Federal Energy Regulatory Commission

Office of Energy Projects

June 2017

Dominion Cove Point LNG, LP **Docket No. CP17-15-000**

Eastern Market Access Project

Environmental Assessment

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas 2
Dominion Cove Point LNG, LP
Docket No. CP17-15-000

TO THE PARTY ADDRESSED:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared this environmental assessment (EA) for the Eastern Market Access Project proposed by Dominion Cove Point LNG, LP (DCP) in the above-referenced docket. DCP requests authorization to construct, install, own, operate, and maintain natural gas facilities in Virginia and Maryland to provide 294,000 dekatherms per day of firm natural gas transportation service.

The EA assesses the potential environmental effects of the construction and operation of the Eastern Market Access Project in accordance with the requirements of the National Environmental Policy Act (NEPA). The FERC staff concludes that approval of the proposed project, with appropriate mitigating measures, would not constitute a major federal action significantly affecting the quality of the natural and human environment.

The project would consist of the following facilities:

- a new 24,370-horsepower (hp) natural gas compressor station and ancillary facilities in Charles County, Maryland;
- two new taps for customer delivery at the existing Washington Gas Light Company Interconnect in Charles County, Maryland;
- one new 7,000-hp electric reciprocating compression unit and discharge gas cooler, replacement of three gas coolers and compression cylinders for three existing reciprocating compressors, and an increase to 30-inch-diameter discharge piping at the existing Loudoun Compressor Station in Loudoun County, Virginia;
- one new meter building to enclose existing equipment at the Loudoun Metering and Regulating Station in Loudoun County, Virginia; and
- re-wheeling of the compressor on an existing 17,400-hp electric unit and upgrading of two gas coolers at the Pleasant Valley Compressor Station in Fairfax County, Virginia.

The FERC staff mailed copies of the EA to federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners and other interested individuals and groups; and newspapers and libraries in the project area. In addition, the EA is available for public viewing on FERC's website (www.ferc.gov) using the eLibrary link. A limited number of copies of the EA are available for distribution and public inspection at:

Federal Energy Regulatory Commission
Public Reference Room
888 First Street NE, Room 2A
Washington, DC 20426
(202) 502-8371

Any person wishing to comment on the EA may do so. Your comments should focus on the potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they will be. To ensure that the Commission has the opportunity to consider your comments prior to making its decision on this project, it is important that we receive your comments in Washington, DC on or before **July 27, 2017**.

For your convenience, there are three methods you can use to file your comments with the Commission. In all instances please reference the project docket number (CP17-15-000) with your submission. The Commission encourages electronic filing of comments and has expert staff available to assist you at 202-502-8258 or FercOnlineSupport@ferc.gov.

(1) You can file your comments electronically using the eComment feature located on the Commission's website (www.ferc.gov) under the link to Documents and Filings. This is an easy method for submitting brief, text-only comments on a project;

(2) You can also file your comments electronically using the eFiling feature on the Commission's website (www.ferc.gov) under the link to Documents and Filings. With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on "eRegister." You must select the type of filing you are making. If you are filing a comment on a particular project, please select "Comment on a Filing"; or

(3) You can file a paper copy of your comments by mailing them to the following address:

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

Any person seeking to become a party to the proceeding must file a motion to intervene pursuant to Rule 214 of the Commission's Rules of Practice and Procedures (18 CFR 385.214).[1] Only intervenors have the right to seek rehearing of the Commission's decision. The Commission grants affected landowners and others with environmental concerns intervenor status upon showing good cause by stating that they have a clear and direct interest in this proceeding which no other party can adequately represent. **Simply filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered.**

Additional information about the project is available from the Commission's Office of External Affairs, at **(866) 208-FERC,** or on the FERC website (www.ferc.gov) using the eLibrary link. Click on the eLibrary link, click on "General Search," and enter the docket number excluding the last three digits in the Docket Number field (i.e., CP17-15). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659. The eLibrary link also provides access to the texts of formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription, which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to www.ferc.gov/docs-filing/esubscription.asp.

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[1] See the previous discussion on the methods for filing comments.

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ABBREVIATIONS AND ACRONYMS

ACHP	Advisory Council on Historic Preservation
APE	area of potential effects
AQCR	Air Quality Control Region
CAA	Clean Air Act of 1970
CEQ	Council on Environmental Quality
Certificate	Certificate of Public Convenience and Necessity
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
Columbia	Columbia Gas Transmission, LLC
COMAR	Code of Maryland Regulations
Commission	Federal Energy Regulatory Commission
dB	decibel
dBA	A-weighted decibel
DCP	Dominion Cove Point LNG, LP
DOT	U.S. Department of Transportation
E&SC Plan	Erosion and Sediment Control Plan
EA	environmental assessment
EI	environmental inspector
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FIDS	Forest Interior Dwelling Species
FWS	U.S. Fish and Wildlife Service
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutants
hp	horsepower
L_{dn}	day-night sound level
L_{eq}	equivalent sound level
M&R	metering and regulating
Mattawoman Energy	Mattawoman Energy, LLC
MBTA	Migratory Bird Treaty Act
MDE	Maryland Department of the Environment
MDNR	Maryland Department of Natural Resources
mgd	million gallons per day
MW	megawatt
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969

NESHAP	National Emissions Standards for Hazardous Air Pollutants
NGA	Natural Gas Act
NNSR	Nonattainment New Source Review
NO_2	nitrogen dioxide
NOI	Notice of Intent to Prepare an Environmental Assessment for the Eastern Market Access Project, Request for Comments, and Notice of Public Scoping Session
NO_x	nitrogen oxides
NRHP	National Register of Historic Places
NSA	Noise Sensitive Area
NSPS	New Source Performance Standards
NSR	New Source Review
OEP	Office of Energy Projects
OTR	Ozone Transport Region
Plan	*Upland Erosion Control, Revegetation, and Maintenance Plan*
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
Procedures	*Wetland and Waterbody Construction and Mitigation Procedures*
PSD	Prevention of Significant Deterioration
RMP	Risk Management Plan
SCR	selective catalytic reduction
Secretary	Secretary of the Commission
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPCC Plans	Spill Prevention Containment and Countermeasure Plans
tpy	tons per year
UDP	unanticipated discovery plan
USGS	United State Geological Survey
VCACS	Virginia Department of Agriculture and Consumer Services
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VDGIF	Virginia Department of Game and Inland Fisheries
VOC	volatile organic compound
WGL	Washington Gas Light Company

SECTION A – PROPOSED ACTION

1.0 INTRODUCTION

The staff of the Federal Energy Regulatory Commission (Commission or FERC) has prepared this environmental assessment (EA) to assess the environmental effects of the natural gas pipeline facilities proposed by Dominion Cove Point LNG, LP (DCP). We[1] prepared this EA in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA) (Title 40 of the Code of Federal Regulations [CFR] Parts 1500-1508) and with the Commission's implementing regulations under 18 CFR 380.

On November 15, 2016, DCP filed an application with the Commission in Docket No. CP17-15-000 for the Eastern Market Access Project (Project) under Section 7(c) of the Natural Gas Act (NGA) and Part 157 of the Commission's regulations. DCP seeks to construct and operate certain natural gas facilities in Maryland and Virginia. The Project would deliver up to 294,000 dekatherms per day of firm natural gas transportation service to Washington Gas Light Company (WGL) and Mattawoman Energy, LLC's (Mattawoman Energy) planned Mattawoman Energy Center in Prince George's County, Maryland.

The EA is an important and integral part of the Commission's decision on whether to issue DCP a Certificate of Public Convenience and Necessity (Certificate) to construct and operate the proposed facilities. Our principal purposes in preparing this EA are to:

1) identify and assess potential impacts on the natural and human environment that could result from implementation of the proposed action;

2) identify and recommend reasonable alternatives and specific mitigation measures, as necessary, to avoid or minimize project-related environmental impacts; and

3) facilitate public involvement in the environmental review process.

2.0 PURPOSE AND NEED

DCP's stated purpose for the Project is to provide 294,000 dekatherms per day of natural gas and firm transportation services for a local distribution company (WGL) and to fuel a power generation facility (Mattawoman Energy's Mattawoman Energy Center) to help meet the need of increasing demand for natural gas in the Mid-Atlantic region.

DCP states that the Project would help WGL ensure system reliability and accommodate load growth. Mattawoman is planning to build a 990-megawatt (MW) combined-cycle gas-fired generating station (the Mattawoman Energy Center) in Prince George's County, Maryland. Given its proximity to the planned Mattawoman Energy Center site, Mattawoman is contracting with DCP as the main source of natural gas for the power generating station. The Mattawoman Energy Center would provide power to the Maryland power grid and supply the power needs of up to 990,000 homes (Panda, 2017).

Under Section 7 of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate to construct and operate them. The Commission bases its decisions on technical competence, financing, rates,

[1] The pronouns "we," "us," and "our" refers to environmental staff of the Office of Energy Projects.

market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a proposed project.

3.0 PROPOSED FACILITIES

DCP's Eastern Market Access Project would involve the installation of new facilities and modification of existing facilities. A general location map and aerial photographs of all Project facilities are provided in the appendix (figures A.3-1 through A.3-5). The proposed Project would consist of the following:

- a new 24,370 horsepower (hp) natural gas compressor station, Charles Station, and ancillary facilities in Charles County, Maryland;
- two new delivery taps at the existing WGL Interconnect in Charles County, Maryland;
- one new 7,000 hp electric reciprocating compression unit and discharge gas cooler, replacement of three gas coolers and compression cylinders for three existing reciprocating compressors, and an increase to 30-inch-diameter discharge piping at the existing Loudoun Compressor Station in Loudoun County, Virginia;
- one new meter building to enclose existing equipment at the Loudoun Metering and Regulating Station (M&R) in Loudoun County, Virginia.
- re-wheeling of the compressor on an existing 17,400 hp electric unit and upgrading of two gas coolers at the Pleasant Valley Compressor Station in Fairfax County, Virginia.

4.0 NON-JURISDICTIONAL FACILITIES

Non-jurisdictional facilities are facilities that are related to the Project for the purpose of delivering, receiving, or using the proposed natural gas volumes, and may include facilities to be built and owned by other companies that are not subject to FERC jurisdiction. Non-jurisdictional facilities may include laterals or other pipeline-related facilities that may be constructed to allow Project interconnections for the receipt or delivery of the proposed natural gas volumes, or electric distribution systems that may be constructed to provide electricity or other services to Project facilities. Non-jurisdictional facilities associated with the Eastern Market Access Project include the following facilities:

- WGL M&R Station;
- Mattawoman Energy's Pipeline and M&R Station;
- Mattawoman Energy Center;
- Charles Station Bridge Replacement and Utilities; and
- Loudoun Compressor Station Electrical Power Installation.

Figures A.4-1, A.4-2, and A.4-3 display the Charles Station septic system, Mattawoman Pipeline and M&R Station, and WGL M&R Station locations, respectively. Electrical modifications at the Loudoun Compressor Station and the Charles Bridge Replacement would be constructed within DCP's maintained property boundaries. We received a comment that all related projects (i.e., non-jurisdictional projects) should be considered in a single environmental document. The facilities listed above are not under FERC jurisdiction. As such, permitting/approval of these activities would be completed by other federal, state, and local agencies. While the Commission is not responsible for authorizing these non-jurisdictional projects, we provide further description in the following subsections to disclose the nature and extent of the

non-jurisdictional facilities. Furthermore, we consider the impacts associated with these facilities in our cumulative impacts analysis in section 10.0 of this EA.

4.1 WGL M&R Station

WGL would construct, own, and operate a new M&R station adjacent to DCP's existing WGL Interconnect in Charles County, Maryland. The M&R station would be sited on a 9.8-acre parcel of land owned by WGL, who would be responsible for obtaining all required permits and clearances necessary to construct and operate the facility. Once the Eastern Market Access Project is complete, WGL would receive the new gas volumes at its new WGL M&R Station.

TABLE A.4.1-1

Permits and Approvals for the WGL M&R Station

Certificates/Permits/Approvals	Administering Agency	Status
Federal		
Clean Water Act, Section 404 Permit	United States Army Corps of Engineers, Baltimore District	Not anticipated to be required. No wetlands or streams on site.
Endangered Species Act, Section 7 Consultation	U.S. Fish and Wildlife Service	To be completed if required
State - Maryland		
Section 401 Water Quality Certification	Maryland Department of the Environment	Not anticipated to be required. No wetlands or streams on site.
General National Pollutant Discharge Elimination System (NPDES)	Maryland Department of the Environment	NOI to be submitted.
Air Quality General Permit to Construct & Registration Application for Medium Fuel Burning (Boiler/Heater) Equipment and Emergency Generators	Maryland Department of the Environment	Anticipated to be required for line heaters and emergency generator. To be submitted.
Nongame and Endangered Species Conservation Act	Maryland Department of Natural Resources	Consultation to be initiated
National Historic Preservation Act, Section 106 Compliance	Maryland Historical Trust	To be completed if required. Area previously surface mined for sand/gravel.
Charles County and Local		
Special Exception Application	Charles County Board of Appeals, Zoning Officer, Department of Planning and Growth Management	To be submitted
Grading & Sediment Control Ordinance	Charles County Department of Planning and Growth Management	To be submitted
Application under Charles County Forest Conservation Program	Charles County Department of Planning and Growth Management	To be submitted
Building and Zoning Permit Application	Charles County Department of Planning and Growth Management	To be submitted
Charles County Pretreatment Program Wastewater Discharge Permit Application (sewer)	Charles County Department of Planning and Growth Management	To be submitted
Cross Connection Control Permit Application (water)	Charles County Department of Planning and Growth Management	To be submitted
Plumbing Permit	Charles County Department of Planning and Growth Management	To be submitted
Electrical Permit	Charles County Department of Planning and Growth Management	To be submitted
Mechanical Permit (HVAC)	Charles County Department of Planning and Growth Management	To be submitted

4.2 Mattawoman Energy's Pipeline and M&R Station

As part of its Mattawoman Energy Center, Mattawoman Energy would construct the new Mattawoman M&R Station; however, DCP would operate the M&R station under an operating agreement. Mattawoman Energy would be required to obtain all permits and clearances required for construction of the facility. Once the Eastern Market Access Project is complete, Mattawoman Energy would receive the new gas volumes at its new Mattawoman M&R Station.

Mattawoman would also construct a 20-inch-diameter, 9-mile-long pipeline from the Mattawoman Energy Center to DCP's existing pipeline. Mattawoman Energy would be responsible for obtaining all permits for the construction and operation of the pipeline. The pipeline would be owned and operated by Mattawoman Energy. The Mattawoman M&R Station would tie into the pipeline to receive and transport the new gas volumes at the Mattawoman Energy Center. Tables A.4.2-1 and A.4.2-2 provide the required permits and permit statuses for the Mattawoman Pipeline and M&R Station.

TABLE A.4.2-1

Permits and Approvals for the Mattawoman Pipeline

Certificates/Permits/Approvals	Administering Agency	Status
Federal		
CWA Section 404 Individual Wetland Permit-Wetland Mitigation Area Design and Approval/ 2015-60734	United States Army Corps of Engineers	Complete
Endangered Species Act, Section 7 Consultation	U.S. Fish and Wildlife Service	Unknown
National Historic Preservation Act, Section 106 Consultation	Maryland Historical Trust	Unknown
State – Maryland		
Certificate of Public Convenience and Necessity	MD Public Service Commission	Complete
Non-tidal Wetlands and Waterways Permit / 15-NT-0158	MD Department of the Environment	Complete
Section 401 Water Quality Certification	Maryland Department of the Environment	Complete
General Permit for Stormwater Associated with Construction Activities. (NOI) Notice of Intent / MDRCY01XU	MD Department of the Environment	Complete
Forest Conservation Plan	MDNR; Prince George's County; Charles County	Open
County – Prince Georges		
Maintenance Utility Permit / 38644-2015-0	Prince George's County	Complete
MOU (Memorandum of Understanding) Entitlement	Prince George's County	Complete
Erosion and Sediment Control Plan Engineering Plan	Prince George's County	Open
Erosion and Sediment Control Permit Construction	Prince George's County	Open
Grading Permit	Prince George's County	Open
Washington Suburban Sanitary Commission (WSSC)		
Erosion and Sediment Control Plan Engineering Plan	WSSC	Open
Erosion and Sediment Control Permit Construction	WSSC	Open

TABLE A.4.2-2

Permits and Approvals for the Mattawoman M&R Station

Certificates/Permits/Approvals	Administering Agency	Status
Federal		
Endangered Species Act, Section 7 Consultation	U.S. Fish and Wildlife Service	Unknown
National Historic Preservation Act, Section 106 Consultation	Maryland Historical Trust	Unknown
State – Maryland		
Certificate of Public Convenience and Necessity	Public Service Commission	Complete
General Permit for Stormwater Associated with Construction Activities Notice of Intent	Maryland Department of the Environment	Complete
Forest Conservation Plan	MD Department of Natural Resources, Prince Georges and Charles Counties	Open
County – Charles County		
Special Exception Application	Charles County Board of Appeals, Zoning Officer, Department of Planning and Growth Management	Complete
Stormwater Management and ESC Concepts	Charles County Department of Planning and Growth Management	Open
Site Plan and Grading Plan	Charles County Department of Planning and Growth Management	Open
Landscape Plan	Charles County Department of Planning and Growth Management	Open
Erosion & Sediment Control Plan	Charles County Department of Planning and Growth Management	Open
Site/Final Stormwater Management Plans	Charles County Department of Planning and Growth Management	Open
Entrance Permit	Charles County Department of Planning and Growth Management	Open
Grading Permit	Charles County Department of Planning and Growth Management	Open
Building Permit	Charles County Department of Planning and Growth Management	Open
Fence Permit	Charles County Department of Planning and Growth Management	Open

4.3 Mattawoman Energy Center

Mattawoman Energy would construct a new power plant on an 88-acre site owned by Mattawoman Energy in Prince George's County, Maryland and would receive a portion of the additional gas volumes provided by the Project. According to its website, once operational, the Mattawoman Energy Center would be capable of generating 990 MWs of electricity per year, which could provide power to more than 990,000 Maryland homes per year. Mattawoman Energy received its state approval of the facility on November 13, 2015 from the Maryland Public Service Commission, who conducted the environmental review associated with construction and operation of the facility. Mattawoman Energy estimates that its project would take approximately 30 months to complete. While some smaller aspects of the project have been, or are currently, under construction, construction of the Mattawoman Energy Center itself has not begun. We received numerous comments alleging that Mattawoman Energy has not obtained all permits for its Project. The permits required for the Mattawoman Energy Center and their status are provided below; however, this project is not under the Commission's jurisdiction and enforcement of permitting or permitting requirements for the Mattawoman Energy Center is outside the scope of this EA. Table A.4.3-1 provides the permits and permit statuses for the Mattawoman Energy Center.

TABLE A.4.3-1

Permits and Approvals for the Mattawoman Energy Center

Certificates/Permits/Approvals	Administering Agency	Status
Federal		
Determination of No Hazard to Air Navigation – permanent plant HRSG Stacks	FAA, MAA	Complete
Determination of No Hazard to Air Navigation – Bechtel Construction Cranes	FAA, MAA	Complete
Determination of No Hazard to Air Navigation – other Permanent Plant Structures	FAA	Complete
Fuel Use Act Self Certification	U.S. Department of Energy	Complete
Endangered Species Act, Section 7 Consultation	U.S. Fish and Wildlife Service	Unknown
National Historic Preservation Act, Section 106 Consultation	Maryland Historical Trust	Unknown
Clean Water Act Section 404 Individual Wetland Permit- Wetland Mitigation Area Design and Approval	United States Army Corps of Engineers	Complete
State – Maryland		
Certificate of Public Convenience and Necessity	Public Service Commission	Complete
Clean Water Act Section 401 Water Quality Certification- Plant Site Evaluation.	MDE Waste Management Administration	Complete
Clean Water Act Section 404 Individual Wetland Permit- Wetland Mitigation Area Design and Approval	MDE Waste Management Administration	Complete
General Permit for Stormwater Associated with Construction Activity (NOI) Notice of Intent	MDE Waste Management Administration	Complete
Temporary Access Permit	State Highway Administration	Complete
Forest Conservation Plan	MDNR; Prince Georges and Charles Counties	Open
County – Prince Georges		
Mandatory Referral Plan	MNCPPC	Complete
Tree Conservation Plan	Parks & Planning Commission	Complete
Storm Drain and Paving Plan	MDE, PGC	Complete
Natural Resource Inventory Plan	PGC	Complete
Landscape	PGC	Complete
Storm Drain and Paving Plan	MDE, PGC	Complete
Erosion & Sediment Control Plan	PGC Soil Conservation District	Complete
Grading Permit	PGC DPIE	Complete
Washington Suburban Sanitary Commission (WSSC)		
Potable Water / Sewer Connection Plan Approval	WSSC	Complete
Potable Water / Sewer Connection Construction Permit	WSSC	Open

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FA = U.S. Federal Aviation Administration
MAA = Maryland Aviation Administration
MDE = Maryland Department of the Environment
MDNR = Maryland Department of Natural Resources
MNCPPC Maryland National Capital Park and Planning Commission
PGC: Prince Georges County
DPIE: Department of Permitting, Inspections and Enforcement

4.4 Charles Station Bridge Replacement and Utilities

DCP would replace the existing Charles Station Bridge at the entrance to the proposed Charles Station site and install a water well, septic system, and electrical power at the station. These facilities would be within the footprint of the proposed Charles Station site.

The existing steel I-beam timber deck bridge would be replaced with a wider steel I-beam concrete deck bridge. DCP would also widen the existing driveway to provide an adequate turning radius. The Charles Station site currently has a water well and septic tank; however, these would be relocated and designed to accommodate the operational needs at the Charles Station. DCP would obtain all appropriate permits and clearances for these new facilities. Table A.4-4 provides the permits required for the Bridge Replacement. DCP would be required to obtain a Clean Water Act Section 404 Joint Nontidal Wetlands Permit from the U.S. Army Corps of Engineers – Baltimore District and the Maryland Department of the Environment. This permit was submitted on February 15, 2017 and appended on May 12, 2017. DCP is awaiting issuance. DCP would also apply for all necessary local permits with Charles County, including a septic system permit required by the Charles County Health Department. This could also include electrical permits that may be required for the electrical utility installations.

4.5 Loudoun Compressor Station Electrical Power Installation

The Northern Virginia Electric Cooperative would install additional electrical power at the Loudoun Compressor Station to accommodate the new unit proposed at the site. The Northern Virginia Electric Cooperative would be responsible for obtaining the permits and approvals required to construct the necessary facilities. The new electric power facilities would be on DCP property within the existing Loudoun Compressor Station property boundaries. The Northern Virginia Electric Cooperative would be required to obtain all necessary state and local permits for the electrical power it would install at the Loudoun Compressor Station.

5.0 PUBLIC REVIEW AND COMMENT

On February 15, 2017, the Commission issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Eastern Market Access Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Session* (NOI). The NOI was published in the Federal Register and mailed to 542 entities, including federal, state, and local government representatives and agencies; elected officials; Native American tribes; environmental and public interest groups; newspapers and libraries in the Project area; and affected landowners and interested parties.

On March 2, 2017, we conducted a public scoping session in Waldorf, Maryland to provide an opportunity for stakeholders to learn more about the Project and identify issues to be addressed in the EA. Approximately 20 people attended. The transcripts of the public scoping session and all written scoping comments are part of the public record for the Project and are available for viewing on the FERC website using the eLibrary link.

We received a total of 365 comments prior to issuing and in response to the NOI. Commenters include 2 federal agencies, 5 local agencies, 4 state agencies, 3 non-governmental agencies, 20 companies (including 12 Chambers of Commerce), and 331 individuals. Of the 331 individual comments, 120 expressed support for the Project and 211 were in opposition.

The comments raised include a wide variety of environmental resource impacts, including geology and soils, air quality and noise, public safety, vegetation and wildlife, water resources (wetlands and waterbodies), groundwater, migratory birds, cultural resources, land use, recreation, and visual resources,

and socioeconomics. Cumulative impacts and alternatives issues were also raised. All issues and concerns raised in the comments are addressed in this EA in the appropriate resource section discussions, as identified below in table A-5.1-1.

TABLE A.5.1-1

Summary of Scoping Comments

Comment Summary	Section Where Concern is Addressed
NEPA Document/Process – No public process/outreach occurred; extend comment period; an EIS is required, segmentation (analyze DCP projects together), purpose and need, no expansion at Loudoun due to proximity Greene Mill Preserve and prior commitments.	A.5, B.10 (all)
Permitting – No local permits obtained; Mattawoman Energy Center not permitted.	A.6, A.4.3
Geology and Soils – Earthquakes, flooding, potential for soil liquefaction, sediment/runoff impacts on Mill Swamp, wastewater treatment ponds (groundwater impacts).	B.1.2, B.1.2, B.2.0, B.3.1
Water Resources – Wetland impacts, wetland delineation inaccurate at Charles Station site, water-dwelling species impacts, stormwater management/runoff.	B.3.2, B.3.1, B.6.1
Wildlife – Artificial light impacts, impacts on threatened and endangered species, sighting of various wildlife at the Charles Station site, livestock impacts, migratory birds, threatened and endangered species.	B.3.4, B.3.5, B.3.6.1, B.3.6.2
Cultural Resources – Impacts on Piscataway National Park; impacts on Native American tribes.	B.5.1.3, B.6.3
Land Use/Visual Resources – Charles Station is sited in a residential area, zoning inconsistency, improper land use at Charles Station, recreational impacts, GreenPrint Program (Maryland), lighting impacts; increased industrialization; stack height visual impacts; viewshed impacts at Charles Station.	B.6.1, B.6.3, B.6.5
Socioeconomics – No benefit to the local community, public services, property values, environmental justice concerns.	B.7.6, B.7.3, B.7.5, B.7.7, B.10.4
Air Quality and Noise – health concerns (human and wildlife), methane leaks; general emissions concerns, hazardous pollutants, ammonia emissions, fugitive emissions, blowdown emissions, air/noise impact on Marshall Hall Boat Landing, radon, general noise, noise complaints from Loudoun Compressor Station, blowdown noise, missing noise receptors, low frequency noise.	B.8.1.2, B.8.1.3, B.8.1.4, B.8.1.5, B.8.2.3
Safety – general safety concerns; risk of failure/explosion; pressure increase concerns; concerns with inadequate emergency infrastructure to handle an incident (Charles Station); Charles Station would be unmanned; no public notification of an incident; request for an emergency response and evacuation plan developed with the Loudoun County Police Department; flaring; notification of blowdowns; emergency response plan needed, terrorism.	B.9.1, B.9.2
Cumulative Impacts – Environmental impact of several power plants in Prince George's County, Cove Point LNG Terminal, and Leidy South; environmental justice, climate change.	B.10 (all), B.10.4, B.10.8
Alternatives – Charles Station alternatives, electric compression.	C.5, C.4

Numerous commenters near the Charles Station stated that DCP did not provide sufficient notification of the Project and requested that the Commission extend the comment period beyond 30 days. We note that the FERC regulations at 18 CFR 157.6(d)(2) require applicants to notify in writing all landowners within a 0.5-mile radius of a proposed compressor station or its enclosure (defined as affected landowners) and publish a notice twice in a daily or weekly newspaper of general circulation in each county in which facilities are proposed. DCP demonstrated compliance with these requirements by providing written notification to affected landowners, including an "introductory letter" mailed to landowners within 1 mile of the Charles Station and Loudoun Compressor Station. As outlined in its Public Outreach Plan, DCP also attended meetings with and/or presented project details to elected officials and county boards in Charles, Prince George's, Loudoun, and Fairfax Counties. Finally, DCP held two open houses in the Project area in Charles County (October 25, 2016) and Loudoun County (October 26, 2016), each of which was noticed in local newspapers and well attended. DCP's Public Outreach Plan, in its entirety, can be found in DCP's application.[2]

[2] This can be found in Resource Report 1 from DCP's application. At http://www.ferc.gov, click on "eLibrary," select "Advanced Search," and enter 20161115-5082 in the "Numbers: Accession Number" field.

We received comments disputing the need for gas in the delivery area, specifically in Maryland. DCP has entered into long-term precedent agreements for the natural gas volumes to two specific customers, both of whom currently or would in the future provide natural gas service to customers in Maryland. Additionally, the U.S. Energy Information Administration (EIA) projects natural gas will be the largest source of U.S. electricity generation this summer, exceeding that of coal (EIA, 2017). In Maryland, natural gas could offset coal-fired electric generation. Electric generation facilities in Maryland have requested deactivation of some units because of the low cost of natural gas and the high cost of new emission control equipment at coal-fired facilities (EIA, 2016). Several commenters alleged that DCP improperly segmented its Project. These commenters requested that an environmental impact statement (EIS), rather than an EA, be prepared to assess the impact of the Project. The Commission's regulations under 18 CFR 306(b) state that "If the Commission believes that a proposed action… may not be a major federal action significantly affecting the quality of the human environment, an EA, rather than an EIS, will be prepared first. Depending on the outcome of the EA, an EIS may or may not be prepared." In preparing this EA, we are fulfilling our obligation under NEPA to consider and disclose the environmental impacts of the Project. As noted previously, this EA addresses the impacts that could occur on a wide range of resources should the Project be approved and constructed. Based on our analysis, the extent and content of comments received during the scoping period, and the fact that Project facilities would be largely collocated with existing facilities, we conclude in section D (Conclusions and Recommendations) that the impacts associated with this Project can be sufficiently mitigated to support a finding of no significant impact and, thus, an EA is warranted.

We received numerous comments stating that EA should analyze the cumulative impacts of previously Certificated projects, including the Dominion Cove Point LNG Export Terminal Project and Leidy South Project, among others. Commenters also believe that the impacts associated with general development, namely several operating or planned electric generation facilities, should be analyzed. These projects are independent of the Eastern Market Access Project or would be non-jurisdictional to FERC and undergo a separate environmental review process; however, the cumulative impacts of these projects are discussed in section B.10.0 of this EA.

We received comments that the EA should address the indirect impacts of "development activities in the Marcellus shale formations" (induced shale development). There is not a sufficient causal link between the proposed Project and additional development of shale resources to warrant analysis of such development as an impact of the proposed Project. In addition, impacts that may result from additional shale gas development are not "reasonably foreseeable" as defined by the Council on Environmental Quality (CEQ) regulations. The ongoing development of the Marcellus shale, which is regulated by the states, continues to drive demand for takeaway interstate pipeline transmission facilities. Many production facilities have already been permitted and/or constructed in the region, creating a network through which natural gas may flow along various pathways to local users or the interstate pipeline system, including DCP's system. However, we can only speculate about the specific details, including the timing, location, and number of additional production wells that may or may not be drilled. DCP would receive any additional production through its interconnections with other natural gas pipelines. These interconnecting pipeline systems span multiple states with shale, as well as conventional, gas formations. We cannot estimate how much of the Project volumes would come from current/existing shale gas production and how much, if any, would be new production "attributable" to the Project.

We received numerous comments alleging that FERC staff determined that the Loudoun Compressor Station was not an appropriate site for expansion due to its proximity to the Greene Mill Preserve in Leesburg, Virginia, which is incorrect. The commenters also provided a quote alleging that DCP stated it would not expand the Loudoun Compressor Station; however, the commenters omitted the

full quote in which DCP stated, "No additional compression will be added to the existing Loudoun Compressor Station *as part of this Project.*" (i.e., the Dominion Cove Point Liquefaction Project).[3]

We received numerous comments alleging that DCP has not obtained local permits. The permits required for the Project and their statuses are provided in table A.6.1-1.[4] FERC encourages cooperation between applicants and state and local authorities; however, it should be noted that any state or local permits issued with respect to jurisdictional facilities must be consistent with the conditions of any authorization the Commission may issue. State and local agencies, through application of state and local laws, may not prohibit or unreasonably delay the construction or operation of facilities approved by FERC. We recommend, however, that DCP provide evidence that it has obtained all necessary federal permits, including those delegated to states, prior to construction (see recommended condition 9).

6.0 PERMITS, APPROVALS, AND REGULATORY CONSULTATIONS

DCP would obtain all necessary permits, licenses, clearances, and approvals related to construction and operation of the Eastern Market Access Project. DCP would provide all relevant permits and approvals to the contractor, who would be required to adhere to applicable requirements. Table A.6.1-1 displays the major anticipated federal and state permits for the proposed Project.

TABLE A.6.1-1

Permits, Approvals, and Consultations Applicable to the Project

Permitting/Approval Agency	Permit, Approval, or Consultation	Anticipated or Actual File Date	Receipt Date (Anticipated)
Federal			
Federal Energy Regulatory Commission	Certificate of Public Convenience and Necessity	November 15, 2016	-
U.S. Fish & Wildlife Service (Maryland)	Endangered Species Act, Section 7 Consultation; Fish and Wildlife Coordination Act Consultation; Migratory Bird Treaty Act Consultation; Bald and Golden Eagle Protection Act Consultation	October 11, 2016 and February 13, 2017	March 2017
U.S. Fish & Wildlife Service (Virginia)	Endangered Species Act, Section 7 Consultation; Fish and Wildlife Coordination Act Consultation; Migratory Bird Treaty Act Consultation; Bald and Golden Eagle Protection Act Consultation	October 6, 2016 and February 13, 2017	March 2017
Native American Tribes	Consultations with various native American tribes as per the National Historic Preservation Act of 1966, 16 U.S.C. et seq., Section 106	October 6 and 7, 2016	April 2017
State – Virginia			
Virginia Department of Environmental Quality	Coastal Zone Management Consistency Certification	October 11, 2016	January 12, 2017
Virginia Department of Environmental Quality	Air Permit Non-Applicability Determination	October 2016	(October 2017)
Virginia Department of Game and Inland Fisheries	Fish and Wildlife Coordination Act Review	October 6, 2016	January 12, and February 10, 2017
Virginia Department of Conservation and Recreation	Fish and Wildlife Coordination Act	October 14, 2016	October 13, 2016 and January 12, 2017

[3] See DCP's application under Docket No. CP13-113-000, Accession No. 20130401-5045.

[4] DCP would be responsible for obtaining all permits and approvals required to implement the proposed Project prior to construction, regardless of whether these permits and approvals appear in table A.6.1-1.

TABLE A.6.1-1

Permits, Approvals, and Consultations Applicable to the Project

Permitting/Approval Agency	Permit, Approval, or Consultation	Anticipated or Actual File Date	Receipt Date (Anticipated)
Virginia Department of Agriculture and Consumer Services	Fish and Wildlife Coordination Act	October 6, 2016	February 2, 2017
Virginia Department of Historic Resources	National Historic Preservation Act, Section 106 Consultation	October 6, 2016	December 8, 2016
State – Maryland			
Maryland Department of the Environment	State Minor Source Air Permit	November 2016	(October 2017)
Maryland Department of the Environment	Coastal Zone Management Consistency Certification	November 2, 2016 and February 15, 2017	(June 2017)
Maryland Department of Natural Resources	Maryland Natural Heritage Program Consultation	October 11, 2016	March 2017
Maryland Historical Trust	National Historic Preservation Act, Section 106 Consultation	October 6, 2016	January 2017
County – Fairfax			
Fairfax County Department of Public Works and Environmental Services	Applicability TBD with Fairfax County: Site Plan Approval Stormwater Management Plan Approval Erosion and Sediment Control Plan Approval Grading Plan Approval Land Disturbance Permit Stormwater Management Agreement	April 2017	(August 2017)
County – Loudoun			
Loudoun County Department of Public Works and Environmental Services	Applicability TBD with Loudoun County: Site Plan Approval Stormwater Management Plan Approval Erosion and Sediment Control Plan Approval Grading Plan Approval Land Disturbance Permit	April 2017	(August 2017)
County – Charles			
Charles County Planning Commission Charles County Department of Planning and Growth Management Charles County Soil Conservation District	Site Plan Approval Stormwater Management Plan Approval Erosion and Sediment Control Plan Approval Grading Plan Approval Forest Conservation Plan Development Services Permit	April 2017	(August 2017)

7.0 CONSTRUCTION, OPERATION, AND MAINTENANCE

DCP would construct, operate, and maintain the proposed Project in compliance with all applicable federal and state permit requirements, regulations, and environmental guidelines. The key relevant federal regulations are those of the U.S. Department of Transportation (DOT) under 49 CFR 192 (*Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*). These regulations ensure adequate protection for the public and prevent natural gas facility accidents and failures.

DCP anticipates that construction of the Project would begin in November 2017 with an in-service date of August 2018. DCP adopted FERC staff's *Upland Erosion Control, Revegetation, and Maintenance*

Plan (Plan), and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures).[5] DCP would also provide an *Erosion and Sediment Control Plan* (E&SC Plan) and a *Spill Prevention, Containment, and Countermeasures Plan* (SPCC Plan) to minimize sediment impacts outside of the Project area and ensure proper handling of lubricants, fuel, or other potentially toxic materials and prevent spills, respectively, prior to construction. These plans would be developed and implemented in compliance with FERC, the Virginia Department of Environmental Quality (VDEQ) for facilities in Virginia, and the Maryland Department of the Environment (MDE) for facilities in Maryland. DCP would implement best management practices that conform to the FERC's Plan and Procedures, the VDEQ's 1992, Third Edition, *Virginia Erosion and Sediment Control Handbook*, and the MDE's 2011 *Maryland Standards and Specifications for Soil Erosion and Sediment Control*. DCP would also develop a Stormwater Management Plan, which would be approved by the counties.

Construction at the proposed facilities would generally include establishing erosion and sediment controls; clearing and grading, excavation and placement of foundations, piping installation, installation of structures and machinery, testing, and final cleanup and restoration. These general activities are described below and primarily pertain to the Charles Station and Loudoun Compressor Station sites; however, not all construction sites would require each step. For example, no ground disturbance would be necessary for construction at the Pleasant Valley Compressor Station where re-wheeling activities would occur.

