassas National Battlefield Park, whose viewsheds should be protected and preserved. These locations are publicly accessible and their context is important to interpretation of the two battles. These locations and their elevations are shown on Brochure Sheets 9 and 10. This Sheet shows the elevations of these eight key historic locations, as well as, the high and low elevations of the land forms within the Corridor. While most of the Corridor is clearly not within any viewshed of these eight locations due to distance, vegetation and topography, all conditional zoning applications within the Corridor to establish data center uses, should provide archeological studies, as well as site-specific balloon testing, viewshed sight-line studies or digital massing studies to evaluate site specific viewshed impacts. Proffered development conditions to protect and preserve these important historical viewsheds may be required in some site-specific instances. For example, the nearby Westview 66 and Gainesville Crossing Data Center conditional zonings proffered mature forest preservation, reforestation and maximum building height limitations (expressed as an average mean height above sea level elevation). Other viewshed protection techniques may include forested berms and connected, contiguous open space corridors of indigenous vegetation.

Economic Development Chapter

Prince William County commissioned an in-depth *Targeted Industry Study* to identify industry targets to bring into Prince William, and to assess the workforce demand and needs characteristics within those targets. The Targeted Industry Study findings identify five clusters to expand throughout the county. These five clusters include Advanced Manufacturing, Federal Government Contracting, Healthcare, Information Communications Technology (ICT), Life Sciences and Logistics. Data Centers are an important part of the ICT cluster.

Encouraging and allowing more data centers to be established will finally enable Prince William to be known and recognized as a leading “high-tech” County. The benefits of being known as a leading “high-tech” local economy will extend throughout all of Prince William, its schools, its community colleges and the George Mason University Prince William Campus.

The Loudoun Example

Loudoun County now has approximately 26 million square feet of operational data centers and will collect over $600 million in annual taxes from its "data center alley". This revenue covers a significant portion of the County government's entire budget apart from schools. Loudoun County's residential property tax rate was lowered this year to $0.98 cents per $100 of assessed value. Their data centers employ 3,000+ people and supports 10,000+ jobs created (not including construction) within their ecosystem. Approximately 3,500 technology companies are housed within Loudoun. Loudoun County is able to use the huge income streams to fund everything from great schools to transportation projects, and has reduced the real estate tax for its residents.

Diversifying the County's non-residential tax base is and has been one of the major objectives of Prince William for decades. There are very few alternative sources of tax revenue that are more fiscally positive (and concurrently require the minimum of expenditures for services – roads, schools, parks and recreation, libraries, public health and public safety) than data centers.

Environment Chapter

The *Environment Resource* Long Range Land Use Plan Map classification will not change. There is no additional Plan Chapter text necessary for the implementation of this CPA; however, consideration should be given to adding new County-wide Plan text regarding data centers, as follows:

Data Center Green Technologies and Overall Sustainability Measures. Concerted efforts should be made to be creative and forward-thinking with regard to the use of state-of-the-art green technologies in order to minimize environmental impacts. Strategies and technological innovations that address sustainability and energy usage challenges should be utilized, whenever possible. Some examples are efforts to use hydrogen fuel cells, batteries, and solar power, for site generated auxiliary power. These produce no limited-to-no carbon dioxide emissions, no air pollutants, and are quiet. Green certifications are likely to be more commonplace as a way to measure sustainability efforts and assure stakeholders of energy efficiency throughout the life cycle of the data center facility.

Significant research and progress has been made to reduce water usage, reduce overall power consumption and increase efficiency. These efforts will only

accelerate and improve over time, as addressing sustainability and energy consumption are major priorities for the data center industry. New data centers in Prince William should utilize the most advanced state-of-the-art technology and practices, as possible. Water used in water-assisted cooling chillers should be reused through a "closed-loop system", which significantly reduces the volume of water and sanitary sewer capacity used

Sustainable building and site design is recommended to the extent practicable. Examples of sustainable building and site design measures include:

- Resource and energy-efficient designs and materials.
- Water conservation and reuse though "closed-loop" cooling systems which require very little water replenishment.
- Rain gardens.
- Water cisterns.
- Environmentally friendly construction practices.
- Preservation or restoration of existing, on-site significant environmental resources.
- Designing and constructing buildings to use energy and water resources efficiently.
- Environmentally sensitive siting of buildings.
- Special consideration to the preservation of forests as a way to provide buffers and screening, to preserve natural features and to reduce carbon emissions.

Safe and Secure Community (Police, Fire and Rescue) Chapter

Data Centers utilize state-of-the-art secure facilities, with no public access. As such, there are few incidents which will require police or rescue responses. Data

centers also utilize state-of-the-art, high level fire suppression systems and have relatively low levels of human occupancy. Therefore, fire and rescue response requests will be low. The extension of public water and fire hydrants throughout the Corridor will provide enhanced and more efficient fire suppression capabilities closer to rural areas and the planned fire station on Old Sudley Road (see, Plan Chapter figure 2: Existing and potential F&R Facilities). The road improvements associated with changes to the transportation plan will widen and straighten Pageland Lane to four lanes. This will facilitate quicker and more reliable police, fire and rescue response times.

Open Space Chapter

New Plan Chapter text is recommended to protect and restore the robust natural ecosystem and open spaces of the Corridor, by recommending a connected system of contiguous forests, a main 4 mile north-south pedestrian and bicycle path, and the preservation of other open spaces that protect, complement, and enhance the local area's environmental assets (Large areas of wooded vegetation, Chesapeake Bay RPA, streams, Conway Robinson Forest Park and the Battlefield Park). The provision of peripheral buffer areas around the Corridor will be critical in supporting appropriate transitions between existing and proposed land uses. The Plan text Amendment will establish strategies that emphasize protection of the natural environment and cultural assets such as the Manassas Battlefield National Park and Conway Robinson Natural Area Park. Within open spaces or natural areas, consideration should be given to incorporating elements or features that reflect, educate, or commemorate the area's rich history. Consideration should be given to establishing and funding, through data center tax revenues, a Purchase of Development Rights (PDR) program for Prince William.

Potable Water Chapter

The CPA will remove the Corridor from the "Non-development" Rural Area; therefore, no change is proposed to existing Plan Chapter text or PWCSA policies.

Sewer Chapter

The CPA will remove the Corridor from the "Non-development" Rural Area; therefore, no change is proposed to existing Plan Chapter text or PWCSA policies.

Transportation Chapter

Approval of this CPA will result in that portion of Pageland Lane within the Corridor to be reclassified to a four lane divided roadway and a major north-south shared use trail to be added on the Trails Plan on the east side of Pageland Lane from Catharpin Park south to connect to the trail planned along Route 29 (see Brochure Sheet 6). Access points to Pageland Lane within the Corridor will be reduced and consolidated as the data centers develop. After the establishment of data centers within the Corridor and completion of the Pageland Lane upgrade, consideration should be given to prohibiting heavy commercial truck traffic on Old Sudley Road between Route 29 and Gum Springs Road.

A Trip Generation Memo is attached as Exhibit B. This memo compares vehicle trips generated by current Comprehensive Plan allowed uses and those allowed by this CPA.

VI Conclusion

The Data Center Opportunity Zone Overlay District is not proposed to be expanded to include the Corridor, so that site-specific conditional zonings will be required and vetted through the public review process. Rezonings will provide proffered conditions in order to not only meet Plan text criteria, but also mitigate site-specific impacts. The FAR proposed by the CPA is also significantly lower than that allowed in the ZTA study of the Data Center Opportunity Zone Overlay District.

Economic Development Director Christina Winn has stated, "*I think it's fair to say that a continued move towards cloud computing, in addition to a growth in remote work during the pandemic, has fueled a demand for the bandwidth our data centers help provide…we have had to turn away data centers due to lack of land*.". A May 2021 memo from Ms. Winn acknowledges that based on numerous criteria to measure market viable sites and the fact that most data center inquires comprise 100 acres or more of contiguous land, only two remaining parcels within the existing Data Center Opportunity Zone Overlay District meet the criteria of being market viable and at least 100 acres of contiguous land.

One of the most important aspects to the lifelong farmers/stakeholders/residents is their initiative creates an opportunity to significantly lower the residential tax burden while providing overwhelming and sustained public benefits through at least the next 25 years to support families,

neighbors, and future generations of citizens in a way that will likely never be seen again in Prince William. Thousands of prevailing wage and union construction jobs will be added to the local Prince William job market for **each of the next 15-20 years.**

After build-out in 2040, approximately $700 Million in Prince William taxes will be paid annually by data centers. In addition to the extensive data center ecosystem that would benefit local education and jobs, this initiative will be an important driver of overall economic growth throughout Prince William by attracting other investment and industries. Being known as having a "high-tech" economy has an effect. Approval of the CPA will allow for nearly $30 billion dollars in private capital to be invested in Prince William over the next 15+ years. By way of comparison, Amazon's HQ2 headquarters in Arlington, Virginia is estimated to bring about 25,000 jobs and $2.5 billion over the next decade.

In order to move forward as an economically competitive and thriving, diverse County, there must be recognition that population growth will continue to support new jobs in Northern Virginia. The County must support this continued growth by increasing the number of local jobs within Prince William, enhance local economic development opportunities, ensure high quality schools, colleges and recreation opportunities, and address housing availability and affordability. This CPA seeks to take advantage of the infrastructure and data center market trends already in place to create a major fiscal victory for Prince William County. This will enable the advancement of many long-term strategic goals that are critical to sustaining and enhancing the well-being and quality of life for our residents. Economic development is a primary means for maintaining a high quality of life and expanded opportunities for all Prince William County citizens.

