


**NSF
DAHLGREN**



**JOINT
LAND USE
STUDY**



JOINT LAND USE STUDY

January 2015

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This study was prepared under contract with King George County, Virginia, with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of the key partners involved in the development of this study including the Town of Colonial Beach, VA, the counties of King George and Westmoreland, VA, and the counties of Charles and St. Mary's, MD, and does not necessarily reflect the views of the Office of Economic Adjustment.

NSF DAHLGREN JOINT LAND USE STUDY



Department of Community Development
King George County

Prepared by
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January 2015

Please see the next page.



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The Policy Committee served an active and important role in the development of the NSF Dahlgren Joint Land Use Study. King George County, Virginia would like to thank the following individuals for their review, guidance, and assistance:

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A

AA	Anti-Aircraft
AE	Ammunition and Explosive
APZ	Accident Potential Zone
ASMFC	Atlantic States Marine Fisheries Commission
ATRC	Aegis Training and Readiness Center

B

BGEPA	Bald and Golden Eagle Protection Act
BMD	Ballistic Missile Defense
BPRF	Blossom Point Research Facility

C

CAA	Clean Air Act
CBD	Chemical/Biological Defense
CDNL	C-Weighted Day-Night Average Levels
CEDS	Comprehensive Economic Development Strategy
CFR	Code of Federal Regulations
CIP	Capital Improvement Program
CO2	Carbon Dioxide
COA	Certificate of Authorization
COMREL	South Potomac Community Relations Council
CP	Comprehensive Plans

CSCS	Center for Surface Combat Systems
CTP	Consolidated Transportation Program
CWA	Clean Water Act
CZ	Clear Zone
CZMA	Coastal Zone Management Act
CZMARA	Coastal Zone Management Act Reauthorization Amendments

D

dba	A-weighted decibels
dBp	Peak Sound Level
DGIF	Department of Game and Inland Fisheries
DNL	Day-Night Average Sound Level
DNR	Department of Natural Resources
DOD	Department of Defense
DOE	United States Department of Energy

E

E3	Electromagnetic Environmental Effects
EA	Environmental Assessment
EAP	Encroachment Action Plan
EEA	Experimental Explosives Area
EIS	Environmental Impact Statement
EM	Electromagnetic
EMI	Electromagnetic Interference
EOD	Explosive Ordnance Disposal

EPA Environmental Protection Agency
ESA Endangered Species Act
ESQD Explosive Safety Quantity Distance

F

FAA Federal Aviation Administration
FCC Federal Communications Commission
FONSI Finding of No Significant Impact

G

GGRA Greenhouse Gas Emissions Reduction Act
GHG Greenhouse Gas

H

HUD United States Department of Housing and Urban Development

I

IBC International Building Code
ICUZ Installation Compatibility Use Zone
IDA Intensely Developed Area
IGA Intergovernmental Agreements
in Inches
INRMP Integrated Natural Resource Management Plan

J

JLUS Joint Land Use Study
JWAC Joint Warfare Analysis Center

L

LDA Limited Development Area
Ldn Day Night Average Sound Level
LDZ Lower Danger Zone
LOS Level of Service
LUPZ Land Use Planning Zone

M

MDZ Middle Danger Zone
MEA Maryland Energy Administration
mm Millimeters
MMIC Maryland Military Installation Council
MMtCO_{2e} Million Metric Tons of CO_{2e}
MOATS Maginot Open Air Test Site
MOU Memorandums of Understanding
MRA Military Review Area

N

NAAQS National Ambient Air Quality Standards
NACo National Association of Counties
NAICS North American Industry Classification System
NAVFAC Naval Facilities Engineering Command
NDW Naval District Washington