- Erosion Control Measures – Erosion and sediment controls would be established and maintained during construction per DCP's E&SC Plan. This includes daily inspections and repairs as necessary. Temporary fencing, or other restrictive measures, would be utilized after site clearing to delineate the limits of the construction area.
- Clearing and Grading – Prior to initiating ground-disturbing activities, all existing underground utilities (e.g., cables, conduits, pipelines) would be identified and flagged. The approved work area would be cleared of trees and other vegetation, stumps, logs, brush, and rocks. To the extent practicable, DCP would minimize tree removal during construction. Cleared vegetation would be chipped or hauled off-site to a commercial disposal facility. Following clearing, construction areas would be graded as necessary to provide a level work surface. Graded topsoil would be segregated in accordance with FERC's Plan and Procedures.
- Foundations – Excavation would begin for the installation of the new equipment, including compressor and pipe supports at the compressor station. Compressor station building foundations require significant amounts of reinforced concrete to provide stable support for buildings and machinery operation. Concrete quality would be tested and installed according to American Society for Testing and Materials procedures.
- Piping – DCP would begin piping installation in conjunction with the foundation work. Trenches would be dug for the underground portions of the piping, which would be welded, x-rayed, coated, and placed in the trench and backfilled. Some portions of the station piping would be aboveground and installed on concrete or metal pipe supports. As major parts of the piping are completed, each would be hydrostatically tested.
- Structures and Machinery – The compression machinery would be installed once foundation work is completed. Gas utility piping and electrical conduit systems would

[5] The Plan and Procedures includes best management practices for pipeline facility construction to minimize resource impacts. Copies of the Plan and Procedures may be accessed on our website (http://www.ferc.gov/industries/gas/enviro/guidelines.asp).

be connected once the machinery is placed, then electrical wiring would be installed. Building structures would be pre-engineered and fabricated off-site and trucked to the facility to be bolted together.

- Testing – As various components are completed, they would be tested and calibrated for proper operation.
- Final Cleanup and Stabilization – Clean up and stabilization would be ongoing throughout construction. Sections of the compressor station that have not been graveled would be final graded, fertilized, seeded, and mulched as work is completed.

Access to the aboveground facilities would be provided by use of existing access roads. Improvement of the bridge at the Charles Station entrance would be required (the bridge is on DCP-owned land at the site). After construction, all temporary workspaces would be revegetated in accordance with DCP's E&SC Plan.

DCP would use two full-time environmental inspectors (EI) during construction of the Project. DCP would also have other company personnel onsite to ensure environmental compliance. The EIs would be on site during construction activities to ensure compliance with the construction procedures contained in DCP's E&SC Plan and our Plan and Procedures. The EIs' responsibilities include:

1) ensuring compliance with applicable federal, state, and local environmental permits;
2) ordering corrective actions for acts that violate the environmental conditions of the Commission's Certificate, or any other authorizing document;
3) ensuring compliance with site-specific construction and restoration plans or other mitigation measures and landowner agreements; and
4) maintaining construction status reports.

DCP would conduct environmental training sessions in advance of construction to ensure that all individuals working on the Project are familiar with the environmental mitigation measures appropriate to their jobs and the EIs' authority. In addition, the FERC staff would monitor construction and restoration of the Project and would conduct compliance inspections to verify compliance with the Commission's Orders.

8.0 LAND REQUIREMENTS

The Project would require 48.6 acres of land for construction, of which 19.0 acres would be required for operation. Approximately 29.4 acres would be restored and maintained. Most land disturbance for the Project would occur within DCP's existing fence lines, property boundaries, and rights-of-way. The exception would be a 10.6-acre offsite laydown yard within the existing Leesburg Compressor Station, owned by Dominion Transmission, Inc. (DTI), that DCP would mow and maintain for temporary construction laydown, parking, and staging for the Project. DTI and DCP are entities of the same parent company, Dominion Resources, Inc. No permanent impacts would occur at the Leesburg Compressor Station as a result of the Project. The laydown yard would be returned to previous conditions and uses once construction is complete. Table A.8.1-1 provides site-specific land requirements for the Project.

TABLE A.8.1-1

Land Use Requirements

Facility	Property Size (acres)	Land Required for Construction (acres)[a]	Land Required for Operation (acres)	Notes
Charles Station	50.0	14.3	6.3	DCP-owned land
WGL Interconnect	9.8	1.6	0.1	Within maintained DCP right-of-way
Loudoun Compressor Station	36.7	5.9	4.9	DCP-owned land within existing station property
Off-site Construction Staging Area	73.4	10.6	0	DTI-owned land within the Leesburg Compressor Station
Loudoun M&R Station	2.1	2.3	2.3[1]	DCP-owned land within existing station property
Pleasant Valley Compressor Station[b]	32.0	13.9	5.4	DCP-owned land within existing station property
Total		**48.6**	**19.0**	**-**

[a] Construction impacts include temporary (construction) and permanent (operation) land requirements.

[b] No ground disturbance is proposed at the Pleasant Valley Compressor Station.

DTI = Dominion Transmission, Inc.

SECTION B – ENVIRONMENTAL ANALYSIS

1.0 GEOLOGY

The modifications proposed at the Pleasant Valley Compressor Station would not require ground disturbance; therefore, there would be no geologic impacts associated with construction or operation at the station. The existing Loudoun Compressor Station and M&R Station are in the Newark Supergroup in Loudoun County, Virginia and consist of Triassic shale and siltstone (DMME, 2015). The WGL Interconnect is in the Western Shores Uplands region within the Coastal Plain Physiographic Province in Charles County, Maryland. Activities at these facilities would be limited to previously disturbed areas within DCP's property boundary or maintained right-of-way. Based on the limited ground disturbance at these sites, the modifications at these facilities would result in minimal impact on geologic resources and are not discussed further in this section. DCP's adherence to the measures contained in its E&SC Plan, and our Plan and Procedures, would ensure that all disturbed areas at these sites are adequately restored following construction.

The proposed Charles Station would be in the Western Shores Uplands region within the Coastal Plain Physiographic Province in Charles County, Maryland. The province encompasses the Western and Eastern Shores of Maryland and is underlain by a wedge of unconsolidated sediments including gravel, sand, silt, and clay more than 8,000 feet thick (Maryland Geological Survey [MGS], 2016a). The Charles Station has a gently sloping terrain, with a maximum elevation of 36 feet above mean sea level (MSL) and a minimum elevation of approximately 20 feet above MSL. The uppermost sedimentary unit is classified as Lowland Deposits, which is an up to 150-foot-thick unconsolidated deposit of gravel, sand, silt, and clay, with cobbles and boulders near the base of the deposit (MGS, 2000). DCP would not utilize blasting during construction.

The geologic materials underlying the Charles Station would support standard construction techniques. Excavation would be performed as necessary to accommodate the reinforced concrete foundations for the new compressors, building, and ancillary equipment. Backfill would be compacted in place, and excess soil used elsewhere or distributed around the site to improve grade. The areas inside the fence would be permanently converted to industrial use. Areas surrounding the aboveground facilities and buildings would be covered with crushed rock or an equivalent cover, with roads and parking areas consisting of crushed rock, concrete, or asphalt. Other ground surfaces would be seeded with a grass that is compatible with the climate and easily maintained to prevent the erosion.

The unconsolidated geologic formations present at the Charles Station are not identified as fossil bearing; therefore, the potential for impacting paleontological resources is considered minimal.

Based on the limited ground disturbance at the Charles Station, the proposed facilities would result in minimal impact on geologic resources. DCP's adherence to the measures contained in its E&SC Plan, and our Plan and Procedures, would ensure that all disturbed areas at the site are adequately restored following construction.

1.1 Mineral Resources

No mineral resources, including industrial, aggregate (e.g., sand, gravel, and crushed stone), and metallic (e.g., iron ore, copper, nickel, and titanium) minerals, are located within 0.25 mile of the Project facilities in Charles County, Maryland (U.S. Geological Survey [USGS], 2016b). No coal mines or oil and gas wells were identified within 0.25 mile of the Project facilities in Charles County, Maryland (REXTAG, 2016; USGS, 2016a; USGS, 2016b). Based on the limited ground disturbance at the Charles Station, the proposed facilities would result in minimal impact on mineral resources.

1.2 Geologic Hazards

We received comments expressing concern with seismic/earthquake impacts on Project facilities. We also received comments regarding constructability at the site due to the potential for soil liquefaction. Historical earthquake records for Charles County show no active or inactive faults near the Charles Station (USGS, 2006). According to the USGS seismic hazard mapping website, it is unlikely that a "major" earthquake would occur in northern Virginia and southern Maryland in the next 20 to 50 years of a magnitude that would cause severe or even mildly severe structural damage (USGS, 2014a). Based on the unlikelihood of a major earthquake in the Project area and lack of young (Pleistocene) sands and silt with little or no clay, the potential for soil liquefaction is low. Geotechnical investigation completed at the Charles Station site identified the soil as Site Class D, as defined by the 2015 International Building Code, and did not identify soil liquefaction as a concern. DCP would construct the Charles Station with a deep foundation design, as recommended in the Project geotechnical report, that would be excavated to a depth with suitable soil that would provide the required bearing support for the Project facilities that would not be susceptible to seismicity. Project facilities would be constructed to meet federal standards outlined in 49 CFR Part 192, ASME B31.8-2014 Paragraph 840, and "Guidelines for the Seismic Design and Assessment of Natural Gas and Liquid Hydrocarbon Pipelines" (Pipeline Research Council International, 2009), further reducing the potential for seismic-related damage to occur. These are the same regulations that govern the construction and operation of natural gas pipelines throughout the country, including areas with greater seismic hazards.

According to the USGS, which uses data from Radbruch-Hall et al. (Radbruch-Hall,1982), Charles County has a low landslide susceptibility (USGS, 1982). The low slopes and types of soils found within the Charles Station site minimizes the landslide exposure. Based on the low likelihood of a landslide at the Project, we conclude that there is a low likelihood of landslide hazards impacting the proposed facilities.

No blasting is anticipated during construction of the Charles Station. If blasting is required, DCP would be required to file a blasting plan with the Commission prior to conducting such operations.

No karst or caves are anticipated during construction of the Charles Station.

We received comments indicating that the Charles Station site is susceptible to flooding, which would impact the station. The construction limit of disturbance and permanent facilities associated with the Charles Station are located outside of the FEMA 100-year floodplain. A portion of the property where the Charles Station would be situated is located within the FEMA 100-year floodplain; however, this floodplain is protected by a Conservation Easement and would not be disturbed by Project activities. The area surrounding the Charles Station site may be prone to flash flooding. DCP has designed the Charles Station to limit impacts from flooding. For example, the station would be sited on level ground on a slight incline from the site entrance at Barrys Hill Road. DCP would also comply with the *Minimum Federal Safety Standards* for design and operation of the Charles Station, which require natural gas transportation facilities to be constructed to protect against floods and other hazards.

We find that DCP's adherence to their proposed construction, operation, and mitigation procedures would ensure that the geologic hazards would not significantly impact the proposed facilities.

2.0 SOILS

The Charles Station area includes the Liverpool soil series. The Liverpool soil series is very deep and moderately well drained with slopes ranging from 2 to 5 percent, and is considered prime farmland. About 14.0 acres would be disturbed during construction and about 6.2 acres would be permanently maintained for operation. Areas that are not permanently impacted during construction and operation would

be returned to preconstruction conditions. We received comments regarding sedimentation and stormwater runoff at the Charles Station impacting local wetland and waterbody resources, including Mill Swamp. DCP would utilize the MDE's 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control to create a Stormwater Management Plan for minimizing erosion and controlling sediment runoff during construction. Based on adherence to measures contained in DCP's E&SC Plan and our Plan and Procedures, impacts on soils at the Charles Station would be adequately minimized.

The WGL Interconnect site includes the Beltsville, Grosstown-Marr-Hoghole complex, and Grosstown-Woodstown-Beltsville complex soil series, and urban land. The Beltsville soil series is very deep and moderately well drained with slopes ranging from 2 to 5 percent, and is considered prime farmland. The Grosstown-Marr-Hoghole complex and Grosstown-Woodstown-Beltsville complex soil series are very deep, well drained and moderately well drained, respectively, and have slopes ranging from 5 to 15 percent. About 1.6 acres would be disturbed during construction and about 0.1 acre would be permanently maintained for operation, with none being prime farmland. Urban land accounts for 0.9 acre of the area disturbed during construction and 0.1 acre of the area permanently maintained for operation. Areas that are not permanently impacted during construction and operation would be returned to preconstruction conditions. DCP would utilize the MDE's 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control to create SWM for minimizing erosion and controlling sediment runoff during construction. Based on adherence to measures contained in DCP's E&SC Plan and our Plan and Procedures, impacts on soils at the WGL Interconnect would be adequately minimized.

The Loudoun Compressor Station area includes the Leedsville, Panorama, Penn, and Albano soil series. The Leedsville soil series is very deep and well drained with slopes ranging from 2 to 15 percent, and is considered farmland of statewide importance. The Panorama soil series is deep and well drained with slopes ranging from 2 and 7 percent, and is considered prime farmland. The Penn soil series is moderately deep and well drained with slopes ranging from 7 to 15 percent, and is considered farmland of statewide importance. The Albano soil series is deep and poorly drained with slopes ranging from 0 to 2 percent. About 5.9 acres would be disturbed during construction and about 5.0 acres would be permanently maintained for operation, including 3.2 acres of farmland of statewide importance and 1.7 acres of prime farmland. Based on adherence to measures contained in DCP's E&SC Plan and our Plan and Procedures, impacts on soils at the Loudoun Compressor Station would be adequately minimized.

The Loudoun M&R Station area includes the Panorama and Penn soil series, both of which were described previously. About 2.4 acres would be disturbed during construction and permanently maintained for operation, including 1.8 acres of prime farmland and 0.6 acre of farmland of statewide importance. Based on adherence to measures contained in DCP's E&SC Plan and our Plan and Procedures, impacts on soils at the Loudoun M&R Station would be adequately minimized.

The Pleasant Valley Compressor Station area includes the Albano, Ashburn, Catlett, Dulles, Kelly, Penn, and Sycoline soil series. The Albano and Kelly series are deep and poorly drained with slopes ranging from 0 to 10 percent. The Ashburn, Penn, and Sycoline series are moderately deep and well-drained with slopes ranging from 0 to 60 percent. The Dulles soil series is deep, moderately well and somewhat poorly drained and has slopes ranging from 2 to 7 percent. The Catlett series is shallow and well drained, and found on upland ridge tops and side slopes ranging from 2 to 50 percent. The Dulles, Penn (85B), and Sycoline-Kelly complex soil series are considered prime farmland and the Penn (85C) soil series is considered farmland of statewide importance. About 13.8 acres would be required for construction and about 5.4 acres would be permanently maintained for operation; however, no ground disturbance is proposed at the Pleasant Valley Station site and there would no impacts on soils at the site.

3.0 WATER RESOURCES AND WETLANDS

3.1 Groundwater

The Project facilities in Maryland (Charles Station and WGL Interconnect) are within the Coastal Plain Physiographic Province and overlie six aquifers comprised of Tertiary and Quaternary unconsolidated gravel, sand, silt, and clay deposits that pinch out against irregularly crystalline rocks of the Piedmont Physiographical Province to the west (Andearson et al., 2013). The five hydrogeologic formations include, in order of increasing depth: the surficial upland aquifer, the Aquia aquifer, the Magothy aquifer, the Upper Patapsco aquifer, the Lower Patapsco aquifer, and the Patuxent aquifer system.

The surficial aquifer is composed of upland and lowland deposits and is recharged primarily by precipitation within the Project area. Water in the surficial aquifer either moves short distances before discharging into local streams or springs, or percolates into deeper aquifers (USGS, 1997).

The Aquila aquifer occurs between depths of 42 and 220 feet below MSL in Charles County, Maryland. The aquifer is recharged by precipitation in Anne Arundel and Prince George's Counties, Maryland. Water levels in the Aquila aquifer have declined due to overuse (USGS, 1997).

The Magothy aquifer occurs between depths of 108 and 480 feet below MSL in Charles County, Maryland and is an important water source in the area (USGS, 1997).

The Upper Patapsco aquifer occurs between depths of 27 and 618 feet below MSL in Charles County, Maryland and is an important water source in the area (Andearson, et al., 2013).

The Lower Patapsco aquifer occurs between 100 feet above MSL and greater than 2,900 feet below MSL and is an important water source in the area (Andearson, et al., 2013).

The Patuxent aquifer system occurs between 170 feet above MSL and 4,200 feet below MSL. The Patuxent aquifer system is an important water source in Charles and Prince George's Counties. (MGS, 2016b).

Groundwater withdrawals are the predominant source of consumptive water use in Charles County, Maryland. Groundwater withdrawals in 2000 averaged 13.2 million gallons per day (mgd), of which 7.5 mgd were for public-supply distribution, 3.3 mgd were from self-supplied domestic withdrawals, 1.7 mgd were for commercial and industrial use, 0.6 mgd were for thermoelectric power generation, and 0.1 mgd were for irrigation, mining, and livestock watering (USGS, 2000).

The Project facilities in Virginia (Loudoun Compressor Station, Loudoun M&S Station, and Pleasant Valley Compressor Station) are within the Mesozoic Lowlands Region of the Piedmont Physiographic Province (Roberts and Bailey, 2000). The geology in this area consists of sandstone, shale, diabase dikes, and basalt flows deposited in half grabens and grabens during rifting that produced the Atlantic Ocean (The College of William and Mary, Department of Geology, n.d.). The Culpepper Basin is the primary aquifer in the region and lies at depths of 200 to 600 feet deep. Recharge of the Culpepper Basin is the result of precipitation in Loudoun and Fairfax Counties, Virginia (CH2M Hill, 2008).

Groundwater is an important source of drinking water for residents in the Project area in Virginia. In Loudoun County in 1995, 2.2 mgd of groundwater was withdrawn for private domestic supply, 1.8 mgd for public water supply, 0.3 mgd for commercial and industrial use, and less than 0.1 mgd for agricultural use. In Fairfax County in 1995, 2.6 mgd was withdrawn for private domestic supply, 1.1 mgd for commercial and industrial uses, and 0.8 mgd for public water supply (Solley et al., 1998).

Commenters expressed concern regarding groundwater and private well impacts from the Charles Station. Sensitive groundwater resources include Sole Source Aquifers, state-designated aquifers, public and private water supply wells, springs, and wellheads, and aquifer protection areas. None of the Project's workspaces are within a U.S. Environmental Protection Agency (EPA) Sole Source Aquifer, wellhead protection area, or state-designated aquifer. There is one domestic private well located at the Charles Station. Based on our desktop review, the limits of disturbance for construction of the Charles Station are enclosed by forested areas on all sides at widths greater than 150 feet. Based on our review and information provided by DCP, we did not identify any other public or private wells within 150 feet of the Charles Station site. The Loudoun Compressor Station and Loudoun M&R Station each contain a domestic private well onsite. There are no other public or private wells within 150 feet of the Loudoun Compressor Station and M&R Station (DMME, 2015). There is one private well located at the Pleasant Valley Compressor Station. DCP consulted with the Fairfax County Health Department and did not identify any other wells within 150 feet of the compressor station.

There are no wellhead protection areas in Virginia primarily due to lack of funding; however, there are efforts to develop local programs and the VDEQ established a voluntary program in 2005 (VDEQ, nd). There are no wellhead protection areas within 0.5 miles of facilities in Charles County, Maryland (MDE, 2004; MDE, 2006). We received comments regarding whether DCP would install water wells and/or a septic system onsite at the Charles Station. The Charles Station site currently has a domestic water well and septic system however, these facilities do not have adequate capacity for to meet the Charles Station requirements. DCP would install a new water well and septic system at the site to meet the capacity required for the new Charles Station. DCP would install a new water well and septic system during construction. The existing well would be abandoned. As previously stated, there are no private wells within 150 feet of the site. We do not anticipate impacts on private wells. No known contaminated soil or groundwater sites are located within 0.25 mile of each Project facility.

Accidental spills of fuels, lubricants, and other petroleum products could occur during construction activities. DCP agrees to prohibit refueling activities and storage of hazardous liquids within a 200-foot radius of the private wells at the Charles Station, Loudoun Compressor Station, Loudoun M&R Station, and Pleasant Valley Compressor Station and within at least a 400-foot radius of all municipal or community water supply wells. In addition, DCP would prepare an SPCC Plan prior to the start of construction. This plan would include spill avoidance measures as well as measures to contain and clean up materials in the event of a release.

We received numerous comments indicated that a proposed wastewater treatment pond at the Charles Station would impact groundwater. There are no wastewater ponds proposed as part of this Project. DCP would prepare an SPCC Plan prior to the start of construction. These plans include spill avoidance measures as well as measures to contain and cleanup materials in the event of a release. Impacts on groundwater resources would be minimized through implementation of DCP's SPCC Plan and the measures included in our Plan. Based on DCP's proposed construction procedures and mitigation measures, we conclude that the Project is not likely to have a significant impact on groundwater quality, quantity, or recharge.

3.2 Surface Water

We received comments regarding impacts on surface waters, including siltation, stormwater runoff, and water-dwelling species. Three perennial and five intermittent streams are located within the boundary of the Charles Station (see figure B.3.2-1); one perennial and three intermittent streams were identified at the Loudoun Compressor Station (see figure B.3.2-2); and one perennial and two intermittent streams are located at the Pleasant Valley Compressor Station where no ground disturbance is proposed. One surface water within the vicinity of the Loudoun Compressor Station, Howsers Branch, is listed as Category 4A

impaired water for its designated use of recreation. The impaired designation is due to high concentrations of *Escherichia coli*. A Total Maximum Daily Load has been completed and approved by the EPA (VDEQ and Virginia Department of Environmental Quality [VDCR], 2014; MDE, 2014). Howsers Branch is located approximately 1 mile from the Loudoun Compressor Station. DCP would not impact these waterbodies during construction and would implement protective measures, consistent with our Plan and Procedures, that would be implemented prior to initial disturbance of the soil. These best management practices would be maintained throughout construction to ensure sedimentation does not impact waterbodies, would include but are not limited to the following:

- DCP and its contractors would maintain a 50-foot setback from wetlands and waterbodies and throughout construction, this includes temporary workspaces and refueling activities;
- wetland and waterbody boundaries must be clearly marked with signs and/or highly visible flagging until construction-related ground disturbing activities are complete;
- justification must be provided for extra workspace with less than a 50-foot setback must be submitted for review and written approval by the Director of Office of Energy Projects (OEP); and
- adequate spill response materials would be kept on-site to enable a rapid cleanup should a spill occur.

No streams are present at the WGL Interconnect or Loudoun M&R Station. We conclude that DCP would adequately minimize impacts on waterbodies and surface waters by adhering to the measures included in our Plan and Procedures, and implementation of applicable state erosion and sediment control and stormwater management requirements (see table A.6-1).

We received comments expressing concern with impacts on Mill Swamp from construction and operation of the Charles Station. Mill Swamp would be separated from the Charles Station facilities by a swath of forest more than 150 feet wide. DCP would implement our Plan and Procedures along with its SPCC, E&SC, and Stormwater Management Plans to minimize offsite impacts.

3.2.1 Hydrostatic Testing

DCP would conduct hydrostatic testing at three of the five Project sites. No hydrostatic testing would be required at the Loudoun M&R Station or Pleasant Valley Compressor Station. Hydrostatic testing would be conducted in accordance with DOT pipeline safety regulations. Hydrostatic testing is completed to ensure the integrity of the newly installed facility piping. The facility piping would be filled with water and pressurized to the maximum allowable operating pressure, which is monitored for several hours. If a drop in pressure is recorded, the facility piping would be examined to determine if any leaks have occurred. DCP would obtain approximately 104,000 gallons of water total from municipal sources for the three sites where hydrostatic testing would take place (see table B.3-1).

TABLE B.1-3

Water Required for Hydrostatic Testing

Facility	Water Required (gallons)
Charles Station	80,000
WGL Interconnect	4,000
Loudoun Compressor Station	20,000

Chemical additives would not be used and DCP would haul away and dispose of the water used for hydrostatic testing at an off-site water treatment facility. For the reasons discussed above, we conclude that the hydrostatic testing of the Project would not have a significant impact on water resources.

3.3 Wetlands

Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of wetland vegetation adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation (Environmental Laboratory, 1987). Wetlands can be a source of substantial biodiversity and serve a variety of functions that include providing wildlife habitat, recreational opportunities, flood control, and naturally improving water quality.

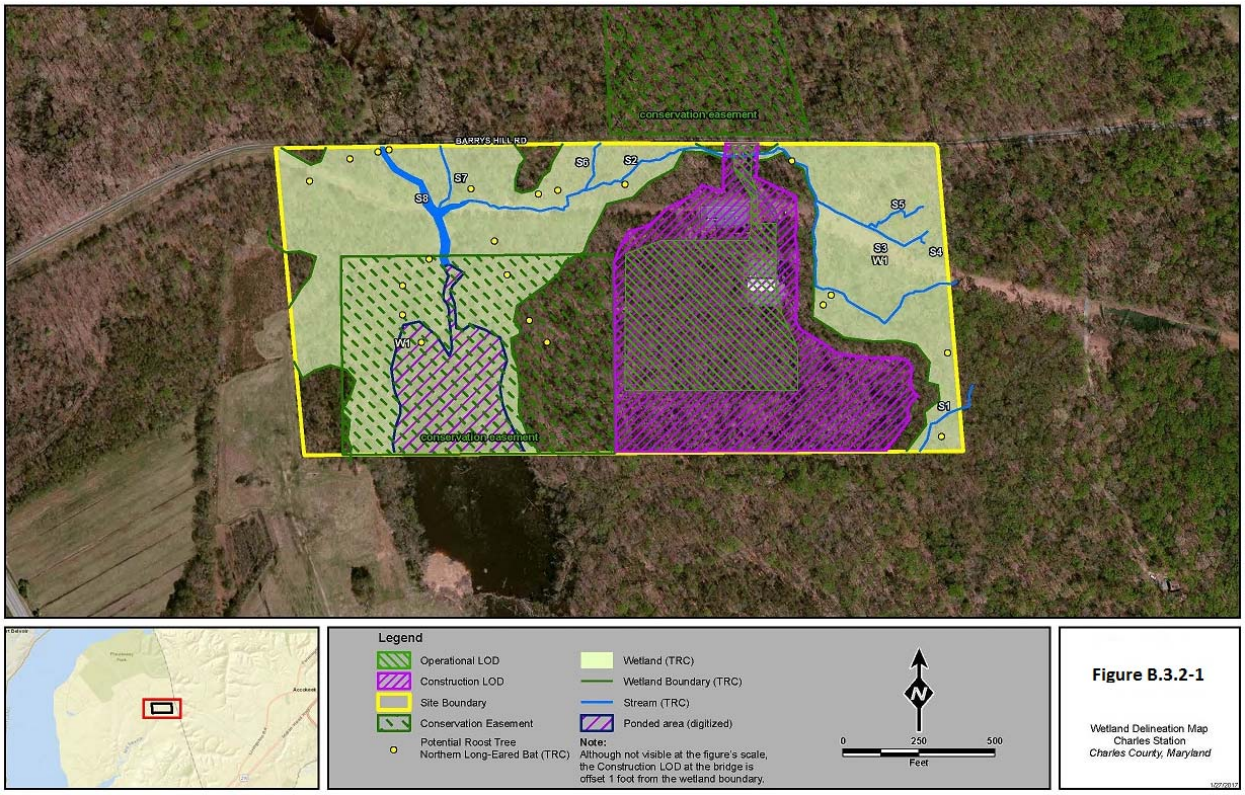
Field surveys identified one palustrine forested wetland complex within the Charles Station Property (see figure B.3.2-1); four emergent and two forested wetlands at the Loudoun Compressor Station (see figure B.3.2-2); and two emergent and two forested floodplain wetlands at the Pleasant Valley Compressor Station. No wetlands were identified at the WGL Interconnect or Loudoun M&R Station.

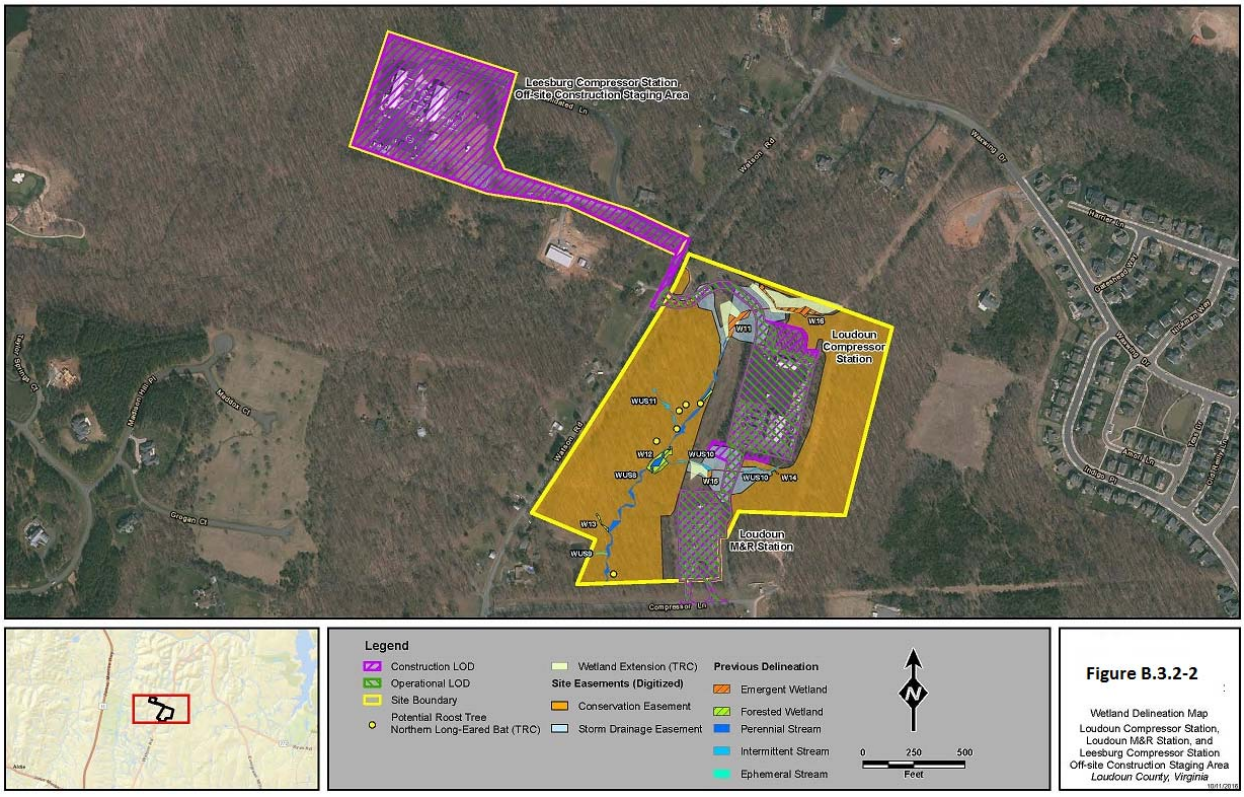
We received numerous comments concerning DCP's wetland delineation methods, the Charles Station's impact on wetlands, and compensation for wetland impacts. In Maryland, the U.S. Army Corps of Engineers, Baltimore District authorizes work in waters of the United States utilizing permit programs developed in cooperation with the MDE. The MDE's Wetlands and Waterways Program protects wetlands from loss and degradation and regulates activities in nontidal wetlands via its Nontidal Wetlands Division, via implementation of a nontidal wetlands and waterways permit program. An applicant must submit a *Joint Federal/State Application for the Alteration of any Floodplain, Waterway, Tidal or Nontidal Wetland in Maryland* to the MDE for projects that involve any of the following activities in non-tidal wetlands or waterways require a permit: grading or filling, excavating or dredging, changing existing drainage patterns, disturbing the water level or water table, or destroying or removing vegetation. The MDE provides copies of the application to the appropriate agencies and conducts the application review in cooperation with local, state, and federal agencies. DCP conducted a field visit with MDE on December 6, 2016 to review the delineated wetlands at the Charles Station site. As a result of that visit, MDE requested changes to the wetland delineation to remove delineated areas near the access bridge that no longer meet the criteria necessary to be classified as wetland, due to previous channelization of the stream in this area. DCP filed the revised wetland delineation report with the MDE on January 18, 2017.[6] Based on the final wetland delineation reviewed and approved by MDE, all wetlands would be avoided during construction. In addition to the measures described in section 3.2, DCP would implement additional measures, consistent with our Plan and Procedures, immediately after initial disturbance of the soil, and would maintain them throughout construction to ensure sedimentation does not impact wetlands, including, but not limited to the following:

- wetland boundaries would be marked with flagging, and silt fencing and/or hay bales would be used to physically separate spoil piles from the wetland; and
- a minimum 50-foot buffer for all wetland boundaries at the Charles Station.

A commenter was concerned about fertilizer being applied in wetlands. Pursuant to the FERC Procedures, no fertilizer would be applied in wetlands. Given DCP's commitment to implementation of the measures identified in our Plan and Procedures, and adherence to other relevant permits, no direct impacts would occur on these resources. If unanticipated wetland impacts occur, DCP would obtain the appropriate permits and approvals from the MDE and U.S. Army Corps of Engineers.

[6] FERC Accession Number 20170118-5104.


conservation easement
BARRYS HILL RD
S7
S3
S2
S8
S5
S3
W1
S4
W1
S1
conservation easement
Legend
Operational LOD
Construction LOD
Site Boundary
Conservation Easement
Potential Roost Tree
Northern Long-Eared Bat (TRC)
Wetland (TRC)
Wetland Boundary (TRC)
Stream (TRC)
Ponded area (digitized)
Note:
Although not visible at the figure's scale, the Construction LOD at the bridge is offset 1 foot from the wetland boundary.
0
250
500
Feet
Figure B.3.2-1
Wetland Delineation Map
Charles Station
Charles County, Maryland


Leesburg Compressor Station
Off-site Construction Staging Area
Loudoun
Compressor
Station
Loudoun
M&R Station
Legend
Construction LOD
Operational LOD
Site Boundary
Potential Roost Tree
Northern Long-Eared Bat (TRC)
Wetland Extension (TRC)
Site Easements (Digitized)
Conservation Easement
Storm Drainage Easement
Previous Delineation
Emergent Wetland
Forested Wetland
Perennial Stream
Intermittent Stream
Ephemeral Stream
0
250
500
Feet
Figure B.3.2-2
Wetland Delineation Map
Loudoun Compressor Station,
Loudoun M&R Station, and
Leesburg Compressor Station
Off-site Construction Staging Area
Loudoun County, Virginia

4.0 VEGETATION, WILDLIFE, AND THREATENED AND ENDANGERED SPECIES

4.1 Vegetation

4.1.1 Charles Station

The Charles Station site is in a mixed forest with dominant canopy species consisting of white oak, pin oak, American beech, and loblolly pine. The understory includes American holly and saplings of the dominant canopy species. We received a comment regarding reforestation of cleared areas at the site after construction. Approximately 12.5 acres of upland forest would be cleared during construction of the Charles Station. After construction, approximately 7 acres of forested vegetation at the Charles Station would be allowed to recover; however, the impact in these areas would be long term. Our Plan requires that disturbed areas be seeded in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority (i.e., Charles County Department of Planning and Growth Management and Charles Soil Conservation District) or the request of the land management agency, or at DCP's discretion. DCP proposes to reseed disturbed areas not covered with crushed rock or containing aboveground facilities with grass seed that is compatible with the area's climate and is easily maintained. If reseeding cannot occur immediately after construction, DCP proposes to mulch these areas and utilize erosion control devices until reseeding and final restoration can occur. A total of 5.5 acres of upland forest would be permanently impacted (i.e., converted to industrial land) by operation of the Project. The greatest impact on vegetation would be on forested areas because of the length of time required for woody vegetation to revert to its preconstruction condition.

DCP located the proposed station on the only upland portion of the parcel to avoid impacts to forested wetlands and waterbodies. In addition, the proposed station location would avoid impacts to Forest Conservation Areas. We received comments regarding impacts on the Chesapeake Bay. Construction and operation of the Project and would occur outside of Critical Areas (i.e., areas within 1,000 feet of the shore of the Chesapeake Bay, the Atlantic Coastal Bays, and their tidal tributaries), as defined by Maryland's Critical Area Act and created by the Chesapeake Bay Critical Area Program.

In order to reduce the potential of introduction or spreading of invasive and noxious plant species during construction, DCP would require that the construction contractor bring washed mud-free equipment to the site. Final restoration measures at the Charles Station would include using certified, weed-free seed for reseeding. DCP would also implement measures outlined in our Plan, Procedures, and E&SC Plans to minimize impacts on vegetation, including the installation of erosion control measures following initial disturbance of the soil. In addition, DCP would work with Charles County as part of the county's site plan review process to determine appropriate forest mitigation and/or compensation for the Charles Station pursuant to the Maryland Forest Conservation Act and Charles County Forest Conservation Ordinance (Chapter 298 of the Code of Charles County).

4.1.2 WGL Interconnect

The WGL Interconnect is located within an existing pipeline right-of-way and is characterized as primarily upland herbaceous cover consisting of fescue species, clover species, orchard grass, with an upland forest portion dominated by white oak, American holly, and American beech. No trees would be cleared as part of the project activities at the WGL Interconnect. Approximately 1.5 acres of mowed/maintained upland would be temporarily impacted during construction of the WGL Interconnect, and of that, approximately 0.1 acre of mowed/maintained upland would be permanently converted to developed land for operation of the facility.