Approval of this CPA will be a significant step for the County in reaching a sustainable 35% commercial tax base. The demand for additional data center facilities is real. Prince William should take advantage of this opportunity Approval of this CPA will serve as the *Economic Development Initiative* in Prince William that finally achieves the major fiscal priority of establishing and sustaining a meaningful, sustainable commercial tax base every year. $30 Billion dollars in new private capital investment (not including computer equipment) in the Prince William economy is a historic number and will help pivot Prince William to one of the wealthiest counties (not just the second largest county) in the Commonwealth.

GOROVE SLADE
Transportation Planners and Engineers

TECHNICAL MEMORANDUM

To:	Elizabeth Scullin	Prince William County
From:	Kayla Ord, PE Chad Baird	Gorove Slade
Date:	October 20, 2021	
Subject:	**Digital Gateway - Trip Generation Memo**	

Introduction

The purpose of this memorandum is to assess the Trip Generation for the proposed Comprehensive Plan Amendment (CPA) against the existing Plan's allowable development. The proposed CPA is for approximately 2,133 acres of land in northern Prince William County along the Pageland Lane corridor. Approval would allow the 2,133 acre corridor to develop data centers at up to a 0.3 FAR.

The study area contains approximately 198 parcels which are all currently zoned either A-1 (Agricultural) which allows one dwelling unit per 10 acres or SR-5 (Semirural Residential) which allows one dwelling unit per 5 acres. Some of these parcels are legally non-conforming as to size – being smaller grandfathered or family subdivision lots. The Civil War Preservation Trust owns 20.35 acres within the corridor, which cannot be developed, leaving 2,113 acres to be developed at up to a 0.30 FAR. This could result in up to 27,612,684 SF of date center GFA.

Figure 1 shows the general location and the affected land bays.

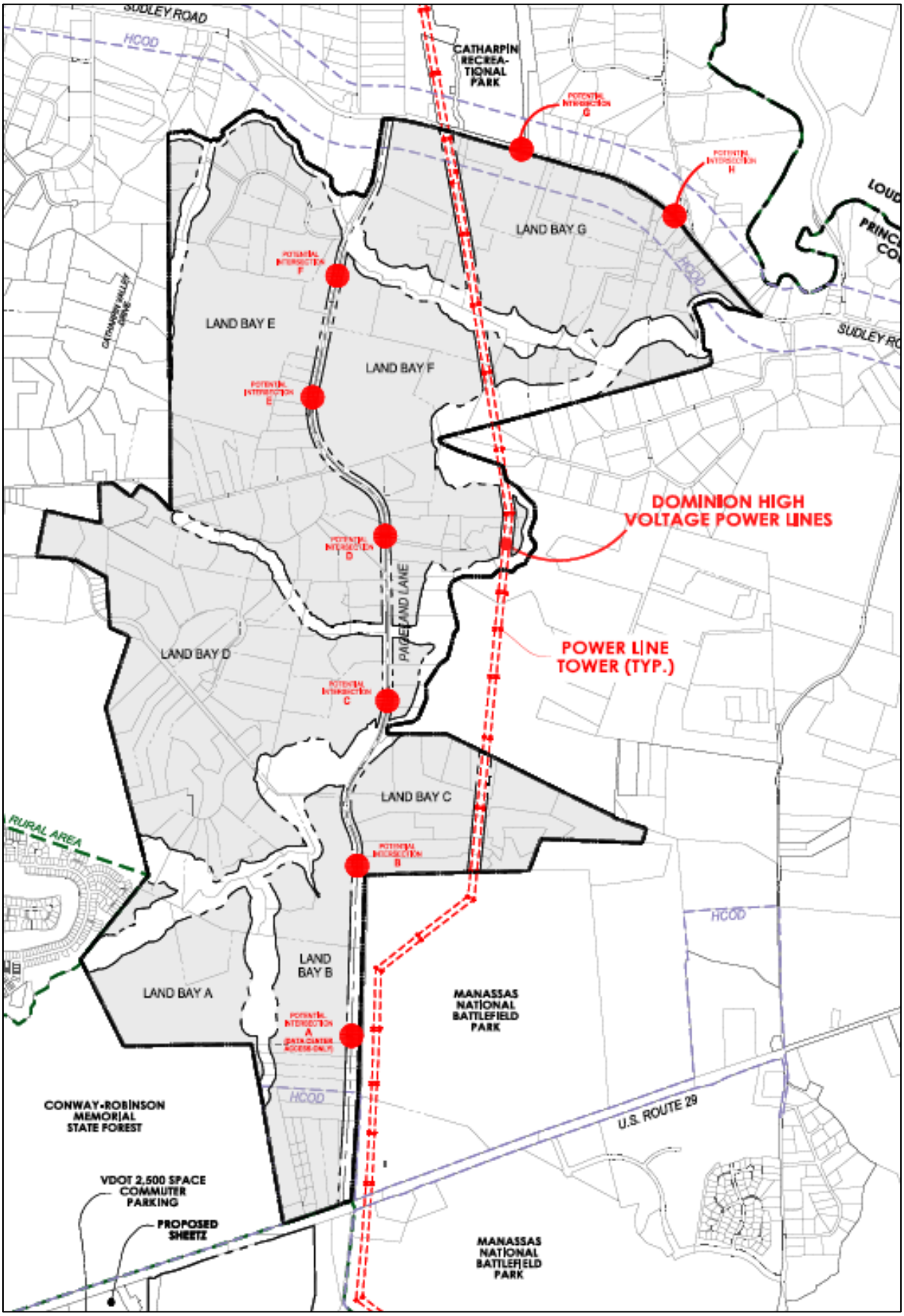


Figure 1: Site Location

Trip Generation Comparison

Existing Development

As noted previously, the site is currently occupied by approximately 198 parcels which are estimated to contain approximately 196 dwelling units. The trip generation for the existing development was assessed for the weekday morning (AM) and weekday afternoon (PM) peak hours, as well as for a typical weekday utilizing ITE's Trip Generation Manual, 10th Edition as shown in Table 1. Please note, the trip generation presented has no internal, transit, or pass-by reductions applied for the purposes of this trip comparison.

Table 1: Existing Trip Generation (ITE 10th Ed.; Peak Hour of the Adjacent Street)

				------ Weekday ------						
	ITE Land Use Code			AM Peak Hour			PM Peak Hour			Daily
	Trip Generation, 10th Ed.		Quantity	*In*	*Out*	*Total*	*In*	*Out*	*Total*	*Total*
Existing Development										
Residential	210	Single-Family Housing	196 DU	36	108	144	122	72	194	1,931
		Existing Development		**36**	**108**	**144**	**122**	**72**	**194**	**1,931**

As can be seen in the table above, the existing development is anticipated to generate approximately 144 AM peak hour trips, 194 PM peak hour trips, and 1,931 daily trips throughout a typical weekday

Allowable Subdivided Development

In addition to the existing development, the trip generation for the allowable subdivided development. Per the Virginia State Code, family subdivision is allowed in addition to Prince William County's 10 acre lot requirement. Many lot owners along the Pageland Lane corridor have the right to subdivide their property to as little as 1 acre lots. Therefore, this additional development should be considered By-Right. In order to determine the number of by-right lots, each existing parcel was analyzed for its suitability for additional family subdivision lots, resulting in approximately 750 lots.

The trip generation for the allowable development was assessed for the weekday morning (AM) and weekday afternoon (PM) peak hours, as well as for a typical weekday utilizing ITE's Trip Generation Manual, 10th Edition as shown in Table 2. Please note, the trip generation presented has no internal, transit, or pass-by reductions applied for the purposes of this trip comparison.

Table 2: Allowable Trip Generation (ITE 10th Ed.; Peak Hour of the Adjacent Street)

				------ Weekday ------						
	ITE Land Use Code			AM Peak Hour			PM Peak Hour			Daily
	Trip Generation, 10th Ed.		Quantity	*In*	*Out*	*Total*	*In*	*Out*	*Total*	*Total*
Allowable Development (Subdivided Residential)										
Subdivided Residential	210	Single-Family Housing	750 DU	134	403	537	443	260	703	6,637
		Allowable Development		**134**	**403**	**537**	**443**	**260**	**703**	**6,637**

As can be seen in the table above, the allowable development is anticipated to generate approximately 537 AM peak hour trips, 703 PM peak hour trips, and 6,637 daily trips throughout a typical weekday.

Proposed Development Program

As previously mentioned, the proposed CPA would allow approximately 2,113 acres to develop data centers at up to an FAR of 0.3 which would result in up to 27,612,684 SF of data centers.

The trip generation for the allowable development was assessed for the weekday morning (AM) and weekday afternoon (PM) peak hours, as well as for a typical weekday utilizing ITE's Trip Generation Manual, 10th Edition as shown in Table 3. Please note, the trip generation presented has no internal, transit, or pass-by reductions applied for the purposes of this trip comparison.

Table 3: Proposed Site Trip Generation (ITE 10th Ed.; Peak Hour of the Adjacent Street)

	ITE Land Use Code *Trip Generation, 10th Ed.*		Quantity	------ Weekday ------ AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
Proposed Development										
Data Centers	160	Data Center	27,612,684 SF	1,971	1,613	3,584	910	2,122	3,032	27,337
Proposed Development Site Trips				**1,971**	**1,613**	**3,584**	**910**	**2,122**	**3,032**	**27,337**
Difference (Proposed - Existing)				**1,935**	**1,505**	**3,440**	**788**	**2,050**	**2,838**	**25,406**
Difference (Proposed - Allowable)				**1,837**	**1,210**	**3,047**	**467**	**1,862**	**2,329**	**20,700**

As can be seen in the table above, the proposed development is anticipated to generate approximately 3,584 AM peak hour trips, 3,032 PM peak hour trips, and 27,337 daily trips throughout a typical weekday. These project trips would be an increase over the existing and the allowable trip generations.