NEPA	National Environmental Policy Act
NEW	Net Explosive Weight
NGOs	Non-Governmental Organizations
NLR	Noise Level Reduction
nm	Nautical Miles
NNCBPAA	Northern Neck Chesapeake Bay Public Access Authority
NNCBRP	Northern Neck Chesapeake Bay Region Partnership
NNPDC	Northern Neck Planning District Commission
NNTC	Northern Neck Tourism Commission
NOAA	National Oceanic and Atmospheric Administration
NOSSA	Naval Ordnance Safety and Security Activity
NPDES	National Pollutant Discharge Elimination System
NSASP	Naval Support Activity South Potomac
NSF	Naval Support Facility
NSWC	Naval Surface Warfare Center
NSWCDD	Naval Surface Warfare Center Dahlgren Division
NTIA	National Telecommunications and Information Administration

O

OEA	Office of Economic Adjustment
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P

PC	Policy Committee
PDR	Purchase of Development Rights
PFA	Priority Funding Areas
POV	Privately Owned Vehicles
PRTR	Potomac River Test Range
PSA	Primary Settlement Area
PSC	Public Service Commission
PWSA	Ports and Waterways Safety Act

R

RCA	Resource Conservation Area
RDT&E	Research, Development, Testing, and Engineering
REPI	Readiness and Environmental Protection Initiative
RF	Radio Frequency
RFI	Radio Frequency Interference
RGGI	Regional Greenhouse Gas Initiative
ROD	Record of Decision
RPS	Renewable Energy Portfolio Standard
RSIP	Regional Shore Infrastructure Plan

S

SB	Senate Bill
SET	Stronger Economies Together
SIPs	State Implementation Plans
SIPS	Sound Intensity Prediction System
SRT	State Report on Transportation
SUA	Special Use Airspace

T

TAG	Technical Advisory Group
TIA	Transportation Impact Analysis
TOD	Transit Oriented Development

U

UAV	Unmanned Aerial Vehicle
UDZ	Upper Danger Zone

UGV	Unmanned Ground Vehicle
US	United States
USBC	Uniform Statewide Building Code
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
USV	Unmanned Surface Vehicle

V

VCERC	Virginia Coastal Energy Research Consortium
VDOT	Virginia Department of Transportation
VEZ	Virginia Enterprise Zone
VFR	Visual Flight Rules
VMRC	Virginia Marine Resources Commission

W

WPC	Waterfront Planned Community
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Military installations are critical to local economies, generating thousands of jobs and millions of dollars in annual economic activity and tax revenue. Historically, incompatible development has been a factor in the loss of training operations and restructuring of mission-critical components to other various military installations. To protect the missions of military installations and the health of economies and industries that rely on them, encroachment must be addressed through collaboration and joint planning between installations and local communities. This Joint Land Use Study (JLUS) attempts to facilitate the mitigation of future issues and improve coordination between the local communities and the Naval Support Facility Dahlgren (NSF Dahlgren).

NSF Dahlgren is situated in King George County Virginia on the Northern Neck of Virginia along the Potomac River. The installation is located on approximately 4,300 acres split between two tracts of land. The larger tract is referred to as Mainside and the small tract referred to as Pumpkin Neck Annex. The Pumpkin Neck Annex is also more commonly referred to as the Experimental Explosives Area (EEA).

The JLUS advocates a proactive approach to encourage increased communication about decisions relating to land use regulation, conservation and natural resource management issues affecting both the community and the military. This study seeks to avoid conflicts previously experienced between the United States (US) military and local communities in other areas of the US and throughout the world by engaging the military and local decision-makers in a collaborative multi-agency planning process.

What Is a Joint Land Use Study?

A JLUS is a planning process accomplished through the collaborative efforts of stakeholders in a defined study area. These stakeholders include local community, state, and federal officials, residents, business owners, nongovernmental organizations, and the military who come together to identify compatible land uses and growth management guidelines within, and adjacent to, active military installations. The intent of the process is to establish and encourage a working relationship among military installations and their proximate communities to act as a team to prevent and / or reduce encroachment issues associated with future mission expansion and local growth. Although primarily federally funded by the Department of Defense (DOD), Office of Economic Adjustment (OEA), a JLUS is produced by and for local communities. The project sponsor / grantee for the NSF Dahlgren JLUS is King George County, VA.

JLUS Goal and Objectives

The goal of the NSF Dahlgren JLUS is to protect the viability of current and future operations, while simultaneously guiding community growth, sustaining the environmental and economic health of the region, and protecting public health, safety, and welfare.