4.1.3 Pleasant Valley Compressor Station

The Pleasant Valley Compressor Station is located within the Elklick Diabase Flatwoods Conservation Site. Conservation sites are built around and designate geographic areas where one or more rare plant, animal, or natural communities are known to occur and may require additional review for potential conservation action. The Elklick Diabase Flatwoods Conservation Site has been ranked as a site of very high significance. Species of concern are Torrey's mountain mint, grove sandwort, and purple milkweed. Additionally, habitat types of concern within the Elklick Diabase Flatwoods Conservation Site include Piedmont Upland Depression Swamp, Northern Hardpan Basic Oak-Hickory Forest, and Northern Piedmont Mafic Barren.

Construction activities at the Pleasant Valley Compressor Station would temporarily impact 1.0 acre of open land, and 12.9 acres of developed land within the fence line of the existing facility, of which 5.4 would be permanently maintained for operation of the facility. Construction at the Pleasant Valley Compressor Station would be completed within the existing fence line, so no habitats of concern would be impacted. No tree clearing or ground disturbance would occur and wetlands would be avoided. No plant species of concern were observed during wetland delineation surveys on the compressor station site. Piedmont Upland Depression Swamp and Northern Piedmont Mafic Barren, both elements included within the Elklick Diabase Flatwoods Conservation Site (500 feet to the southeast of the Project site), are not present at the site.

4.1.4 Loudoun Compressor Station

The existing Loudoun Compressor Station consists of and is located in a primarily industrial use area, with a predominantly mixed oak forest surrounding the industrial site that is dominated by southern red oak, black oak, chestnut oak, white oak, and northern red oak. A small open canopy area consisting of understory vegetation with a mix of herbaceous and woody cover is also present in the area surrounding the fenced portion of the compressor station property. Construction activities at the Loudoun Compressor Station would occur within the existing fenced facility and no trees would be removed. In addition, wetland areas would be avoided.

4.1.5 Loudoun M&R Station

The Loudoun M&R Station is a fenced, industrial use area and contains no vegetation; therefore, impacts to vegetation would not occur at this site.

Implementation of FERC's Plan and Procedures would promote revegetation at Project areas following construction. No sensitive vegetation types or habitats of concern would be impacted by the Project. DCP would revegetate all temporary construction areas in accordance with its E&SC Plan after construction is complete. Therefore, the Project would not result in any significant impacts on vegetation.

4.2 Wildlife

As discussed in section 4.1, the areas proposed for construction consist of mixed forests, mowed/maintained herbaceous cover, and existing/developed industrial areas, with additional forest, wetland, and open areas located adjacent to the sites. Common wildlife species inhabiting these areas include mice, skunks, rabbits, squirrels, raccoons, opossums, snakes, frogs, turtles, and birds.

Potential impacts on wildlife from Project construction activities include loss of vegetation and habitat, as well as temporary species displacement and disturbance of wildlife species due to noise from construction activities. Construction could result in the mortality of less-mobile animals such as small

rodents, reptiles, amphibians, and invertebrates that may be unable to escape the immediate construction area. Mobile species would leave the area and relocate in neighboring suitable habitat. Noise from construction could also disturb and displace nesting birds in habitat adjacent to the construction work area (see section 4.3 for further discussion of impacts to migratory birds). Impacts to forested areas would be considered long term, as restoration could require decades to reach preconstruction status.

With the exception of the Charles Station, Project construction would primarily take place in previously disturbed/existing facility areas and maintained/mowed areas. These existing areas are not considered high-quality wildlife habitat and wildlife density is likely to be low. Wildlife in these areas, if present, is likely already acclimated to the permanent noise and lighting environment associated with an existing facility. Due to the existing industrial/maintained nature of the sites and the amount of suitable habitat outside of the project area, these effects are expected to be negligible.

We received comments regarding lighting impacts on wildlife near the Charles Station. According to the U.S. Fish and Wildlife Service (FWS), the primary hazard to bird populations with regard to artificial light is collision with the light source. Artificial lighting could also confuse migratory birds and lead to other changes to their foraging and reproductive behaviors (With, 2002 and Harper et. al, 2005). Lighting would be designed to shine inward to the station from the fence line or would be building-mounted with a downward vertical lighting profile, which would minimize the impacts on wildlife and birds in the area. The lighting design at the Charles Station is consistent with recommendations from the FWS' *Nationwide Standard Conservation Measures* to reduce lighting impacts on birds and wildlife. At the Charles Station, the large natural buffer around the site would also serve to shield surrounding properties and wildlife from additional illumination.

We received comments concerning impacts to wildlife in the vicinity of the Charles Station, with multiple comments related to bobcats, turtles, herons, wild turkeys and other bird species. Potential impacts on wildlife as a result of construction and operation of the Charles Station include habitat loss and construction-related ground disturbance and noise, as well as increased light and noise during operation. Highly mobile species, such as bobcats and birds, would likely vacate the area during construction. Amphibians and reptiles have lower mobility; therefore, some limited mortality is likely unavoidable. Habitat fragmentation and edge effects could affect birds as discussed in section 4.3. If bats are present, tree clearing could potentially kill, injure, or disturb breeding or roosting bats. Wildlife would likely be permanently displaced from these areas by habitat conversion to non-vegetated and/or impervious cover (i.e., facility structures) or maintained vegetation (i.e., maintained/mowed herbaceous cover) and the erection of security fences at the new Charles Station site. Increases in ambient noise and ambient lighting may result in a decrease in wildlife use of adjacent habitat. As further discussed in section 8.2.1, DCP would implement noise mitigation measures at the Charles Station and Loudoun Compressor Station to ensure that noise levels comply with FERC noise thresholds, and would conduct a post-construction sound survey within 60 days of construction to ensure that noise levels do not exceed the FERC criterion of 55 decibels (dB) on the A-weighted scale (dBA) for the day-night average sound level (L_{dn}).

In total, approximately 0.9 acre of maintained/mowed herbaceous cover and 5.5 acres of upland forest would be permanently converted to developed land, which would result in minor impacts given the mobile nature of most wildlife in the area and the availability of similar habitat adjacent to and near the facility boundaries. After construction, DCP would permanently stabilize disturbed areas following our Plan and Procedures (see section 1.0). To further mitigate impacts, clearing in forested areas would be performed outside of the maternity roost season for most bat species and the breeding season for migratory birds (i.e., April 1 through August 31 for both).

4.3 Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703-711 (FWS, 2015). Executive Order 13186 (66 Federal Register 3853) directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and to avoid or minimize adverse impacts on migratory birds through enhanced collaboration with the FWS. Executive Order 13186 states that emphasis should be placed on species of concern, priority habitats, and key risk factors, and that particular focus should be given to addressing population-level impacts.

On March 30, 2011, the FWS and the Commission entered into a Memorandum of Understanding (FERC, 2011) that focuses on avoiding or minimizing adverse effects on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the two agencies. This voluntary Memorandum of Understanding does not waive legal requirements under the MBTA, Bald and Golden Eagle Protection Act, Endangered Species Act of 1973 (ESA), NGA, Federal Power Act, or any other statutes and does not authorize the take of migratory birds. Birds of Conservation Concern are a subset of protected birds under the MBTA and include all species, subspecies, and populations of migratory nongame birds that are likely to become candidates for listing under the ESA without additional conservation actions (FWS, 2008). The Birds of Conservation Concern identifies species at distinct levels including a national level, North American Bird Conservation Initiative Bird Conservation Regions level, and at a FWS service regions level. We received a comment regarding bald eagle nests in the vicinity of the Project area. There are no known bald eagle nests located within the 660-foot nest disturbance buffer identified in the National Bald Eagle Management Guidelines (FWS, 2007).

Construction of the Charles Station would involve clearing of 12.5 acres of upland forest, as described in section A.7.0. Some areas of vegetation removal would be temporarily/permanently lost, including areas of Forest Interior Dwelling Species (FIDS) habitat within the Charles Station (Maryland Department of Natural Resources [MDNR], May 2001). FIDS require large forest areas to breed successfully and maintain viable populations, and they have depended on large forested tracts, including streamside and Bayside forests, for thousands of years (CAC, 2000). The Charles Station is located within FIDS habitat with an interior forest patch size of approximately 1,325 acres (Maryland, 2017). As discussed in section 6.0 (Land Use), a total of 5.5 acres of upland forest would be permanently impacted (i.e., converted to industrial land) by operation of the Charles Station. Bird species such as barred owl; whip-poor-will; and cerulean, Kentucky, and worm-eating warblers; and wood thrush would lose potential breeding habitat as would other migratory bird species that use the same habitat. Remaining habitat could be affected by an increase in edge exposure that would increase predation of eggs and nestlings as well as increasing the potential for nest parasitism by brown-headed cowbirds. Clearing of vegetation can also result in colonization or expansion of invasive plant species altering remaining habitat. Tree and vegetation removal can result in the direct loss of nests, eggs, and nestlings if clearing occurs within the nesting season.

Project activities at the Loudoun Compressor Station, Loudoun M&R Station, and Pleasant Valley Compressor Station would occur within each station's existing fence line or within DCP's existing right-of-way and would not involve tree clearing or impacts to surface waters or wetlands. In addition, Project activities associated with the WGL Interconnect would occur within an existing pipeline corridor and would not involve tree clearing or impacts to surface waters or wetlands. Based on DCP's commitment to conduct vegetation clearing at the Charles Station outside of the nesting bird season (generally considered April 1 to August 31), we conclude that impacts on migratory birds (including BCC-listed species) would be minimal and effects on their habitat would be sufficiently minimized. The Chesapeake Bay and Virginia field offices of the FWS did not provide comments on migratory birds in their February 10, 2017 and January 17, 2107, respectively, correspondence related to the Project.

4.4 Special Status, Threatened, and Endangered Species

4.4.1 Federally Listed Species

Federal agencies are required under Section 7 of the ESA, as amended, to ensure that any actions authorized, funded, or carried out by the agency would not jeopardize the continued existence of a federally listed endangered or threatened species, or result in the destruction or adverse modification of the designated critical habitat of a federally listed species.

As the lead federal agency authorizing the Project, FERC is required to consult with the FWS and/or the National Oceanic and Atmospheric Administration Fisheries to determine whether federally listed endangered or threatened species or designated critical habitat are found in the vicinity of the Project, and to evaluate the proposed action's potential effects on those species or critical habitats. DCP, acting as FERC's non-federal representative for the purpose of complying with Section 7(a)(2) of the ESA, initiated informal consultation with the Chesapeake Bay and Virginia Field Offices of the FWS on October 10, 2016 and October 3, 2016, respectively, regarding federally listed threatened or endangered species potentially occurring in or near the Project area. One federally listed threatened species, the northern long-eared bat, is known to occur in the vicinity of the Pleasant Valley Compressor Station, and the Loudoun Compressor Station and M&R Station. We received numerous comments regarding potential impacts to special status, threatened, and endangered species at the Charles Station site. DCP proactively recorded what it considered suitable potential roost trees for the northern long-eared bat at the Charles Station during its wetland delineation field surveys at the site; however, online project certification letters received from the Chesapeake Bay Field Office of the FWS for the Project facilities in Maryland confirmed that no federally listed threatened or endangered species are known to occur within the vicinity of the Charles Station or the WGL Interconnect and concluded that further Section 7 consultation with the FWS is not required; therefore, these facilities are not discussed further in this section.

The northern long-eared bat was federally listed as threatened on May 4, 2015, and is a state-listed threatened species in Virginia. The northern long-eared bat is known or believed to occur in Fairfax and Loudoun Counties, Virginia (FWS, 2016). The northern long-eared bat is about 3 to 3.7 inches long with a wingspan of 9 to 10 inches, and typically weighs between 0.2 and 0.3 ounce. It is distinguished from other myotis species by its long ears. It eats insects and emerges at dusk to fly primarily through the understory of forest areas, feeding on moths, flies, leafhoppers, caddisflies, and beetles. Northern long-eared bats catch these insects while in flight using echolocation or by using gleaning behavior, catching motionless insects from vegetation and water (Harvey et al., 2011). Northern long-eared bats spend the winter hibernating in caves and abandoned mines. During summer, they roost alone or in small colonies, typically in groups containing less than 100 individuals, with maternity colonies averaging 20 to 30 individuals, underneath bark or in cavities or crevices of both live and dead trees (snags) (FWS, 2013).

The species was federally listed primarily due to the threat of white-nose syndrome, which is causing bats to disappear completely from many hibernation sites. Other threats to the northern long-eared bat include wind energy development and habitat destruction or disturbance (e.g., vandalism to hibernacula, and roost tree removal).

The Virginia Field Office of the FWS and applicable state agencies in Virginia did not identify any known hibernacula, maternity roost trees, or swarming areas occur near the Pleasant Valley Compressor Station, the Loudoun Compressor Station, or the Loudoun M&R Station. In addition, no tree clearing

activities would occur at these facilities. Therefore, per the Final 4(d) Rule (FWS 2016d), the Project would not result in prohibited incidental take, because of the following:

- DCP would not be clearing known maternity roost trees or trees within 150 feet of known maternity roost trees between June 1 and July 31;
- DCP would not remove trees within 0.25 mile of a known hibernacula at any time of the year; and
- Project activities would not occur within known hibernacula.

We find that the Project activities at the Pleasant Valley Compressor Station, the Loudoun Compressor Station, and the Loudoun M&R Station would have *no effect* on the northern long-eared bat. The Virginia Field Office of the FWS developed an online review process intended for use by any individual or entity requiring FWS review or approval of their project in Virginia. This process is intended to provide quick and accurate determinations and information to help ensure that trust resources are considered and conserved while planning and conducting activities. DCP initiated the online review process for the project activities in Virginia on January 17, 2017, and provided additional and/or updated project information at the request of the Virginia Field Office of the FWS on April 11, 2017 and April 17, 2017. On April 17, 2017, the Virginia Field Office confirmed receipt of the project information and indicated that if DCP does not receive additional comments from the Virginia Field Office within 30 days (i.e., by May 17, 2017), then the January 17, 2017 Self-Certification Letter and project review package completes the review of the project in accordance with ESA.

4.4.2 State-listed Species

DCP consulted with the MDNR, Virginia Department of Agriculture and Consumer Services (VCACS), VDCR, VDEQ, and Virginia Department of Game and Inland Fisheries (VDGIF) to identify state-listed species that could potentially occur within the Project Area. We received a comment indicating that agency consultation is not sufficient regarding listed species at the Charles Station site. DCP conducted field wetland delineation surveys and looked for roost trees and rare flora as part of those delineations. Further, in a letter dated November 16, 2016, the MDNR indicated that there are no records of federally or state-listed plant or animal species within the Charles Station or WGL Interconnect project areas in Maryland; and stated that it has no specific concerns regarding impacts or protection measures for federally or state-listed species. Therefore, impacts to state-listed species in Maryland are not discussed further in this section.

In a memorandum dated November 16, 2016, the VDCR provided comments on the Project facilities in Virginia. The VDCR indicated that the green floater, a rare freshwater mussel, is present in Howser's Branch (approximately 1.0 mile downstream of the Loudoun Compressor Station) and is also known to occur in Goose Creek and Little River (approximately 1.3 and 0.7 miles away, respectively) and recommended adherence to applicable state and local erosion control/storm water management laws and regulations. It also noted that records of the state-listed threatened wood turtle occur within 2 miles of the Pleasant Valley Compressor Station. The VDCR also represents the VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species and concluded that the activities at the Loudoun Compressor Station and M&R Station would not affect any documented state-listed plants or insects.

As part of the VDEQ's Federal Consistency Certification, the VDCR, VCACS, and VDGIF provided combined agency comments and recommendations on the Pleasant Valley Compressor Station in Virginia in a letter dated January 12, 2017. As part of this letter, the VDGIF did not indicate that the Project would affect resources under its jurisdiction; the VDCR found that the activity would not affect any

documented state-listed plant and insect species; and the VDCR Natural Heritage Program recommended coordination with the Fairfax County Park Authority concerning potential impacts to the Elklick Woodlands Natural Area Preserve and associated natural heritage resources. DCP submitted a letter to the Fairfax County Park Authority regarding potential impacts to the Elklick Woodlands Natural Area on February 10, 2017. DCP has not filed any additional correspondence from the Fairfax County Park Authority to-date.

Given DCP's commitment to the measures identified in our Plan and Procedures and adherence to other relevant permits, and because the Project does not involve construction activities within waterbodies or wetlands and would occur within the existing fenced facilities in Virginia, we conclude that impacts on state-listed or special status species would be minimized.

5.0 CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act, as amended, requires FERC to consider the effect of its undertakings on properties listed, or eligible for listing, on the National Register of Historic Places (NRHP), and to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. DCP, as a non-federal party, is assisting us in meeting our obligations under Section 106 of NHPA and the implementing regulations at 36 CFR 800 by preparing the necessary information, analyses, and recommendations, as authorized by 36 CFR 800.2(a)(3).

5.1 Consultations

We sent copies of our NOI for the Project to a wide range of stakeholders, including the ACHP, U.S. Department of the Interior National Park Service, Maryland Historical Trust and Virginia Department of Historic Resources, and federally recognized Indian tribes (tribes) that may have an interest in the Project area. The NOI contained a paragraph about Section 106 of the NHPA and stated that we use the NOI to initiate consultations with State Historic Preservation Officers (SHPO)[7] and to solicit their views and those of other government agencies, interested tribes, and the public on the Projects' potential effects on historic properties.

5.1.1 State Historic Preservation Officers

DCP submitted a letter dated October 5, 2016, to the Maryland SHPO providing Project information and recommendations and the Maryland SHPO responded on December 8, 2016, stating that no further archaeological investigations were necessary for the undertaking. DCP continued to consult with the Maryland SHPO about their intent to comment on the Project's potential to impact historic structures via email on March 2, 2017. In a letter dated March 17, 2017, the Maryland SHPO requested additional information about structures within the direct area of potential effects (APE) that would be constructed, demolished, or remodeled for the Project. DCP provided the requested information on April 7, 2017 including a description of the structures that would be built at the Charles Station and the WGL Interconnect, design plans for these structures, and photographs of the facility sites. At the Charles Station, an existing maintenance building would be demolished prior to construction of the new compressor station building; no buildings would be demolished or remodeled at the WGL Interconnect facility. DCP provided photographs of the existing maintenance building which was originally constructed circa 1978 by Columbia Gas Transmission, LLC (Columbia) and is not recommended as eligible for listing in the NRHP. On May 3, 2017, the Maryland SHPO responded that the Project would have no effect on historic properties.

[7] The SHPO is represented by the Virginia Department of Historic Resources in Virginia and by the Maryland Historic Trust in Maryland.

In a letter dated October 3, 2016, DCP informed the Virginia SHPO about the Project and provided recommendations. The Virginia SHPO responded in a letter dated January 13, 2017, stating that there would be no effects on historic properties. FERC staff and the Virginia SHPO agree there would be no effect on historic properties.

5.1.2 Federally Recognized Tribes

DCP filed letters contacting five tribes regarding the Project dated October 3, 2016: the Tuscarora Nation; the Shawnee Tribe; the Eastern Shawnee Tribe of Oklahoma; the Delaware Tribe of Indians; and the Delaware Nation, Oklahoma. We mailed our NOI to these tribes. On May 30, 2017, DCP sent a letter to the Pamunkey Indian Tribe of Virginia. DCP received a response from the Pamunkey Indian Tribe on June 8, 2017, indicating that it is unaware of any sites of cultural or religious significance that may be affected by the Project, but requested notification should there be an inadvertent discovery of such sites. DCP agreed to do so. To date, DCP has not filed any additional responses to the letters.

5.1.3 Other Stakeholders

DCP filed letters contacting five additional stakeholders, including the Maryland-recognized tribes of the Piscataway Indian Nation, the Piscataway Conoy Confederacy and Sub-tribes, Inc., and the Cedarville Band of Piscataway Indian, Inc.; Virginia-recognized tribe the Patawomeck Indians of Virginia; and the Maryland Commission on Indian Affairs.

We received comments from stakeholders stating that the area surrounding the Charles Station, including Piscataway National Park, is sacred to the Piscataway Indian Nation. Commenters recommended that we consult with the Piscataway Nation, Piscataway Conoy Band, and the Piscataway Cedarville Band regarding the proposed Project. DCP, as a non-federal party assisting the FERC in meeting our obligations under Section 106 of the NHPA, met with the Piscataway Conoy Tribal Leadership in February 2017, to provide information about the Project and answer questions. The Piscataway Indian Nation requested information about archaeological material identified, and DCP provided information about the cultural resources investigation and findings at the Charles Station, the status of DCP's consultation with the Maryland SHPO, and a copy of its Unanticipated Discovery Plan (UDP). Additional questions were about the visibility of the exhaust stacks from the surrounding area and water use at the proposed Charles Station. DCP provided their recommendation regarding visual impacts and explained that water use at the Charles Station would be limited to domestic uses. To date, DCP has not filed any additional correspondence with the Piscataway India Nation, the Piscataway Conoy Confederacy and Sub-tribes, Inc., and the Cedarville Band of Piscataway Indian, Inc., or responses from the other stakeholders contacted.

5.2 Survey Results

For both Maryland and Virginia, the direct APE consists of tracts on which ground disturbance would occur for the proposed compressor stations, access roads, interconnect facilities, and M&R station. This area consisted of 15.6 acres in Maryland and 21.9 acres in Virginia and the reports of these investigations are listed in table B.5.2-1. The indirect APE for aboveground resources would be the construction footprint of the aboveground facilities, as well as where the Project may lie within the viewshed of an aboveground historic property. DCP conducted background research of the Project APE for historic architectural resources and did not identify historic structures greater than 50 years of age within the indirect APE; therefore, no survey for aboveground historic properties was recommended.

TABLE B.5.2-1

Summary of Archaeological Survey for the Eastern Markets Access Project

County, Facility	Direct APE for Archaeological Resources (acres)	Area Surveyed (acres / year)	Report of Investigation
Charles County			
Charles Station	14.3	14.3 / 2017	TRC, 2017 [a]
WGL Interconnect	1.6	1.6 / 1997 and 2004	Maymon et al., 1997 [b] and Lorthrop et al., 2004 [c]
Total Project APE in Maryland	**15.9**		
Loudoun County			
Loudoun Compressor Station	5.9	5.9 / 1990	Myers, 1990 [d]
Loudoun M&R Station	2.1	2.1 / 1990	Myers, 1990 [d]
Fairfax County			
Pleasant Valley Compressor Station	13.9	13.9 / 2003 and 2013	MacDonald, 2003 [e] and Maymon et al. 2013 [f]
Total Project APE in Virginia	**21.9**		

[a] TRC Environmental Corporation (TRC). 2017. Cultural Resources Survey, Eastern Markets Access Project: Charles Station, Charles County, Maryland. Prepared for Dominion Resources Services, Inc. January 2017.

[b] Maymon, J.H., et al. 1997. Phase I Cultural Resource Survey for the Proposed Washington Gas Charles County Loop Line, Prince George's and Charles Counties, Maryland. Report prepared by R. Christopher Goodwin and Associates, Inc., Frederick, Maryland, for Stone and Webster, Boston, Massachusetts.

[c] Lothrop, L., L. Frye, M. Hyland, J. Tuk, &L. Dugas. 2004. Interim Report: Phase I Cultural Resources Survey of the Cove Point Expansion TL-532 Pipeline Project, Calvert, Prince Georges, and Charles Counties, Maryland. GAI Consultants, Inc. MHT # CV 96

[d] Myers, R. 1990. Phase I Cultural Resource Survey of Proposed Facilities at Loudoun Compressor Station, Loudoun Co., VA. Report Number LD-059.

[e] MacDonald, D. A. 2003. Phase I Archaeological Survey, Loudoun to Leesburg Pipeline, Loudoun County, Virginia. By GIA. Report Number LD-142.

[f] Maymon, J. H., M. Williams, R. Curlee, and K. Clark. 2013. Phase I Archaeological Survey for Additional Facilities at the Pleasant Valley Compressor Station for the Proposed Dominion Cove Point Liquefaction Project, Fairfax County, Virginia. By R. Christopher Goodwin & Associates, Inc. on Behalf of Dominion Resources Services, Inc.

APE = Area of potential effects

5.2.1 Maryland

The Charles Station, was surveyed for the presence of archaeological materials in 2017. Four archaeological sites consisting of three pre-contact sites and one historic site were identified. All four of the sites were recommended as not eligible for listing in the NRHP and no further work was recommended.

For the WGL Interconnect, the APE was previously investigated in 1997 and 2004. No cultural resources were identified in 1997, but the 2004 investigation identified an early 20th-century historic material scatter that was recommended as not eligible for listing the NRHP; no further work was recommended.

5.2.2 Virginia

For the Loudoun Compressor Station and the Loudoun M&R Station, the APE was surveyed for cultural resources in 1990 and 2015. For the Pleasant Valley Compressor Station, the APE was previously investigated in 2003 and 2013. No cultural resources were identified and no further work was recommended.

5.3 Unanticipated Discovery Plan

DCP included draft UDP for Maryland and Virginia as Appendix 4C attached to the Environmental Reports included with its applications to FERC. FERC staff requested revisions to the UDP in a data

request dated April 4, 2017, and DCP sent revised UDP to the appropriate SHPOs on April 7, 2017. On May 3, 2017, the Maryland SHPO agreed that the revised UDP is appropriate. In a letter dated April 28, 2017, the Virginia SHPO requested changes to the contact information in the UDP. DCP has not filed a revised UDP; however, the FERC staff finds the UDP acceptable.

5.4 Conclusion

DCP consulted with the Maryland and Virginia SHPOs regarding the potential effects to cultural resources. The Maryland and Virginia SHPOs did not object to the APE. No traditional cultural properties or properties of religious or cultural importance to Tribes have been identified by DCP, the Maryland and Virginia SHPOs, or Tribes contacted by the applicant and its consultants. FERC staff and Virginia SHPOs agree that the Project would have no effects on historic properties.

6.0 LAND USE, RECREATION, AND VISUAL RESOURCES

6.1 Land Use

Construction of the Project would disturb approximately 48.6 acres of land during construction and 19.0 acres for operation. The Project would affect open, forest/woodland, and industrial/commercial land use types. A summary of the impacts on land use are outlined in Table B.6.1-1.

TABLE B.6.1-1

Land Affected by Construction and Operation of the Project (acres)

	Open Land		Forest / Woodland		Industrial / Commercial		Total [c]	
Facility	Const. [a]	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.
Charles Station	0.8	0.3	12.5	5.5	1.0	0.4	14.3	6.3
WGL Interconnect [b]	1.5	0.1	0.0	0.0	0.1	0.0	1.6	0.1
Loudoun Compressor Station	0.6	0.0	0.0	0.0	5.0	4.7	5.9	4.9
Off-site Construction Staging Area	4.5	0.0	0.0	0.0	6.1	0.0	10.6	0.0
Loudoun M&R Station	0.5	0.5	0.0	0.0	1.8	1.8	2.3	2.3
Pleasant Valley Compressor Station[d]	1.0	0.0	0.0	0.0	12.9	5.4	13.9	5.4
Total Impacts [c]	**8.9**	**0.9**	**12.8**	**5.7**	**26.9**	**12.3**	**48.6**	**19.0**

[a] Construction impacts include all impacts during construction, including those areas used for operation of the facilities.
[b] The WGL Interconnect would be constructed within the 75-foot-wide permanent easement for the existing TL-522 pipeline and TL-532 pipeline. No additional land would be required for construction or operation of these facilities.
[c] Totals may vary slightly due to rounding.
[d] No ground disturbance is proposed at the Pleasant Valley Compressor Station.
Const. = Construction
Oper. = Operation

The Charles Station would be located on a parcel owned by DCP in Charles County, Maryland. Approximately 14.3 acres of land would be required to construct the Charles Station, including 12.5 acres of forest/woodland and 1.0 acres of industrial/commercial land. Of the 14.3 acres required during construction, approximately 6.3 acres would be permanently converted for operation of the facility. Access to the site would be from an existing gravel access road off Barrys Hill Road, which would be paved for use during operations. We received a comment expressing an increase in impervious surfaces potentially impacting wetlands and waterbodies and other general offsite impacts. DCP would primarily use crushed graveled surfaces at the station, which would allow drainage of stormwater. Some impervious surfaces

could include parking areas and the improved non-jurisdictional access road. DCP would implement its Stormwater Management and E&SC Plans to limit offsite stormwater and sediment impacts.

We received numerous comments questioning whether the Charles Station site is appropriate for an industrial facility due to the presence of wetlands and a conservation easement. The site already contains some DCP-owned industrial facilities. DCP would limit impacts on surrounding land use by avoiding direct wetland impacts and constructing outside of the conservation easement. The proposed Charles Station site is zoned Rural Conservation is also within the Resource Protection Overlay zone of Charles County, Maryland (Charles County, 2017). The Rural Conservation Zone is primarily made up of low-density residential development to preserve rural environment and natural features. The purpose of the Resource Protection Overlay Zone is to protect stream valley habitat and stream water quality. DCP is consulting with the Charles County Department of Planning and Zoning regarding any necessary zoning requirements that may need to be completed prior to the Department of Planning and Zoning approving the development of the Charles Station in the proposed location. On January 18, 2017, under legal guidance from Charles County, DCP submitted a special exception application to the County Board of Zoning Appeals for the construction of the Charles Station at the proposed 50-acre site. Consultations with the County are ongoing regarding the special exception application.

A portion of the proposed Charles Station site is in a forest conservation easement. The easement serves to permanently protect a portion of the site under a Forest Conservation Plan. DCP would flag the area of the site under permanent protection to avoid the forest conservation easement area during construction and no construction would take place within the flagged area.

A Maryland Agricultural Land Preservation Foundation conservation easement, restricting development on prime farm and woodland in perpetuity, is less than 0.2 mile to the east of the eastern property boundary of the proposed Charles Station site (MALPF, 2017; Johns Hopkins University, 2017). There is a dense forested buffer between the Maryland Agricultural Land Preservation Foundation conservation land and the eastern property boundary of the proposed site. We received general comments indicating that the Project, specifically the Charles Station could impact the MDNR's GreenPrint program. Based on our review of the MDNR's GreenPrint Map, we conclude that, while the Charles Station site is within a "targeted area", the site is outside of any easements or land under negotiation for the GreenPrint Program (MDNR, 2011). In addition, the land is owned by DCP and currently contains industrial facilities.

The WGL Interconnect would be constructed within an existing, maintained DCP easement in Charles County, Maryland. Approximately 1.6 acres of open and industrial/commercial land would be required during construction of the taps, of which approximately 0.1 acre would be permanently converted for operation. DCP would access the site from an existing access road off Gardiner Road and no additional temporary or permanent access roads would be constructed.

The proposed location of the WGL Interconnect is also zoned Rural Conservation in Charles County (Charles County, 2017). The two taps, located off Gardiner Road, would be placed along two of DCP's existing pipelines (TL-522 and TL-532) within an existing DCP easement. The site is north and adjacent to a MDNR Rural Legacy Property associated with the Zekiah Watershed Rural Legacy Area (MDNR, 2017a). Rural Legacy Areas aim to protect large, contiguous tracts of cultural and natural resource lands in Maryland. The Zekiah Watershed Rural Legacy Area is almost 31,000 acres and contains the largest natural hardwood swamp in Maryland. The Rural Legacy Property abutting the easement where the two taps for the WGL Interconnect are proposed is densely wooded, and would not be directly impacted by the Project. Indirect impacts would be minimized by the implementation of the FERC Plan, E&SC Plan, and SPCC Plan.

Approximately 5.9 acres of open, forest/woodland, and industrial/commercial land would be required for modifications at the existing Loudoun Compressor Station in Loudoun County, Virginia. All construction would occur on DCP-owned land within the existing station property boundary. Of the 5.9 acres required during construction, approximately 4.9 acres of forest/woodland and industrial/commercial land would be permanently retained for operation of the facility. Access to the site would occur from existing access roads off Watson Road (State Route 860) and/or Compressor Lane. No additional temporary or permanent access roads would be constructed at the facility.

The proposed Loudoun M&R Station would be co-located with the Loudoun Compressor Station, and would require approximately 2.3 acres of open and industrial/commercial land, all of which would be permanently retained for operations of the facility. Access to the site would occur from existing access roads off Watson Road (State Route 860) and/or Compressor Lane. No additional temporary or permanent access roads would need to be constructed at the facility.

The Loudoun Compressor Station and M&R Station would be constructed within the existing fence line of an industrial site owned by DCP on the eastern side of Watson Road in Loudoun County, Virginia. The 36.7-acre site, zoned Agricultural Rural – 1 (AR1) (Loudoun County, 2017a), has existing compression and metering facilities, open land, forested lands, and wetlands.

An off-site staging area would be used during the construction and modification of the Loudoun Compressor Station and M&R Station. The off-site staging area would be located across Watson Road at Dominion Transmission, Inc's Leesburg Compressor Station. Staging, temporary construction laydown, and parking areas used during construction would require approximately 10.6 acres of industrial/ commercial land, none of which would be permanently retained once construction is completed.

Proposed modifications to the existing Pleasant Valley Compressor Station in Fairfax County, Virginia would require use of approximately 13.9 acres of open and industrial/commercial land during construction. All construction would occur on DCP-owned land within the existing station property boundary. Of the 13.9 acres required during construction, approximately 5.4 acres of industrial/commercial land would be permanently retained for operation of the facility. Access to the site would occur from an existing access road off Bull Run Post Office Road.

Modifications at the Pleasant Valley Compressor Station in Fairfax County would occur within a 32-acre existing industrial site owned by DCP. The site is off Bull Run Post Office Road along a pipeline right-of-way, is within the Bull Run Planning District, is zoned Residential Conservation, and is within the Water Supply Protection Overlay District (Fairfax County, 2017a). In a letter dated November 10, 2015, the Fairfax County Department of Planning and Zoning determined FERC's approval and regulation of the site has the effect of preempting all local ordinances and, as such, the upgrades at the site are exempt from Fairfax County's Special Exception, Public Facility review, site plan, and building permit requirements.

The Project would result in the permanent conversion of 0.9 acre of open land and 5.7 acres of forest/woodland to industrial use. No wetlands would be directly impacted during construction or operation of the Project. The Project would utilize no new pipeline right-of-way and construction and operation would take place on land currently owned by DCP or within existing DCP right-of-way.

6.2 Existing Residences and Planned Developments

There are no residences within 50 feet of any of the proposed Project facilities. One residential subdivision is being developed and one residential subdivision is planned near the Loudoun Compressor Station and M&R Station. The Estates at Creighton Farms, currently under development, is located approximately 0.1 mile west of the Loudoun Compressor Station property boundary. The subdivision has

been approved for 184 single family units, of which 82 have been built as of July 2016 (Loudoun County, 2017b). A second proposed residential subdivision, McKimmey Subdivision, is located approximately 0.1 mile northwest of the Loudoun Compressor Station. Details of the McKimmey Subdivision (e.g., number of lots, anticipated construction start date) are not available. Two approved residential subdivisions are being developed near the Pleasant Valley Compressor Station: Foxmount and Hunters Pond Subdivisions are located approximately 0.3 and 0.2 mile south of the Pleasant Valley Compressor Station property boundary, respectively (Basheer & Edgemoore, 2017; K. Hovnanian Companies, LLC, 2017). The Foxmount and Hunters Pond Subdivisions are approved for a total of 40 5- to 6-acre residential lots.

6.3 Recreation and Special Interest Areas

The proposed Project facilities would be located within 0.25 mile of:

- Piscataway National Park (Charles Station);
- Potomac Natural Heritage Scenic Trail (Charles Station);
- Elklick Woodlands Natural Area Preserve, including the Elklick Diabase Flatwoods Conservation Site (Pleasant Valley Compressor Station); and
- Halifax Point District Park, formerly known as Sappington Farms (Pleasant Valley Compressor Station).

Piscataway National Park covers approximately 5,000 acres from Piscataway Creek to Marshall Hall across the Potomac River from George Washington's Mount Vernon estate. The park is home to various wildlife and amenities include a visitor's center, public fishing pier, boardwalks, nature trails, and woodland areas. The National Colonial Farm is also a part of the park (NPS, 2017a). Piscataway National Park abuts the proposed site of the Charles Station north of Barrys Hill Road and the closest boundary of the park is approximately 560 feet from the operational limits of disturbance of the proposed Charles Station. The portion of the park immediately adjacent to the proposed Charles Station location is private land within the park boundary and therefore no public access or recreational use occurs in the immediate vicinity of the proposed site. The land at the proposed Charles Station site immediately adjacent to the park is either within forest conservation easement (as discussed in section 6.1) or is identified as a wetland area. This portion of the proposed site would not be developed or impacted during construction or operation of the proposed Charles Station. The Piscataway National Park Visitors Center is located approximately 1.8 miles (9,400 feet) from the Charles Station operational limits of disturbance.

Noise associated with construction of the Charles Station may create a temporary impact to public use and recreation at Piscataway Park, but any impacts would be limited to the portions of the park directly abutting the proposed site that do not include public access areas. Any visual impacts associated with the construction of the Charles Station are further discussed in section 6.5.

The proposed Charles Station is located along the Potomac Heritage Trail On-Road Bicycling Route (NPS, 2017b). Marshall Hall Road and Barrys Hill Road are public roadways included on the trail route, both of which would be used to access the site during construction and operation of Charles Station. Project-related construction traffic would not limit use of the bicycling route, but could temporarily impact bicyclists using Marshall Hall and Barrys Hill Road during construction due to increased traffic. To limit impacts to bicyclists, DCP and its contractors would follow Maryland traffic safety laws (e.g., no use of handheld devices while driving) and adhere to safe driving practices. DCP would be required to adhere to the Maryland State Highway's Bicycle Safety Program, which includes safety measures such as allowing 3 feet when passing cyclists, staying alert, and merging into bike lanes before turning right. Additionally, traffic caused by construction workforce commutes to and from the site daily would be limited, to the extent

practical, to early morning and early evening times. Traffic to the site during operations would be minimal and all DCP employees and contractors would adhere to safe driving practices and as such, no impacts to bicyclists during operation are expected.