CUBE Analysis

As indicated in the previous section, the proposed CPA would generate more trips than the existing or buildout of by-right scenarios. Therefore, a CUBE Model analysis is proposed to determine the impact of this increase in trips on the regional transportation network.

The CUBE Modeling, which is currently underway, will assume the planned road improvements included in the current comprehensive plan in the 2040 analysis and determine what, if any, additional high-level transportation improvements may be required to accommodate the increase in vehicular trips. The currently planned regional road improvements are shown in Figure 2.

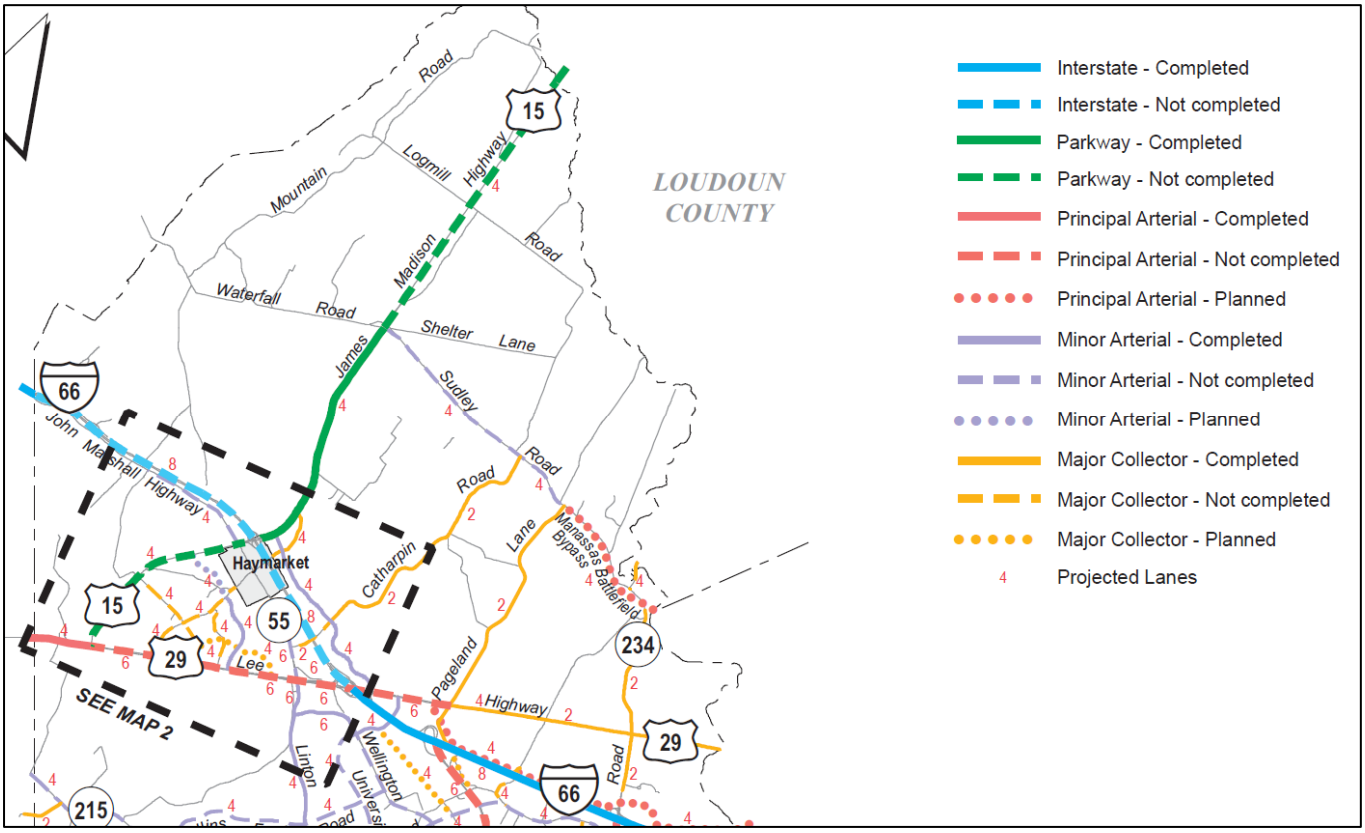


Figure 2: Comprehensive Plan – Thoroughfare Plan Map Excerpt

As shown, the following are some of the road improvements planned in the vicinity of the site:

- Sudley Road: Planned to be widened to 4 lanes from Route 15 to Gum Springs Road
- Gum Springs Road: Planned to be widened to 4 lanes
- Lee Highway (Route 29): Planned to be widened to 6 lanes west of Pageland Lane

In addition to the planned roads, the analysis will look at a number of potential improvements that may be needed to offset the additional trips, including the potential to widen Pageland Lane to 4 lanes.

Conclusions

This memorandum supports the following conclusions:

- The proposed CPA development is anticipated to generate more trips than the existing or buildout of by-right development.
- A CUBE model analysis will be done to determine the impact on the regional transportation network and if additional improvements are needed to accommodate the additional trips.

PW Digital Gateway – Environmental Resources Narrative

SITE AREA

The application area consists of 592 parcels and comprises approximately 2,132 acres of contiguous land. The area was historically farmland but has seen significant single-family residential construction and the installation of high voltage electrical transmission lines that have consumed over 46 acres of land within the application area.

TOPOGRAPHY

The topography of the application area is generally rolling with the highest elevations being around 335 feet above sea level and lowest elevations being around 265 feet above sea level. Low points are found along streams. The most significant water features within the application area are two streams - Little Bull Run and Lick Branch. Little Bull Run generally runs north to south through the application area and Lick Branch feeds Little Bull Run from the west.

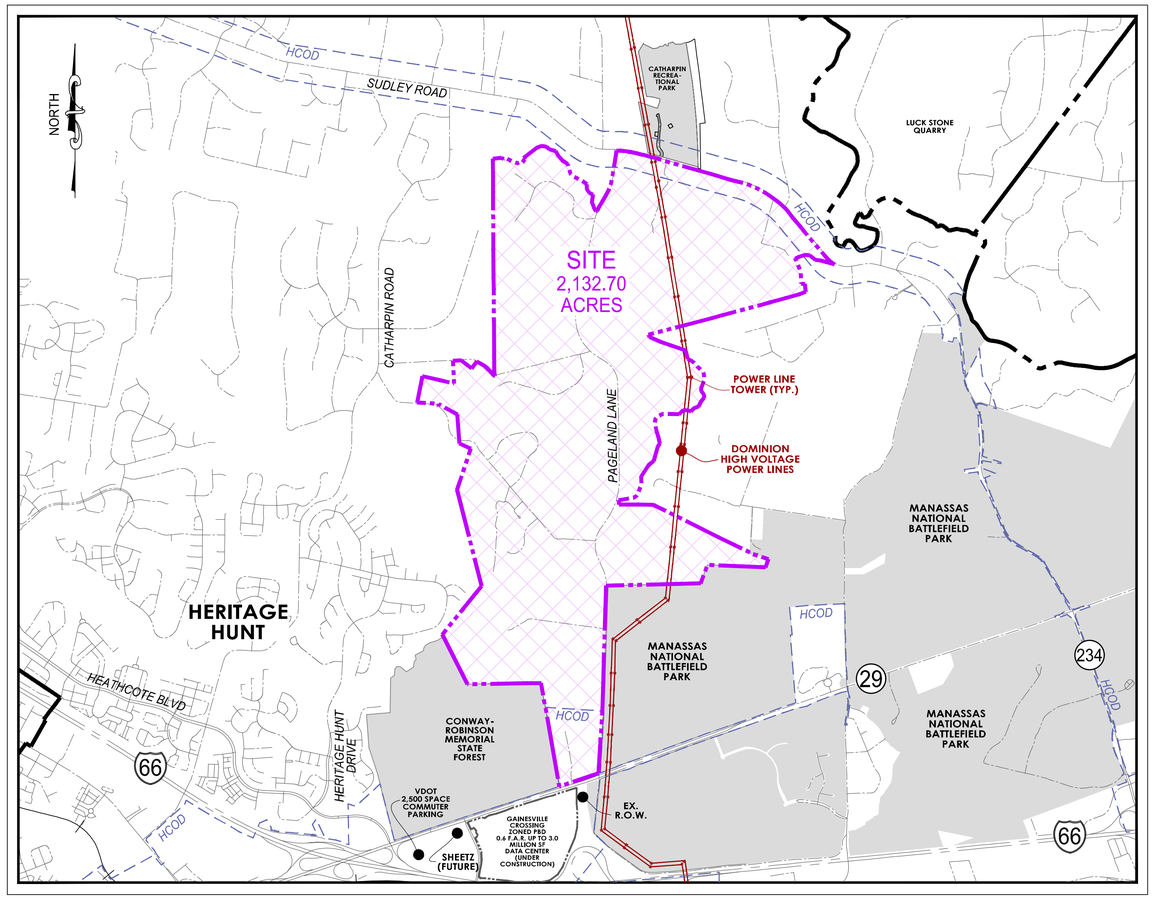
WOODLAND / TREE COVER

Much of the application area was previously cleared for farming. However, as residential development has consumed significant portions of the area the amount of farming activities, and clearing of additional wooded areas, has ceased or been significantly reduced. The most significant new clearing has taken place on the Manassas National Battlefield Park. Currently approximately twenty-seven (27) percent of the land area is wooded. Most of the wooded areas lie along the floodplains and Resource Protection Area (RPA) shown on the Environmental Conditions Map (Sheet 7) enclosed with this application; the floodplain and RPA limits are as depicted in the Prince William County GIS. The floodplain and RPA encompasses approximately 259 acres or twelve (12) percent of the total area.