To help meet this goal, three primary JLUS objectives were identified.

- **Understanding.** Convene community and military representatives to identify, confirm, and understand the compatibility issues and concerns in an open forum, taking into consideration both the community's and military's perspectives and needs.

1. Naval Support Facility Dahlgren JLUS

- **Collaboration.** Encourage cooperative land use and resource planning among NSF Dahlgren and surrounding communities so that future community growth and development are compatible with the operational missions at NSF Dahlgren, while at the same time seeking ways to reduce operational impacts on adjacent land within the study area.
- **Actions.** Provide a set of mutually supported tools, activities, and procedures from which local jurisdictions, agencies, and NSF Dahlgren can select, prepare, and approve / adopt and to ultimately implement the recommendations developed during the JLUS process.

Why Prepare a Joint Land Use Study?

Although military installations and nearby communities may be separated by a defined property boundary they often share natural and manmade resources such as land use, airspace, water, and infrastructure. Despite the many positive interactions among local jurisdictions, agencies, and the military, and because so many resources are shared, the activities or actions of one entity can pose unintended impacts on another, resulting in conflicts. As communities develop and expand in response to growth and market demands, land use approvals have the ability to locate potentially incompatible development closer to military installations and operational areas. The result can initiate new, or exacerbate existing, land use and other compatibility issues, often referred to as encroachment, which can have negative impacts on community safety, economic development, and sustainment of military activities and readiness. This threat to military readiness is currently one of the military's greatest concerns.

Collaboration and joint planning among military installations, local communities, and agencies should occur to protect the long-term viability of existing and future military missions. Recognizing the close relationship that should exist between installations and adjacent communities, OEA implemented the JLUS program in an effort to mitigate existing and future conflicts and enhance communication and coordination among all affected stakeholders. This program aims to preserve the sustainability of local communities within the JLUS study area while protecting current and future

research, development, testing, and engineering (RDT&E) missions supported by tenant commands within NSF Dahlgren.

Public Outreach

The JLUS process was designed to create a locally relevant document that builds consensus and garners stakeholder support. To achieve the JLUS goals and objectives, the NSF Dahlgren JLUS process included a public outreach program that provided a variety of participation opportunities for interested parties to contribute.

Stakeholders

An early step in any planning process is stakeholder engagement. Informing or involving them early is instrumental to the identification and resolution of their most important issues through the development of integrated strategies and measures. Stakeholders include individuals, groups, organizations, and governmental entities interested in, affected by, or affecting the outcome of the JLUS document.

Policy Committee and Technical Advisory Group

The development of the NSF Dahlgren JLUS was guided by two committees, comprising town and county leaders, NSA South Potomac and NSF Dahlgren personnel, federal and state agencies, resource agencies, local governments, and other organizations including the Fredericksburg Regional Chamber of Commerce and Dominion Power.

JLUS Policy Committee (PC). The PC consists of officials from participating jurisdictions, military installation leadership, and representatives from other interested and affected agencies. The PC is responsible for the overall direction of the JLUS, preparation, and approval of the study design, approval of policy recommendations, and approval of draft and final JLUS documents.

JLUS Technical Advisory Group (TAG). The TAG is responsible for identifying and studying technical issues. Membership includes town and county planners, military base planners, business and development community

representatives, natural resource protection organizations, and other subject matter experts as needed to help assist in the development and evaluation of implementation strategies and tools. Items discussed by the TAG were brought before the PC for consideration and action.

Public Forums

In addition to the PC and TAG meetings, a series of public forums were held throughout the development of the JLUS. These forums provided an opportunity for the exchange of information with the greater community, assisted in identifying the issues to be addressed in the JLUS, and provided input on the proposed strategies. Each forum included a traditional presentation and a facilitated exercise providing a “hands on,” interactive opportunity for the public to participate in the JLUS development.