The Elklick Woodlands Natural Area Preserve, a 226-acre conservation area, abuts the property boundary of Pleasant Valley Compressor Station to the north and the east. The preserve, owned by the Fairfax County Park Authority, is a dedicated state natural area preserve protected by the Northern Virginia Conservation Trust under a conservation easement (Fairfax County, 2017b). The Elklick Diabase Forest, located within the Elklick Woodlands Natural Area Preserve, is immediately north and east of the Pleasant Valley Compressor property boundary (Fairfax County, 2017b). Currently there is no public access to the Elklick Woodlands Natural Area Preserve.

Halifax Point Park is located immediately south and west of the Pleasant Valley Compressor Station site. The 170-acre park is currently forested and open land, but has an approved Conceptual Development Plan that includes a recreation zone with athletic fields, trails, and parking. The plan is still in the development phase with no construction start date announced (Fairfax County, 2017c).

All modifications and construction at the Pleasant Valley Compressor Station would occur on DCP-owned land within the fence line of the existing facility. Given that there is no public access to the Elklick Woodlands Natural Area Preserve and there is no known timeframe for development of the Halifax Point Park, no impacts to use of these recreational and natural areas are anticipated.

6.4 Coastal Zone Management

The proposed Charles Station and the WGL Interconnect are located within Maryland's Coastal Zone in Charles County (MDNR, 2017b). Federal Coastal Zone Consistency requirements are overseen in Maryland by the Coastal Zone Consistency Division in the Wetlands and Waterways Program of the Water Management Administration of the MDE (Ghigiarelli, 2004). DCP is currently consulting with MDE regarding coastal zone consistency for the Charles Station and the WGL Interconnect. To ensure that the Commission's responsibilities are met under the Coastal Zone Management Act, **we recommend that:**

- **Prior to construction, DCP should file documentation of concurrence from the MDE that the Project facilities in Maryland are consistent with the Maryland Coastal Zone Management Program.**

The Pleasant Valley Compressor Station is in Fairfax County, which is part of the Coastal Zone of Virginia. Federal Coastal Zone Consistency requirements are overseen in Virginia by the VDEQ (VDEQ, 2017). DCP is currently consulting with VDEQ regarding coastal zone consistency for the Pleasant Valley Compressor Station. On January 12, 2017, the VDEQ concurred that the proposal is consistent with the CZMA provided all applicable permits and approvals are obtained.

Based on review of the Virginia Coastal Zone Management Program maps, the proposed Loudoun Compressor Station and M&R Station are not located within Virginia's Coastal Zone and therefore are not subject to coastal consistency (VDEQ, 2017).

6.5 Visual Resources

Proposed modification activities at the existing Loudoun and Pleasant Valley Compressor Stations would occur within the property line of the existing compressor station facilities. No permanent changes to the current visual landscape are anticipated as a result of modifications to existing aboveground facilities.

The new aboveground facilities associated with the Project would be the most visible features and would result in long-term impact on visual resources. New aboveground facilities include Charles Station, the taps at the WGL Interconnect, and two new structures at the Loudoun Compressor Station to house additional compression and existing equipment at the site. The magnitude of these impacts depends on factors such as the existing landscape, the remoteness of the location, and the number of viewpoints from which the facility could be seen.

DCP conducted a desktop visual analysis as well as a balloon visibility test to determine whether the proposed infrastructure at its tallest height (50 feet at the approximate location of the two proposed exhaust vents) would be visible by surrounding residences, recreation, and scenic areas. The results of the desktop analysis conclude that topography, natural settings, and existing forest cover in the area would buffer the proposed compressor station from view of the surrounding area. The balloon visibility test, conducted on December 10, 2016, confirmed the proposed station would not be visible from Mount Vernon or other significant viewsheds, including those from Piscataway National Park.[8]

The proposed Charles Station would be sited on land that is primarily forest or woodland. A total of 14.3 acres would be affected during construction and of this, 6.3 acres would be retained for operation. The nearest residence is 0.4 mile to the southwest. Views of the compressor station from the few nearby residences, as demonstrated in DCP's visual impact analysis, would be limited due to existing forested buffer and distance from the residences to the compressor station site. A buffer of trees, forest land, and other vegetation would screen all sides of the compressor station and limit its view during operation. Operation of the Charles Station would create a permanent visual impact; however, as demonstrated in figure A.3-2 in the appendix and DCP's visual impact analysis filed March 7, 2017, the site is well screened by forested land between residences and recreational and scenic areas. This existing natural buffer would limit visual impacts on residents and users of recreational and scenic areas near the site.

We received several comments, including comments from the National Park Service, regarding visual impacts of the proposed Charles Station site to the surrounding rural community as well as to the viewsheds of Piscataway National Park and George Washington's Mount Vernon estate located over 3 miles from the proposed site, across the Potomac River in Virginia. The visual impacts to the surrounding area, particularly to residences and recreational users of Marshall Hall Road, Route 277, and Barrys Hill Road, would be minimal and short term, lasting the duration of construction due to construction activities and the presence of construction equipment and materials. Once construction is complete, the new aboveground facilities could potentially be visible to passersby, but due to the natural screening, this impact would be limited.

We received comments expressing concern with lighting at the Charles Station. Typical installation would consist of LED flood lights angled downward with a visor to reduce any stray light. DCP states that it would use energy efficient downward directional lighting to minimize impacts and use minimal lighting during station operations. Lighting would be designed to shine inward to the station from the fence line or would be building mounted with a downward vertical lighting profile. Also, any non-security lighting would be installed with a switch to be used only during a maintenance event. At the Pleasant Valley Station, no modifications to the existing lighting are proposed. At the Loudoun Station, any additional lighting requirements would match the existing lighting design. At the Charles Station, the large natural buffer around the site would also serve to shield surrounding properties and wildlife from additional illumination.

[8] The results of DCP's visual impact analysis (i.e., balloon test) for the Charles Station, filed with the Commission on March 20, 2017, can be found on the FERC eLibrary website under Accession No. 20170320-5242.

The proposed WGL Interconnect would include minimal aboveground piping for the two new taps. The taps would be within an existing DCP easement and the land surrounding the easement is forested. There is a forested buffer surrounding the proposed tap location and therefore no significant impacts to the visual character of the surrounding area would occur.

Construction of additional facilities at the Loudoun Compressor Station would result in temporary visual impacts including increased numbers of company personnel, and presence/storage of additional equipment and materials. These impacts would generally cease upon completion of construction. The additional facilities at the Loudoun Compressor Station would be adjacent to existing natural gas facilities, including an existing compressor building. These facilities have an existing visual impact on surrounding areas depending on direction and viewpoint from which they are seen. The visual impacts of the additional facilities at the Loudoun Compressor Station site would represent a minor incremental impact based on the existing land use and infrastructure. The existing forested buffer around the property would remain intact, further minimizing visual impacts on surrounding areas.

7.0 SOCIOECONOMICS

Construction and operation of the Project could impact socioeconomic conditions in the area. Some potential effects are related to the number of construction workers that would work on the Project and their impact on population, public services, and temporary housing during construction. Other potential effects are related to construction, such as increased traffic or disruption of normal traffic patterns. Increased property tax revenue, increased job opportunities, and increased income associated with local construction employment are potential effects of the Project.

The socioeconomic study area considered for the analysis of the Project includes Charles and Prince George's Counties in Maryland and Fairfax and Loudoun Counties in Virginia. The easternmost boundary of the Charles Station site is approximately 0.1 mile from the Prince George's County line, therefore we have included it in the socioeconomic study area. The counties in the socioeconomic study area are the most likely to see an increase in non-local workers relocating to these areas due to the proximity to the proposed Project facilities.

7.1 Population, Economy, and Employment

A summary of select demographic and socioeconomic conditions for counties in the socioeconomic study area is presented in table B.7.1-1.

TABLE B.7.1-1

Existing Social and Economic Conditions for the Project Study Area

Location	2016 Population Estimate [a]	Population Density (persons/sq. mi) (2010) [b]	Per Capita Income (U.S. Dollars) [c]	Civilian Labor Force [c]	Unemployment Rate [c]	Top Three Industries [c,d]
United States	323,127,513	87	$28,930	158,897,824	8.3	R, P, M
Maryland	6,016,447	595	$36,897	3,214,531	7.4	E, P, Pu
Charles County	157,705	320	$36,809	81,735	6.3	Pu, E, P
Prince George's County	908,049	1,789	$32,639	509,962	8.7	E, P, Pu
Virginia	8,411,808	203	$34,152	4,266,800	6.5	E, P, R
Fairfax County	1,138,652	2,767	$51,025	634,904	4.9	P, E, Pu
Loudoun County	385,945	606	$47,495	194,311	4.0	P, E, R

TABLE B.7.1-1

Existing Social and Economic Conditions for the Project Study Area

Location	2016 Population Estimate [a]	Population Density (persons/sq. mi) (2010) [b]	Per Capita Income (U.S. Dollars) [c]	Civilian Labor Force [c]	Unemployment Rate [c]	Top Three Industries [c,d]

[a] Source: U.S. Census Bureau, 2016a.
[b] Source: U.S. Census Bureau, 2010.
[c] Source: U.S. Census Bureau, 2016b.
[d] Industries are defined under the 2012 North American Industry Classification System (NAICS) and abbreviated as follows: E = Educational, Health and Social Services; M = Manufacturing; P = Professional, Scientific, Management, Administrative, and Waste Management Services; Pu = Public Administration; and R = Retail Trade.

Construction of the Project would temporarily increase the population in the socioeconomic study area. Construction for all portions of the project are is estimated to begin in November 2017 and would last approximately 9 months. Construction of the Charles Station and WGL Interconnect would require approximately 75 workers for the duration of construction and 2 new permanent employees would be needed to operate Charles Station. Construction and modifications at the Loudoun Compressor and M&R Station would require 75 workers and modifications at the Pleasant Valley Compressor Station would require 25 workers during construction and no new permanent workers would be hired for operations at either facility.

The construction workforce would include both local and non-local workers, of which DCP estimates 20 percent would be local. DCP, through its construction contractors, may hire local construction workers possessing the required skills and experience for construction of Project facilities. Population impacts to the socioeconomic study area are expected to be temporary and proportionally small. The total population change would equal the total number of non-local construction workers plus any family members accompanying them. Given the short duration of construction, it is our experience that most non-local workers would not travel with their families to the study area, thus minimizing temporary impacts to the study area population. Based on the county populations within the study area, the temporary addition of the non-local workforce to the study area for the duration of construction would not result in a significant population change. Additionally, the temporary increase in population would be distributed throughout the study area and would have no permanent impact on the population. A brief decrease in the unemployment rates in the study area could occur as a result of hiring of local workers for construction and increased demands on the local economy. Additionally, the non-local workforce would also most likely spend a portion of their pay in local communities on items such as housing, food, automobile expenses, entertainment, and miscellaneous other items. The number of temporary, indirect jobs in the study area could increase as purchases for goods and services would increase along with the influx of the construction workforce to the area. Indirect employment, including hiring additional staff in the retail and service industries to accommodate the increase in demand for food, clothing, lodging, gasoline, and entertainment, along with an increased demand for goods and services would have a temporary stimulating effect on local economies. Indirect jobs would represent a temporary, minor increase in employment opportunities in the study area.

7.2 Housing

Housing characteristics for the counties in the socioeconomic study area are presented in table B.7.2-1.

TABLE B.7.2-1

Available Housing in the Project Study Area

Location	Total Housing Units [a]	Owner Occupied [a]	Renter Occupied [a]	Median Gross Rent ($) [a]	Rental Vacancy Rate (%) [a]	Vacant Housing Units For Rent	Hotels and Motels/Campgrounds and RV Parks [b]
United States	133,351,840	74,712,091	42,214,214	$928	6.4	2,949,366	
Maryland	2,410,256	1,447,662	718,727	$1,230	6.6	51,112	
Charles County	57,156	41,321	11,850	$1,487	4.8	601	23/5
Prince George's County	329,897	189,462	116,148	$1,294	6.7	8,445	38/6
Virginia	3,423,291	2,027,005	1,035,778	$1,116	6.1	68,583	
Fairfax County	409,963	265,693	126,662	$1,747	3.4	4,562	105/2
Loudoun County	118,919	87,461	25,971	$1,668	4.0	1,114	14/2

[a] U.S. Census Bureau, 2016b.

[b] Charles County, 2017; Commonwealth of Virginia Tourism, 2017; Fairfax County, 2017d; Fairfax County, 2017e; Google Maps, 2017; Loudoun County, 2017c; Prince George's County, 2017; State of Maryland Tourism, 2017; Trip Advisor, 2017

Note: Inventory of hotels, motels, and campgrounds was collected at county level only.

Temporary housing availability varies geographically within the counties near the proposed facilities and is available in the form of daily, weekly, and monthly rentals in motels, hotels, campgrounds, and rental housing units. The demand for housing in the study area may increase during summer months when tourism in the area may increase.

Construction of the Project could affect the availability of short-term housing in the study area. The Project is likely to have a short-term positive impact on the area rental and accommodation industry through increased demand and higher rates of occupancy. Given the rental vacancy rates and the number of hotel/motel rooms available in the study area, no significant impacts to the local housing markets would be expected.

7.3 Public Services

A wide range of public services and facilities are offered in the study area. Services and facilities include hospitals, full-service law enforcement, paid and volunteer fire departments, and schools. Table B.7.3-1 provides an overview of select public services available by county in the study area. Each county has its own sheriff's or police department, numerous fire departments and at least one hospital or medical facility. Additionally, each county has multiple school districts and many public schools.

TABLE B.7.3-1

Public Services Available in the Project Study Area

Location	No. of Police & Sheriff Dept. [a]	No. of Fire Stations [a]	No. of Hospitals & Medical Facilities [b]	No. of Public Schools [c]
Maryland				
Charles County	3	14	1	37
Prince George's County	34	37	2	211
Virginia				
Fairfax County	12	27	5	218
Loudoun County	6	31	1	86

[a] Homefacts, 2017

[b] American Hospital Directory, 2017.

[c] National Center for Education Statistics, 2015

Approximately 140 non-local workers would be anticipated to enter the study area, a small number relative to the current population of the study area. This would result in a minor, temporary, or no impact on local community facilities and services, such as police, fire, and medical services. The counties in the study area have adequate infrastructure and services to meet the need of any non-local construction workers entering the study area.

Short-term impacts on public services could include the need for localized police assistance to control traffic flow or respond to emergencies during construction activities. Also, construction-related injuries could occur as a result of unanticipated accidents or emergencies. In the event of an accident, DCP could require police, fire, and emergency services. The anticipated demand on these services is not expected to exceed the existing capability of the services. DCP would work with local services to coordinate effective emergency response. It is anticipated that the non-local workforce would not travel with their families during the construction period, and as such it is not anticipated that the Project would increase demand for school-related services.

DCP anticipates hiring two employees from the study area for operation of the Charles Station. Since these employees would be hired from the study area and therefore would be no impact to demand for public services, no permanent impacts on public services would occur in the study area.

Construction of the Project would not significantly affect public services in the study area due to the short duration of the construction phase. The counties in the study area presently have and are presumed to continue to have adequate infrastructure and services to meet the potential needs of non-local workers who enter the area temporarily.

7.4 Transportation and Traffic

The local road and highway system in study area and the vicinity of the Project facilities consists of interstate highways, U.S. highways, state highways, secondary state highways, county roads, and private roads. Most local public roads in vicinity of the Project facilities are paved. Construction of the Project could result in minor, short-term impacts along some roads and highways due to the movement and delivery of equipment, materials, and workers.

Daily commuting of the construction workforce to the Project area could temporarily affect traffic. Approximately 75 people each would be working at the Charles Station and Loudoun Compressor Station sites, and 25 people would be working at the Pleasant Valley Compressor Station site. DCP does not anticipate ride sharing or bussing of workers to the Project facilities. Workers commuting to and from the site every day would result in a short-term, temporary increase in traffic during construction.

In addition to the construction workforce, the delivery of construction equipment and materials to the Project facility sites could temporarily congest existing transportation networks. DCP would conduct route studies to determine the best means for transporting large equipment to Project sites. DCP would acquire all necessary heavy haul permits prior to the start of construction. Traffic associated with the delivery of materials and equipment to the Project sites would result in short-term, temporary increases in traffic and traffic congestion on the roads near the Project facilities for the duration of construction.

7.5 Property Values

We received comments expressing concern that construction and operation of compressor stations could adversely impact property values in the surrounding area. FERC staff conducted independent research and identified two recent studies assessed the effects of natural gas pipeline compressor stations on property values. The first study was prepared for the National Fuel Gas Supply Corporation and assesses

the impacts on property values in neighborhoods surrounding compressor stations in seven locations in New York state. Sales data over the previous 15 years was evaluated and assessors from six of the seven areas were interviewed. The study found no quantifiable evidence of a discernable effect on property values or appreciation rates of properties within 0.5 mile of compressor stations. The study, which notes the general lack of sales data for analysis, identified the following commonalities among the seven areas: the compressor stations were sited on large land parcels and set back from the road; natural and constructed buffers were utilized; and compressor station sites were generally in rural areas removed from higher density development. (Griebner, 2015)

The second study, *A Study of Natural Gas Compressor Stations and Residential Property Values*, prepared for Tennessee Pipeline Company LLC and based on four case studies in New Hampshire and Massachusetts, compared the value of properties close to compressor stations to properties farther away. The study relied on available market data and interviews with town assessors, building department representatives, and other government representatives. The study concluded that the presence of a compressor station did not generally affect property values in the area. The study indicated a higher confidence in this conclusion for properties more than 0.5 mile from compressor stations. The reason for this is that the areas surrounding the compressor stations in each of the case studies were more rural in nature and therefore there was a comparative lack of sales data in the immediate vicinity of the compressor stations as compared to the area 0.5 mile away. Overall, the study concluded that "well designed and operated compressor stations on larger sites with adequate buffers should have minimal impact on surrounding land uses and residential property values" (Foster, 2016).

Based on the research we have reviewed we find no conclusive evidence indicating that natural gas compressor stations would have a significant negative impact on property values.

7.6 Tax Revenues

A number of comments were received asserting the Project would have limited to no economic benefit to the communities affected by Project construction. As discussed previously, the Project is expected to have a temporary, minor beneficial impact on unemployment rates and the housing rental and accommodations industries including hotels and motels, RV parks and campgrounds in the area. DCP also provided estimates of total expenditures and property taxes that would be paid in conjunction with the Project.

DCP estimates the cost of materials for the Project would total over $44 million dollars. DCP does not yet have an estimate of what proportion of expenditures would be spent locally, but it is reasonably assumed that a portion of the overall materials cost would be spent in the Project study area.

Table B.7.6-1 provides a quantitative estimate of tax revenues expected to be realized by the county governments in the Project area.

Construction of the Project would result in increased county property tax revenues in the Virginia counties where Project facilities are located, which would result in a short-term beneficial impact on local governments in Virginia. Once operational, property taxes would be assessed on the value of the Project facilities. As such, the increased tax base during Project operations would be a long-term beneficial impact on local governments in the Project area.

TABLE B.7.6-1

Estimated Tax Revenues in the Project Study Area

Location	Construction Work in Progress (CWIP) Property Taxes	Estimated Yearly Property Taxes During Operations [a]
Maryland		
Charles County	--	$1,000,000
Virginia		
Fairfax County	$16,000	$29,000
Loudoun County	$76,000	$239,000

[a] Yearly property tax estimates during operations was based on Tax Year 2019 estimated property taxes. Actual yearly property taxes could differ depending on capital addition, net utility operating income, depreciation, and prevailing tax rates.

7.7 Environmental Justice

Executive Order 12898, *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires federal agencies to consider if impacts on human health or the environment (including social and economic aspects) would be disproportionately high and adverse for minority and low-income populations, and appreciably exceed impacts on the general population or other comparison group. We received a comment expressing concern that the Charles Station facility is proposed in an area with a high concentration of minority populations, thus unduly impacting this community.

Consistent with Executive Order 12898, the CEQ called on federal agencies to actively scrutinize the following issues with respect to environmental justice (CEQ, 1997):

- the racial and economic composition of affected communities;
- health-related issues that may amplify project effects on minority or low-income individuals; and
- public participation strategies, including community or tribal participation in the process.

The EPA's Environmental Justice Policies focus on enhancing opportunities for residents to participate in decision making. The EPA (2011) states that Environmental Justice involves meaningful involvement so that: "(1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that would affect their environment and/or health; (2) the public's contributions can influence the regulatory agency's decision; (3) the concerns of all participants involved would be considered in the decision-making process; and (4) the decision-makers seek out and facilitate the involvement of those potentially affected."

In accordance with Executive Order 12898, all public documents, notices, and meetings for the Project were made readily available to the public during our review of the project. DCP contacted different stakeholders and civic organizations in the vicinity of the proposed Charles Station. Additional efforts included mailings to landowners and other stakeholders, Project newsletters and a website, an email address, and a toll-free telephone number. As discussed in section 5.0, FERC staff also conducted outreach efforts. This includes mailing the NOI to 542 parties notifying them of the Project, as well as a public scoping session held March 2, 2017, which was attended by about 20 individuals.

7.7.1 Demographic and Economic Data

Based on published EPA guidance concerning environmental justice reviews (EPA, 1998), we used a three-step approach to conduct our review. These steps are:

1. determine the existence of minority and low-income populations;
2. determine if resource impacts are high and adverse; and
3. determine if the impacts fall disproportionately on environmental justice populations.

For the purposes of this review, a low-income population exists when the percentage of all persons living below the poverty level is more than the percentage for the state where the census tract is located. Also, for this review, minority population exists when:

- the total racial minorities in a U.S. Census Bureau-defined census tract are more than 50 percent of the tract's population;
- the percentage of a racial minority in a census tract is "meaningfully greater"[9] than in the comparison group;
- the total ethnic minorities in a census tract are more than 50 percent of the tract's population; or
- the percentage of ethnic minorities in a census tract is meaningfully greater than in the comparison group.

Racial and ethnic minorities include: African American/Black, Native American or Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, two or more races, and other races; and the Hispanic or Latino ethnicity.

Table B.7.7-1 and figure B.7.7-1 provide an overview of the racial and economic characteristics of the population in the census tracts within a 1-mile radius of all Project facilities. No census tracts within 1-mile of Project facilities had low-income populations as defined above.

In Virginia, where Project facilities are either modifications to or construction at existing compressor station facilities, minorities comprise 31 percent of the total population. The percentage of minorities in the Virginia census tracts within 1 mile of Project facilities ranges from 21.2 to 46.1 percent. One census tract within 1 mile of the existing Pleasant Valley Compressor Station has a minority population meaningfully greater than that of the county in which it is located (Census Tract 6118.06 in Loudoun County).

In Maryland, where the proposed Charles Station would be located, minorities comprise 42.4 percent of the total population. The percentage of minorities in the Maryland census tracts within 1 mile of the proposed Charles Station ranges from 54.3 to 66 percent. For context, the counties where these census tracts have minority populations of 79.6 and 51.3 percent, respectively. In both census tracts, the minority population is over 50 percent, and the census tract where the station would be sited has a minority population that is meaningfully greater than that of the county in which it is located (Census Tract 8501.01 in Charles County).

[9] "Meaningfully greater" is defined in this analysis when minority or ethnic populations are at least 10 percentage points more than in the comparison group, which was the county in which the census tract was located.

TABLE B.7.7-1

Racial, Ethnic, and Poverty Statistics for Census Tracts within 1-Mile of Project Facilities

Project, Location	Total population [a]	White (%) [a, b]	Black or African American (%) [a]	American Indian and Alaska Native (%) [a]	Asian (%) [a]	Native Hawaiian and Other Pacific Islander (%) [a]	Some other race (%) [a]	Two or more races (%) [a]	Hispanic or Latino origin (of any race) (%) [a]	Total Minority Population (%) [a]	Percent Below Poverty Level (%) [a]
United States	316,515,021	73.6	12.6	0.8	5.1	0.2	4.7	3.0	17.1	26.4	13.5
Maryland	5,930,538	57.6	29.5	0.3	6.0	0.0	3.6	3.0	9.0	42.4	10.0
Charles Station											
Charles County	152,754	48.7	42.2	0.7	3.3	0.1	1.0	4.3	5.0	51.3	7.9
CT 8501.01	5,830	34.0	57.8	1.0	2.7	0	0	4.4	6.3	66.0	4.8
Prince George's County	892,816	20.4	63.4	0.4	4.3	0	8.9	2.6	16.2	79.6	9.6
CT 8013.02	2,624	45.7	42.9	2.4	4.2	0	0.1	4.7	1.0	54.3	1.6
WGL Interconnect											
Charles County	152,754	48.7	42.2	0.7	3.3	0.1	1.0	4.3	5.0	51.3	7.9
CT 8508.02	3,919	49	42.6	0	3.8	0	1.9	2.8	9.3	51	7.7
CT 8514	8,967	69.5	23.1	0.7	2.3	0	0.1	4.3	4.1	30.5	8.7
Virginia	8,256,630	69.0	19.2	0.3	6.0	0.1	2.2	3.2	8.6	31	11.5
Loudoun Compressor and M&R Station											
Loudoun County	351,129	67.8	7.4	0.2	16.2	0.1	3.6	4.7	13.2	32.2	4.0
CT 6110.24	6,548	77.2	4.4	0.2	13.4	0	0	4.8	3.1	22.9	1.9
Off-Site Staging Area											
Loudoun County	351,129	67.8	7.4	0.2	16.2	0.1	3.6	4.7	13.2	32.2	4.0
CT 6109	2,280	78.8	15.8	0	1.3	0	2.8	1.3	4.6	21.2	5.2
Pleasant Valley Compressor Station											
Fairfax County	1,128,722	62.9	9.4	0.2	18.4	0.1	4.5	4.6	16.1	37.1	6.0
CT 4910	2,009	76.2	2.6	0	13.1	0	0.8	7.3	3.6	23.8	0.9
CT 4911.01	3,792	77.8	2.2	0	13.8	0	0	6.2	4.7	22.2	0.9
Loudoun County	351,129	67.8	7.4	0.2	16.2	0.1	3.6	4.7	13.2	32.2	4.0
CT 6118.06	8,957	53.9	9.6	0.1	26.7	0	0.9	8.7	8.7	46.1	0.6

[a] U.S. Census Bureau, 2016b.

[b] White Alone, Not Hispanic or Latino

Grey highlighted values indicate percentage exceeds thresholds defined in text, and is an environmental justice population.

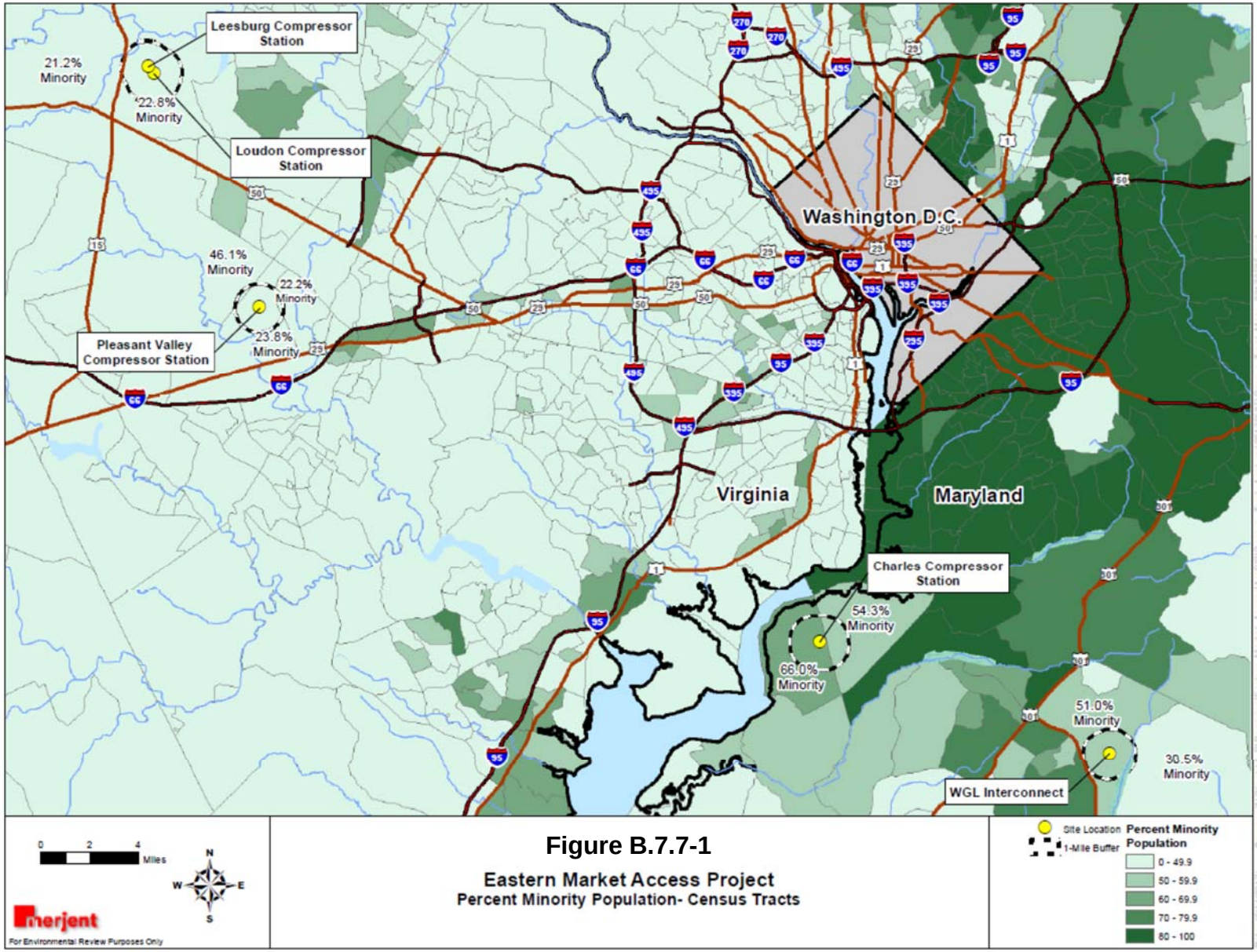


Figure B.7.7-1

Eastern Market Access Project
Percent Minority Population- Census Tracts

DCP would implement a series of measures to minimize potential impacts on communities, including environmental justice communities, near Project facilities. DCP would comply with all applicable environmental regulations, including those for air emissions to ensure the National Ambient Air Quality Standards (NAAQS) are met. NAAQS are designed to protect sensitive populations from impacts. DCP would comply with FERC noise regulations and Charles County noise ordinances to minimize effects on the closest noise sensitive areas (NSA), which is 1,800 feet from the proposed Charles Station. DCP would implement its *Fugitive Dust Control Plan* to minimize impacts to surrounding communities during construction. Additional discussion of air impacts are discussed below in section 8.1, Air Quality.

DCP evaluated alternative sites in Charles County before selecting the proposed location of the Charles Station. Final site selection was determined based on engineering details such as hydraulic modeling and proximity of the compressor station to the pipeline such that pressure is adequate to deliver product to customers. As such, DCP had a 15-mile corridor in Charles County along the existing TL-522 and TL-532 pipelines in which gas can be compressed adequately to meet required delivery pressures. DCP identified other available sites within the route; however, populations within 1-mile of alternative sites had similar demographic makeups to that of the proposed Charles Station location. Impacts on the natural and human environment from the construction and operation of Project facilities are identified and discussed throughout this document. Potentially adverse environmental effects associated with the Project would be minimized and/or mitigated, as applicable, and are not characterized as high and adverse. Although the census tracts within a 1-mile radius of the proposed Charles Station have a racial composition over 50 percent minority, based on our environmental analysis the Project would not cause a disproportionate share of high and adverse environmental or socioeconomic impacts on any racial, ethnic, or socioeconomic group.

8.0 AIR QUALITY AND NOISE

8.1 Air Quality

This section of the EA describes existing air quality, identifies the construction and operating air emissions and projected air quality impacts, and outlines methods that DCP would use to achieve compliance with regulatory requirements for the Project facilities. The Clean Air Act (CAA), as amended in 1977 and 1990, is the basic federal statute governing air pollution. Air quality in Charles County, Maryland and Loudoun and Fairfax Counties, Virginia would be affected by construction of the Project. During construction, short-term emissions would be generated by operation of equipment, land disturbance, and increased traffic from worker and delivery vehicles. Operation of the Charles Station would result in long-term air emissions. Modifications to the Pleasant Valley and Loudoun Compressor Stations and the Loudoun M&R Station would result in minor long-term fugitive air emissions.

8.1.1 Existing Air Quality

Charles County, Maryland and Loudoun and Fairfax Counties, Virginia are characterized by a temperate climate. The areas experience average annual precipitation (rainfall) of about 40 inches and monthly average daily temperatures range from about 22 degrees Fahrenheit (°F) in January to 88 °F in July. The average annual temperature in the Project area ranges from 56 to 60 °F. Summers are warm and humid. The northeast is often affected by extreme events such as ice storms, floods, droughts, heat waves, hurricanes, and major storms in the Atlantic Ocean off the northeast coast, referred to as nor'easters.

8.1.2 Ambient Air Quality Standards

We received numerous comments on air quality impacts associated with the Project. Specifically, individuals expressed concern with the Project's impact on the health of humans (especially children) and wildlife near compressor stations as well as the general potential to degrade local air quality. Commenters

near the Charles Station are concerned that stack emissions would cause respiratory illnesses. Ambient air quality is protected by federal and state regulations. Under the CAA and its amendments, the EPA established the NAAQS to protect human health and welfare. These standards incorporate short-term (hourly or daily) levels and long-term (annual) levels to address acute and chronic exposures to the pollutants, as appropriate. The NAAQS include primary standards that are designed to protect human health, including the health of sensitive individuals such as children, the elderly, and those with chronic respiratory problems. The NAAQS also include secondary standards designed to protect public welfare, including visibility, vegetation, animal species, economic interests, and other concerns not related to human health. Individual states may set air quality standards that are at least as stringent as the NAAQS; Maryland and Virginia have adopted the NAAQS.

Standards have been set for seven principal pollutants that are called "criteria pollutants." These criteria pollutants are ground-level ozone, carbon monoxide (CO), oxides of nitrogen (NO_x), sulfur dioxide (SO_2), fine particulate matter (inhalable particulate matter with an aerodynamic diameter less than or equal to 10 microns [PM_{10}] and less than or equal to 2.5 microns [$PM_{2.5}$]), and airborne lead. Ozone is not emitted into the atmosphere from an emissions source; it develops as a result of a chemical reaction between NO_x and volatile organic compounds (VOC) in the presence of sunlight. Therefore, NO_x and VOCs are often referred to as ozone precursors and are regulated to control the potential for ozone formation. The current NAAQS are listed on the EPA's website (EPA, 2016a).

In accordance with Section 7 of the CAA, air quality control regions (AQCR) are areas established by the EPA, in consultation with state and local agencies, for air quality planning purposes. State Implementation Plans (SIP), approved by the EPA, describe how the NAAQS would be achieved and maintained. The AQCRs are intra- and interstate regions, such as large metropolitan areas, where improvement of the air quality in one portion of the AQCR requires emission reductions throughout the AQCR. Each AQCR, or smaller portion within an AQCR (such as a county or multiple counties), is designated, based on compliance with the NAAQS, as attainment, unclassifiable, maintenance, or nonattainment, on a pollutant-by-pollutant basis. Areas in compliance, or below the NAAQS, are designated as attainment, while areas not in compliance, or above the NAAQS, are designated as nonattainment. Areas previously designated as nonattainment that have since demonstrated compliance with the NAAQS are designated as maintenance for that pollutant. Maintenance areas may be subject to more stringent regulatory requirements similar to nonattainment areas to ensure continued attainment of the NAAQS. Areas that lack sufficient data are considered "unclassifiable" and are treated as attainment areas permitting purposes.

The Northeast Ozone Transport Region (OTR) includes 11 northeastern states in which ozone transports from one or more states and contributes to a violation of the ozone NAAQS in one or more other states. States in this region are required to submit a SIP, stationary sources are subject to more stringent permitting requirements, and various regulatory thresholds are lower for the pollutants that form ozone, even if they meet the ozone NAAQS. Maryland is within the Northeast OTR; thus, the Charles Station would be subject to more stringent permitting thresholds.

The EPA and state and local agencies have established a network of ambient air quality monitoring stations to measure and track the background concentrations of criteria pollutants across the United States. This data is then used by regulatory agencies to compare the air quality of an area to the NAAQS. The MDE is responsible for air quality permitting in Maryland and the VDEQ performs this task in Virginia.

Charles County, Maryland and Loudoun and Fairfax Counties, Virginia are in attainment for PM_{10}, $PM_{2.5}$ (24-hour standard), NO_2, CO, and lead; however, each county is within the Washington, DC-MD-VA AQCR and is designated nonattainment for the 2008 8-hour ozone standard and maintenance for the 1997 annual $PM_{2.5}$ standard (EPA, 2016b).

Greenhouse Gases

The EPA defines air pollution to include the mix of six long-lived and directly emitted greenhouse gases (GHG), finding that the presence of the following GHGs in the atmosphere may endanger the public health and welfare of current and future generations through climate change. These six greenhouse gases are: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHGs occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. These gases are the integral components of the atmosphere's greenhouse effect that warms the earth's surface and moderates day/night temperature variation.

The Project would contribute GHG emissions, principally CO_2, CH_4, and N_2O. No fluorinated gases would be emitted by the Project. GHG emissions are quantified and regulated in units of CO_2 equivalents (CO_2e). For each GHG, CO_2e takes into account the global warming potential (GWP), which is a ratio relative to CO_2 of a particular GHG's ability to absorb solar radiation as well its residence time within the atmosphere. Thus, CO_2 has a GWP of 1, CH_4 has a GWP of 25, and N_2O has a GWP of 298 (EPA, 2017a).[10] Emissions of GHG pollutants associated with the construction and operation of the Project are shown as CO_2e in tables B.8.1-3 and B.8.1-4. We received several comments regarding the Project's impact on climate change. Climate change impacts are discussed in section 10 (Cumulative Impacts).