COMPREHENSIVE PLAN MAP AMENDMENT
#CPA2021-00004

PW DIGITAL GATEWAY

GAINESVILLE MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA



VICINITY MAP
SCALE: 1" = 2000'

SHEET INDEX	
SHEET #	SHEET TITLE
1	COVER SHEET
2	PROPERTY OWNER EXPRESSED INTEREST MAP
3	APPROVED NEARBY DEVELOPMENT
4	AERIAL PHOTO EXHIBIT
5	AERIAL PHOTO EXHIBIT
6	MOBILITY NETWORK
7	ENVIRONMENTAL CONDITIONS MAP
8	EXISTING & PROPOSED LONG RANGE LAND USE MAP
9	CULTURAL RESOURCES MAP
10	CULTURAL RESOURCES MAP (CORE AREA)

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COMPREHENSIVE PLAN AMENDMENT
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GAINESVILLE MAGISTERIAL DISTRICT
PRINCE WILLIAM COUNTY, VIRGINIA

MARK	DATE	DESCRIPTION
	2021-11-02	POST INITIATION SUBMISSION

PROJECT No.: 20143.002.00
DRAWING No.: 111099
DATE: 11-02-2021
SCALE: 1"=500'
DESIGN: SG
DRAWN: SG
CHECKED: MK

SHEET TITLE:

COVER SHEET

SHEET No.

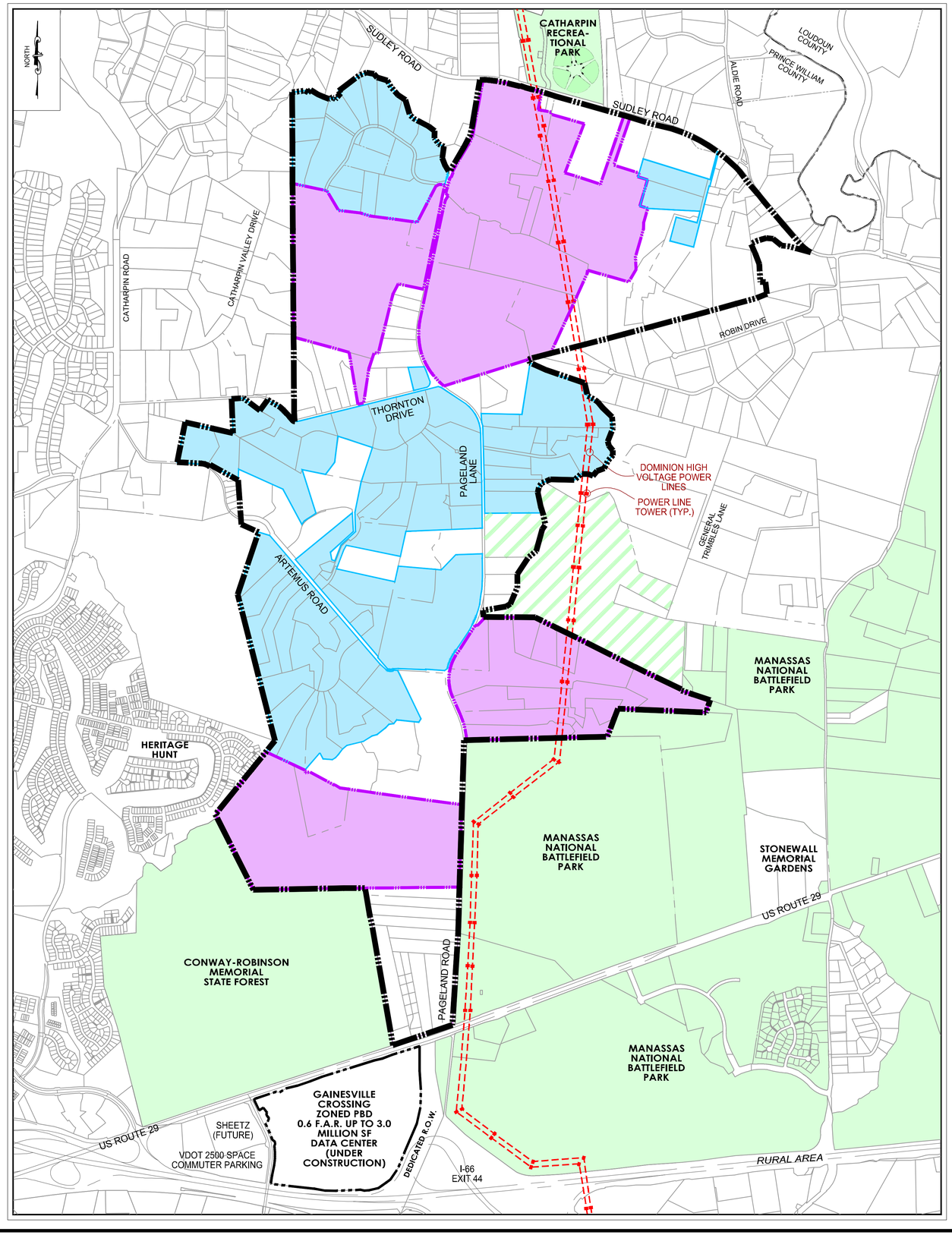
1

NOTES:

1. THE PROPERTIES SUBJECT TO THIS APPLICATION ARE LISTED BELOW. ALL INFORMATION OBTAINED FROM THE PRINCE WILLIAM COUNTY ASSESSOR.
2. THE TOTAL PROJECT AREA IS APPROXIMATELY 2,132.70 ACRES.
3. THE PROPERTY BOUNDARIES DEPICTED ON THIS PLAN WERE OBTAINED FROM PRINCE WILLIAM COUNTY GIS DATA.
4. NO TITLE REPORT FURNISHED.
5. THE APPLICANTS ARE REQUESTING THE RE-DESIGNATION OF THE SUBJECT PROPERTIES FROM THE AE, AGRICULTURAL OR ESTATE LONG RANGE LAND USE CATEGORY TO THE TECHNOLOGY / FLEX LONG RANGE LAND USE CATEGORY.

LEGEND:

- BOUNDARY OF APPLICATION PROPERTIES
- EXISTING HIGH POWER ELECTRIC LINES
- PW DIGITAL GATEWAY
- REQUEST RECEIVED / CPA SUPPORTER
- PARKLAND
- PROPERTY IN PRESERVATION



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SHEET TITLE:

PROPERTY OWNER EXPRESSED INTEREST MAP

SHEET No.

2

AREA LABEL	EXISTING DEVELOPMENT DESCRIPTION
1	MODERATE TO LOW DENSITY SINGLE-FAMILY DETACHED RESIDENTIAL SUBDIVISIONS
2	MODERATE TO LOW DENSITY SINGLE-FAMILY DETACHED RESIDENTIAL SUBDIVISIONS
3	CORE SUBURBAN RESIDENTIAL AREA - MEDIUM TO HIGH DENSITY RESIDENTIAL - SINGLE-FAMILY DETACHED HOMES -SMALL LOT SINGLE-FAMILY DETACHED HOMES -TOWNHOMES / TWO-OVER-TWO MULTIFAMILY HOMES -SUPPORTING COMMUNITY RETAIL / SERVICES
4	SUBURBAN RESIDENTIAL AREA - SINGLE-FAMILY DETACHED HOMES -SMALL LOT SINGLE-FAMILY DETACHED HOMES -TOWNHOMES
5	COMMERCIAL CORRIDOR - RETAIL / DINING -OFFICE -COMMUNITY SERVICES
6	CORE SUBURBAN RESIDENTIAL AREA - SINGLE-FAMILY DETACHED HOMES -SMALL LOT SINGLE-FAMILY DETACHED HOMES -TOWNHOMES -TWO-OVER-TWO MULTIFAMILY HOMES -SUPPORTING COMMUNITY RETAIL / SERVICES
7	FUTURE DATA CENTER -UP TO 3.0 MILLION SQ. FT. UNDER CONSTRUCTION
8	CORE INDUSTRIAL / FLEX / DATA CENTER -INDUSTRIAL USES -WAREHOUSE / DISTRIBUTION -OFFICE -DATA CENTERS (ADS & FUTURE JOHN MARSHALL TECH PARK)
9	COMMERCIAL CORRIDOR - RETAIL / DINING -OFFICE -COMMUNITY SERVICES
10	CORE INDUSTRIAL / FLEX / DATA CENTER -INDUSTRIAL USES -WAREHOUSE / DISTRIBUTION -OFFICE -DATA CENTERS
11	VDOT COMMUTER LOTS -UNIVERSITY BOULEVARD PARK & RIDE (2,500 SPACES) -MANASSAS PARK & RIDE (1,175 SPACES) -CONNECTIONS TO MULTIMODAL NETWORKS