Presentation at Public Forum #2

Public Outreach Materials

JLUS Fact Sheet / Compatibility Factors Brochure. At the beginning of the JLUS project, a JLUS Fact Sheet was developed describing the JLUS program, objectives, an overview of the compatibility factors that would be analyzed throughout the project, methods for public input in the process, and background on NSF Dahlgren JLUS including a study area map. This Fact Sheet was made available at the meetings for review by interested members of the public.



FACT SHEET #1: OVERVIEW / COMPATIBILITY FACTORS

What Are the JLUS Objectives?

UNDERSTANDING. Increase communication between the military, local jurisdictions, and stakeholders to promote an understanding of the strong economic and physical relationship between the installation and its neighbors.

COLLABORATION. Promote collaborative planning between the military, local jurisdictions, and stakeholders that allows a consistent approach in addressing compatibility issues.

ACTIONS. Develop and implement strategies and tools for reducing the impacts of incompatible activities on the community and military operations. Design tools to support compatibility in the future.

What is a Joint Land Use Study?

A Joint Land Use Study (JLUS) is a cooperative land use planning effort conducted as a joint venture between an active military installation, surrounding jurisdictions, state and federal agencies, and other affected stakeholders. The Naval Support Facility (NSF) Dahlgren JLUS is funded by a grant from the Department of Defense (DOD) Office of Economic Adjustment (OEA) and contributions by King George County as the local project sponsor and project manager.

The JLUS effort can directly benefit both NSF Dahlgren and the surrounding region by:

- Protecting the health and safety of surrounding residents and workers;
- Preserving long-term land use compatibility between NSF Dahlgren and the surrounding communities;
- Promoting comprehensive community planning that addresses compatibility factors and issues;
- Encouraging a cooperative spirit between the military installation and community officials; and
- Coordinating and integrating the local jurisdiction growth policy plans with the installation's plans.

Why is it Important to Partner with NSF Dahlgren?

NSF Dahlgren is part of Naval Support Activity (NSA) South Potomac, which is a major shore command within Naval District Washington (NDW). NSF Dahlgren and NDW provide the facilities and personnel needed to respond to the continuing requirement to test and evaluate many weapons and platforms that are procured.

The 2012 economic impact of NSF Dahlgren combined with NSF Indian Head was over \$1.4 billion which was funneled directly into local economies in the form of payroll dollars and defense contracts. NSF Dahlgren directly employed about 7,800 employees, approximately 4,700 of which were federal civilian employees. Approximately 40 percent of NSF Dahlgren employees live in King George County with the remaining living in the other surrounding counties.

The five communities who are partnering with NSF Dahlgren to develop the JLUS include:

- King George County, Virginia
- Town of Colonial Beach, Virginia
- Westmoreland County, Virginia
- Charles County, Maryland
- St. Mary's County, Maryland

Who Will Guide the JLUS Development?

Two committees, comprised of city, county, military, and other stakeholders will guide the process and development of the NSF Dahlgren JLUS. Public involvement and feedback will also play a critical role in developing a feasible and successful JLUS. The two committees are:

Policy Committee (PC). The PC members include representatives from each of the participating jurisdictions (town and county), from the military, and other stakeholders. The PC is responsible for leading the direction of the JLUS and monitoring the implementation and adoption of policies and strategies.

Technical Advisory Group (TAG). The TAG is made up of representatives from local, regional, and state and federal agencies and individuals with technical expertise or local knowledge necessary to the development of the JLUS. The TAG identifies and addresses technical issues, provides feedback on report development, and assists in the development and evaluation of implementation strategies and tools. These stakeholders will also be engaged with the PC in an advisory role.

Public. The public can be involved in the development of the JLUS by providing input and guidance to the process, by informing the committee representatives of their concerns and recommendations, by submitting comments and feedback online at www.dahlgrenjlus.com, and by attending the public forums that will be held throughout the JLUS process.

Stay up-to-date on the NSF Dahlgren JLUS at www.dahlgrenjlus.com

NSF Dahlgren JLUS Fact Sheet #1

1. Naval Support Facility Dahlgren JLUS

Strategy Tools Brochure. JLUS strategies constitute a variety of actions that local governments, military installations, agencies, and other stakeholders can take to promote compatible land use planning. This brochure provides an overview of the strategy types that can be applied to address compatibility issues around NSF Dahlgren.