8.1.3 Permitting and Regulatory Requirements

New Source Review

New Source Review (NSR) is a preconstruction permitting program designed to protect air quality when air pollutant emissions are increased either through the modification of existing stationary sources or through the construction of a new stationary source of air pollution. Proposed new or modified air pollutant emissions sources must undergo a NSR permitting process prior to construction or operation. Through the NSR permitting process, federal, state, and local regulatory agencies review and approve project construction plans, and regulate pollutant increases or changes, emissions controls, and other details. The agencies then issue construction permits that include specific requirements for emissions control equipment and operating limits. In areas with good air quality, NSR ensures that the new emissions do not degrade the air quality, which is achieved through the implementation of the Prevention of Significant Deterioration (PSD) permitting program or state minor permit programs. In areas with poor air quality, Nonattainment NSR (NNSR) ensures that the new emissions do not inhibit progress toward cleaner air. The review process aids in preventing new sources from causing existing air quality to deteriorate beyond acceptable levels.

PSD could potentially apply to stationary emissions sources, such as compressor stations, but does not apply to pipeline operation. PSD regulations were not designed to prevent sources from increasing emissions, but to protect public health and welfare and air quality in national parks, wilderness areas, and other areas of national or regional recreational, scenic, or historic value. PSD regulations also ensure that any decision to permit increased air pollution in any area to which these regulations apply is made only after careful evaluation of all the consequences of such a decision and after adequate procedural opportunities for informed public participation in the decision-making process (EPA, 2017b).

The Charles Station is designated as marginal nonattainment area for the 2008 8-hour ozone NAAQS. In the Code of Maryland Regulations (COMAR), the major threshold for NO_x and VOC

[10] These GWPs are based on a 100-year time-period. We have selected their use over other published GWPs for other timeframes because these are the GWPs that the EPA has established for reporting of GHG emissions and air permitting requirements. This allows for a consistent comparison with these regulatory requirements.

emissions in Charles County is 25 tons per year (tpy), lower than the federal standard. As demonstrated in table B.8.1-4, NO_x and VOC Emissions at the Charles Station would not exceed 25 tpy; therefore, NNSR would not apply, as such, the station would be permitted as a minor NSR source under the state permitting program. DCP filed its air quality Permit to Construct application with the MDE on November 9, 2016, and a supplement was filed on May 8, 2017.

Installation of a new electric-driven compressor unit at the Loudoun Compressor Station would not result in air emissions, with the exception of fugitive emissions from station piping and equipment and unit blowdowns. DCP filed an air permit non-applicability determination for the proposed modifications at the Loudoun Compressor Station with the VDEQ. This non-applicability determination details that the Project activities for the Loudoun Compressor Station would be exempt from permitting requirements and has been submitted to the VDEQ for its concurrence.

The modifications at the Loudoun M&R Station and the Pleasant Valley Compressor Station would not require air quality permitting and would not trigger a PSD/NNSR review.

Federal Class I Areas

During the PSD review process, the potential impact of a project on protected Federal Class I areas must also be considered. Federal Class I areas are designated as pristine natural areas or areas of natural significance, including some national parks and U.S. Forest Service wilderness areas, and are afforded special protection under the CAA. If a facility is subject to PSD requirements and within 100 kilometers (about 62 miles) of a Class I area, the facility is required to notify the appropriate federal officials and assess the impacts of the facility on the Class I area to ensure pristine air quality is maintained. The Shenandoah National Park is 51 miles from the Loudoun Compressor Station, 56 miles from the Pleasant Valley Compressor Station, and 95 miles from the Charles Station. Because these facilities would not be subject to PSD as a result of this Project, additional modeling and consultation are not required.

Title V Operating Permit

Title V is an operating permit program run by each state. The major source threshold level for an air emission source is 100 tpy for criteria pollutants in attainment areas. The major source hazardous air pollutant (HAP) thresholds for a source are 10 tpy of any single HAP or 25 tpy of all HAPs in aggregate. The EPA issued the Title V GHG Tailoring Rule, which established permitting requirements and thresholds for GHGs. On June 23, 2014, the U.S. Supreme Court ruled that a facility may not be required to obtain a Title V permit based solely on GHG emissions; however, if a facility is a major stationary source based on the potential-to-emit of other regulated pollutants, a Title V permit may include permit requirements for GHGs.

The major source threshold for Title V is 100 tpy of any criteria pollutant, 10 tpy of any single HAP and 25 tpy for all HAPs in aggregate. The major source threshold for a marginal ozone nonattainment area would remain 100 tpy; however, Maryland has established lower thresholds for nonattainment areas. The Charles Station would be subject to the 25 tpy threshold. Based on the emission at the Charles Station, the facility would be a minor source under Title V.

The existing Loudoun Compressor Station operates under VDEQ minor source air permit registration number 71809 (Facility ID: 51-107-00075). DCP's Loudoun Compressor Station and Dominion Transmission, Inc.'s Leesburg Compressor Station are within 1 mile of one another and operate under separate Title V permits. However, DCP applied with the VDEQ to evaluate the emissions from these stations as a single source moving forward. The Leesburg Compressor Station is currently a Title V

facility. The emissions associated with the modifications at the Loudoun Compressor Station is not anticipated to require air permitting.

New Source Performance Standards

The EPA promulgates New Source Performance Standards (NSPS) that establish emission limits and fuel, monitoring, notification, reporting, and recordkeeping requirements for new or significantly modified stationary source types or categories. NSPS Subpart JJJJ (*Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*) sets emission standards for NO_x, CO, and VOC. Subpart JJJJ would apply to the emergency generator at the Charles Station. DCP would comply with all applicable requirements of Subpart JJJJ. Subpart KKKK, *Standards of Performance for Stationary Combustion Turbines*, regulates emissions of NO_x and SO_2. This subpart would apply to the new compressor units at the Charles Station. DCP would be required to comply with applicable emission limits and monitoring, reporting, and testing requirements of this subpart.

We received comments expressing concern with methane and fugitive leaks from the Charles Station. On May 12, 2016, the EPA issued three final rules under 40 CFR 60 (amendments to subpart OOOO and the new subpart OOOa), including the *Final Updates to New Source Performance Standards* and *Final Source Determination Rule*, that together will curb emissions of CH_4, smog-forming VOCs, and toxic air pollutants from new, reconstructed, and modified oil and gas sources. The final rules limit CH_4 emissions from oil and gas sources. For example, owners/operators are required to monitor and repair leaks on an established schedule to limit fugitive emissions, and emissions limits have been established for certain natural gas facilities. Regarding natural gas transmission facilities, compressor station owner/operators are required to develop a leak monitoring plan and use an optical gas imaging (or an alternate EPA method, "Method 21") to conduct leak surveys (EPA, 2016c). On October 20, 2016, the EPA also issued its *Control Techniques Guidelines for the Oil and Natural Gas Industry* to inform state, local, and tribal agencies on what constitutes reasonably available control technology. DCP would be required to comply with all applicable standards and requirements set forth by these final rules.

National Emission Standards for Hazardous Air Pollutants

The CAA Amendments established a list of 187 HAPs, resulting in the promulgation of National Emission Standards for Hazardous Air Pollutants for Source Categories (NESHAP). NESHAPs regulate HAP emissions from stationary sources by setting emission limits and monitoring, testing, recordkeeping, and notification requirements. Subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, would apply to the emergency electrical power generators at the Charles Station and as such, DCP would construct a new emergency stationary reciprocating internal combustion engine with a site rating greater than 500 hp that would be subject to 40 CFR Part 63 subpart ZZZZ. DCP would be subject to all applicable Subpart ZZZZ monitoring, recordkeeping, and reporting requirements and/or would comply with NESHAPs Subpart ZZZZ by complying with NSPS Subpart JJJJ requirements. We received comments regarding the emission of carcinogens, such as formaldehyde (referred to as HAPs) that could be emitted from the Charles Station. Tables B.8.1-3 and B.8.1-4 provide HAPs emissions resulting from construction of the Project and operation of the Charles Station. A facility is considered a major source under NESHAP if it emits 10 tpy of any single HAP and 25 tpy of all HAPs in aggregate. The Charles, Loudoun, and Pleasant Valley Compressor Stations would be minor sources of HAPs.

General Conformity

The General Conformity Rule was developed to ensure that federal actions in nonattainment and maintenance areas do not impede states' attainment of the NAAQS. Under the General Conformity Rule,

the federal government cannot engage, support, or provide financial assistance for licensing or permitting, or approve an activity not conforming to an approved CAA implementation plan. A conformity determination must be conducted by the lead federal agency if a federal action's construction and operation activities are likely to result in generating direct and indirect emissions that would exceed the conformity applicability threshold level of the pollutant(s) for which an air basin is designated as nonattainment or maintenance. Conforming activities or actions should not, through additional air pollutant emissions:

- cause or contribute to new violations of the NAAQS in any area;
- increase the frequency or severity of any existing violation of any NAAQS; or
- delay timely attainment of any NAAQS or interim emission reductions.

The General Conformity Rule entails both an applicability analysis and a subsequent conformity determination, if applicable. According to the conformity regulations, emissions from sources that are subject to any NNSR or PSD permitting/licensing (major or minor) are exempt and are deemed to have conformed. A General Conformity Determination must be completed when the total direct and indirect emissions of a project would equal or exceed the specified pollutant thresholds on a calendar year basis for each nonattainment or maintenance area.

The Project would be constructed in an ozone nonattainment area and a $PM_{2.5}$ maintenance area. NO_x and VOCs are precursors to the formation of ozone, and SO_2 and NO_x are precursors to $PM_{2.5}$; therefore, these pollutants are included in the General Conformity applicability analysis. Table B.8.1-1 provides a comparison of all non-permitted Project construction emissions in comparison to the General Conformity *de minimus* thresholds.

TABLE B.8.1-1

General Conformity Applicability Analysis for the Project (tpy)

County (State)	Nonattainment Pollutant	NO_X	VOC	SO_2	$PM_{10}/PM_{2.5}$
Calendar Year 2017					
Washington, DC-MD-VA AQCR					
Non-Road/On-Road Emissions	$PM_{2.5}$ 24-hr (2006)	1.4	0.2	0.002	0.1
Commuter Vehicle Emissions	Ozone 8-hr (2008) $PM_{2.5}$ 24-hr (2006)	0.03	0.1	0.0003	0.005
Earth-Moving Emissions		-	-	-	1.8
2017 Total		**15.9**	**1.9**	**0.02**	**3.0**
Calendar Year 2018					
Washington, DC-MD-VA AQCR					
Non-Road/On-Road Emissions	$PM_{2.5}$ 24-hr (2006)	14.5	1.7	0.02	1.1
Commuter Vehicle Emissions	Ozone 8-hr (2008) $PM_{2.5}$ 24-hr (2006)	0.4	0.1	0.004	0.07
Earth-Moving Emissions		-	-	-	36.4
2018 Total		**14.9**	**1.8**	**0.02**	**37.6**
	General Conformity de minimis	*100*	*50*	*100*	*100*

N/A = Not Applicable

Based on these results, the construction emissions that would occur in nonattainment or maintenance areas would not exceed the general conformity applicability thresholds for any criteria pollutant in a single calendar year. Therefore, general conformity does not apply.

Mandatory Greenhouse Gas Reporting Rule

The EPA established the final Mandatory Greenhouse Gas Reporting Rule, requiring the reporting of operational GHG emissions from applicable sources that emit greater than or equal to 25,000 metric tons of CO_2e in 1 year. Recent additions to the Mandatory Reporting Rule effective for calendar year 2016 require reporting of GHG emissions generated during operation of natural gas pipeline transmission systems, which include blowdown emissions, equipment leaks, and vent emissions at compressor stations, as well as blowdown emissions between compressor stations.

Based on the emission estimates presented, actual GHG emissions from operation of the Charles Station has the potential to exceed the 25,000 tpy reporting threshold for the Mandatory Reporting Rule; therefore, DCP would likely be required to report GHG emissions from their respective facilities.

Although this rule does not apply to construction emissions, we have provided GHG construction and operational emission estimates, as CO_2e, for accounting and disclosure purposes in provided in section 8.1-2.

Risk Management Plan Rule

The EPA has established accidental release prevention and risk management plan (RMP) requirements as part of 40 CFR Part 68, *Chemical Accident Prevention Provisions*, implementing section 112(r) of the CAA. The Risk Management Program is about reducing chemical risk at the local level. The RMP information helps local fire, police, and emergency response personnel (who must prepare for and respond to chemical accidents), and is useful to citizens in understanding the chemical hazards in communities (EPA, 2009).

Part 68 lists regulated flammable and toxic substances and their "thresholds quantities" for determining the applicability. If a regulated substance is handled, stored, or processed in volumes greater than threshold quantities at a stationary source, then an RMP must be prepared (and revised/resubmitted every 5 years).

DCP would install an aqueous ammonia-based selective catalytic reduction (SCR) system to control NO_x emissions for the proposed turbines at the Charles Station. Ammonia is a regulated substance under the RMP Rule. Aqueous ammonia with a concentration of 20 percent or greater may be subject to Part 68 if 20,000 pounds or more is stored onsite. We received a comment regarding the amount of ammonia that would be stored onsite at the Charles Station. DCP's air permit application states that a 13,000-gallon aqueous ammonia storage tank would be stored onsite (about 108,000 pounds). However, the SCR system proposed for the Charles Station would have a concentration less than 20 percent and would not be subject to 40 CFR 68. Based on manufacturer data, the SCR system at the Charles Station would result in ammonia slip emissions of 12.4 tpy.

State Regulations

The MDE implements air quality regulations for the state of Maryland. Maryland air quality regulations are codified in Title 26 Subtitle 11 of the COMAR. DCP would comply with all applicable COMAR regulations during construction and operation of the Charles Station.

The VDEQ, through the State Air Pollution Control Board, implements air quality regulations for the Commonwealth of Virginia. Virginia air quality regulations are codified at Title 9 of the Virginia Administrative Code (VAC). DCP would comply with all applicable VAC Title 9 regulations during construction and operation of the Loudoun and Pleasant Valley Compressor Stations and Loudoun M&R Station, and construction of the new building at the WGL Interconnect.

8.1.4 Impacts and Mitigation

Construction Impacts and Mitigation

Air emissions would be generated during construction of the Charles Station and modifications at the Loudoun and Pleasant Valley Compressor Stations, WGL Interconnect, and Loudoun M&R Station. DCP anticipates that construction would begin in November 2017 and continue for 9 months, through August 2018. Project construction would result in temporary increases of air emissions from the use of diesel- and gas-fueled equipment and blowdown and purging activities, as well as temporary increases in fugitive dust emissions from earth/roadway surface disturbance. Indirect emissions would be generated from vehicles associated with construction workers traveling to and from work sites. Construction air quality impacts would be short-term, lasting only during the period of active construction. Following construction, air quality would revert back to previous conditions.

Fugitive dust would result from land clearing, grading, excavation, concrete work, and vehicle traffic on paved and unpaved roads. Emissions would be greater during dry periods and in areas of fine-textured soils subject to surface activity. The volume of fugitive dust generated would be dependent upon the area disturbed and the type of construction activity, along with the soil's silt and moisture content, wind speed, precipitation, roadway characteristics, and the nature of vehicular/equipment traffic. We received comments stating that fugitive dust should be controlled during construction of the Project. DCP would implement measures outlined in its Fugitive Dust Control Plan to limit fugitive dust emissions. Measures in this plan include, but are not limited to, application of water or other dust suppressant on unpaved surfaces, soil stockpiles, and workspaces; enforcing a 15 mile per hour speed limit within construction sites and on unpaved roads; cleaning track-out on public roads in a timely manner; and restoration of disturbed areas as soon as practicable. We reviewed the Fugitive Dust Control Plan and find it acceptable.

Fugitive particulate emissions of PM_{10} and $PM_{2.5}$ were calculated using the Western Regional Air Partnership's (WRAP) Fugitive Dust Handbook, which relies in part on the EPA's AP-42 emission factors. The AP-42 emission factors tend to be conservative and can overestimate potential fugitive dust generated by projects. Combustion emissions from commuter and on-road construction vehicles (e.g., delivery and material removal vehicles) were estimated using the EPA Motor Vehicle Emission Simulator (MOVES) model version MOVES2014a, which estimates emissions for on-road and non-road vehicles and equipment. Combustion emissions from non-road construction equipment operation were estimated using emission factors generated by EPA's NONROAD2008a model based on the anticipated types of non-road equipment and their associated levels of use. Construction emission estimates were based on a typical construction equipment list, hours of operation, and vehicle miles traveled by the construction equipment and supporting vehicles for the Project. These emission-generating activities would include earthmoving, construction equipment exhaust, on-road vehicle traffic, and off-road vehicle traffic. Table B.8.1-2 provides fugitive dust emissions in the form of PM_{10} and $PM_{2.5}$.[11]

TABLE B.8.1-2

Fugitive Dust Emissions from Construction Activities (tpy)

Year	PM_{10}	$PM_{2.5}$
2017	1.6	0.2
2018	33.0	3.4

[11] Detailed emission calculations were provided in DCP's application filed on November 15, 2016 (Accession No. 20161115-5082). These detailed emissions calculations can be found on the FERC eLibrary website.

Table B.8.1-3 provides estimated construction emissions of criteria pollutants, hazardous air pollutants (HAP), and GHGs for on-road, commuter, and non-road vehicles.

TABLE B.8.1-3

Non-Road and On-Road Construction Vehicle Emissions (tpy)

Year	NO_x	VOC	CO	SO_2	$PM_{10}/PM_{2.5}$	Total HAPs	CO_2e
Non-Road and On-Road Construction Vehicle Emissions							
2017	1.4	0.2	1.3	0.002	0.1	0.01	341
2018	14.5	1.7	12.8	0.02	1.1	0.1	3,355
Commuting Vehicle Emissions							
2017	0.03	0.01	0.3	0.0003	0.005	0.008	40
2018	0.4	0.1	4.4	0.004	0.07	0.1	574

DCP would mitigate construction emissions by implementing measures:

- applying fugitive dust controls such as water spray on roads and earthen stockpiles, covering open body trucks hauling earthen materials, prompt removal of spilled materials from roads, and limiting vehicle speeds on the construction site;
- reducing engine emissions by use of clean fuels such as ultra-low sulfur diesel for onsite equipment, restricting engine idle times on site, and requesting contractors to use newer model equipment that are equipped with the latest emission reduction technologies; and
- locating heavy equipment away from sensitive receptors in the immediate area, to the extent practicable.

Based our analysis and the short-term, temporary nature of construction, we conclude that construction of the Project would not have a significant impact on air quality.

Operational Impacts and Mitigation

The Charles Station would be the only source of permitted long-term emissions for the Project. Because the proposed compressor unit at the Loudoun Compressor Station would be electric-driven, no operational emissions are anticipated. The minor modifications at the Pleasant Valley Compressor Station would not alter emissions sources at the site; therefore, there would be no operational emissions associated with activities at this site. There are no new emissions sources proposed at the WGL Interconnect or Loudoun M&R Station.

We received comments regarding blowdown frequency and emissions, and the potential for flaring at the Charles Station. Emissions would occur as a result of natural gas venting, or blowdowns. A blowdown event is the process of releasing natural gas from a pressurized system into the atmosphere. The primary pollutant emitted during a blowdown is methane, a GHG, but other natural gas constituents, including ethane, propane, butane, pentane, and hexane, are also emitted. At compressor station facilities, blowdowns typically occur during start-up/shutdown, for maintenance activities and, rarely, during emergencies. DCP is not proposing to odorize gas in its transmission system as part of the Project, but states that the gas may be odorized if required by DCP's Tariff and/or federal regulations and if DCP receives odorized gas from other connecting pipelines. Unit blowdowns would occur several times per year, but depends on the unit's usage and maintenance requirements. Blowdowns typically last about 5 minutes. Landowners would be notified 1 to 2 days prior to planned blowdowns. DCP does not anticipate an increase in blowdowns at the Loudoun Compressor Station. Emissions for the proposed Charles Station are presented in table B.8.1-4 and includes estimates for blowdowns (gas releases). No flaring would occur at the Charles Station or Loudoun Compressor Station.

TABLE B.8.1-4

Charles Station Potential Operational Emissions (tpy)

Source	Emissions							
	NO_x	CO	VOC	SO_2	$PM_{10}/PM_{2.5}$	Formaldehyde [a]	Total HAPs	CO_2e
Compressor Units	13.52	32.52	1.77	5.47	14.60	0.500	0.71	113,912
Utility Boiler	2.25	1.89	0.12	0.13	0.17	0.002	0.04	2,693
Emergency Generator	1.18	2.36	0.59	0.01	0.02	0.100	0.14	226
New Piping & Gas Releases	-	-	11.22	-	-	-	0.51	24,104
Total Project Emissions	17.0	36.8	13.7	5.6	14.8	0.6	1.4	140,935
NNSR/PSD Permitting Threshold	25	250	25	250	250	N/A	N/A	N/A
Title V Permitting Threshold	25	100	25	100	100	10	25	N/A

[a] Formaldehyde emissions are presented for worst-case Individual HAP.

Operational emissions associated with the Loudoun Compressor Station would be limited to fugitive emissions from station equipment and unit blowdowns. The total estimated emissions at the station include 3,108 tpy of CO_2e, 0.88 tpy of VOC, and 0.01 tpy of all HAPs. Based on the limited emissions proposed at the Loudoun Compressor Station, we conclude that the modifications at the station would not have a significant impact on air quality.

DCP performed an ambient air quality modeling analysis to determine local impacts from the Charles Station. The modeling analysis was completed using the EPA's AERMOD dispersion model. DCP's assessment utilized 5 years (2011–2015) of concurrent meteorological data collected from a meteorological tower at the Reagan National Airport and from radiosondes launched from Sterling, Virginia. Both the surface and upper air sounding data were processed by the MDE using AERMOD's meteorological processor, AERMET (version 15181).

We received comments expressing concern with various aspects of DCP's analysis, including disregard of general engineering practice (GEP) for stack height, receptor placement, inaccurate terrain representation, wind speed/direction impacts on the exhaust plume, and general inconsistency with EPA guidelines, among other concerns. DCP utilized the EPA's GEP stack height calculation set forth at 40 CFR 51.100 to determine the stack height for the Charles Station. AERMAP (Version 11103) was used to develop a complete receptor grid and to determine the representative elevation for each receptor determine using USGS National Elevation Dataset (NED) files that were obtained for an area covering at least 10 kilometers (6.2 miles) in all directions from the Charles Station. DCP's air quality model accounted for buoyancy and vertical velocity of the stack plume in conjunction with wind speeds and directions utilizing a 5-year National Weather Service hourly meteorological data set (2011-2015). Additional details on DCP's modeling parameters can be found in its FERC application (Accession No. 20161115-5082, Resource Report 9) and in its response to our February 28, 2017 data request (Accession No. 20170320-5242, pages 269 through 272). DCP complied with EPA air quality modeling guidelines and best management practices; therefore, we conclude that DCP's modeling approach is acceptable.

The modeling results were then compared to the NAAQS to determine compliance. Table B.8.1-5 provides the results for the Charles Station and a comparison to the NAAQS.

TABLE B.8.1-5

Charles Station NAAQS Modeling Results

Pollutant	Averaging Period	Maximum Project Model Concentration (µg/m^3)	Ambient Background (µg/m^3)	Total Concentration (µg/m^3)	NAAQS (µg/m^3)
CO	1-hour	535.0	2,185.0	2,720.0	10,000
	8-hour	116.0	2,070.0	2,186.0	40,000
NO_2	1-hour	88.6	88.9	177.5	188
	Annual	7.8	21.1	28.9	100
$PM_{2.5}$	24-hour	3.5	19.6	23.1	35
	Annual	0.8	8.2	9.0	12
PM_{10}	24-hour	6.2	28.0	34.2	150
SO_2	1-hour	7.5	26.5	34.0	197
	3-hour	6.8	26.5	33.3	1,300
Ammonia[a]	1-hour	8.1	-	-	-
	8-hour	7.5	-	-	-

µg/m^3 = microgram per cubic meter

[a] The MDE Screening Levels for ammonia are 243.78 µg/m^3 (1-hour) and 174.13 µg/m^3 (8-hour). No ambient concentration or NAAQS are available for ammonia.

We received numerous comments regarding the potential air quality impacts from the proposed Charles Station. Commenters expressed concern over health impacts on humans and wildlife. Based on the data provided in table B.8.1-5, the emissions from the Charles Station would not exceed the NAAQS, which were established to protect human health and public welfare. DCP would mitigate operational emission at the Charles Station by installing an SCR system to control NO_x emissions, and oxidation catalysts to reduce CO, VOC, and HAP emissions. The turbines would also incorporate SoLoNO$_x$ (i.e., dry low NO_x or lean pre-mix). This technology incorporates low NO_x combustors to limit emissions of NO_x while limits emissions of CO.

We received comments regarding ammonia emissions at the Charles Station. Ammonia emissions would be subject to the MDE's *Toxic Air Pollutants* and *Procedures Related to Requirements for Toxic Air Pollutants*. As demonstrated in table B.8.1-5, the ammonia emissions resulting from unreacted ammonia from the SCR system would be well below the MDE's 1-hour and 8-hour screening levels. DCP would implement Best Available Control Technology for Toxics, including injecting ammonia only when the SCR reaches the appropriate operating temperature.

We received comments expressing concern with fumes and noise impacts on the Marshall Hall Landing (boat launch site), which is approximately 2 miles from the Charles Station site. Based on the distance of the landing, it is unlikely that construction or operation of the Charles Station would result in significant impacts, if any, at the Marshall Hall Landing. DCP is not proposing to odorize flowing through the Charles Station as part of this Project, although it would if required by its tariff. Noise is analyzed in section 8.2. As demonstrated in table B.8.2-4, the operational noise levels are anticipated to be below the threshold of human hearing at residences near the Charles Station.

Regulatory permitting requirements and applicability are discussed in section 8.1.1. As demonstrated by the data presented in tables B.8.1- 4 and B.8.1-5, the Charles Station would be a minor source of air emissions under all federal programs and emissions would not exceed the NAAQS. Based on our analysis, we conclude that the Project would not have a significant impact on air quality.

8.1.5 Radon Exposure

We received comments about the potential exposure to released radon gas. We have recently evaluated general background information, studies, and literature on radon in natural gas in several past

project EISs.[12] These studies include samples taken at well sites and pre-processing, post processing, and transmission pipelines, as well as the Pennsylvania Department of Environmental Protection's (PADEP) Technologically Enhanced Naturally Occurring Radioactive Materials Study Report issued in January 2015 (PADEP, 2016). This PADEP report is consistent with past studies, which identifies a median indoor radon concentration of 0.04 picocuries per liter and a maximum indoor increase of 0.13 picocuries per liter due to natural gas use.

The EPA has set the indoor action level for radon at 4 picocuries per liter. If concentrations of radon are high enough to exceed these activity levels, the EPA recommends implementing remedial actions, such as improved ventilation, to reduce levels below this threshold. Further, the Indoor Radon Abatement Act established the long-term goal that indoor air radon levels be equal to or better than outdoor air radon levels. The average home in the United States has a radon activity level of 1.3 picocuries per liter, while outdoor levels average approximately 0.4 picocuries per liter. Past studies demonstrate that indoor radon concentrations from Marcellus Shale sourced gas would remain below the EPA action level and the Indoor Radon Abatement Act long-term goal. Therefore, we find that the risk of exposure to radon in natural gas is not significant.

8.2 Noise

8.2.1 Federal Noise Requirements

Construction and operation of Project would affect overall noise levels in the surrounding area. The ambient sound level of a region is defined by the total noise generated within the specific environment and is comprised of natural and manmade sounds. At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of a day and throughout the week. This variation is caused in part by changing weather conditions and the effect of seasonal vegetation cover.

Two measurements used to relate the time-varying quality of environmental noise to its known effects on people are the equivalent sound level (L_{eq}) and L_{dn}. The L_{eq} is a sound level over a specific time period corresponding to the same sound energy as measured for an instantaneous sound level assuming it is a constant noise source. Sound levels are perceived differently, depending on the length of exposure and time of day. The L_{dn} takes into account the time of day and duration the noise is encountered. Specifically, in calculation of the L_{dn}, late night and early morning (i.e., 10:00 p.m. to 7:00 a.m.) noise exposures are increased by 10 dBA to account for people's greater sensitivity to sound during nighttime hours. Due to the 10 dBA nighttime penalty added prior to calculation of the L_{dn}, for a facility to meet the 55 dBA L_{dn} limit, the facility must be designed such that the constant 24-hour noise level does not exceed an L_{eq} of 48.6 dBA at any NSA. The A-weighted scale is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. For an essentially steady sound source that operates continuously over a 24-hour period and controls the environmental sound level, the L_{dn} is approximately 6.4 dB above the measured L_{eq}.

In 1974, the EPA published its Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. This document provides information for state and local governments to use in developing their own ambient noise standards. The EPA has indicated that an L_{dn} of 55 dBA protects the public from indoor and outdoor activity interference. We have adopted

[12] New Jersey-New York Expansion Project Final EIS (Docket No. CP11-56) issued March 2012; Rockaway Delivery Lateral and Northeast Connector Projects Final EIS (Docket Nos. CP13-36 and CP13-132) issued February 2014; and the Algonquin Incremental Market Project Final EIS (Docket No. CP14-96) issued January 2015.

this criterion and use it to evaluate the potential noise impacts from the proposed Project at NSA, such as residences, schools, or hospitals. Due to the 10 dBA nighttime penalty added prior to calculation of the L_{dn}, for a facility to meet the L_{dn} 55 dBA limit, it must be designed such that actual constant noise levels on a 24-hour basis do not exceed 48.6 dBA L_{eq} at any NSA. Also, in general, a person's threshold of perception for a perceivable change in loudness on the A-weighted sound level is about 3 dBA, whereas a 5 dBA change is clearly noticeable, and a 10 dBA change is perceived as either twice or half the loud.

As a frame of reference, table B.8.2-1 demonstrates the relative dBA noise levels of common sounds measured in the environment and industry.

TABLE B.8.2-1

Sound Levels and Relative Loudness (dBA) [a]

Description of Sound	Sound Level (dBA)
Threshold of pain	140
Jet taking off (200-foot distance)	130
Operating heavy equipment	120
Night club with music	110
Construction site	100
Boiler room	90
Freight train (100-foot distance)	80
Classroom chatter	70
Conversation (3-foot distance)	60
Urban residence	50
Soft whisper (5-foot distance)	40
North rim of Grand Canyon	30
Silent study room	20
Threshold of hearing (1,000 hertz)	0

[a] Adapted from Occupational Safety and Health Administration's Technical Manual (OSHA, 2013)

8.2.2 State and County Noise Requirements

We received comments regarding compliance with state and local noise regulations, which are discussed in this section.

Maryland noise regulations require that the sound level at residential property lines not exceed 65 dBA during the day (i.e., 7:00 a.m. to 10:00 p.m.) or 55 dBA at night (i.e., 10:00 p.m. to 7:00 a.m.). For "periodic noise," which is defined as "a noise possessing a repetitive on-and-off characteristic with a rapid rise to maximum and a short decay not exceeding 2 seconds," the allowable levels under Maryland noise regulations are 60 dBA during the day and 50 dBA at night, with a construction noise standard of 90 dBA during daytime hours. The FERC criterion of 55 dBA L_{dn} is generally more stringent for residents than the Maryland noise requirements.

Charles County, Maryland has a noise ordinance that limits noise at any residential property line to no greater than 60 dBA during the day and 55 dBA at night.

Fairfax County, Virginia noise regulations establish specific prohibited activities as well as maximum permissible sound pressure levels based on land use at the noise source property line or the receiving area. The Fairfax County noise ordinance specifically prohibits operating construction equipment outdoors between the hours of 9:00 p.m. and 7:00 a.m. the following day, except that no such activity shall commence prior to 9:00 a.m. on Sundays and federal holidays. The operation of power equipment between

the hours of 7:00 a.m. and 9:00 p.m. is permitted provided it does not constitute a noise disturbance. The noise ordinance also limits operational sound pressure levels to 55 dBA in residential areas, 60 dBA in commercial areas, and 72 dBA in industrial areas.

Loudoun County, Virginia enforces a noise ordinance that limits maximum continuous sound levels at the property line based on land use type: 45 dBA for non-suburban residential, 55 dBA for suburban residential, 60 dBA for mixed use residential, and 65 dBA for commercial/civic/industrial. The properties surrounding the Loudoun Compressor Station are suburban residential, with an industrial facility along the northern property line; however, the industrial facility is not considered an NSA.

8.2.3 Impacts and Mitigation

Construction Noise Impacts and Mitigation

Noise would be generated during construction of the Project. Noise levels would be highest in the immediate vicinity of construction activities and would diminish with distance from the work area. Construction activities associated with the Project would be performed with standard heavy equipment such as track-excavators, backhoes, cranes, bulldozers, dump trucks, boring equipment, and cement trucks. In addition, various powered pumps would be used to control water in the workspace or during hydrostatic testing activities. Noise would also be generated by trucks and other light vehicles traveling in and near areas under construction. Construction would occur for 6 days per week during daylight hours. Construction noise would be variable because the types of equipment in use at a construction site change with each construction phase and activity. Noise from construction activities may be noticeable at nearby NSAs; however, construction equipment would be operated on an as-needed basis and would be localized and short-term. Further, DCP would generally limit construction activities to daytime hours. Nighttime noise levels are not expected to increase during construction because construction activities would be limited to daytime hours.

Surface topography, vegetation cover, wind, and weather conditions would also affect the distance that construction-related noise would extend from the workspace. Tall, dense vegetation and rolling topography typically attenuates noise when compared to less vegetated, open land. Typically, the most prevalent sound source during construction would be the internal combustion engines used to power the construction equipment. Table B.8.2-2 provides estimated noise levels at 50 feet from the source for typical construction equipment.