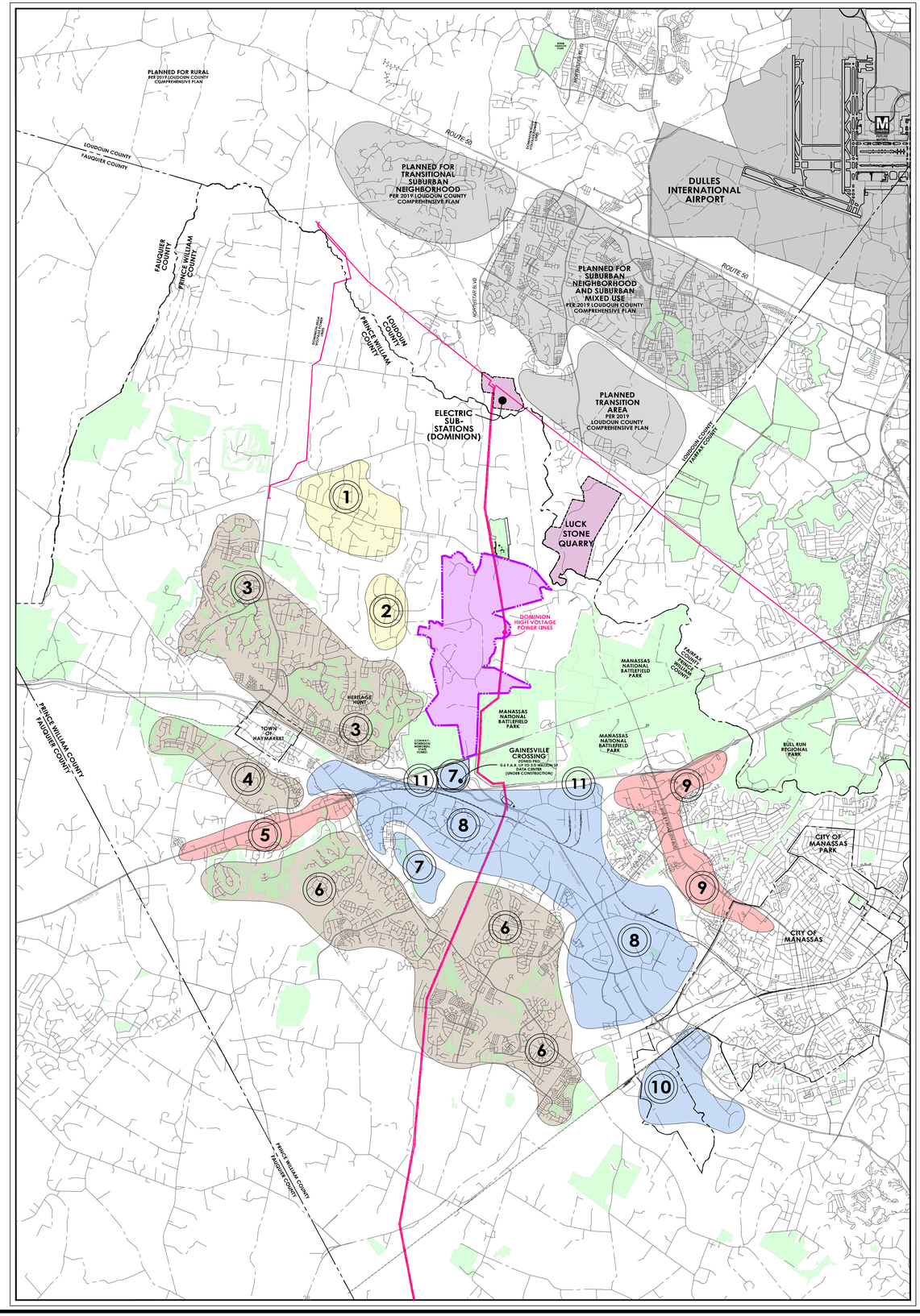
LEGEND

- CPA APPLICATION BOUNDARY
- DOMINION HIGH POWER ELECTRIC LINES

GENERALIZED DEVELOPMENT AREAS

- RESIDENTIAL AREA
- CORE SUBURBAN AREA
- CORE INDUSTRIAL & DATA CENTER AREA
- COMMERCIAL / RETAIL CORRIDORS
- MAJOR DEVELOPMENT AREAS - LOUDOUN COUNTY
- OTHER EXISTING INDUSTRIAL DEVELOPMENT
- PARKS & OPEN SPACE AREAS

5000 2500 0 5000 10000
GRAPHIC SCALE
1" = 5000'



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SCALE: 1"=5000'
DESIGN: SG
DRAWN: SG
CHECKED: MK

SHEET TITLE:

APPROVED NEARBY DEVELOPMENT

SHEET No.

3

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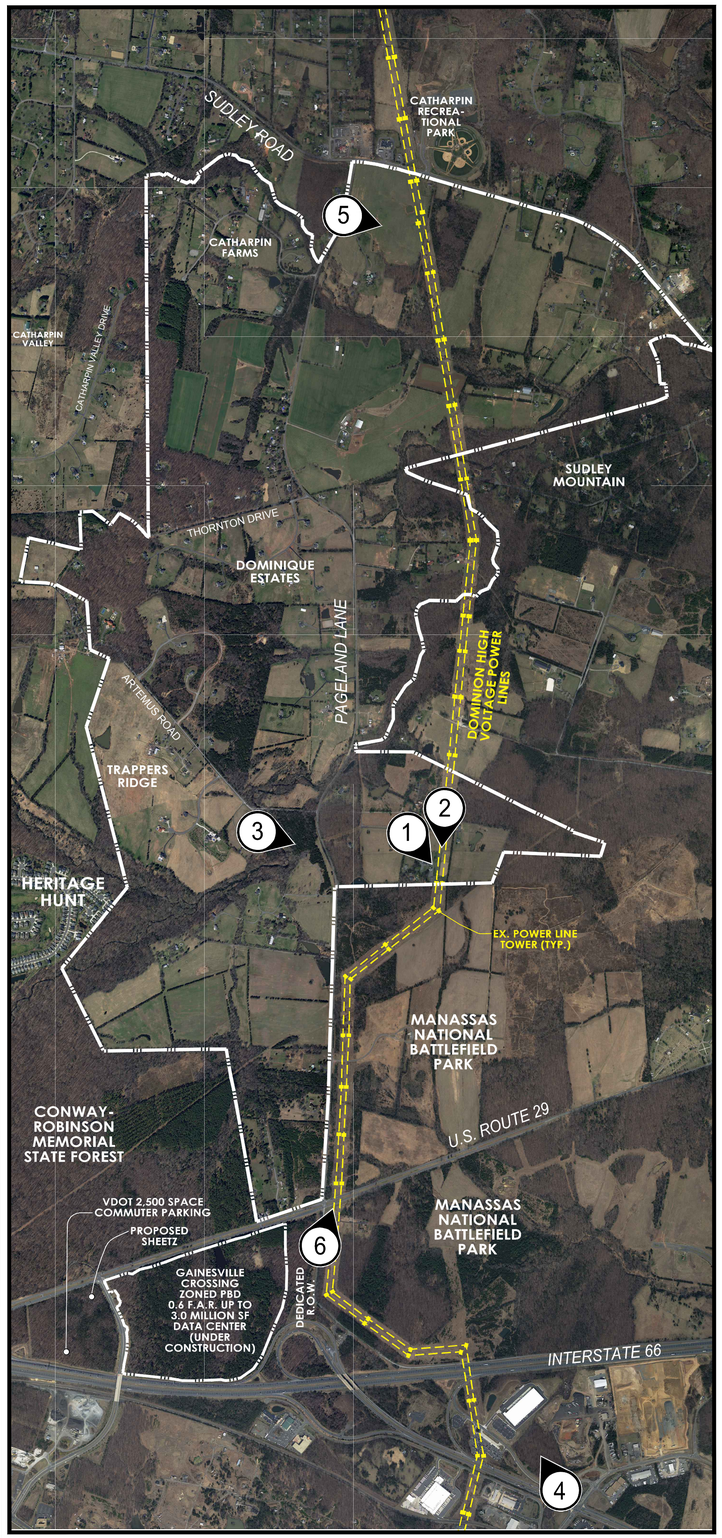
NOT TO SCALE

AERIAL PHOTO 2

NOT TO SCALE

AERIAL PHOTO KEY

NOT TO SCALE



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AERIAL PHOTO 4

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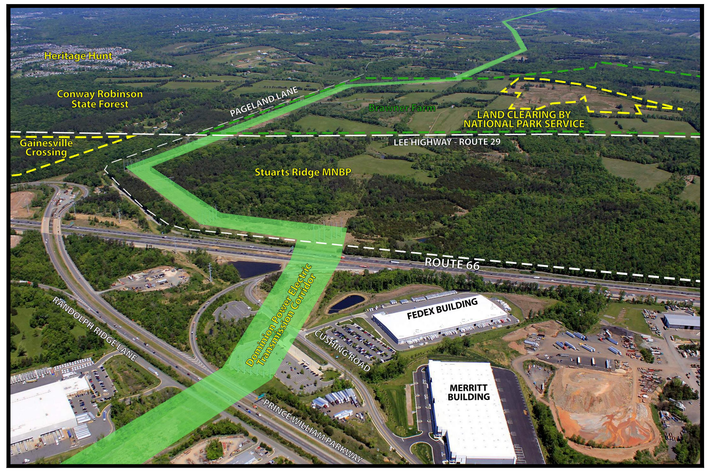

AERIAL PHOTO 5

NOT TO SCALE

AERIAL PHOTO 6

NOT TO SCALE

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SHEET TITLE:

AERIAL PHOTO EXHIBIT

SHEET No.