Website. A project website was developed and maintained that provided stakeholders, the public, and media representatives with access to project information. This website was maintained for the entire duration of the project to ensure information was easily accessible. Information contained on the website included program points of contact, schedules, documents, maps, public meeting information, and downloadable comment forms. The project website is located at www.dahlgrenjlus.com.

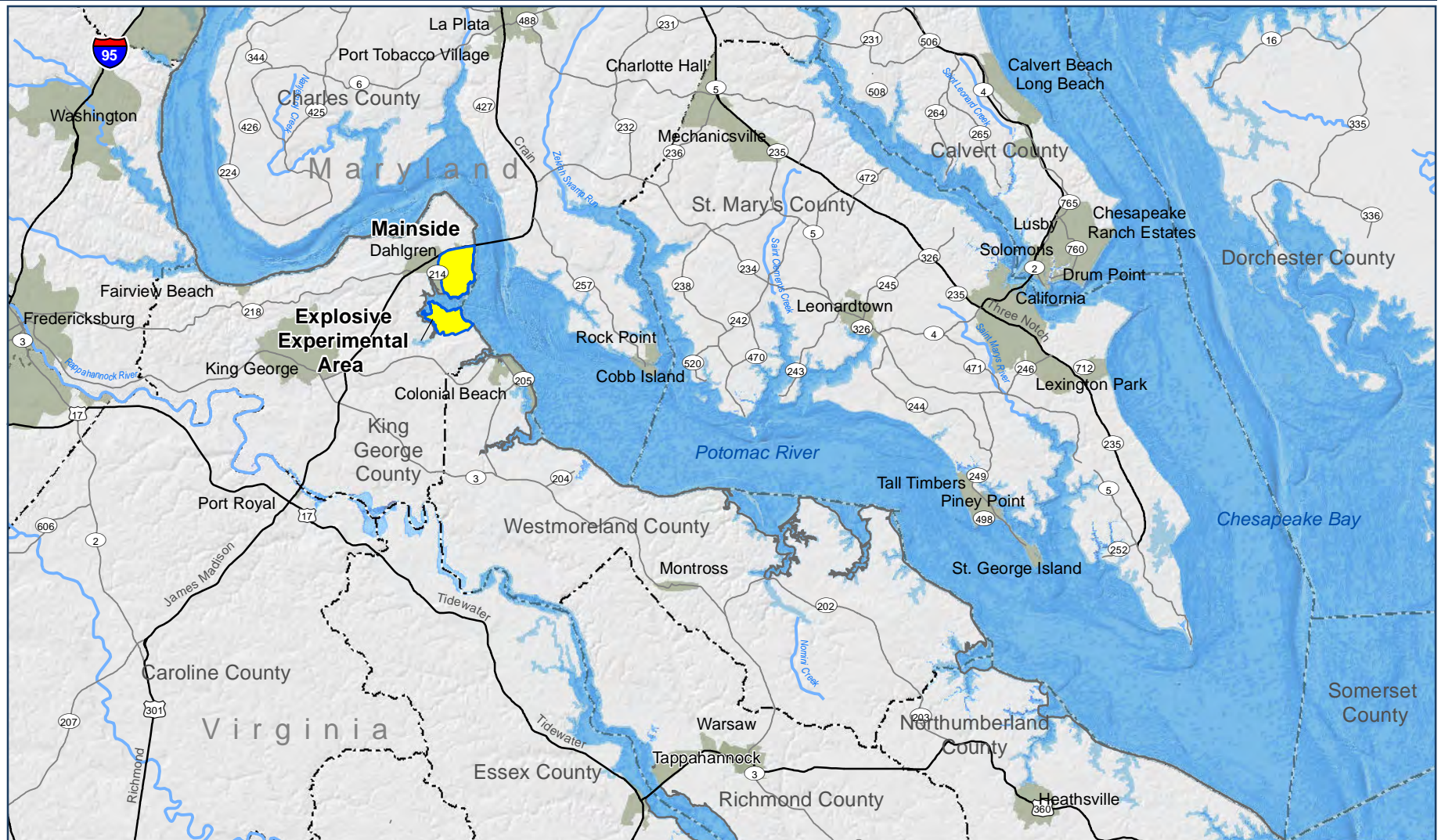


NSF Dahlgren JLUS Website

JLUS Study Area

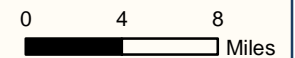
NSF Dahlgren is situated in the Northern Neck of Virginia, on two small peninsulas along the Potomac River. The installation comprises two areas referred to as Mainside and Pumpkin Neck Annex separated by the Machodoc Creek. The installation is located on approximately 4,300 acres within King George County, a primarily rural county.

The NSF Dahlgren study area is designed to address all areas near NSF Dahlgren that may impact current or future military operations or be impacted by operations. Due to its location and operations conducted over the Potomac River, the general JLUS study area was identified as the installation, the Potomac River Test Range (PRTR) including the Upper Danger Zone (UDZ), the Middle Danger Zone (MDZ), and the Lower Danger Zone (LDZ), and the surrounding jurisdictions of Charles County, MD; the Town of Colonial Beach, VA; King George County, VA; St. Mary's County, MD; and Westmoreland County, VA, depicted in Figure 1 below.



Legend

- Installation
- State/District Boundary
- County Boundary
- Town/Community
- Highway
- Major Road
- Water Body
- River



Source: Dahlgren NSF, 2013
 Fig1_NSF_Dahlgren_JLUSStudyArea_20141118_CJM.pdf

Figure 1: Joint Land Use Study Area

Please see the next page.



Regional Overview

The study area includes the jurisdictions of King George and Westmoreland counties and the Town of Colonial Beach in Virginia; and Charles and St. Mary's counties in Maryland. The landscape within the Study Area comprises coastal lowlands characteristic of the Chesapeake Bay and its tributaries. This area has been used for agriculture since the earliest settlements were established by English colonists in the 17th century. The area has largely maintained its rural nature with small towns located along state routes and US highways which run through the woodlands and farms of the Potomac River valley. The long peninsula on which NSF Dahlgren is located is part of the area known as the Northern Neck of Virginia.