TABLE B.8.2-2

Noise Levels of Major Construction Equipment [a]

Equipment Type	Sound Level at 50 Feet (dBA)
Trucks	85
Crane	85
Roller	85
Bulldozers	85
Pickup Trucks	55
Backhoes	80
Grader	85
Portable generators	84
Jackhammer	89
Pumps	81
Horizontal Boring Hydraulic Jack	82

[a] FHA, 2006

Operational Noise Impacts and Mitigation

The operational noise impact evaluation for the Project considers the noise produced by all sound-generating sources associated with the proposed and modified compressor stations that could impact the sound contribution at nearby NSAs. Such sound sources include the turbine-driven compressor units, gas cooling equipment, and aboveground gas piping at each station. The noise analysis incorporates noise level reductions from DCP's proposed mitigation measures for the proposed and modified Charles Station and Loudoun Compressor Station. Measures specific to a station are shown in parentheses. These measures include, but are not limited to:

- exhaust silencers (Charles Station);
- air intake cleaner/silencers (Charles Station);
- electric motor air inlet/outlet silencers (Loudoun Compressor Station);
- noise attenuating materials for wall, roof, and doors of compressor buildings;
- wall ventilation air inlet and discharge mufflers;
- acoustical insulation for aboveground piping; and
- unit blowdown silencers (60 dBA at 50 feet);

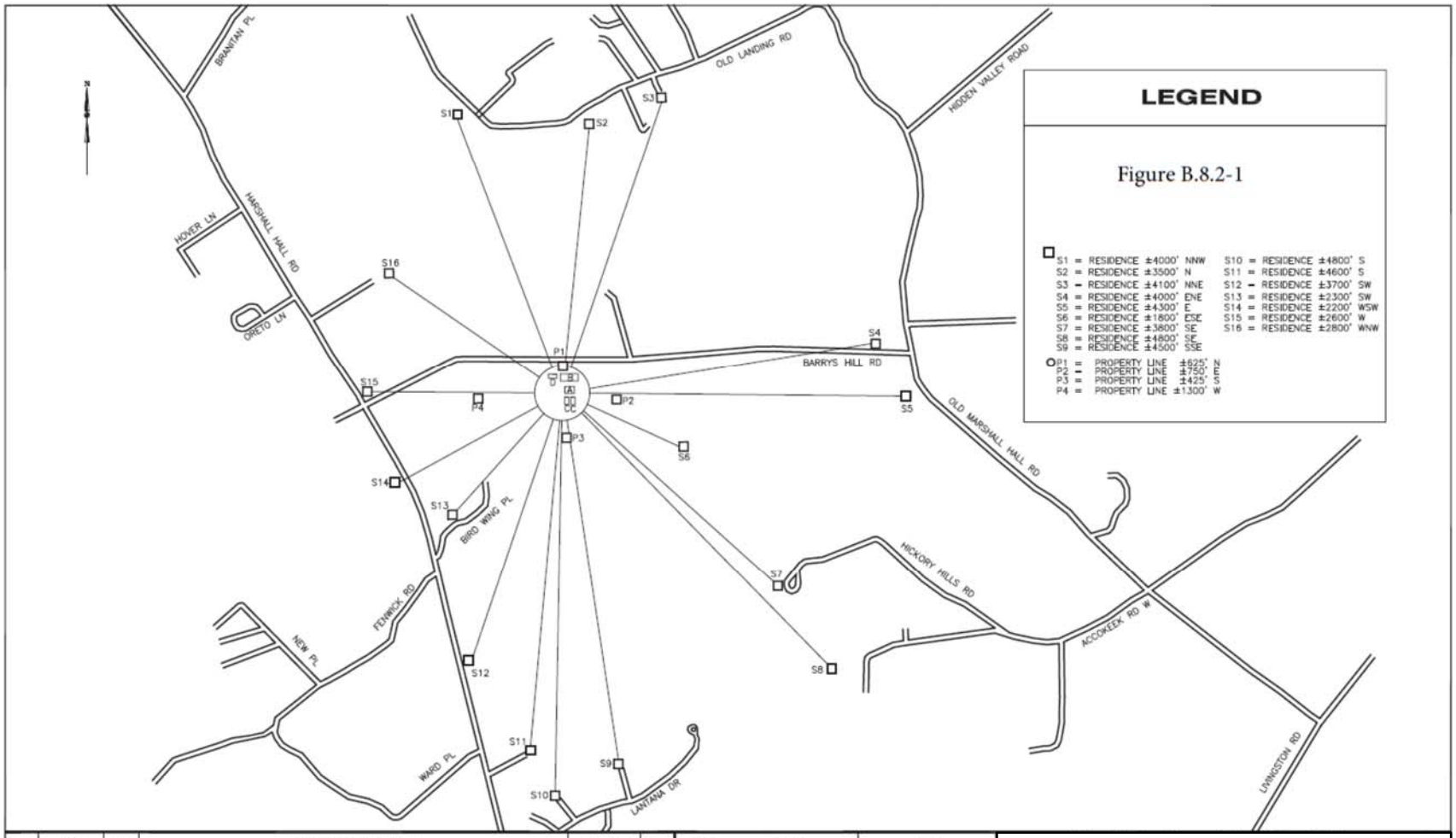
Tables B.8.2-3 and B.8.2-4 show the estimated noise impact at the nearest NSAs for all residences due to the full load operation of the Charles Station and Loudoun Compressor Station, respectively. Figures B.8.2-1 and B.8.2-2 display the nearest NSAs to the Charles Station and Loudoun Compressor Station, respectively. There would be no operational noise associated with the modifications at the Pleasant Valley Compressor Station, WGL Interconnect and Loudoun M&R Station; therefore, these activities will not be discussed in this section.

able B.8.2-3

Operational Noise Impact Results for the Charles Station (dBA)

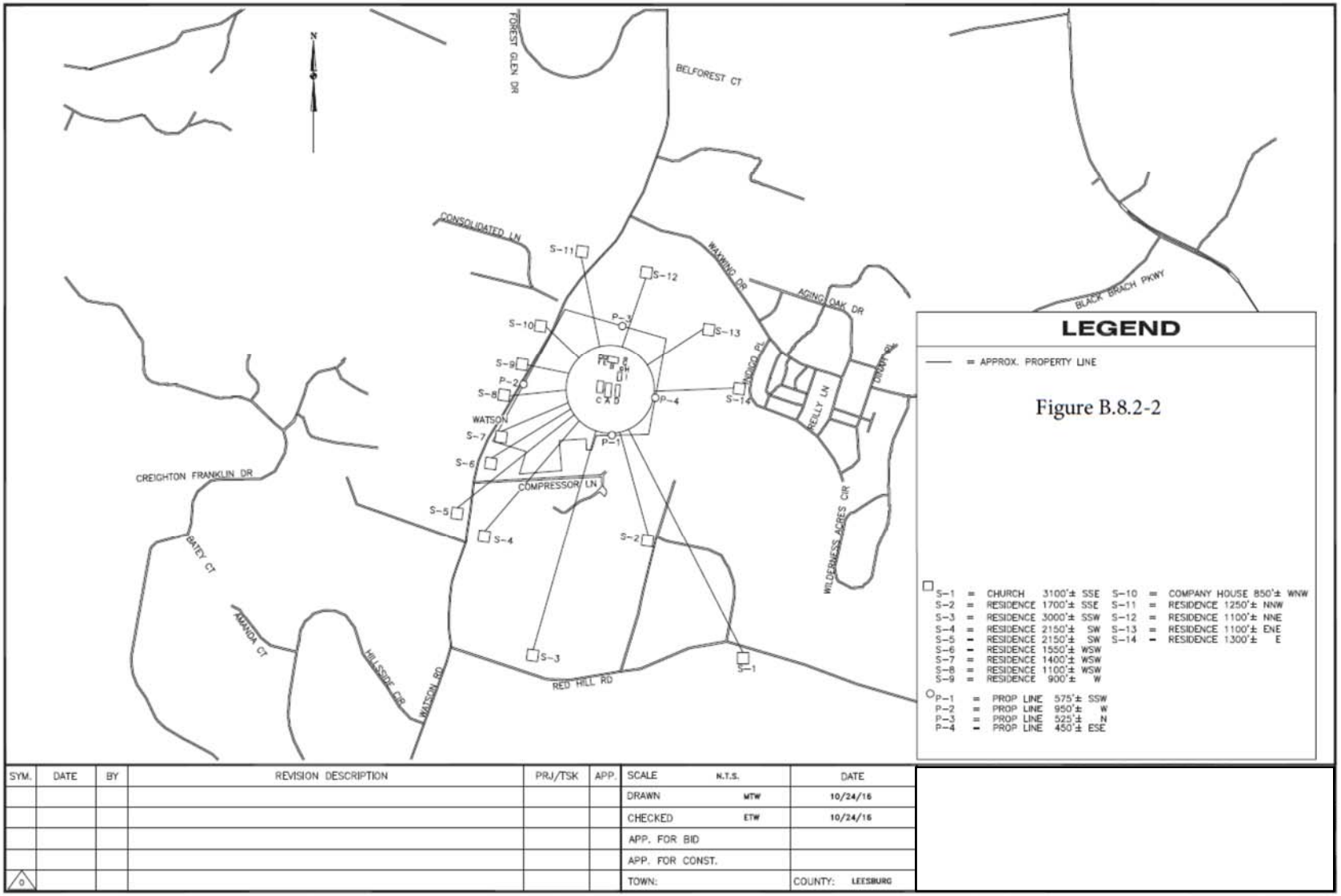
NSA / Receptor	Existing Measured L_{dn}	L_{dn} for Proposed Charles Station	Total L_{dn} (Existing plus the Charles Station)	Potential Increase
S1	37.8	25.4	38.0	0.2
S2	44.9	27.4	45.0	0.1
S3	43.9	25.4	43.9	0.0
S4	38.7	25.4	38.9	0.2
S5	38.1	24.4	38.3	0.2
S6	41.3	35.4	42.3	1.0
S7	40.4	26.4	40.5	0.1
S8	43.6	23.4	43.6	0.0
S9	42.9	24.4	43	0.1
S10	43.9	23.4	43.9	0.0
S11	41.9	23.4	41.9	0.0
S12	39.6	26.4	39.8	0.2
S13	49.8	32.4	49.9	0.1
S14	45.5	32.4	45.7	0.2
S15	42.7	30.4	42.9	0.2
S16	42.3	29.4	42.5	0.2

Note: Estimated noise levels include mitigation measures.



SYM.	DATE	BY	REVISION DESCRIPTION	PRJ/TSK	APP.
0					

SCALE	N.T.S.	DATE
DRAWN	WWM	10/24/16
CHECKED	ETW	---
APP. FOR BID		
APP. FOR CONST.		
TOWN: BRYANS ROAD, MD		COUNTY: CHARLES



We received a comment indicating that the Kivrak and Garner residences were not included in the noise analysis; however, these noise receptors are included as S6 and S3, respectively.

We received numerous comments regarding operational noise for the Charles Station. As demonstrated in table B.8.2-3, the estimated noise associated with the Charles Station would range from 0 dBA to 0.2 dBA, below the threshold of perception for the human ear (3 dBA). To ensure that noise levels due to operation of the proposed compressor stations would not be significant, **we recommend that:**

- **DCP should file a noise survey with the Secretary no later than 60 days after placing the Charles Station in service. If a full load condition noise survey is not possible, DCP should instead file an interim survey at the maximum possible horsepower load and file the full load survey within 6 months. If the noise attributable to the operation of all of the equipment at the station under interim or full horsepower load exceeds 55 dBA L_{dn} at any nearby NSA, DCP should file a report on what changes are needed and should install the additional noise controls to meet the level within 1 year of the in-service date. DCP should confirm compliance with the 55 dBA L_{dn} requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**

Table B.8.2-4

Operational Noise for the Loudoun Compressor Station (dBA)

NSA / Receptor	Existing Measured L_{dn}	L_{dn} for Expansion	Total L_{dn} (Existing+Expansion)	Expected Increase (dBA)
S1 – Church	47.8	32.4	47.9	0.1
S2 – Residence	52	40.4	52.3	0.3
S3 – Residence	44.8	33.4	45.1	0.3
S4 – Residence	47.3	38.4	47.8	0.5
S5 – Residence	44.6	38.4	45.5	0.9
S6 – Residence	47.4	41.4	48.4	1
S7 – Residence	48.4	43.4	49.6	1.2
S8 – Residence	52.4	44.4	53	0.6
S9 – Residence	52.7	45.4	53.4	0.7
S10 – Company House	52.3	46.4	53.3	1.0
S11 – Residence	51.6	41.4	52	0.4
S12 – Residence	47.4	42.4	48.6	1.2
S13 – Residence	46.1	42.4	47.6	1.5
S14 – Residence	45.1	41.4	46.6	1.5
P2 – Residential Property Line	47.7	39	52.0	4.3
P3 – Residential Property Line	44.7	44	48.2	3.5
P4 – Residential Property Line	47.0	45	47.4	0.4

Note: Estimated noise levels include mitigation measures

We received comments regarding operational noise for the Loudoun Compressor Station and, as demonstrated in table B.8.2-4, the estimated noise associated with the modified Loudoun Compressor Station would range from 0.1 dBA to 1.5 dBA, below the threshold of perception for the human ear (3 dBA). We also reviewed the projected noise levels at the property lines to analyze impacts for comparison with the Fairfax County noise ordinance. Projected noise levels from the Projects would remain below the 55 dBA and be in compliance with local ordinances.

To ensure that noise levels due to operation of the proposed compressor stations would not be significant, **we recommend that:**

- **DCP should file a noise survey with the Secretary no later than 60 days after placing the new equipment at the Loudoun Compressor Station in service. If a full load condition noise survey is not possible, DCP should instead file an interim survey at the maximum possible horsepower load and file the full load survey within 6 months. If the noise attributable to the operation of all of the equipment at the Loudoun Compressor Station under interim or full horsepower load exceeds 55 dBA L_{dn} at any nearby NSA, DCP should file a report on what changes are needed and should install the additional noise controls to meet the level within 1 year of the in-service date. DCP should confirm compliance with the 55 dBA L_{dn} requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**

In addition to normal operational noise, there may also be sources of noise due to maintenance or emergency operation. Specifically, emergencies and maintenance activities involve blow downs (depressurizing/emptying station equipment to remove natural gas). Annual testing of the emergency shutdown system would be required and may include unsilenced blowdowns. DCP stated that it would provide advanced notice prior to blowdown events. Advanced notice would not occur during an emergency, which is rare. Silenced blowdown events for scheduled maintenance of the compressor station equipment occur more frequently, typically several times per year. DCP's blowdown silencers at the Charles Station and Loudoun Compressor Station would reduce the gas velocity of the exiting gas and muffle the resulting noise to 60 dBA at 50 feet.

We received comments from Loudoun County's Department of Planning and Zoning regarding blowdown noise levels at the Loudoun Compressor Station. The county indicated that it receives calls and complaints regarding blowdown noise and provided recommendations to address these concerns. One such recommendation includes development of a public notification plan, in conjunction with the county. The Department of Planning and Zoning also recommends monitoring of existing and future noise from the station and development of a remediation plan in the event federal, state, or local noise thresholds are exceeded. In response to our May 2, 2017 data request, DCP stated that it has and would continue to consult with the Loudoun County Department of Planning and Zoning regarding noise and odor issues. DCP states that it installed blowdown silencers on the existing equipment at the Loudoun Compressor Station in response to concerns from the county. In addition, DCP has committed to installing carbon filters at the station for use during venting operations to address odor concerns. DCP currently has a plan in place to receive and address noise complaints at the Loudoun Compressor Station, which includes an email service to inform nearby residents, emergency personnel management, and county officials about planned blowdowns at the station. A similar plan would be established for the Charles Station. DCP commits to developing and implementing an environmental complaint and resolution procedure to address concerns at the station, including noise and odor. This plan would be mailed to landowners within 0.5 mile of the Loudoun Compressor Station and Charles Station.

We received comments regarding the impacts of low frequency noise. Through the FERC's Landowner Helpline, we are aware that induced vibration, or a low frequency sound from pipelines, has occurred at a limited number of natural gas facilities in the over 300,000 miles of transmission pipeline in the United States. However, with hundreds of thousands of residents near natural gas pipelines we have observed no wide-scale evidence of low frequency noise from natural gas transmission pipelines inducing noise effects on local residences. We continue to address these issues through our landowner helpline as they arise.

Based on the analysis presented in section 8.2, DCP's compliance with federal, state, and local noise regulations; and our recommendations, we conclude that operational noise resulting from the Project would not be significant.

9.0 RELIABILITY AND SAFETY

The transportation of natural gas by pipeline, including aboveground facilities (e.g., compressor stations), involves some incremental risk to the public due to the potential for accidental release of natural gas. The greatest hazard is a fire or an explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death. Commenters had concerns about a "natural gas smell" associated with the proposed facilities. As discussed in section 8.1.2, DCP is not proposing to odorize gas in its transmission system as part of the Project, but states that the gas may be odorized if required by DCP's Tariff and/or federal regulations or if DCP receives odorized gas from other connecting pipelines.

Methane has an auto-ignition temperature of 1,000 °F and is flammable at concentrations between 5.0 percent and 15.0 percent in air. An unconfined mixture of methane and air is not explosive; however, it may ignite and burn if there is an ignition source. A flammable concentration within an enclosed space in the presence of an ignition source can explode. It is buoyant at atmospheric temperatures and disperses rapidly in air.

9.1 Safety Standards

The DOT's Pipeline and Hazardous Materials Safety Administration (PHMSA) administers the national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline. These regulations are described in 49 CFR Parts 190-199; Part 192 specifically addresses natural gas pipeline safety issues. PHMSA develops safety regulations and other approaches to risk management that ensure safety in the design, construction, testing, operation, maintenance, and emergency response of pipeline facilities. Many of the regulations are written as performance standards that set the level of safety to be attained and allow the pipeline operator to use various technologies to achieve safety. PHMSA ensures that people and the environment are protected from the risk of pipeline incidents. This work is shared with state agency partners and others at the federal, state, and local level.

Under a Memorandum of Understanding on Natural Gas Transportation Facilities Memorandum between the DOT and FERC, the DOT has the exclusive authority to promulgate federal safety standards used in the transportation of natural gas. Section 157.14(a)(9)(vi) of FERC's regulations require that an applicant certify that it will design, install, inspect, test, construct, operate, replace, and maintain the facility for which a Certificate is requested in accordance with federal safety standards and plans for maintenance and inspection. The Project must be designed, constructed, and operated in accordance with 49 CFR 192.

The DOT defines area classifications, based on population density near the pipeline, and specifies more rigorous safety requirements for populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline. The four area classifications are defined below:

Class 1 Location with 10 or fewer buildings intended for human occupancy.

Class 2 Location with more than 10 but less than 46 buildings intended for human occupancy.

Class 3 Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building, or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12-month period.

Class 4 Location where buildings with four or more stories aboveground are prevalent.

We received numerous comments regarding the safety of the proposed facilities, including the risk of explosion and notification to the public if an incident occurs. Pipeline facilities in populated areas must meet more stringent design requirements (i.e., the higher the Class location, the more stringent the design requirements). Title 49 CFR 192.505 requires that compressor stations be designed with a safety factor at least equivalent to a Class 3 pipeline. In addition, the DOT prescribes the minimum standards for operating and maintaining pipeline facilities, including the requirement to establish a written plan governing these activities. Each pipeline operator is required to establish an emergency plan that includes procedures to minimize the hazards of a natural gas pipeline emergency. Key elements of the plan include procedures for:

- receiving, identifying, and classifying emergency events, gas leakage, fires, explosions, and natural disasters;
- establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- emergency system shutdown and safe restoration of service;
- making personnel, equipment, tools, and materials available at the scene of an emergency; and
- protecting people first and then property, and making them safe from actual or potential hazards.

We received numerous comments indicating that the local fire department near the Charles Station may not be equipped to handle an emergency at the site. Commenters also requested that an emergency response plan be developed in coordination with the Loudoun County Police Department. The DOT requires that each operator establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency, and to coordinate mutual assistance. The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials. DCP states that it would work closely with local emergency responders to ensure they have the resources and information to assist in potential emergency situations involving the pipeline. Part 192.171 establishes requirements for fire protection equipment at compressor stations. DCP would have firefighting equipment on site, including dry chemical fire extinguishers.

We received comments from the Loudoun County Department of Planning and Zoning that DCP's emergency response plan be made available. While DCP would not make the plan itself available externally, in accordance with its emergency response plan, DCP states that it would hold regular meetings with the emergency response agencies (including local fire departments) where the role of the departments with respect to pipeline fires is discussed, along with issues related to potential compressor station incidents where those facilities exist. DCP would also be available to the Loudoun County Department of Planning and Zoning to address any safety concerns and major tenants of the plan. The information exchanged between DCP and the emergency response agencies that participate in these meetings familiarizes each organization with the resources (both personnel and equipment) that can be used in the unlikely event that an incident occurs.

We received numerous comments questioning the operational safety at the Charles Station including whether the station would be manned. The Charles Station would be manned during business hours. In addition, DCP states that it would employ the following measures to ensure safety at the Charles Station and Loudoun Compressor Station:

- The stations would be equipped with an Emergency Shutdown System that stops engines and isolates/vents compressor piping.
- The Gas Control Center would monitor the system 24 hours a day, 7 days a week using sophisticated computer and telecommunications equipment.
- Regular aerial and foot patrols are performed along with periodic inspection using smart pigs (high-tech instruments that travel through the line collecting millions of data points about the pipeline's condition).

In addition to the above measures, in accordance with the DOT surveillance requirements, DCP would incorporate air and ground inspection of its proposed facilities into its inspection and maintenance program. Security measures at the new Charles Station would include secure fencing.

We received comments expressing concern with natural gas flaring at the Charles Station. DCP would not conduct flaring at the Charles Station or any other facility associated with the Project.

We received comments expressing concern that there would be no notification to residents prior to a blowdown event. As discussed in section 8.1, DCP would notify landowners by email 1 to 2 days prior to a planned blowdown. DCP states that the email notification has worked successfully, but would remain flexible with affected landowners, if alternate means of communication become necessary. We also received comments regarding the frequency and duration of blowdowns and the associated emissions, and blowdown noise levels. This information is detailed in sections 8.1 and 8.2.

We received comments requesting information on equipment maintenance schedules and procedures; material safety data sheets and quantities for all chemicals, lubricants, etc. stored on site; and other design and operational inquiries. DCP would operate the facility in compliance with all DOT regulations regarding design, maintenance, and operation requirements.

We received comments regarding how condensate and lube oil would be removed from the Charles Station site. DCP would use a licensed hauler to transport materials such as lube oil to and from the site. The same method would be used to remove condensate from the site. Fluids removed from the site would be hauled away and disposed of at an approved disposal facility.

The construction and operation of the Project would represent a slight increase in risk to the nearby public and we are confident that with implementation of the required design criteria for the design of these facilities that they would be constructed and operated safely.

9.2 Terrorism and Security

We received comments expressing concern for security and safety of the Charles Station due to cyber-attacks and terrorism. Safety and security concerns have changed the way pipeline operators as well as regulators must consider terrorism, both in approving new projects and in operating existing facilities. The Office of Homeland Security is tasked with the mission of coordinating the efforts of all executive departments and agencies to detect, prepare for, prevent, protect against, respond to, and recover from terrorist attacks within the United States. Among its responsibilities, the Department of Homeland Security oversees the Homeland Infrastructure Threat and Risk Analysis Center, which analyzes and implements the National Critical Infrastructure Prioritization Program that identifies and lists Tier 1 and Tier 2 assets. The

Tier 1 and Tier 2 lists are key components of infrastructure protection programs and are used to prioritize infrastructure protection, response, and recovery activities. The Commission, in cooperation with other federal agencies, industry trade groups, and interstate natural gas companies, is working to improve pipeline security practices, strengthen communications within the industry, and extend public outreach in an ongoing effort to secure pipeline infrastructure.

The Commission, like other federal agencies, is faced with a dilemma in how much information can be offered to the public while still providing a significant level of protection to the facility. Consequently, the Commission has taken measures to limit the distribution of information to the public regarding facility design to minimize the risk of sabotage. Facility design and certain location information has been removed from the FERC's website to ensure that sensitive information filed as Critical Energy Infrastructure Information is not readily available to the public (Docket No. RM06-23-000, issued October 30, 2007 and effective as of December 14, 2007).

The likelihood of future acts of terrorism or sabotage occurring at the proposed facilities, or at any of the myriad natural gas pipeline or energy facilities throughout the United States, is unpredictable given the disparate motives and abilities of terrorist groups. Further, the Commission, in cooperation with other federal agencies, industry trade groups, and interstate natural gas companies, is working to improve pipeline security practices, strengthen communications within the industry, and extend public outreach in an ongoing effort to secure pipeline infrastructure.

In accordance with the DOT surveillance requirements, DCP would incorporate air and ground inspection of its proposed facilities into its inspection and maintenance program. Security measures at the existing Pleasant Valley and Loudoun Compressor Stations include fencing, as would the new Charles Station.

Despite the ongoing potential for terrorist acts along any of the nation's natural gas infrastructure, the continuing need for the construction of these facilities is not eliminated. Given the continued need for natural gas conveyance and the unpredictable nature of terrorist attacks, the efforts of the Commission, the DOT, and the Office of Homeland Security to continually improve pipeline safety would minimize the risk of terrorist sabotage of the Project to the maximum extent practical, while still meeting the nation's natural gas needs. Moreover, the unpredictable possibility of such acts does not support a finding that this particular project should not be constructed.

10.0 CUMULATIVE IMPACTS

In accordance with NEPA, we identified other actions located near the Project facilities and evaluated the potential for a cumulative impact on the environment. As defined by CEQ, a cumulative effect is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. CEQ guidance states that an adequate cumulative effects analysis may be conducted by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions. In this analysis, we consider the impacts of past projects within the regions of influence as part of the affected environment (environmental baseline) which was described and evaluated in the preceding environmental analysis. However, present effects of past actions that are relevant and useful are also considered. Actions located outside the regions of influence are generally not evaluated because their potential to contribute to a cumulative impact diminishes with increasing distance from the Project.

As described in the environmental analysis section of this is EA, constructing and operating the Project would temporarily and permanently impact the environment. The Project would impact geology,

soils, vegetation, wildlife, socioeconomics, visual resources, air quality, noise, and some land uses; however, we conclude that these impacts would not be significant. We also conclude that nearly all Project-related impacts would be contained within previously disturbed areas. For other resources, such as vegetation clearing, the contribution to regional cumulative impacts is lessened by the expected recovery of ecosystem function. Cleared areas not permanently converted for industrial use (i.e., areas that would not contain an aboveground facility) would be allowed to revegetate and return to previous conditions. We determined that visual impacts would be minimal at any discrete location from the Project.

Based on the Project impacts identified and described in this EA and consistent with CEQ guidance, we have determined that the following resource-specific areas of impact are appropriate to assess cumulative impacts:

- No cultural resources would be affected by the Project, so these resources are not considered in the cumulative analysis. The Project would not impact wetlands or waterbodies. There are no projects near the Charles Station site that would result in cumulative impacts on groundwater resources and Project-related construction and operation at the WGL Interconnect, Loudoun M&R and Compressor Station, and Pleasant Valley Compressor Station would occur on previously disturbed within existing industrial facilities or would not involve ground disturbance; therefore, these resources are not discussed further in cumulative impacts.
- Impacts on geology, soils, vegetation, and wildlife would be largely contained within or adjacent to proposed Project workspaces for existing facilities due to the minor scope of work (e.g., limited ground disturbance and vegetation clearing); therefore, for these resources we evaluated other projects/actions within or adjacent to the Project workspaces. For the Charles Station, the Hydrologic Unit Code (HUC) 12 is used to assess cumulative impacts.
- Temporary impacts on air quality, including fugitive dust, would be largely limited to areas immediately around active construction, within 0.25 mile. Long-term impacts on air quality would be largely contained within about a 30-mile radius. We evaluated other projects/actions that overlap in time and location with construction activities and those with potentially significant long-term stationary emission sources within a 0.25 mile and 30-mile radius of the Project, respectively.
- Construction noise impacts would be limited to the immediate area, within a 0.25-mile radius from the Project facilities. Long-term impacts on NSAs were evaluated by identifying other stationary source projects with the potential to result in noise levels that would affect NSAs within 1 mile of the Project compressor stations. None were identified near the Charles Station.
- Land use, visual, and aesthetics impacts are highly localized; therefore, we evaluated projects/actions that are within 1 mile of the Project.
- Socioeconomics was evaluated within the affected counties for all Project facilities. For the Charles Station, census tracts within the neighboring Prince George's County were also included due to the station's proximity to the county line.

Table B.10-1 provides the list of projects considered in the cumulative impacts analysis. Figures B.10-1 and B.10-2 provide the locations of the cumulative impact projects in Maryland and Virginia, respectively. The non-jurisdictional facilities associated with the Project are described in section A.4.0 through A.4.5. This includes the Bridge Replacement, well/septic field installation, and electrical power at the Charles Station; electrical power at the Loudoun Compressor Station; the WGL M&R Station; and the

Mattawoman Energy Center, M&R Station, and lateral pipeline. Other projects considered in this analysis, include the following:

- Charles County Transit Development Corridor – Five (5) half-mile light rail transit stations near Waldorf, Maryland, the nearest of which is approximately 10 miles from the Charles Station.
- Panda Stonewall Power Project – A new 778 MW combined cycle power generation facility approximately 5 miles from the Loudoun Compressor Station. Operations began May 2017.
- Leidy South Project – Relevant facilities include installation of an 8,000 hp electric-driven compressor unit at the Leesburg Compressor Station and the new Stonewall M&R Station in Loudoun County. The project also involves compressor station modifications in Pennsylvania and Frederick County, Maryland.
- Columbia's WB XPress Project – Relevant facilities include 2.2 miles of pipeline (Line VA-1) within an existing right-of-way and the new 8,000 hp electric-driven Chantilly Compressor Station in Fairfax, Virginia approximately 400 feet south of the Pleasant Valley Compressor Station. The pipeline would be installed via horizontal directional drill, limiting environmental impacts typically associated with pipeline construction.
- Cove Point Liquefaction Project – The existing LNG Terminal would be expanded to include a new liquefaction terminal and associated facilities in Calvert County, Maryland, in addition to installation of four new electric-driven compressors (62,000 hp) at the existing Pleasant Valley Compressor Station.
- St. Charles Transportation and Keys Energy Projects – Installation of two new electric compressor units (13,000 hp) at the Pleasant Valley Compressor Station and four new taps on existing pipelines in Charles County, Maryland.
- Dominion Virginia Power switching station – Installation of electrical power at the Pleasant Valley Compressor Station. Construction planned from October 2016 to December 2017.
- Northern Virginia Electric Cooperative – The Northern Virginia Electric Cooperative would expand the existing substation at the Pleasant Valley Compressor Station to support the additional compressor units being constructed under the St. Charles Transportation and Keys Energy Projects. This work is currently under construction.
- Brambleton Middle and Madison's Trust Elementary Schools – Construction of two new schools in Loudoun County approximately 3 miles from the Loudoun Compressor Station and M&R Station. The schools opened for the 2016-2017 school year.
- McKimmey and Creighton Farms Subdivisions – Construction of new subdivisions 0.1 mile from the Loudoun Compressor Station and M&R Station. Creighton Farms is approved for 184 single family homes, of which 82 have been built. No data is available for McKimmey.
- Foxmount and Hunters Point Subdivision – Construction of new subdivisions 0.3 and 0.2 mile from the Pleasant Valley Compressor Station.
- Dulles Corridor Metrorail Project – A 23-mile extension of the existing Washington Metro rail transportation system, or Metrorail, into Loudoun County, approximately 6 miles from the Loudoun Compressor Station and M&R Station. Phase 2 of the project, which includes three stations in Loudoun County will be operational in 2019.

- Brandywine Power – A 230-MW cogeneration facility approximately 11 miles east of the Charles Station. The facility has been in operation since 1996.
- St. Charles Energy Center – A new 725-MW electric power generation facility approximately 11.5 miles southeast of the Charles Station. The facility is under construction.
- Keys Energy Center – A new combined cycle 755-MW power generation facility approximately 14.6 miles from the Charles Station. The facility began operating in March 2017.

We received numerous comments that the EA consider the impacts of Dominion Transmission, Inc.'s Leidy South Project. We also received comments requesting that the EA analyze the cumulative impacts associated with power plants in Prince George's County. Air quality would be the primary cumulative impact of these plants in conjunction with the proposed Project. Section 10.4 discuses relevant air quality cumulative impacts.

10.1 Geology and Soils

Impacts on geology and soils would be limited to the Project construction sites. The proposed WGL M&R and Mattawoman M&R would be constructed within 0.25 mile of the WGL Interconnect modifications. Construction of these facilities could overlap, resulting in cumulative impacts. Modifications at the WGL Interconnect would occur on DCP's existing right-of-way. The WGL M&R Station would be constructed adjacent to the WGL Interconnect on land owned by WGL and would be consistent with like use. The Mattawoman M&R Station would be constructed adjacent to the WGL M&R Station. The impacts from each of these facilities would be limited to the immediate area. During construction, temporary impacts, such as soil erosion, could occur.

The Chantilly Compressor Station, part of Columbia's WB XPress Project, is also proposed 400 feet south of the Pleasant Valley Compressor Station. However, because the modifications resulting from the Project would not require ground disturbance, there would be no cumulative impacts on geology and soils. In addition, DCP would adhere to our Plan and Procedures.

The non-jurisdictional activities that would occur onsite at the Charles Station and Loudoun Compressor Station would be minimized by overlapping construction schedules. Further, the impacts would be contained to DCP-owned property and would occur within the proposed construction LOD. The proposed and non-jurisdictional activities would result in some impacts on the soils and underlying geology in the Project area; however, cumulative impacts on these resources at these facilities would be minor given the limited scope of the proposed and non-jurisdictional activities.

10.2 Vegetation and Wildlife

The proposed activities would result in impacts on wildlife. Construction activities, including clearing, grading, and excavation, may result in the following: removal of vegetation; alteration of wildlife habitat; displacement of wildlife; and other potential secondary effects such as increased population stress, predation, and the establishment of invasive plant species. These effects would be greatest where the projects are constructed within the same timeframe and proximity as the Project. DCP's implementation of our Plan and Procedures would promote revegetation at Project areas following construction.

Columbia's Chantilly Compressor Station would be constructed about 400 feet from the Pleasant Valley Compressor Station modifications and could have cumulative impacts on vegetation and wildlife in

the area. For the Pleasant Valley Compressor Station, approved under the Cove Point Liquefaction Project, DCP is required to implement an Invasive Species Management Plan during and post-construction.

The Loudoun Compressor Station would impact 0.6 acre of open land and construction would occur on land within DCP's existing station boundaries. Limited impacts on wildlife are anticipated and no cumulative impacts with other projects are anticipated.

Construction and operation of the Charles Station would result in permanent loss 12.5 acres of forested areas, which would likely displace some wildlife; however, no rare, threatened, or endangered species are likely to be adversely affected. Construction and operation of other projects in the area, including the power plants and pipeline projects, the Mattawoman Energy pipeline (11.4 acres of permanent forest impacts), Cove Point Liquefaction Project (112.6 acres of temporary forest impacts), and the WGL and Mattawoman M&R Stations would result in varying degrees of habitat loss and displacement. The Charles Station site is in a forested area and any mobile species displaced by the Project would likely relocated to adjacent areas. In addition, the Charles Site was designed to limit tree clearing and preserve onsite forest and wetlands. For pipeline projects, including the Eastern Market Access Project, areas not maintained with aboveground facilities/access roads would be allowed to revegetate. Construction and operational noise would also impact wildlife; however, as with tree clearing, displaced wildlife would relocate to adjacent suitable habitat.

Based on the discussion above, we've determined a significant cumulative impact on vegetation and wildlife would not occur as a result of the construction and operation of the Project.

10.3 Land Use

Land use impacts associated with the Project would be limited to the Project sites. The modifications at the Pleasant Valley and Loudoun Compressor Stations, WGL Interconnect, and Loudoun M&R Station would occur within DCP's existing property boundaries and rights-of-way. No additional land would be required. Modifications at these facilities would result in land use changes from open upland to industrial; however, this change would be consistent with like use on the properties. The projects listed in table B.10-1, including industrial and residential projects, would impact various land uses.

Electrical power facilities required at the Loudoun Compressor Station would be constructed and permitted by a local power company, Northern Virginia Electric Cooperative. This non-jurisdictional activity would result incrementally add to the land use impacts from modifications at the Loudoun Compressor Station. The impacts would occur within the existing station boundaries and would be consistent with like use at the site.

The WGL M&R Station would be constructed on 12 acres of open land owned by WGL on a parcel adjacent to existing natural gas facilities. Of this, 4 acres would be permanently converted to industrial land for operation; however, it would be constructed on a parcel currently used for industrial facility operation. The Mattawoman M&R Station would require 5.58 acres of open land for construction, of which 3.2 acres would be permanently converted for industrial use and used for operation.

The Mattawoman pipeline lateral would be constructed from the Mattawoman M&R Station to the Mattawoman Energy Center. The pipeline would permanently impact 11.4 acres of permanent forest along the pipeline route. The nearest proposed facility for the Project would be the WGL Interconnect, which involves installing two new taps along its existing pipeline system right-of-way and would not result in forest impacts. The area being modified has been previously disturbed and 0.1 acre would be permanently converted to industrial use. Once the Mattawoman pipeline construction is complete, the construction area would be allowed to return to previous conditions, although the impacts would be long term due to the nature of reforestation. The permanent pipeline right-of-way would be allowed to recover to an open upland state, but no trees would be allowed to grow within the right-of-way for safety reasons. Although the

Mattawoman pipeline would result in various impacts, including permanent land use conversions, the proposed Project would have a very small, incremental cumulative contribution to land use impacts.

DCP's Cove Point Liquefaction, the St. Charles Transportation Project, the Keys Energy Project, the Dominion Virginia Power switching station, and the NOVEC substation expansion are currently being constructed or would be constructed in the same general timeframe as the Project. These projects involve modifications to the Pleasant Valley Compressor Station, which would be modified as part of the proposed Project. The Cove Point Liquefaction Project, which is currently under construction, would temporarily impact 112.6 acres of forested land, with about 11.3 acres of permanent impacts on forested land. The Pleasant Valley Compressor Station was originally constructed under the Cove Point Liquefaction Project, and these impacts have been addressed in our EA for that project (Docket No. CP13-113-000).