4

AERIAL PHOTO 7

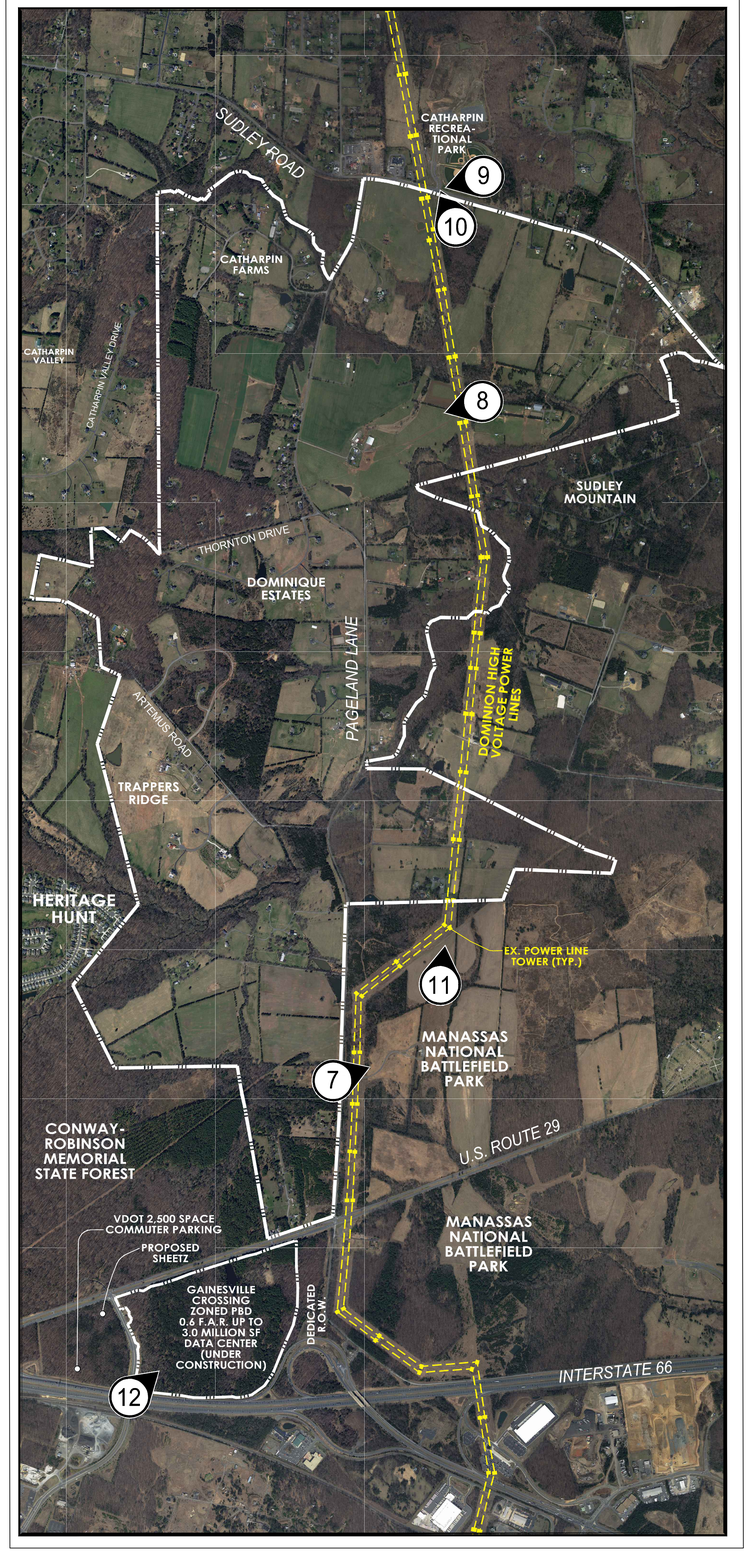
NOT TO SCALE

AERIAL PHOTO 8

NOT TO SCALE

AERIAL PHOTO KEY

NOT TO SCALE



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AERIAL PHOTO 10

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AERIAL PHOTO 11

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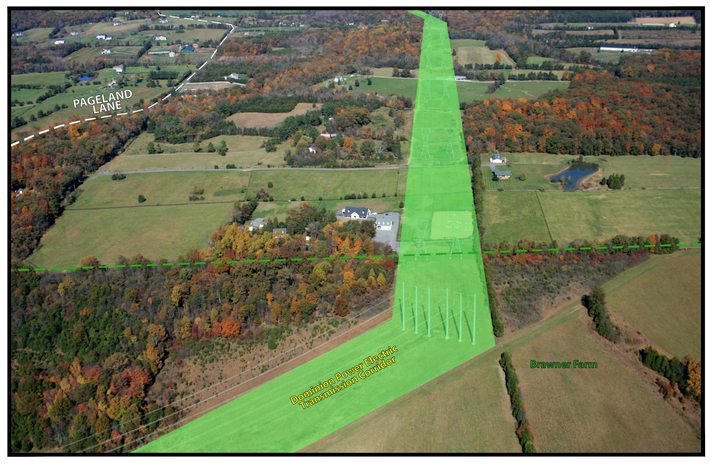

AERIAL PHOTO 12

NOT TO SCALE

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SHEET TITLE:

AERIAL PHOTO EXHIBIT

SHEET No.

5

CATHARPIN RECREATIONAL PARK

POTENTIAL ACCESS G

POTENTIAL ACCESS H

GUM SPRINGS ROAD

LOUDOUN COUNTY

PRINCE WILLIAM COUNTY

LOUDOUN COUNTY

FAIRFAX COUNTY

HCOD

SUDLEY ROAD

CATHARPIN VALLEY DRIVE

PAGELAND LANE

POTENTIAL ACCESS F

POTENTIAL ACCESS E

ROBIN DRIVE

DOMINION HIGH VOLTAGE POWER LINES

POTENTIAL ACCESS D

POWER LINE TOWER (TYP.)

POTENTIAL ACCESS C

POTENTIAL 4-LANE ROAD

MANASSAS NATIONAL BATTLEFIELD PARK

FAIRFAX COUNTY

PRINCE WILLIAM COUNTY

POTENTIAL ACCESS B

U.S. ROUTE 29

HCOD

PROPOSED SHARED USE PATH (EAST SIDE WITHIN R.O.W.)

POTENTIAL ACCESS A

MANASSAS NATIONAL BATTLEFIELD PARK

CONWAY-ROBINSON MEMORIAL STATE FOREST

HCOD

U.S. ROUTE 29

MANASSAS NATIONAL BATTLEFIELD PARK

VDOT 2,500 SPACE COMMUTER PARKING

PLANNED TRAIL (NORTH SIDE) BY OTHERS

MANASSAS NATIONAL BATTLEFIELD PARK

GAINESVILLE CROSSING ZONED PBD 0.6 F.A.R. UP TO 3.0 MILLION SF DATA CENTER (UNDER CONSTRUCTION)

DEDICATED R.O.W.

INTERSTATE 66

INTERSTATE 66 EXIT 44

PROPOSED SHEETZ

NORTH

LEGEND

- CPA APPLICATION BOUNDARY
- HIGHWAY CORRIDOR OVERLAY DISTRICT (HCOD)
- POTENTIAL 4-LANE DIVIDED ROAD WITH SHARED USE PATH (EAST SIDE)
- CONCEPTUAL / POTENTIAL ACCESS POINTS
- PROPOSED SHARED USE PATH (EAST SIDE WITHIN R.O.W.)
- PLANNED TRAIL (NORTH SIDE) BY OTHERS
- FINAL LOCATION OF PATHWAY CROSSING OF SUDLEY ROAD TO BE DETERMINED
- TRAFFIC LIGHT
  - A TRAFFIC LIGHT IS CURRENT LOCATED AT THE INTERSECTION OF PAGELAND LANE AND U.S. ROUTE 29.
  - A TRAFFIC LIGHT & RIGHT TURN LANE HAS BEEN APPROVED AND FUNDED FOR THE INTERSECTION OF PAGELAND LANE AND SUDLEY ROAD.

1000 500 0 1000 2000

GRAPHIC SCALE
1" = 1000'

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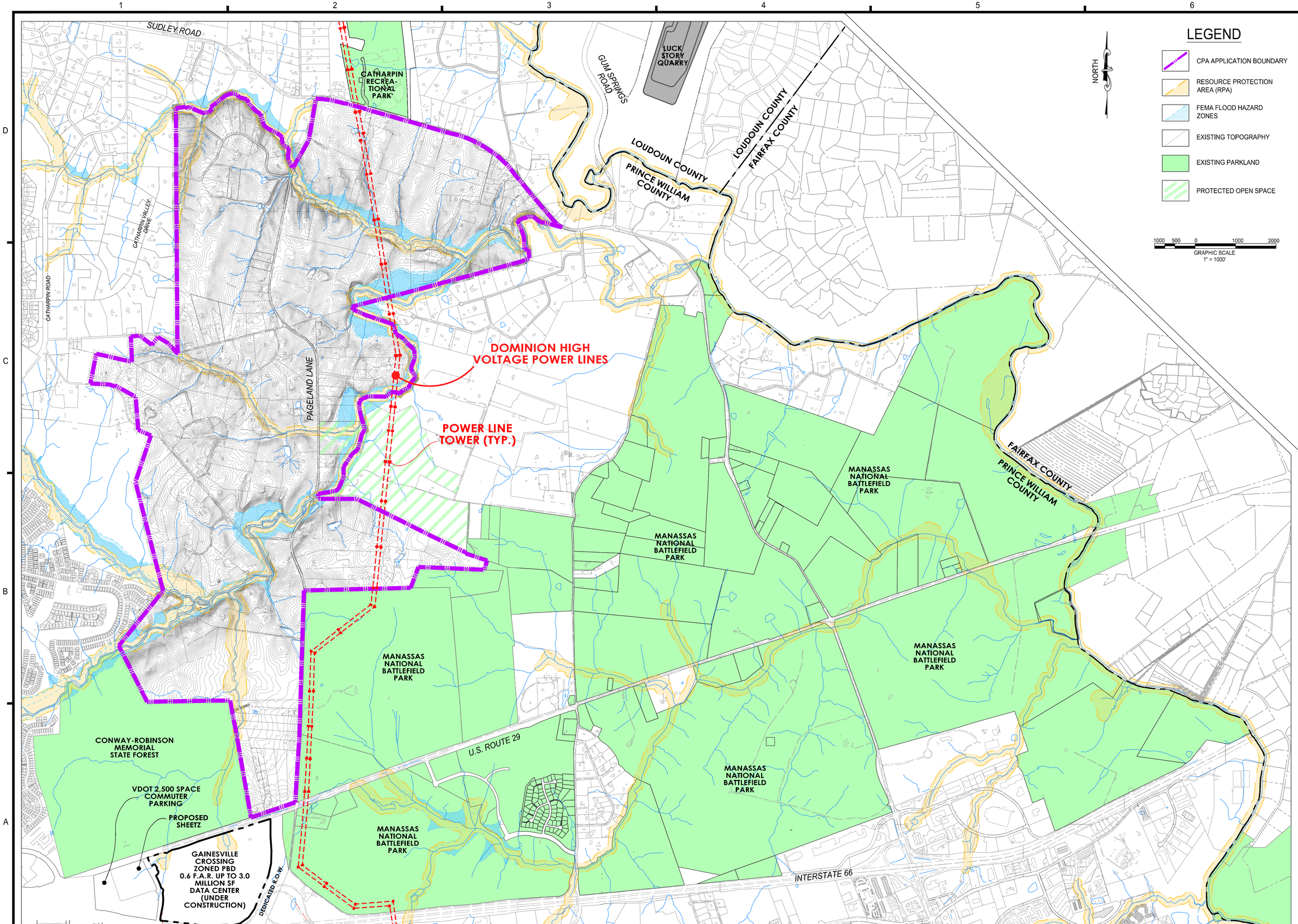
SHEET TITLE:

MOBILITY NETWORK

SHEET No.

6



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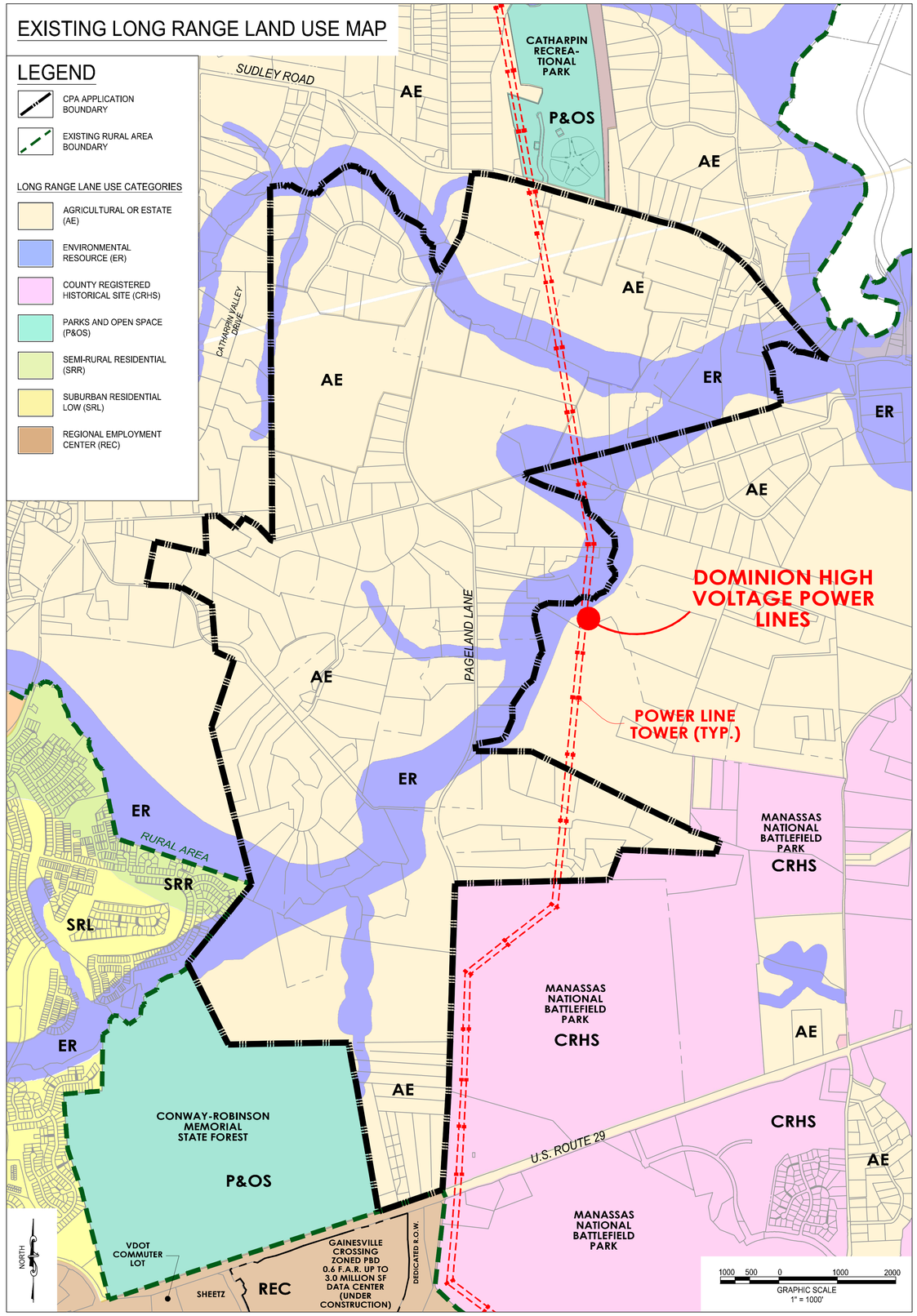
SHEET TITLE:

ENVIRONMENTAL CONDITIONS MAP

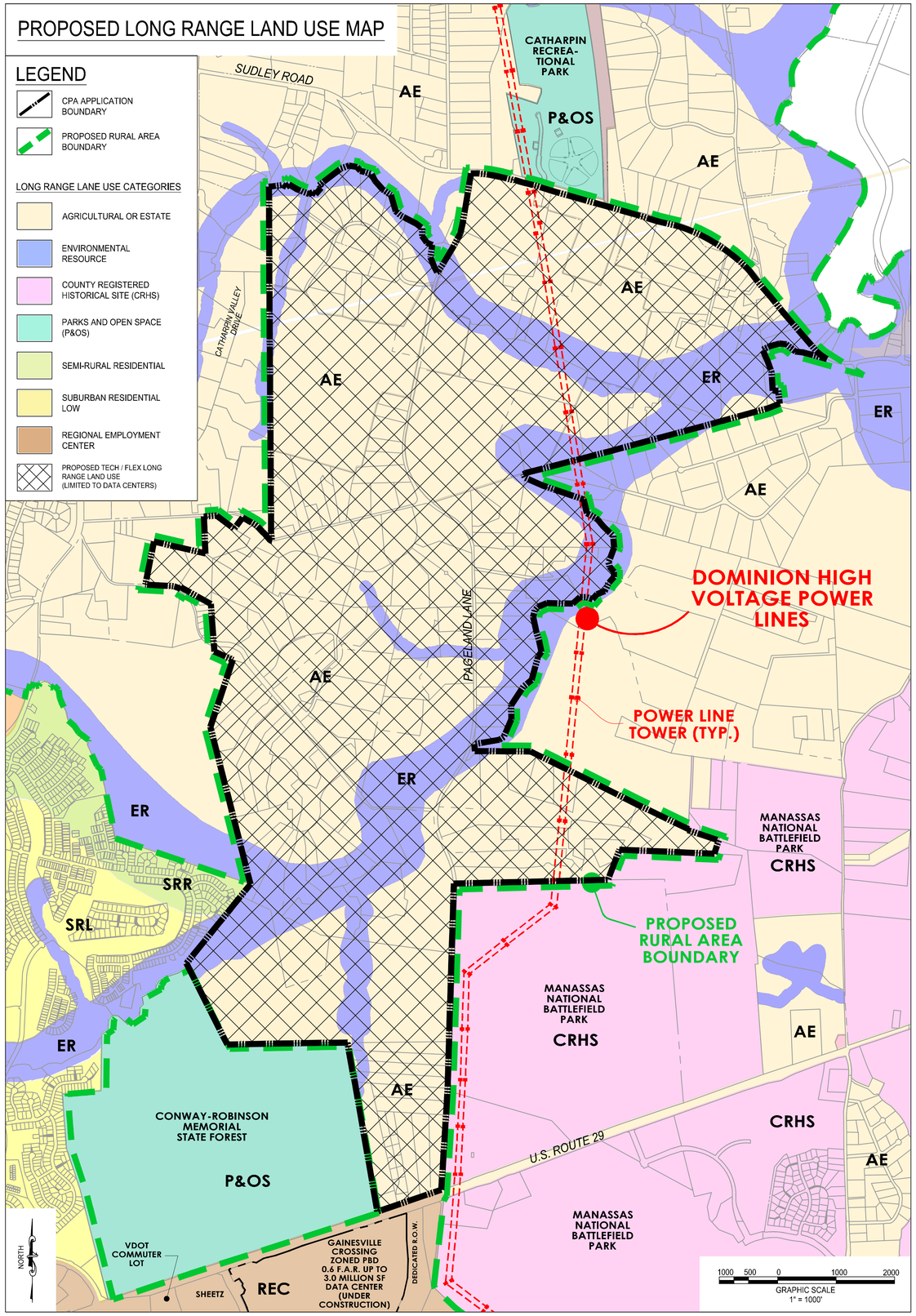
SHEET No.