Many jurisdictions within the study area have implemented urban growth control measures to maintain the rural nature of the area through their comprehensive plans and zoning ordinances. As the region's economy has shifted away from manufacturing, tourism has become an important source of jobs, which has supported these planning initiatives. Open space preservation has helped to preserve the rural and agricultural character of the area, which has made it an increasingly more attractive place for rural residential development and visitors alike.

King George County

King George County was formed in 1720 from parts of the upper portion of what was then Richmond County. The county then expanded to include Potomac River frontage in 1776. Throughout the 17th and 18th centuries, Virginia's agricultural economy was rooted in the plantation/ tobacco-farming system. Within the area later developed as the Dahlgren Naval Proving Ground, several plantations were present during this period. The area surrounding the future location of the community of Dahlgren

remained sparsely settled until the mid-19th century. By the 1860s, small settlements were concentrated along the Potomac River shoreline. During the Civil War, large portions of King George County were occupied by Union soldiers. A number of Confederate networks were also established in the county because of its riverfront location and proximity to Maryland.

The county is located between Stafford County to the west and Westmoreland County to the east, bordered by the Rappahannock River and Caroline County to the south, and the Potomac River to the north. The county is mostly rural in nature and host to NSF Dahlgren at its eastern edge along the Potomac River. The County had a population of 23,584 people in 2010. Major employers in the County include NSF Dahlgren, the King George County Public School Board, the County of King George, Wal-Mart, numerous Department of Defense contractors supporting NSF Dahlgren commands.

Sources: King George County Homepage, accessed November, 2013; Virginia Employment Commission, 2013; US Census 2010; NSWCDD, 1998; NSF Dahlgren and Engineering Field Activity Chesapeake, 2006

Westmoreland County

In 1651, what was the original Northumberland County, Virginia was divided into four new counties – Northumberland, Lancaster, Richmond and Westmoreland counties. By 1660, nearly all the waterfront property and much of the interior of the Northern Neck of Virginia had been settled.