TABLE B.10.1-1

Cumulative Impacts Analysis: Past, Present, and Reasonably Foreseeable Projects

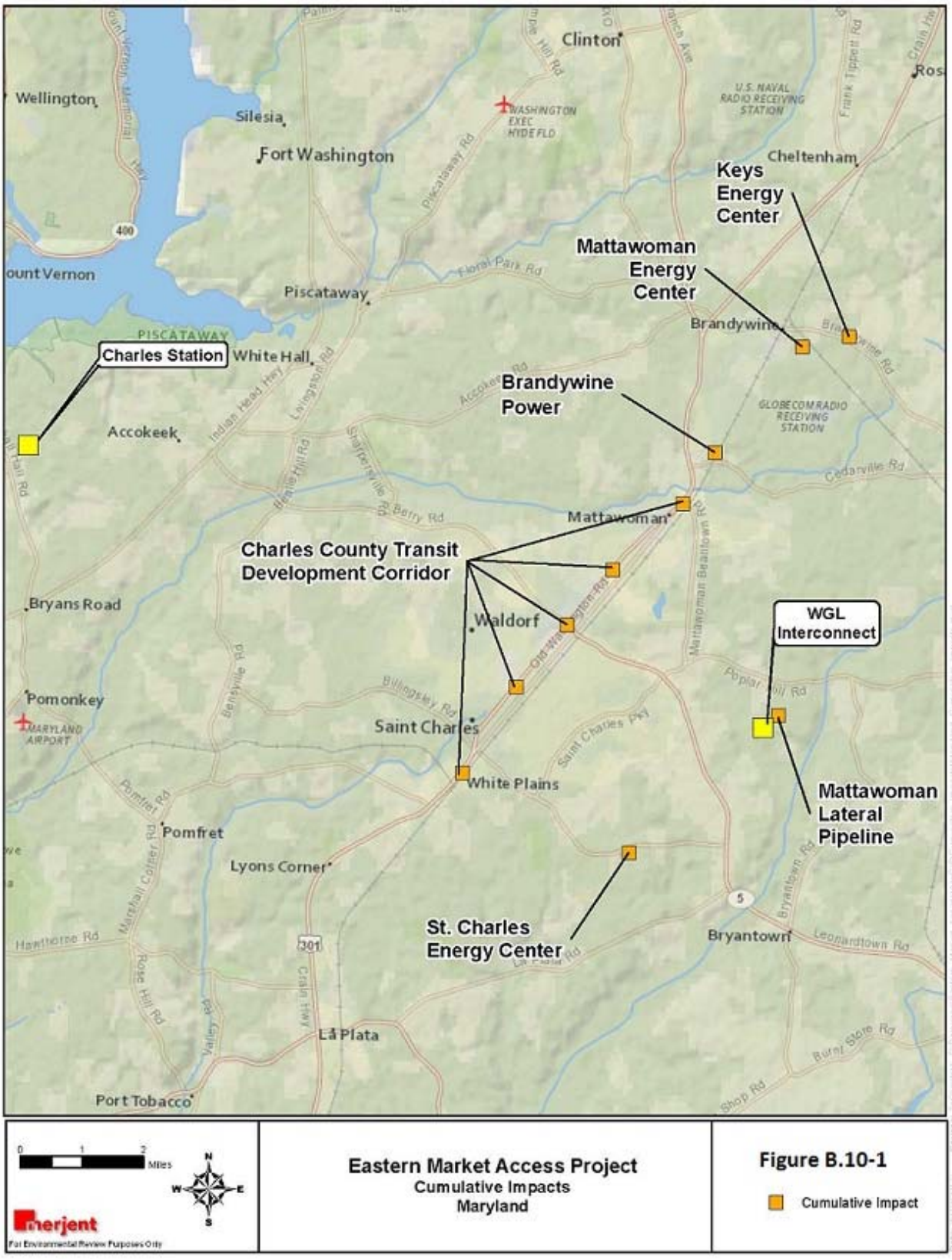
Project Name and Number	County and State	Location	Description	Timeframe	Resources That May Be Cumulatively Affected
Bridge Upgrade at the Charles Station	Charles County, MD	At the Charles Station	Replace the existing bridge ad widen the existing driveway	Under Design/Permitting; Construction has not yet begun	Geology, Soils
Well and Septic Field Installation at the Charles Station	Charles County, MD	At the Charles Station	Replace the existing well and install a new septic system	Under Design/Permitting; Construction has not yet begun	Geology, Soils
Electrical Power at the Charles Station	Charles County, MD	At the Charles Station	Install electrical power	Under Design/Permitting; Construction has not yet begun	Geology, Soils
WGL M&R Station	Charles County, MD	Adjacent to the WGL Interconnect	New M&R Station	Construction has not yet begun[a]	Socioeconomics, Soils, Vegetation, WIldlife
Mattawoman M&R Station	Charles County, MD	Adjacent to the WGL M&R Station, off Gardiner Road	New M&R Station	Construction has not yet begun	Socioeconomics, Soils, Vegetation, Wildlife
Lateral Pipeline	Charles County, MD	From the Mattawoman M&R Station to the Mattawoman Energy Center	New 9-mile long lateral pipeline	Construction has not yet begun [a]	Land Use, Socioeconomics, Air Quality, Vegetation, Wildlife
Mattawoman Energy Center (Public Service Commission Case No. 9330)	Prince George's County, MD	Approximately 9 miles from the WGL Interconnect Brandywine Road in Brandywine, MD	990 MW combined cycle natural gas-fired generating station	Construction has not yet begun [a]	Socioeconomics, Air Quality, Vegetation, Wildlife
Brandywine Power	Prince George's County, MD	11 miles southeast of the Charles Station	230 MW cogeneration facility	Operational since 1996	Socioeconomics, Air Quality, Vegetation, Wildlife
Keys Energy Center	Prince George's County, MD	14.6 miles northeast of the Charles Station	755 MW combined cycle power generation facility	Under construction. Target completion date of May 1, 2018	Socioeconomics, Air Quality
St. Charles Energy Center	Prince George's County, MD	11.5 miles southeast of the Charles Station	725 MW combined cycle power generation facility	Operation began March 2017	Socioeconomics, Air Quality, Vegetation, Wildlife
Charles County Transit Development Corridor	Charles County, MD	Approximately 10 miles from the Charles Station	Five, half-mile transit station areas near Waldorf. Stations are located between White Plains and Mattawoman	Unknown [a]	Socioeconomics
Electrical Power at the Loudoun Compressor Station	Loudoun County, MD	At the Loudoun Compressor Station	Install electrical power	Under Design/Permitting; Construction has not yet begun [a]	Soils, Land Use
Panda Stonewall Power Project	Loudoun County, VA	Approximately 5 miles from Loudoun Compressor Station	A new 778-MW combined cycle generating station.	Operational May 2017	Socioeconomics, Air Quality, Vegetation, Wildlife

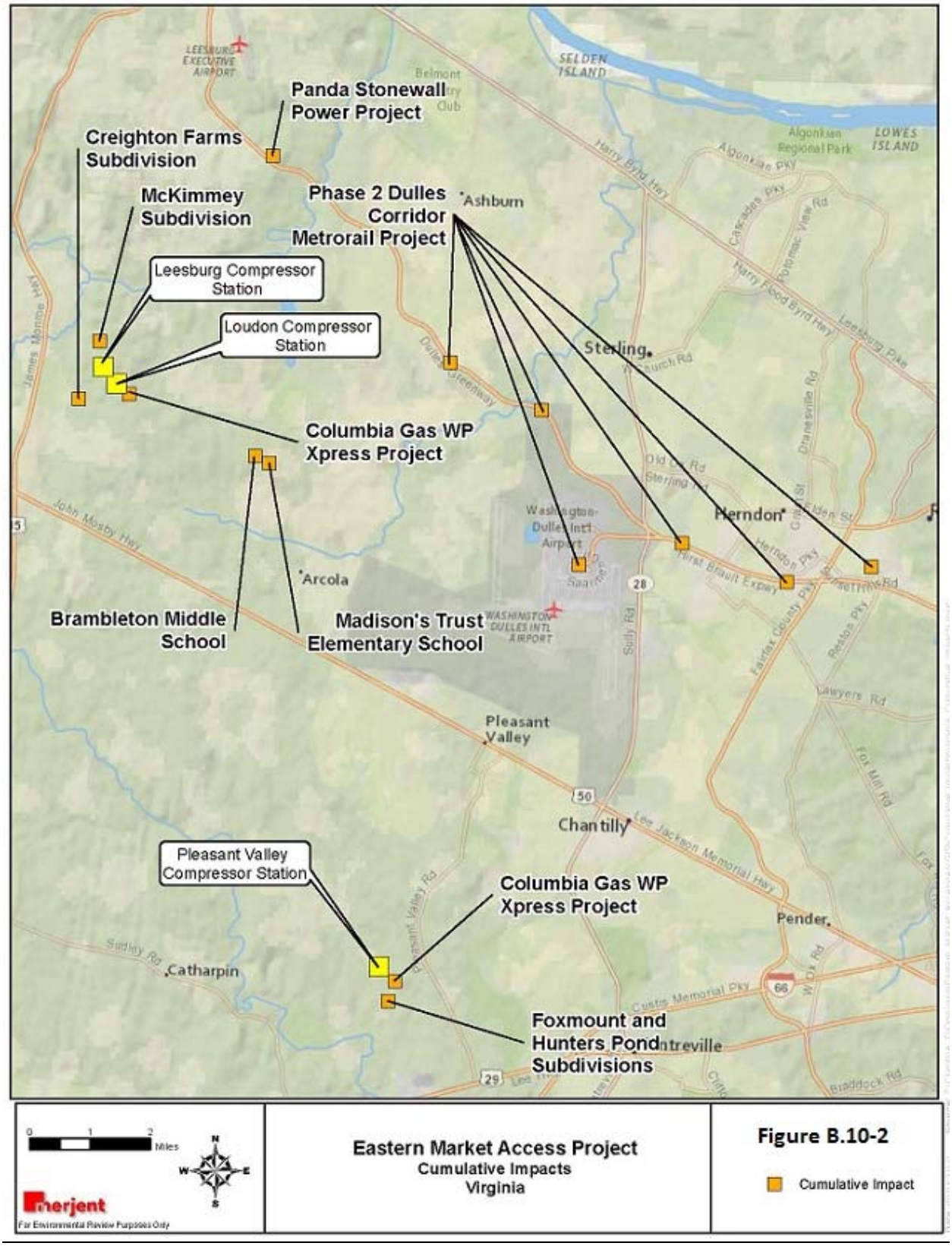
TABLE B.10.1-1

Cumulative Impacts Analysis: Past, Present, and Reasonably Foreseeable Projects

Project Name and Number	County and State	Location	Description	Timeframe	Resources That May Be Cumulatively Affected
Leidy South Project FERC Docket No. CP15-492	Loudoun County, VA	At Leesburg Compressor Station	Modifications to existing Leesburg Compressor Station	Fall 2016	Soils, Noise
Columbia WB XPress Project FERC Docket No. CP16-38	Loudoun County, VA	Directly adjacent to the Loudoun Station	A portion of the project's proposed pipeline (Line VA-1) is directly adjacent to the Loudoun Station	Waiting for FERC authorization/permitting [a]	Socioeconomics, Soils, Noise, Vegetation, WIldlife
Columbia WB XPress Project FERC Docket No. CP16-38	Fairfax County, VA	Approximately 400 feet south of Pleasant Valley Compressor Station	New compressor station (Chantilly Compressor Station) in Fairfax County	Waiting for FERC authorization/permitting [a]	Socioeconomics, Soils, Noise, Vegetation, Wildlife
Cove Point Liquefaction Project under FERC Docket No. CP13-113	Fairfax County, VA	At Pleasant Valley Compressor Station and M&R Station	Modifications to existing compressor station and M&R station	Under construction	Socioeconomics, Soils, Wildlife, and Vegetation
St. Charles Transportation Project FERC Docket No. CP15-22	Fairfax County, VA	At Pleasant Valley Compressor Station	Modifications to existing compressor station	In service June 2016	Socioeconomics, Land Use
Keys Energy Project FERC Docket No. CP15-24	Fairfax County, VA	At Pleasant Valley Compressor Station	Modifications to existing compressor station	In service March 2017	Socioeconomics, Soils, Wildlife, Vegetation
Dominion Virginia Power switching station	Fairfax County, VA	At Pleasant Valley Compressor Station	A new switching station will require a fenced area of approximately 1.5 acres	Awaiting Virginia State Corporation approval - construction planned October 2016 – December 2017	Socioeconomics, Soils
Northern Virginia Electric Cooperative	Fairfax County, VA	At Pleasant Valley Compressor Station	Expansion of the existing substation at the Pleasant Valley Compressor Station to support the additional compressor units	Under construction	Socioeconomics, Soils, and Wildlife, and Vegetation
Madison's Trust Elementary School	Loudoun County, VA	Approximately 4 miles from Loudoun Compressor Station	New elementary school	Construction complete	Socioeconomics
Dulles Corridor Metrorail Project	Loudoun County, VA	Approximately 6 miles from Loudoun Compressor Station	Metrorail station	Phase 2 construction will be completed in within five years [a]	Socioeconomics
Brambleton Middle School	Loudoun County, VA	Approximately 3 miles from Loudoun Compressor Station	New middle school	Under construction-completion Summer of 2017	Socioeconomics
McKimmey Subdivision and Creighton Farms Subdivision	Loudoun County, VA	About 0.1 mile from Loudoun Compressor Station	New subdivisions	Under construction	Socioeconomics, Noise, Air Quality
Foxmount Subdivision and Hunters Pond Subdivision	Fairfax County, VA	About 0.3 and 0.2 mile, respectively from Pleasant Valley Compressor Station	New subdivisions	Under Construction	Socioeconomics, Noise, Air Quality

[a] Construction has not yet begun; however, for the purposes of this analysis the timeframe is assumed to occur during Project construction in order to reflect conservative conclusions.


Clinton
Wellington
Silesia
Fort Washington
Cheltenham
Keys Energy Center
Mattawoman Energy Center
Piscataway
Brandywine
Charles Station
White Hall
Brandywine Power
Accokeek
Mattawoman
Charles County Transit Development Corridor
Bryans Road
Waldorf
WGL Interconnect
Pomonkey
Saint Charles
White Plains
Mattawoman Lateral Pipeline
Pomfret
Lyons Corner
St. Charles Energy Center
Bryantown
La Plata
Port Tobacco
Eastern Market Access Project
Cumulative Impacts
Maryland
Figure B.10-1
Cumulative Impact
Miles
For Environmental Review Purposes Only


Panda Stonewall Power Project
Creighton Farms Subdivision
McKimmey Subdivision
Phase 2 Dulles Corridor Metrorail Project
Ashburn
Leesburg Compressor Station
Loudon Compressor Station
Sterling
Columbia Gas WP Xpress Project
Herndon
Arcola
Brambleton Middle School
Madison's Trust Elementary School
Pleasant Valley
Chantilly
Pleasant Valley Compressor Station
Columbia Gas WP Xpress Project
Pender
Catharpin
Foxmount and Hunters Pond Subdivisions
Centreville
Eastern Market Access Project
Cumulative Impacts
Virginia
Figure B.10-2
Cumulative Impact
Miles
For Environmental Review Purposes Only

The Charles Station would permanently convert some forested woodlands to industrial and open upland as a result of the Project (see section 6). Installation of the new septic system, water well, and electric power would result in some land use conversion; however, it would be within the construction and operational footprint at Charles Station. The power generation facilities have generally been sited on land that has been previously approved for industrial use and would be consistent with this designation. Based on the limited scope of these non-jurisdictional actions, we conclude that there would not be a significant impact on the surrounding land use at the Charles Station.

10.4 Socioeconomics

The Project would have temporary and limited impacts on traffic, housing, and public services in the Project area. Projects in table B.10-1 constructed in the same timeframe, including residential and industrial facilities, would cumulatively impact these resources; however, based on what we know about the active and proposed projects, the Maryland and Virginia counties that would be affected by the Project have adequate public services to accommodate the various projects.

Other projects, such as construction/operation of the new Brambleton and Madison's Trust schools, residential housing developments, and transportation/industrial facilities (e.g., Metro Rail expansions, pipeline projects, and power generation facilities) would have temporary and permanent impacts on land uses. The Mattawoman Energy Center would employ about 275 construction workers per year, with a peak estimate of 645 construction staff. Approximately 30 jobs permanent jobs would be created. The Chantilly Compressor Station and Line VA-1 (WB XPress Project) would require about 175 construction workers during pipeline construction, with the majority located in West Virginia, with approximately 12 permanent jobs would be created. The projects listed in table B.10-1 would be constructed across multiple counties in Maryland and Virginia. The timing of construction would result in additional workers in the area, in some cases during the same timeframe; however, because these projects would not be concentrated in a single area/county, we do not believe there would be undue stress on any given public service (e.g., housing, public safety, medical, traffic, etc.). Operation of the projects would require no or minimal permanent workers. Given the temporal and geographical spacing of the projects and the availability of public services, we conclude that there would not be a significant socioeconomic impact on the affected services.

Section 7.7.1 addresses environmental justice and states that potentially adverse environmental effects associated with the Project would not be high and adverse. Although the census tracts within a 1-mile radius of the proposed Charles Station have a racial composition over 50 percent minority, the Project would not cause a disproportionate share of high and adverse environmental impacts on any racial, ethnic, or socioeconomic group. The environmental impacts associated with the Project would largely occur at existing facilities. Compressor stations are designed and sited based on various engineering constraints, including system pressure requirements and flow conditions. Typically, there is a 5- to 10-mile-long corridor in which a compressor station can be located. It is also ideal to site compressor stations, when possible, in areas where existing infrastructure exists. In this case, the Charles Station would be constructed on land owned by DTI that currently contains industrial facilities and would meet DCP's engineering and flow system requirements. Further, the Project would adhere to environmental regulations. The Charles Station would also be a minor air emissions source under federal programs (cumulative air quality impacts are addressed in section 10.5).

Numerous commenters have expressed concern with the number of power plants proposed in Prince George's County. The proposed power generation facilities would be constructed on open/industrial land designated and/or approved for industrial use. Construction of these facilities is consistent with local planning and zoning regulations. In addition, these facilities would comply with federal air quality regulations. These facilities have incorporated various technologies, including SCR to control air emissions and minimize impacts to surrounding communities. Other projects listed in table B.10-1 would contribute

to air quality impacts, along with some land use conversion and impacts on public services within the geographic scope; however, these impacts would not be significant and, in some cases, these projects would provide a net benefit to environmental justice areas. For example, the new elementary and middle schools would provide additional services to Loudoun County, while the new subdivisions in the county would support area growth. The Charles County Transit Development Corridor and Metro Rail expansion in Virginia would encourage public transportation, thereby improving traffic and associated emissions. The pipeline projects, both proposed and in operation, would have some environmental impacts, which would be largely mitigated to insignificant levels. These projects would provide natural gas to local distribution companies and/or power generation facilities to provide power to in part, provide power to Maryland and Virginia. We do not believe that the Project would contribute to cumulative impacts on environmental justice populations in the area.

10.5 Air Quality

Air quality would be the most prevalent resource cumulatively impacted by the Project and the projects listed in table B.10-1. As discussed in section 8.1, the proposed Project would comply with the NAAQS and the Charles Station would be a minor source of air quality emissions under federal permitting programs. The modifications at the Pleasant Valley Compressor Station would be minor and temporary. Based on the very limited scope and temporary nature of the construction activities at the Pleasant Valley Compressor Station, WGL Interconnect, and Loudoun M&R Station, and the fact that no permanent sources of emissions are proposed at these sites, we conclude that Project activities at these locations would not result in significant cumulative impacts on air quality.

The modifications at the Loudoun Compressor Station would result in minor, temporary impacts on air quality, with very minor operational impacts related to fugitive emissions. The new subdivisions under construction near the Loudoun Compressor Station would result in temporary cumulative impacts on air quality due to fugitive dust and construction equipment emissions; however, these impacts would be temporary and air quality would return to previous conditions once construction of the Project is complete.

The Leidy South Project would involve modifications to several compressor stations, the closest of which would be the Leesburg Compressor Station in Loudoun County, Virginia, which is within the cumulative area of impact for the Loudoun Compressor Station and Charles Station. Modification to the Leesburg Compressor Station would involve installation of an 8,000 hp electric-motor-driven compressor unit, which would result in negligible operational emissions (e.g., fugitive emissions from unit blowdowns). Operational emissions associated with gas-fired stations would occur in Pennsylvania and northern Maryland (Myersville). Further, as previously stated, there would be no long-term operational air quality impacts associated with the Loudoun Compressor Station; therefore, there would be no cumulative air quality impacts. For disclosure, the total operational GHG emissions from these facilities would be 314,859 tpy of CO_2e, which would contribute to the climate change impacts described in section 10.6.

We received numerous comments suggesting that the impacts associated with the Dominion Cove Point Liquefaction Project and the planned and operational electric generation power plants (Brandywine Power, Mattawoman Energy Center, Keys Energy Center, and St. Charles Energy Center) be analyzed in this EA. Our analysis of the cumulative impacts associated with these projects and the proposed Project is provided below. Where the information was publicly available, the estimated potential-to-emit emissions associated with the projects are provided in table B.10-2.

TABLE B.10-2

Cumulative Impacts Potential Emissions for Area Project (tpy)

Project	Emissions						
	NO_x	CO	VOC	SO_2	$PM_{2.5}$	Total HAPs	CO_2e
St. Charles Transportation Project Keys Energy Project CPV Maryland Interconnect	-	-	2.16	-	-	-	2,2723
Dominion Cove Point Liquefaction Project	279.3	146.6	33.3	2.8	248.4	11.8	2,030,988
Mattawoman Energy Center	242.1	568.8	149.5	19.6	161.3		3,738,498
Keys Energy Center	157.1	203.9	56.4	10.7	94.5	2.9	2,467,912
Panda Stonewall	159.0	205.6	37.6	5.44	98.1	7.9	2,468,468

The Mattawoman Energy Center, approximately 12.5 miles from the Charles Station, would have a 990-MW capacity that could provide electricity to 990,000 homes (Mattawoman, 2014). The project was approved in November 2015 (Maryland, 2017) and the reclaimed water pipeline associated with the project is under construction (e.g., the reclamation water line). The St. Charles Energy Center, located on a 77-acre site, began operating in March 2017 and has a 725-MW capacity (CPV, 2015). The Brandywine Power facility is a 230-MW cogeneration facility that has been in operation since 1996. The Keys Energy Center (14.6 miles from the Charles Station) is a 755-MW facility located on a 188-acre parcel of land that was previously used for sand and gravel mining. Construction of the Keys Energy Center began in 2015, according to the facility's website. Based on the distance of the Charles Station from the power plants, the Project would not contribute to a cumulative impact on air quality during construction.

The WB XPress Project, adjacent to the Pleasant Valley Compressor Station modifications, would potentially generate construction emissions within the same timeframe as the Project; however, these emissions would be localized and temporary. In addition, Project activities would be minor in scope and do not require ground disturbance. Air quality impacts would primarily be the result of construction equipment and commuter vehicles to and from the site. FERC-jurisdictional projects would implement mitigation measures during construction to minimize fugitive emissions, as applicants typically provide Fugitive Dust Plans such as that provided by DCP for the proposed Project. These plans include measures such as water application on dust roads and stockpiles and stop-work authority for Environmental Inspectors. Once construction is complete, air quality to would return to preconstruction conditions.

Operational emissions for FERC-regulated projects have been analyzed in their respective NEPA documents. The Cove Point Liquefaction Project was analyzed and was found to be in compliance with the NAAQS based on ambient air quality monitoring. The local air quality (within the 30-mile radius), would be impacted by operation of the these projects; however, each of the projects listed in table B.10-1, including Brandywine Power, Panda Stonewall, and Mattawoman, Keys, and St. Charles Energy Centers, are or would be required to comply with all applicable federal air quality permitting programs, including the NAAQS and any associated monitoring/reporting requirements, and each must conform to its respective state's SIP. Further, these facilities have or would employ various emissions-reducing technologies and system efficiencies, including SCR and oxidation catalysts and waste-heat recovery, to ensure compliance with the NAAQS and reduce minimize operational air emissions.

Regarding the electric power generation facilities in Maryland, according to the Energy Information Administration (EIA), the State of Maryland "has encouraged construction of new power plants to meet growing electricity demand and has also pursued efficiency goals to reduce both peak electricity demand and per capita electricity usage" (EIA, 2016). The EIA also indicates that there is a reduction in coal-powered electricity generation in Maryland due to difficulty meeting federal standards, and about one-third of the state's coal-fired generating capacity is scheduled for retirement between 2015 and 2020 (EIA, 2016).

Given the shift in Maryland's energy profile, it is highly likely that the natural gas power generation facilities would replace the coal-fired plants, resulting in reduced air emissions, including greenhouse gases, and thereby, reducing climate change contribution from Maryland facilities. Climate change impacts associated with the Project are discussed in section 10.8.

10.6 Noise

The Pleasant Valley Compressor Station would be upgraded as part of two additional projects, including non-jurisdictional electrical work. Some construction schedules could overlap with that of the proposed Project. Any noise impacts would be limited to construction, as no long-term noise operational noise sources are proposed at the Pleasant Valley Compressor Station as the result of the Project.

A new compressor unit was added to the Leesburg Compressor Station as part of the Leidy South Project. The Leesburg Compressor Station is adjacent to the Loudoun Compressor Station. Operational noise increases at NSAs near the Leesburg Compressor Station would range from 0.1 to 1.3 dBA, which is less than the threshold of human hearing. We do not anticipate a significant operational noise cumulative impact on the nearby NSAs.

The new compressor station associated with the WB XPress Project would contribute to a cumulative noise impacts on NSAs near the Pleasant Valley Compressor Station. Construction of the projects could occur during the same timeframe; however, these impacts would be temporary and minor based on the scope of the Project activities at the Pleasant Valley Compressor Station. The noise increase anticipated from the new compressor station would range from 0.7 to 0.1 dBA, which is less than the threshold of human hearing. Further, there are no permanent noise sources proposed at the Pleasant Valley Compressor Station, and therefore, no cumulative operational noise impacts resulting from the proposed Project.

There are no projects within 0.25 mile of the Charles Station that would result in cumulative noise impacts on nearby NSAs.

We conclude that the Project would not contribute to cumulative significant noise impacts on the Project area.

10.7 Climate Change

Climate change is the change in climate over time, whether due to natural variability or as a result of human activity, and cannot be represented by single annual events or individual anomalies. For example, a single large flood event or particularly hot summer are not indications of climate change, while a series of floods or warm years that statistically change the average precipitation or temperature over years or decades may indicate climate change.

The Intergovernmental Panel on Climate Change (IPCC) is the leading international, multi-governmental scientific body for the assessment of climate change. The United States is a member of the IPCC and participates in IPCC working groups to develop reports. The leading scientific body in the United States on climate change is the U.S. Global Change Research Program (USGCRP). Thirteen (13) federal departments and agencies participate in the USGCRP, which began as a presidential initiative in 1989 and was mandated by Congress in the Global Change Research Act of 1990. The IPCC and USGCRP have recognized that:

- globally, GHGs have been accumulating in the atmosphere since the beginning of the industrial era (circa 1750);
- combustion of fossil fuels (coal, petroleum, and natural gas), combined with agriculture and clearing of forests, is primarily responsible for this accumulation of GHG;

- these anthropogenic GHG emissions are the primary contributing factor to climate change; and
- impacts extend beyond atmospheric climate change alone, and include changes to water resources, transportation, agriculture, ecosystems, and human health.

In May 2014, the USGCRP issued a report, *Climate Change Impacts in the United States*, summarizing the impacts that climate change has already had on the United States and what projected impacts climate change may have in the future (USGCRP, 2014). The report includes a breakdown of overall impacts by resource and various regions of the United States. Although climate change is a global concern, for this cumulative analysis we focus on the potential cumulative impacts of climate change in the Project area. The USGCRP's report notes the following observations of environmental impacts that may be attributed to climate change in the northeast region:

- average temperatures have risen about 2 °F between 1895 and 2011 and are projected to increase another 1 to 8 °F over the next several decades with more frequent days above 90 °F;
- areas that currently experience ozone pollution problems are projected to experience an increase in the number of days that fail to meet the federal air quality standards;
- an increase in health risks and costs for vulnerable populations due to projected additional heat stress and poor air quality;
- precipitation has increased by about 5 inches and winter precipitation is projected to increase 5 to 20 percent by the end of the century;
- extreme/heavy precipitation events have increased more than 70 percent between 1958 and 2010 and are projected to continue to increase;
- sea levels have risen about 1 foot since 1900 and are projected to continue increasing 1 to 4 feet by 2100 stressing infrastructure (e.g., communications, energy, transportation, water, and wastewater);
- severe flooding due to sea-level rise and heavy downpours is likely to occur more frequently;
- crop damage from intense precipitation events, delays in crop plantings and harvest, and heat stress negatively affect crop yields;
- invasive weeds are projected to become more aggressive due to their benefit of higher CO2 levels;
- a change in range, elevation, and intra-annual life cycle events of vegetation and wildlife species; and
- an increase in carrier habitat and human exposure to vector-borne diseases (e.g., Lyme disease or West Nile virus).

Our analysis presents the direct and indirect GHG emissions associated with construction and operation of the Project and the potential impacts of GHG emissions in relation to climate change, to the extent practicable. The GHG emissions associated with construction and operation of the Project are discussed in section 8.1. While upstream and downstream emissions are not causally connected to the Project, we recognize the availability of a reasonable, EPA-developed methodology to estimate the downstream GHG emissions from a project, assuming all of the gas to be transported is eventually combusted. As such, we estimated the GHG emissions from the end-use combustion of the natural gas to be transported by the Project. The Project would deliver up to 294,000 dekatherms per day of new volumes,

which can produce about 5.9 million metric tons of CO_2e per year from end-use combustion (EPA, 2017c).[13] We note that this value may represent an overestimation of emissions because it assumes the total maximum capacity is transported 365 days per year. Many projects in front of the Commission are designed for peak use. As such, it is unlikely that this total amount of GHG emissions would occur. Currently, there is no scientifically accepted methodology available to correlate specific amounts of GHG emissions to discrete changes in average temperature rise, annual precipitation fluctuations, surface water temperature changes, or other physical effects on the environment in the northeast region.

Burning natural gas emits less CO_2 compared to other fuel sources (e.g., fuel oil or coal). Because coal is used as an alternative to natural gas in the region in which the Project would be located, it is anticipated that the Project would result in the displacement of some coal use, thereby potentially offsetting some regional GHG emissions. However, the emissions would increase the atmospheric concentration of GHGs in combination with past and future emissions from all other sources and contribute incrementally to climate change that produces the impacts previously described. Because we cannot determine the Project's incremental physical impacts on the environment caused by climate change, we cannot determine whether the Project's contribution to cumulative impacts on climate change would be significant.

We have disclosed the potential GHG emissions from the Project, mitigation measures to minimize GHG emissions, and climate change impacts in the northeast region associated with global GHG emissions. Additionally, burning natural gas emits less CO_2 compared to other fuel sources (e.g., fuel, oil, or coal). Therefore, we find that GHG emissions have been sufficiently minimized.

[13] The EPA's GHG equivalency calculator (https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator) was used to estimate the CO2e emissions from the proposed natural gas volume. The CO_2e estimate is conservative and assumes the total capacity is used 24/hour per day, 365 days per year.

SECTION C – ALTERNATIVES

In accordance with NEPA and Commission policy, we identified and evaluated alternatives to the Project to determine whether they would be reasonable and environmentally preferable to the proposed action. These alternatives include the no action alternative, system alternatives, and compressor station site alternatives. The criteria used for selecting potentially environmentally preferable alternatives are: the ability to meet the Projects objectives, technical and economic feasibility and practicality, and whether it provides a significant environmental advantage over the proposed Project.

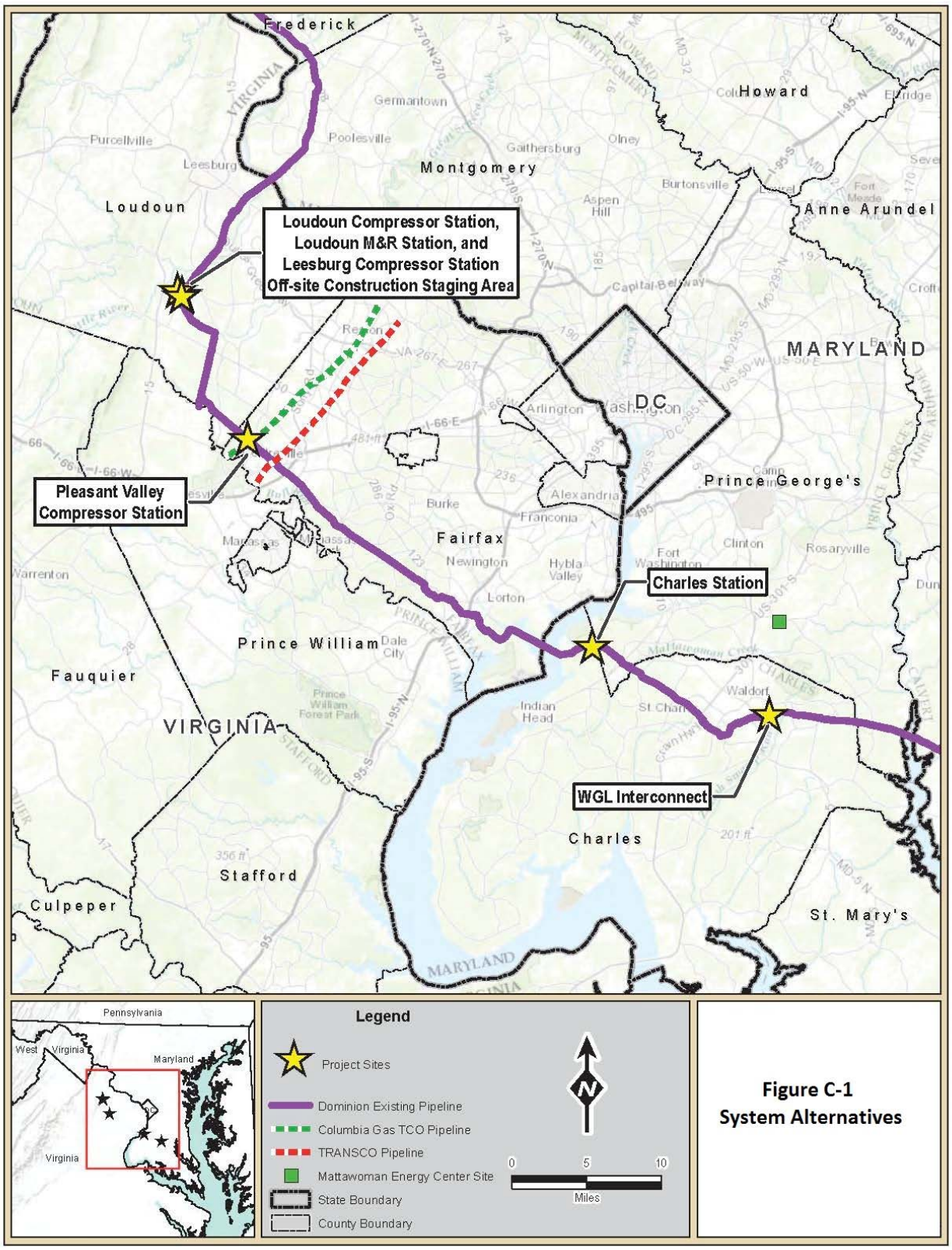
1.0 NO ACTION ALTERNATIVE

The no-action alternative would result in not implementing the proposed action and would avoid the potential environmental impacts associated with the Project; however, the Project objectives would not be met. DCP's customers, WGL and Mattawoman Energy, would likely seek alternative suppliers for the requested natural gas volumes. Although a Commission decision to postpone or deny the Project would either avoid or delay the environmental impacts discussed in this EA, other natural gas projects could be constructed to provide a substitute for the natural gas supplies offered by DCP. Such actions could result in impacts similar to or greater than the proposed Project and would likely not meet the Project's purpose and need within the proposed timeframe. Based, in part, on the limited scope of the Project, we are not recommending the no action alternative.

2.0 SYSTEM ALTERNATIVES

The purpose of identifying and evaluating system alternatives is to determine whether the environmental impacts associated with the construction and operation of the proposed Project could be avoided or reduced by using existing, modified, or other proposed facilities rather than constructing new facilities. System alternatives are those able to meet the objectives of the Project but use a different facility (existing or proposed), or are able to otherwise use existing infrastructure to eliminate the need for the proposed facility. However, a viable system alternative must be technically and economically feasible as well as practicable, and must satisfy interconnect requirements and the anticipated in-service date to fulfill commitments made to the Project customers.

The only existing interstate natural gas pipelines near the proposed Project customer delivery points are DCP's TL-522 and TL-532 pipelines, which are relatively close to the Project customers' M&R stations. Outside of DCP's pipelines, Columbia and Transcontinental Gas Pipe Line Company, LLC maintain pipelines in the general area; however, utilizing these facilities would require approximately 35 miles of new pipeline. It is not clear whether expansion of the existing pipelines would be enough to increase capacity in this proposal, but likely a new large diameter greenfield pipeline would be needed to provide the volumes of gas proposed in this Project. Construction of the new pipeline would impact approximately 318 acres of land, assuming a 75-foot right-of-way, which does not account for the potential need to route around sensitive environmental features or urban development. Modification of these facilities would result in equal or greater environmental impacts than those associated with the Project, which are mostly sited in existing industrial areas. Figure C-1 displays the potential alternative pipeline systems that could be used to serve the Project customers.


Loudoun Compressor Station, Loudoun M&R Station, and Leesburg Compressor Station Off-site Construction Staging Area
Pleasant Valley Compressor Station
Charles Station
WGL Interconnect
Frederick
Montgomery
Loudoun
Howard
Anne Arundel
MARYLAND
DC
Prince George's
Fairfax
Prince William
Fauquier
VIRGINIA
Stafford
Culpeper
Charles
St. Mary's
Legend
Project Sites
Dominion Existing Pipeline
Columbia Gas TCO Pipeline
TRANSCO Pipeline
Mattawoman Energy Center Site
State Boundary
County Boundary
0 5 10
Miles
Pennsylvania
West Virginia
Maryland
Virginia
Figure C-1
System Alternatives

3.0 PIPELINE LOOPING AND COMPRESSION ALTERNATIVE

To increase the throughput capacity of a natural gas pipeline, a pipeline operator can "loop" the existing pipeline. A pipeline "loop" refers to laying an additional pipeline segment(s) parallel to an existing pipeline to increase capacity along a right-of-way beyond what is possible on one line. The parallel pipelines are connected to move a larger flow along a single segment of the pipeline system.

Pipeline looping was evaluated starting from the Pleasant Valley Compressor Station and moving east along TL-522 in Fairfax County, Virginia to eliminate the need for the Charles Station, although compression at Loudoun would still be required. DCP would need to construct about 20 miles of 36-inch-diameter loop to meet the desired delivery pressure and volume, which would impact approximately 182 acres of land (assuming an average 75-foot-wide construction right-of-way). Construction of a pipeline loop would result in temporary and permanent impacts from the construction right-of-way and expanded permanent easement, respectively. More landowners and natural resources would be impacted by pipeline construction than those impacted by the proposed Project, therefore we do not recommend the use of this alternative.

4.0 ELECTRIC-DRIVEN COMPRESSION

The benefit to electric-driven compression is the near elimination of air quality impacts at the site. DCP evaluated the option of using electric-driven units instead of the proposed natural gas-fired turbines at the Charles Station.

The use of electric-driven compression at the Charles Station would require approximately 23,000 kilowatts of electrical power. The Charles Station site is in an area with limited high-voltage electric transmission power lines in the general vicinity; therefore, upgrades to the electric grid in the area would be required. This would likely include construction of a substation and several miles of new or upgraded power lines, which would have associated environmental impacts. DCP would need to increase the proposed footprint at the Charles Station site to accommodate additional facilities associated with electric-driven compression, including additional buildings for a switchgear and for each electric motor. Approximately 0.5 acre of additional land disturbance would be required at the site. Further, the Charles Station would be a minor source of emissions under all federal and state air permitting programs and would comply with the NAAQS. Therefore, we do not recommend this alternative.