7

EXISTING LONG RANGE LAND USE MAP



PROPOSED LONG RANGE LAND USE MAP



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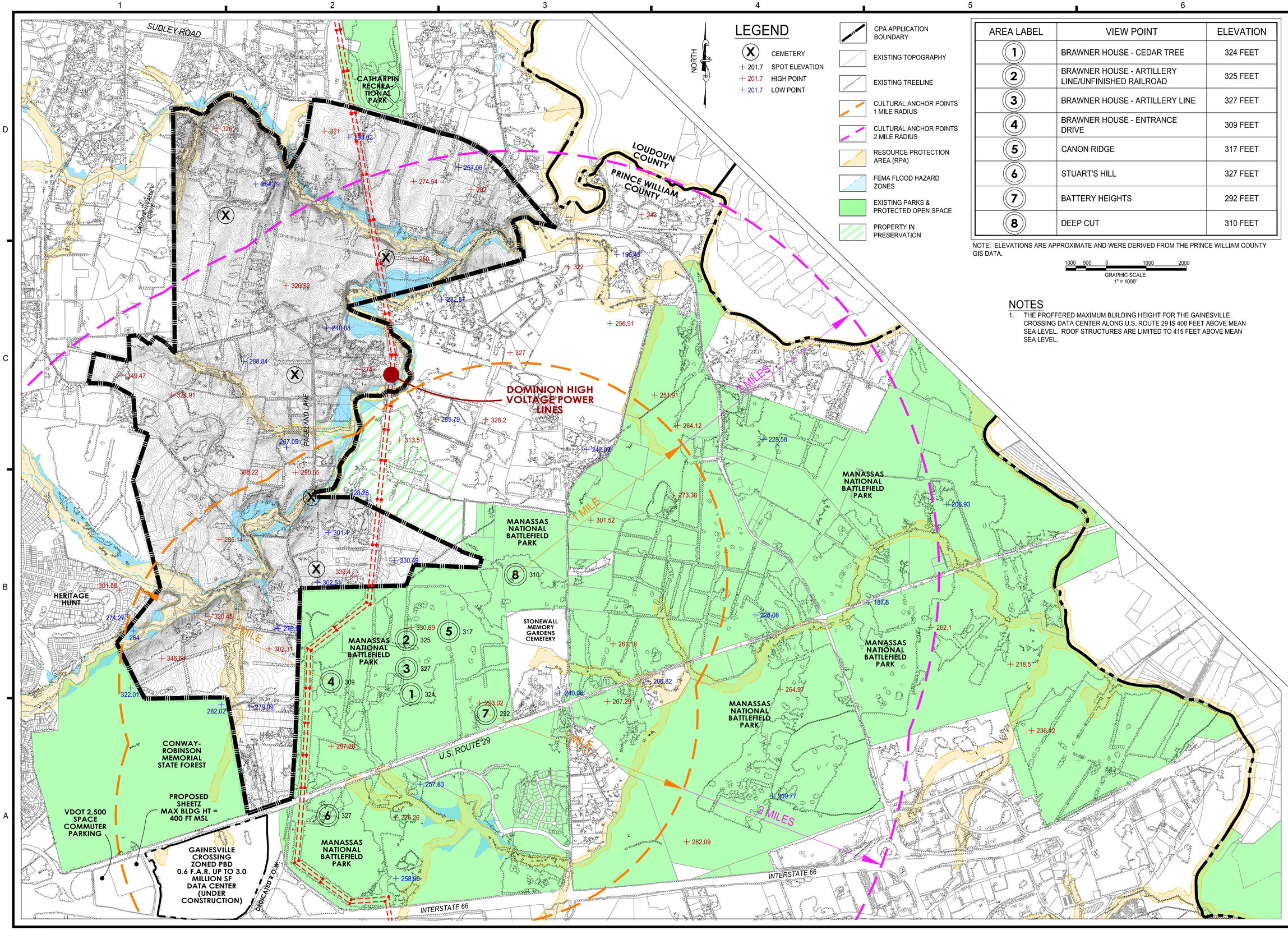
DESIGN: SG/DC
DRAWN: SG/DC
CHECKED: MK

SHEET TITLE:

EXISTING & PROPOSED LONG RANGE LAND USE MAP

SHEET No.

8



AREA LABEL	VIEW POINT	ELEVATION
1	BRAWNER HOUSE - CEDAR TREE	324 FEET
2	BRAWNER HOUSE - ARTILLERY LINE/UNFINISHED RAILROAD	325 FEET
3	BRAWNER HOUSE - ARTILLERY LINE	327 FEET
4	BRAWNER HOUSE - ENTRANCE DRIVE	309 FEET
5	CANON RIDGE	317 FEET
6	STUART'S HILL	327 FEET
7	BATTERY HEIGHTS	292 FEET
8	DEEP CUT	310 FEET

NOTE: ELEVATIONS ARE APPROXIMATE AND WERE DERIVED FROM THE PRINCE WILLIAM COUNTY GIS DATA.

1000 500 0 1000 2000
GRAPHIC SCALE
1" = 1000'

NOTES

1. THE PROFFERED MAXIMUM BUILDING HEIGHT FOR THE GAINESVILLE CROSSING DATA CENTER ALONG U.S. ROUTE 29 IS 400 FEET ABOVE MEAN SEA LEVEL. ROOF STRUCTURES ARE LIMITED TO 415 FEET ABOVE MEAN SEA LEVEL.

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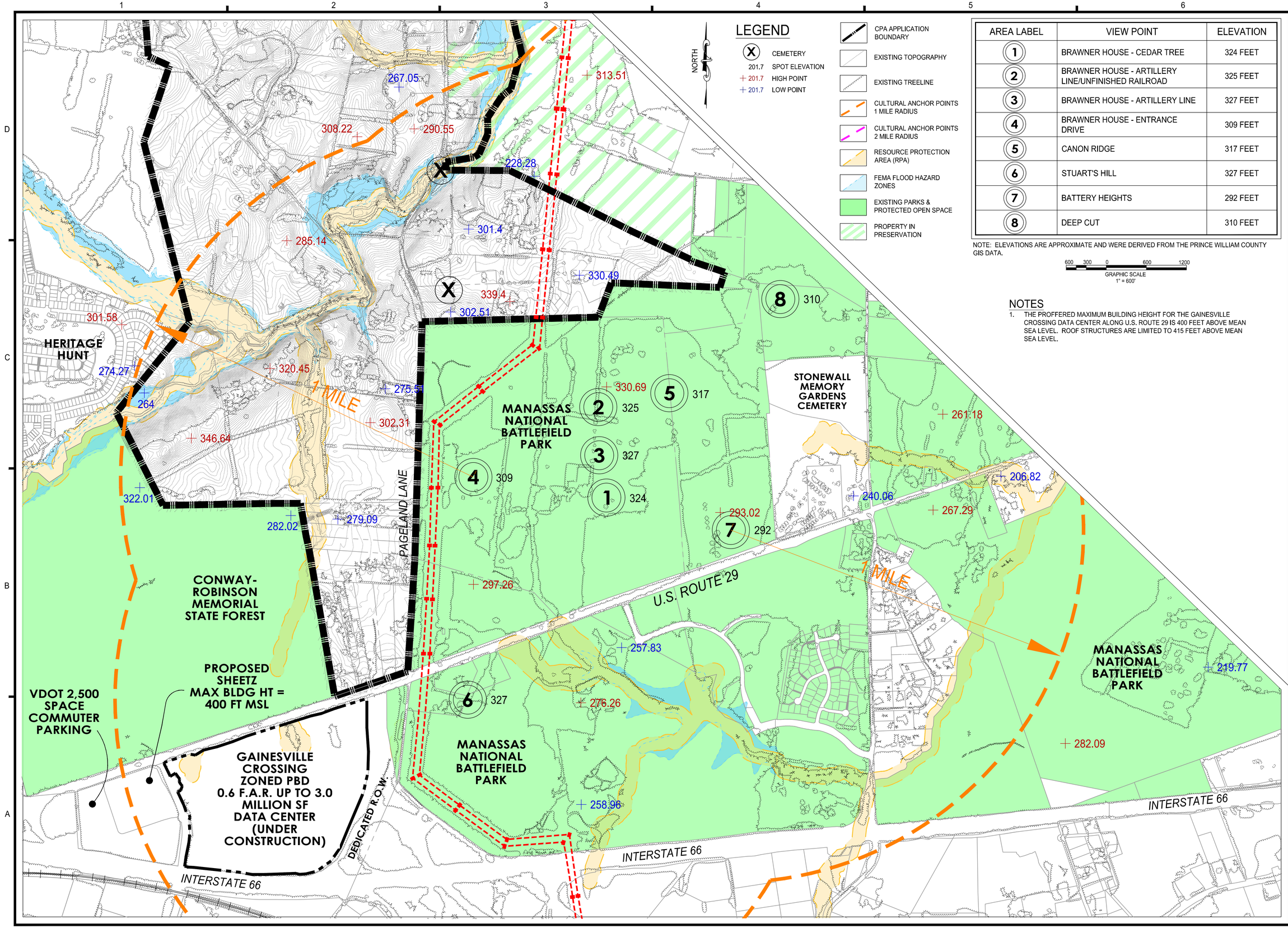
SHEET TITLE:

CULTURAL RESOURCES MAP

SHEET No.

9



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6	STUART'S HILL	327 FEET
7	BATTERY HEIGHTS	292 FEET
8	DEEP CUT	310 FEET

NOTE: ELEVATIONS ARE APPROXIMATE AND WERE DERIVED FROM THE PRINCE WILLIAM COUNTY GIS DATA.

600 300 0 600 1200
GRAPHIC SCALE
1" = 600'

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SHEET TITLE:

CULTURAL RESOURCES MAP (CORE AREA)

SHEET No.

10