Westmoreland County is located immediately southeast of NSF Dahlgren. The County is bordered by the Potomac River to the north, Northumberland County to the east, Rappahannock River and Richmond County to the south, and King George County to the west. The county was originally an area of widespread farming. During the 19th century, Westmoreland County's

2. Naval Support Facility Dahlgren JLUS

economy was (and still remains) primarily based in agriculture. However, one major economic generator for the county is the tourist destination of Colonial Beach. In recent years, the county has attracted new growth from expansion from the Washington, D.C. metropolitan area which continues to bring new residences to the County. Currently, farming, fishing, and lumber industries remain vital parts of the Westmoreland County economy. The county is working to diversify, bringing in new, small manufacturing businesses, and strengthening its ties with NSF Dahlgren. Historical tourism also provides a strong economic base for the county. There are two incorporated towns in the County – Colonial Beach and Montross (the county seat). The largest employers in the County today include the Westmoreland County School Board, the County of Westmoreland, Carry On Trailer Corporation, the Town of Colonial Beach School District, and Ingleside Plantation. The 2010 population in Westmoreland County was 17,454.

Sources: US Census 2010; Virginia Employment Commission, 2013; Westmoreland County Comprehensive Plan, 2010

Town of Colonial Beach

The Town of Colonial Beach began as a sun bathing and fishing resort in the 19th century, with visitors arriving by boat from Washington, DC. The Town was incorporated in 1892 and served as a docking location for ships bound from Baltimore, MD and Norfolk, VA to Washington, DC, which established a vibrant resort industry. The lure of beaches and waterfront property started a building boom of Victorian-style homes, summer cottages and large hotels. During the mid-to-late 20th century, Colonial Beach declined as vacationers' preferences changed in favor of ocean beach resorts rather than riverfront resorts. Economic decline was felt through the late-20th century with a decline in seafood harvesting and manufacturing, and the legalization of gambling. In more recent times, Colonial Beach has rebounded, based on its proximity to Washington, DC and Richmond, Virginia. The close proximity of NSF Dahlgren to the Town of Colonial Beach, located three miles to the northwest from the downtown area, has made it a major contributor to year round residents and economic activity. The expansion of the Washington, D.C. metropolitan area has again made the

town a popular vacation area, second home community, and retirement location. The 2010 population of Colonial Beach was 3,542.

Sources: Town of Colonial Beach Comprehensive Plan, 2009; U.S. Census 2010

Charles County

Charles County is located immediately north of NSF Dahlgren on the northern shore of the Potomac River. The county was established in 1658 by an Order in Council as part of the Maryland colony. The area historically served as a center for agriculture, but is experiencing development pressure from the expanding Washington, D.C. metropolitan area. The county's population was 146,551 in 2010 and is expected to continue to grow in coming years as one of the fastest growing counties in Maryland. Major employers in the county include the Charles County Board of Education, Naval Support Facility (NSF) Indian Head, the Charles County Government, and the College of Southern Maryland.

Sources: Draft Charles County Comprehensive Plan, 2014; Charles County Zoning Ordinance, 2010; Maryland State Archives Homepage; Maryland Department of Business and Economic Development, Brief Economic Facts Charles County, Maryland, 2013; Maryland Department of Labor, Licensing, and Regulation Labor Market Report, 2013; US Census 2010

St. Mary's County

First settled in 1634, St. Mary's County is located between the Patuxent River to the north, the Chesapeake Bay to the east, the Potomac River to the south, and Charles County to the west. The area is composed of rolling lowlands used for agriculture or forested areas and open space. State Routes 5 and 235 pass through the County and connect most of the towns and localities throughout the County. The county includes numerous bays and state parks which make it a frequent tourist destination and greatly contribute to the local economies, especially in recent years. Military, manufacturing, healthcare, and retail/accommodation (associated with tourism) are major industries in the county. Major employers include NAS Patuxent River, St. Mary's Hospital, DynCorp International, and BAE Systems. The 2010 population of St. Mary's County was 105,151.