5.0 CHARLES STATION ALTERNATIVES

The criteria used to conduct our alternative site analysis included the following:

- Compressor station footprint (size): Based on typical facility design, construction of a compressor station requires about 10 to 15 acres, and operation requires about 5 acres. The remaining land purchased at a compressor station site is typically held as a buffer and would return to its previous use.
- Reasonable availability: For an alternate site to be selected, we believe there should be some indication that the property could be reasonably obtained from the current landowners. Although Section 7(h) of the Natural Gas Act grants the Certificate holder the right to exercise eminent domain, we generally expect a site to be available (e.g., by purchase, lease, or restrictive easement) to minimize the use of eminent domain to secure land for aboveground facilities.
- Various environmental issues: Environmental issues that were considered in site evaluations include visual impacts, land use compatibility, forest clearing, wetland

disturbance, waterbodies and floodplains, recreational use, cultural and recreational resources, and proximity to NSAs.

This analysis was limited to parcels currently owned by DCP. Based on our second alternatives analysis criterion (reasonable availability), we agree with this approach as it eliminates the possibility for eminent domain and ensures parcel availability. DCP identified three potential sites for the Charles Station, although one parcel lies completely within a forest conservation easement and was removed from consideration.

The proposed location (south of Barry's Hill Road) and a second location (north of Barry's Hill Road) were included in our analysis. Table C.1-1 provides an overview of impacts associated with the proposed and alternative sites for the Charles Station and figure C-2 for an aerial photograph-based map.

TABLE C.1-1

Alternatives Analysis for the Charles Station

Comparison Factor	Proposed Site	Alternative Site
Total Parcel Size (Acres)	96.2	74.9
Conservation Areas (Acres)	23.0	0.0
Land Required for the Station (Acres)	14.0	14.0
Existing Developed Area (Acres)	1.3	0
Forested Area (Acres)	71.9	74.9
Wetland Area (Acres)	19.6 [a]	3.5 [b]
Stream Length within Site (Feet)	2,560	1,832
Flood Plain Area Present (Acres)	Included within Conservation Areas	0.0
Steep Slopes Present	No	No
NRHP-eligible Sites Present	No	No
Surrounding Land Use	Forested, Agricultural, Rural Residential	Medium Density Residential, Commercial, Light Industrial, Schools
Zoning	Rural Conservation[d]	Light Industrial
Federal Land	None	None
Modification to public road	No	Yes (turning lane)
Pipeline lateral required	No	Yes

[a] Based on field survey and wetland delineation for the Project.
[b] Based on FWS NWI mapping.
[c] Existing natural gas facilities are present at the site.

While the alternative site is more appropriately zoned (light industrial), the land is currently undeveloped and the proposed site for the Charles Station currently contains natural gas facilities. The proposed site does contain more wetlands than the alternative, but these wetlands would not be impacted by construction or operation. Finally, the alternative site would require a pipeline later, resulting in additional impacts on environmental resources above what would be required for the proposed site. Based on the criteria listed above and the data provided in table C.1-1, we conclude that the alternative site would not provide a significant environmental advantage over the proposed site for the Charles Station.

In summary, we conclude that DCP's proposed Project, as modified by our recommended mitigation measures, is the preferred alternative that can meet the Project objectives.

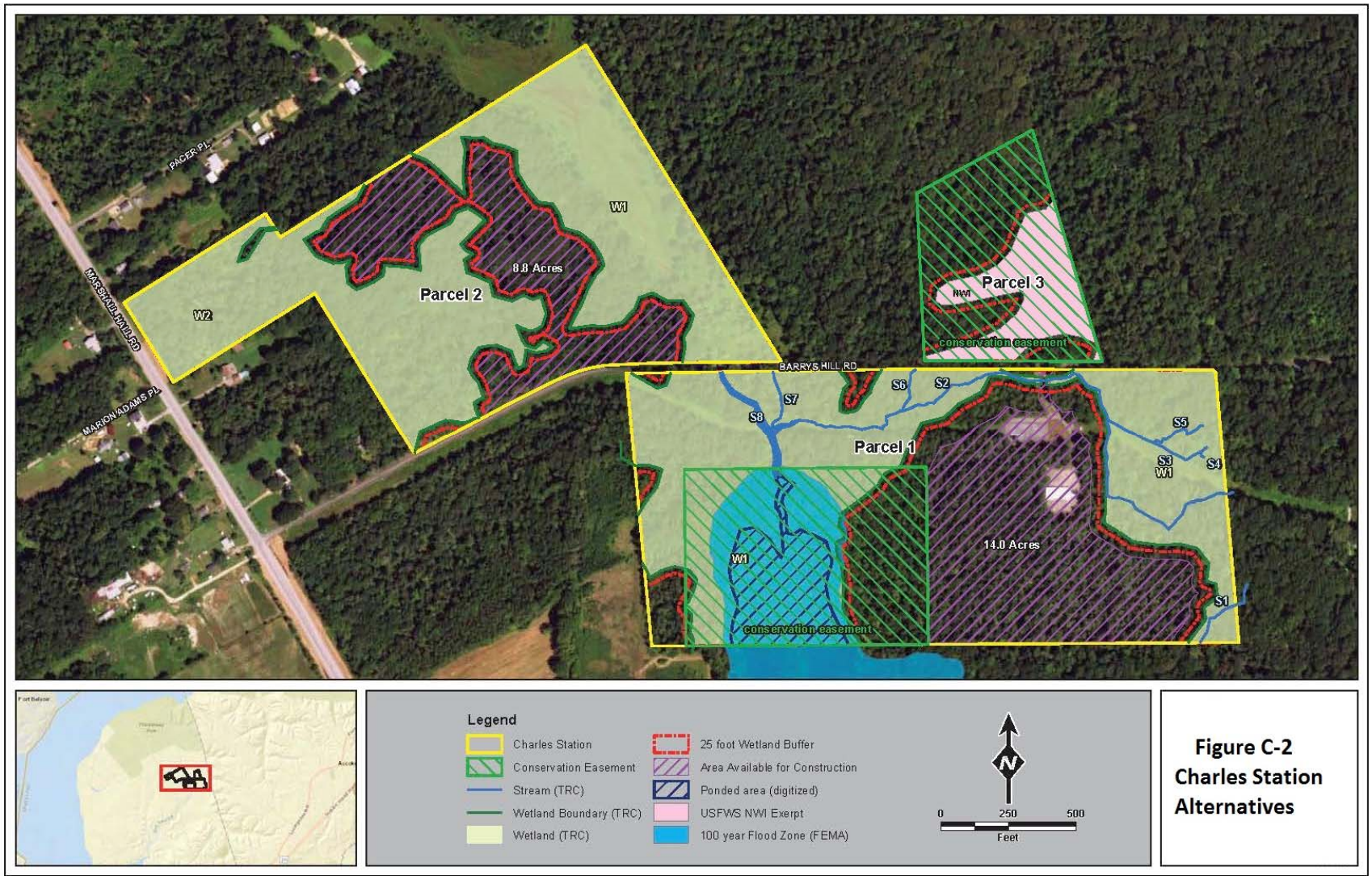


Figure C-2
Charles Station
Alternatives

SECTION D – CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis in this EA, we have determined that if DCP constructs and operates the proposed facilities in accordance with its application, supplements, and the staff's recommended mitigation measures, approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment. We recommend that the Commission Order (Order) contain a finding of no significant impact and include the following list of mitigation measures as conditions to any Certificate the Commission may issue.

1. DCP shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. DCP must:

    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;

    b. justify each modification relative to site-specific conditions;

    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and

    d. receive approval in writing from the Director of OEP before using that modification.

2. The Director of OEP has delegated authority to take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of the Project. This authority shall allow:

    a. the modification of conditions of the Order; and

    b. the design and implementation of any additional measures deemed necessary (including stop-work authority) to assure continued compliance with the intent of the environmental conditions as well as the avoidance or mitigation of adverse environmental impact resulting from Project construction and operation.

3. **Prior to any construction**, DCP shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before becoming involved with construction and restoration activities**.

4. The authorized facility locations shall be as shown in the EA, as supplemented by filed facility maps. **As soon as they are available and before the start of construction**, DCP shall file with the Secretary any revised detailed facility maps/plot plans at a scale not smaller than 1:6,000 for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these maps/plans.

5. DCP shall file with the Secretary detailed maps/plot plans and aerial photographs at a scale not smaller than 1: 6,000 identifying all facility relocations and all staging areas, pipe storage yards, new access roads, and other areas that will be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval,

whether any cultural resources or federally listed threatened or endangered species will be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/aerial photographs. Each area must be approved in writing by the Director of OEP before construction in or near that area.

This requirement does not apply to extra workspace allowed by the Commission's Plan and/or minor field realignments per landowner needs and requirements that do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all facility location changes resulting from:

a. implementation of cultural resources mitigation measures;

b. implementation of endangered, threatened, or special concern species mitigation measures;

c. recommendations by state regulatory authorities; and

d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of the Certificate and before construction begins**, DCP shall file an Implementation Plan for the Project with the Secretary for review and written approval by the Director of OEP. DCP must file revisions to their plan as schedules change. The plan shall identify:

a. how the company will implement the construction procedures and mitigation measures described in its applications and supplements (including responses to staff data requests), identified in the EA, and required by the Order;

b. how the company will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;

c. the number of EIs assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;

d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;

e. the location and dates of the environmental compliance training and instructions the company will give to all personnel involved with construction and restoration (including initial and refresher training as the Project progresses and personnel change);

f. the company personnel (if known) and specific portion of the company's organization having responsibility for compliance;

g. the procedures (including use of contract penalties) the company will follow if noncompliance occurs; and

h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

(1) the completion of all required surveys and reports;

(2) the environmental compliance training of onsite personnel;

(3) the start of construction; and

(4) the start and completion of restoration.

7. DCP shall employ at least two EIs for the Project. The EIs shall be:

a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;

b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;

c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;

d. a full-time position, separate from all other activity inspectors;

e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and

f. responsible for maintaining status reports.

8. Beginning with the filing of its Implementation Plan, DCP shall file updated status reports for the Project with the Secretary **on a monthly basis until all construction and restoration activities are complete**. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

a. an update on efforts to obtain the necessary federal authorizations;

b. the construction status of the Project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally-sensitive areas;

c. a listing of all problems encountered and each instance of noncompliance observed by EIs during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);

d. a description of the corrective actions implemented in response to all instances of noncompliance, and their cost;

e. the effectiveness of all corrective actions implemented;

f. a description of any landowner/resident complaints that may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and

g. copies of any correspondence received by the company from other federal, state, or local permitting agencies concerning instances of noncompliance, and DCP's response.

9. **Prior to receiving written authorization from the Director of OEP to commence construction of its Project facilities**, DCP shall file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

10. DCP must receive written authorization from the Director of OEP **before placing its Project into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of the areas affected by the Project are proceeding satisfactorily.

11. **Within 30 days of placing its authorized facilities in service**, DCP shall file an affirmative statement with the Secretary, certified by a senior company official:

    a. that the facilities have been constructed in compliance with all applicable conditions and that continuing activities will be consistent with all applicable conditions; or

    b. identifying the Certificate conditions with which DCP has complied or will comply. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

12. **Prior to construction**, DCP shall file the documentation of concurrence from the MDE that Project facilities in Maryland are consistent with the Maryland Coastal Zone Management Program.

13. DCP shall file a noise survey with the Secretary **no later than 60 days** after placing the Charles Station in service. If a full load condition noise survey is not possible, DCP shall instead file an interim survey at the maximum possible horsepower load and file the full load survey **within 6 months**. If the noise attributable to the operation of all of the equipment at the station under interim or full horsepower load exceeds 55 dBA L_{dn} at any nearby NSA, DCP shall file a report on what changes are needed and shall install the additional noise controls to meet the level **within 1 year of the in-service date**. DCP shall confirm compliance with the 55 dBA Ldn requirement by filing a second noise survey with the Secretary **no later than 60 days after** it installs the additional noise controls.

14. DCP shall file a noise survey with the Secretary **no later than 60 days** after placing the new equipment at the Loudoun Compressor Station in service. If a full load condition noise survey is not possible, DCP shall instead file an interim survey at the maximum possible horsepower load and file the full load survey **within 6 months**. If the noise attributable to the operation of all of the equipment at the Loudoun Compressor Station under interim or full horsepower load exceeds 55 dBA L_{dn} at any nearby NSA, DCP shall file a report on what changes are needed and shall install the additional noise controls to meet the level within **1 year of the in-service date**. DCP shall confirm compliance with the 55 dBA Ldn requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.

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Merjent, Inc. is a third-party contractor assisting the Commission staff in reviewing the environmental aspects of the project application and preparing the environmental documents required by NEPA. Third party contractors are selected by Commission staff and funded by project applicants. Per the procedures in 40 CFR 1506.5(c), third party contractors execute a disclosure statement specifying that they have no financial or other conflicting interest in the outcome of the project. Third party contractors are required to self-report any changes in financial situation and to refresh their disclosure statements annually. The Commission staff solely directs the scope, content, quality, and schedule of the contractor's work. The Commission staff independently evaluates the results of the third-party contractor's work and the Commission, through its staff, bears ultimate responsibility for full compliance with the requirements of NEPA.

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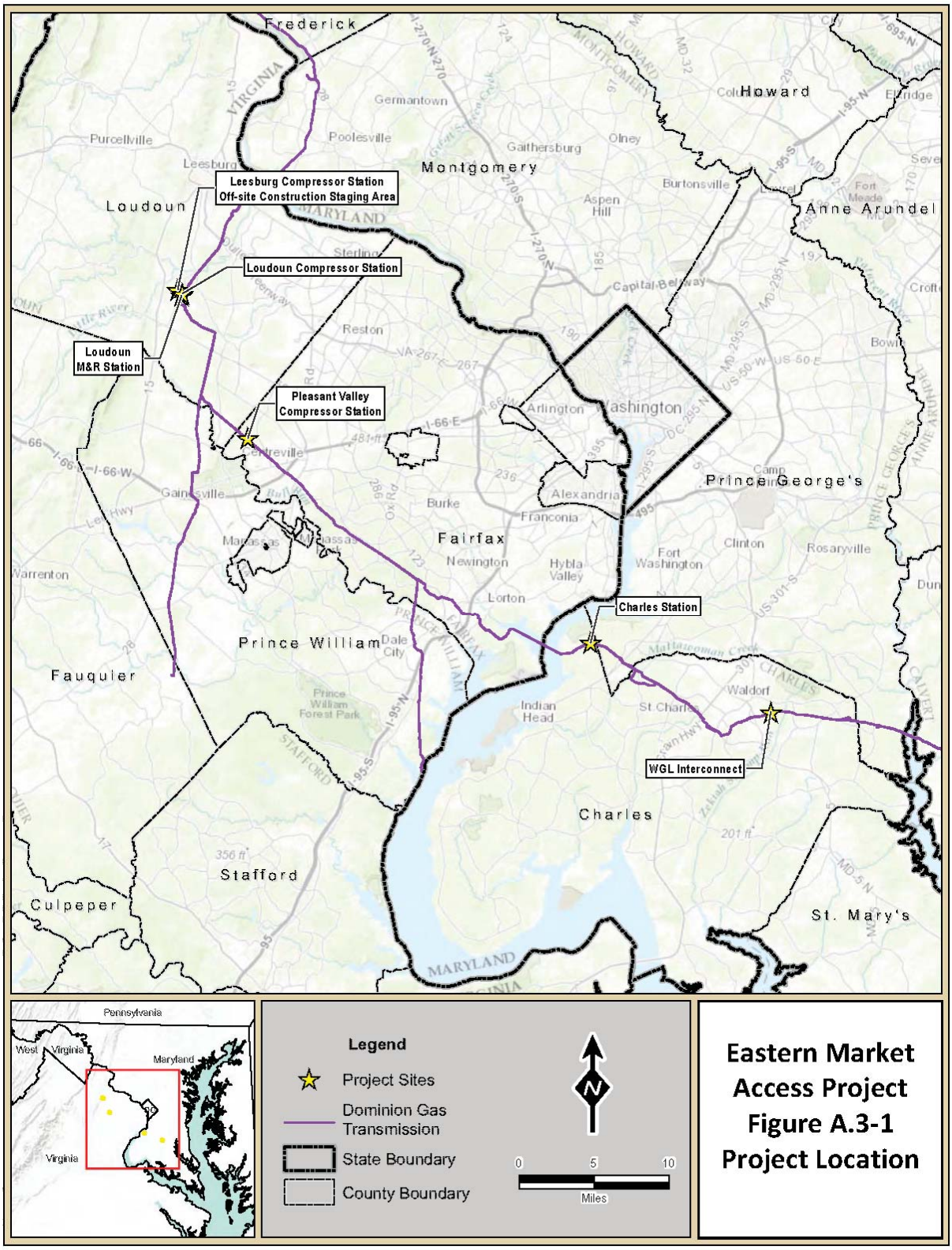
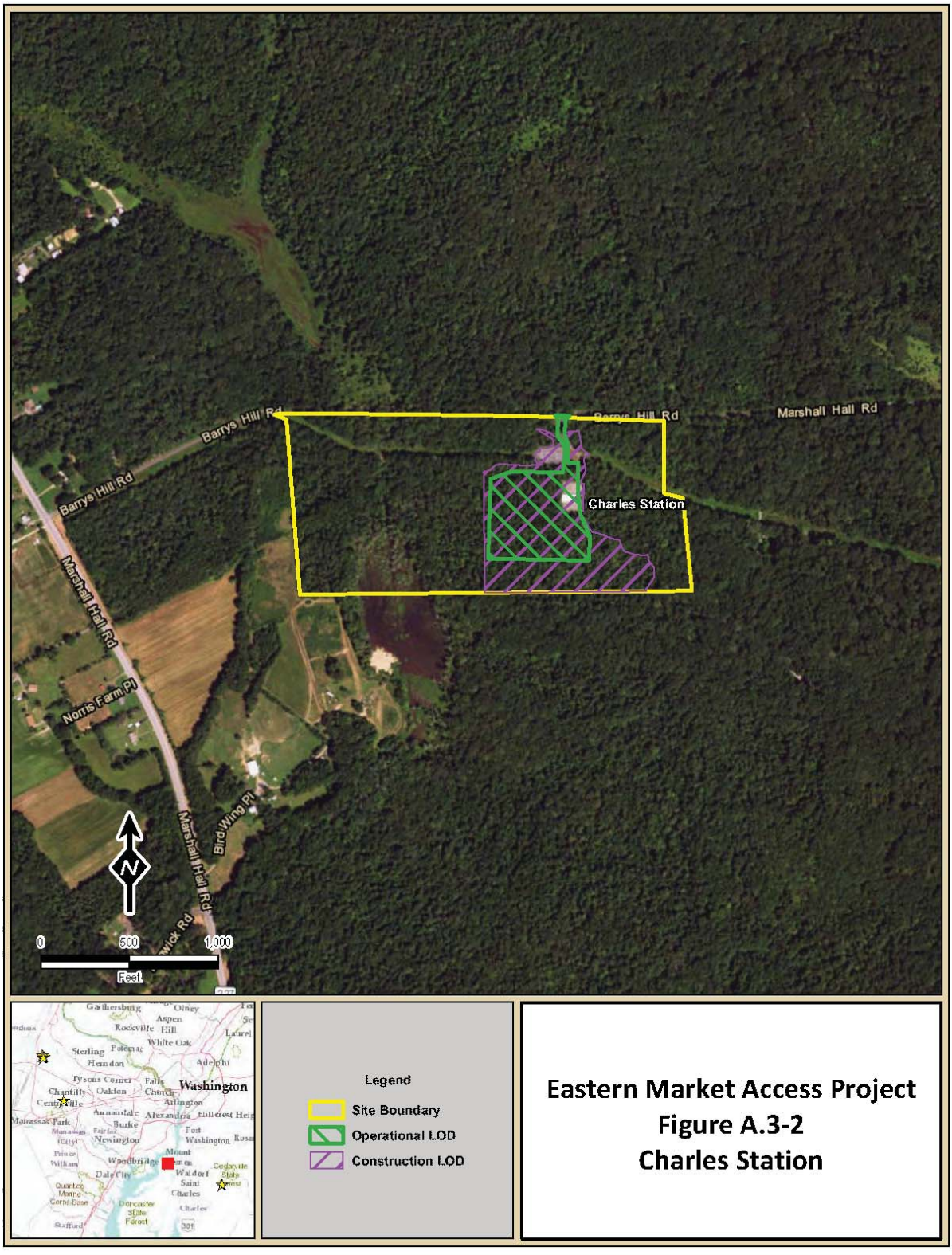
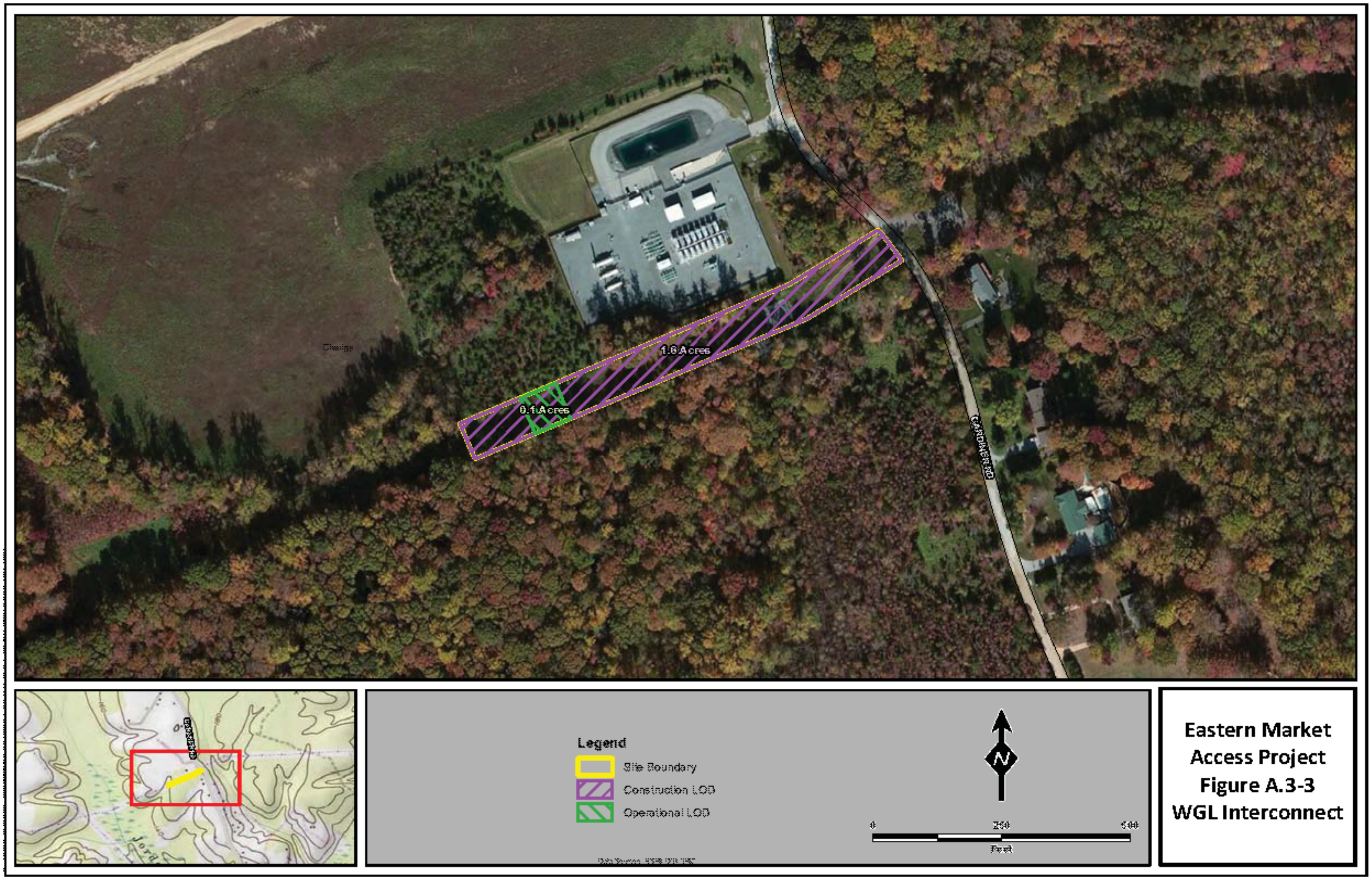
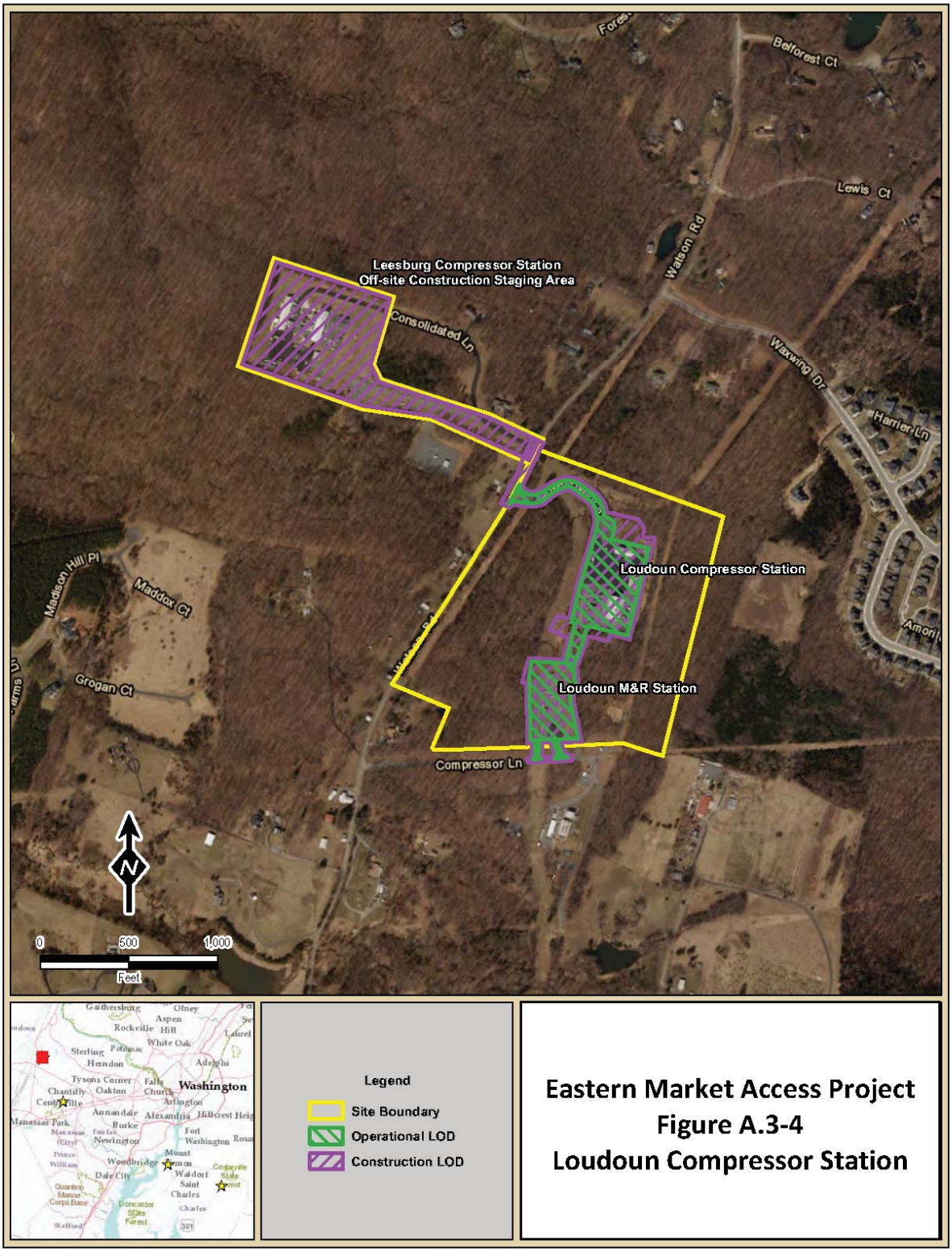
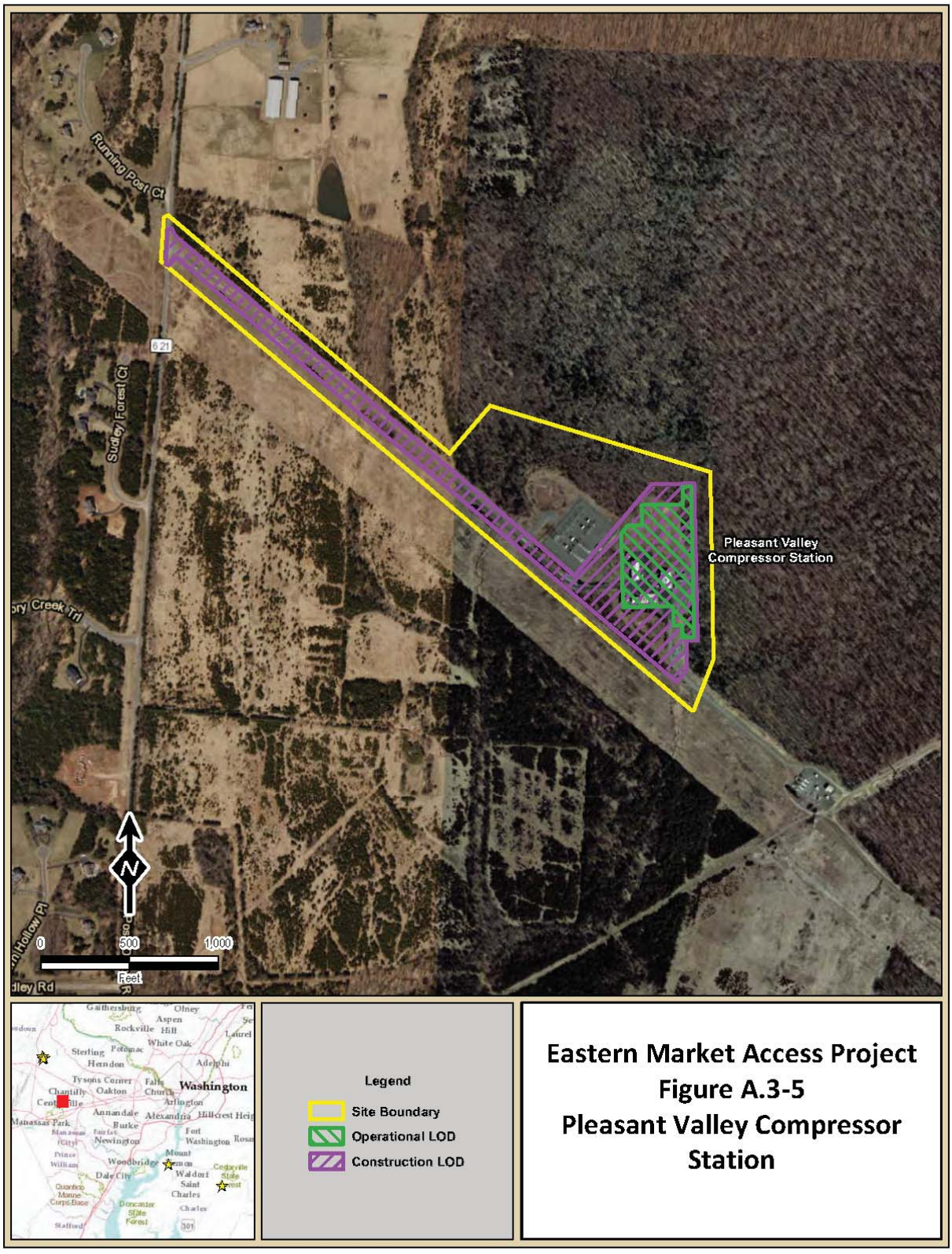
Appendix A
Project Maps

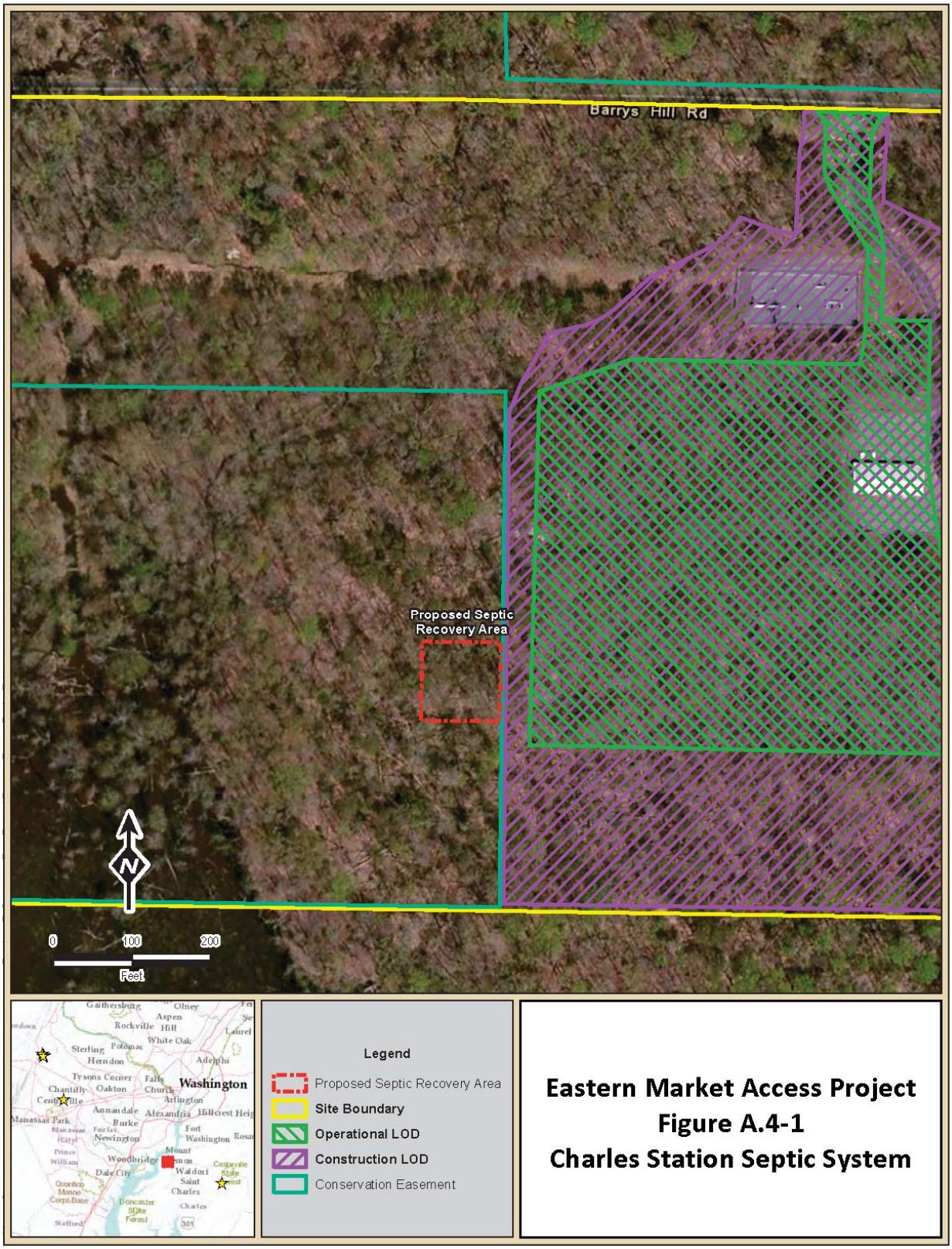

Leesburg Compressor Station
Off-site Construction Staging Area
Loudoun Compressor Station
Loudoun
M&R Station
Pleasant Valley
Compressor Station
Charles Station
WGL Interconnect
Frederick
Montgomery
Howard
Anne Arundel
Loudoun
Fairfax
Prince William
Fauquier
Stafford
Culpeper
Charles
St. Mary's
Prince George's
Pennsylvania
West Virginia
Maryland
Virginia
Legend
Project Sites
Dominion Gas Transmission
State Boundary
County Boundary
N
0
5
10
Miles
Eastern Market Access Project
Figure A.3-1
Project Location


Barrys Hill Rd
Barrys Hill Rd
Marshall Hall Rd
Charles Station
Marshall Hall Rd
Norris Farm Pl
Bird Wing Pl
Marshall Hall Rd
N
0
500
1,000
Feet
Legend
Site Boundary
Operational LOD
Construction LOD
Eastern Market Access Project
Figure A.3-2
Charles Station



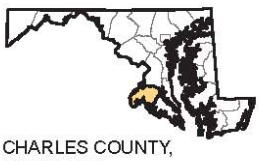

Belforest Ct
Lewis Ct
Watson Rd
Leesburg Compressor Station
Off-site Construction Staging Area
Consolidated Ln
Waxwing Dr
Harrier Ln
Loudoun Compressor Station
Madison Hill Pl
Maddox Ct
Grogan Ct
Loudoun M&R Station
Compressor Ln
N
0
500
1,000
Feet
Legend
Site Boundary
Operational LOD
Construction LOD
Eastern Market Access Project
Figure A.3-4
Loudoun Compressor Station


Running Post Ct
621
Sudley Forest Ct
Pleasant Valley
Compressor Station
N
0
500
1,000
Feet
Legend
Site Boundary
Operational LOD
Construction LOD
Eastern Market Access Project
Figure A.3-5
Pleasant Valley Compressor Station


Barrys Hill Rd
Proposed Septic Recovery Area
N
0
100
200
Feet
Legend
Proposed Septic Recovery Area
Site Boundary
Operational LOD
Construction LOD
Conservation Easement
Eastern Market Access Project
Figure A.4-1
Charles Station Septic System

Eastern Market Access Project
Figure A.4-2
Mattawoman Pipeline and M&R Station

PROJECT LOCATION



CHARLES COUNTY, MARYLAND

LEGEND

EXISTING WASHINGTON GAS LIGHT GATE STATION

APPROXIMATE AREA OF FUTURE WASHINGTON GAS LIGHT GATE STATION

0 1,000 2,000 4,000 Feet

Eastern Market Access Project
Figure A.4-3
WGL M&R Station

REFERENCE: BING MAPS HYBRID, MICROSOFT CORPORATION, 2011, ACCESSED 05/2017.

Document Content(s)