Sources: St. Mary's County Comprehensive Plan, 2010; St. Mary's County Comprehensive Zoning Ordinance, 2013; Maryland Department of Business and Economic Development, Brief Economic Facts St. Mary's County, Maryland, 2013; Maryland Department of Labor, Licensing, and Regulation Labor Market Report, 2013; US Census 2010

Study Area Growth Trends

The following section provides a profile of the counties and communities in relation to population growth, housing, median home values, and economic growth trends. These trends illustrate the type of growth which has occurred in the region surrounding NSF Dahlgren and what may be anticipated to occur in the future. They provide valuable insight to determine where potentially incompatibilities between NSF Dahlgren and the communities may occur.

Population Trends and Projections

The population data used below is based on information obtained from the US Census Bureau. Population projections show the overall population trends in specific areas. This trend information assists policymakers in their efforts to make informed decisions about future planning and infrastructure development activities. Table 2-1 shows the population in 2000 and 2010 and the percent increase over the decade.

Table 1. Study Area Population from 2000 to 2010

Jurisdiction	2000	2010	2000-2010 Change
Maryland	5,296,486	5,773,552	9%
Charles County	120,546	146,551	22%
St. Mary's County	86,211	105,151	22%
Virginia	7,078,515	8,001,024	13%
King George County	16,803	23,584	40%
Westmoreland County	16,718	17,454	4%
Town of Colonial Beach	3,219	3,542	10%

Source: US Census Bureau, 2000- 2010

Economic Growth Trends

The Northern Neck and Chesapeake Bay area is host to a diverse local economy which includes traditional regional economic drivers such as manufacturing and farming, while emerging industries, including research, development, and tourism bring new growth, development, and wealth to the area. According to the North American Industry Classification System (NAICS), which classifies economic activity into major industries and provides employment estimates, the major industries by total employment in the study area include retail trade; professional, scientific, and technical services; healthcare and social assistance; and accommodation and food services.

Manufacturing played a significant role in the area during the 20th century but has continued to experience a substantial decline in recent years, with nearly each jurisdiction experiencing over a 50 percent reduction in manufacturing-based employment over the past decade. Westmoreland County is an exception to this trend as it has maintained a relatively stable number of manufacturing jobs with manufacturing being the second largest employment sector after government.

In addition, the region is experiencing resurgence in the tourism industry, which has led to an increase in the number of accommodation and food services jobs, which represent nearly 13 percent of total employment in the region.

The State of Virginia has initiated the Virginia Enterprise Zone (VEZ) to promote a partnership between state and local governments to encourage job creation and private investment in specially designated VEZs throughout the state. The Northern Neck Enterprise Zone includes an 11,000 acre area which was established to promote coordination between state and local government agencies to reward investment with grants and other incentives for development. Areas eligible for these incentives include parts of Westmoreland County and the Town of Colonial Beach – the former to receive infrastructure improvements to assist in the development of an industrial park. The Northern Neck Planning District Commission has already created the Comprehensive Economic Development Strategy (CEDS). This

plan seeks to improve coordination between private development, community leaders, educational institutions, and labor groups to promote economic development throughout the Northern Neck region.

Housing Trends

Housing trends are an important indicator of economic activity and vitality demonstrating the population growth or decline relative to new residential construction within an area. These trends also represent market decisions relative to home ownership versus rental properties and provide important indicators into the affordability of residential dwellings for military personnel associated with an installation. The rate of housing development is also a strong indicator of the overall rate of development taking place in a region, which may result in potential incompatible land uses relative to operations at NSF Dahlgren. Ultimately, housing trends potentially indicate future development and types of residential and commercial development. The following information illustrates the housing market trend including the value of existing housing units, the number of housing and construction permits issued at the county level with the study area, as well as military housing allowances in terms of BAH for NSF Dahlgren.

Current Development Overview within the Study Area

Areas immediately surrounding NSF Dahlgren include the unincorporated community of Dahlgren and the commercial corridor along US Highway 301. These are the most urbanized areas of King George County and the areas targeted for additional growth per the county comprehensive plan. The Dahlgren community is situated immediately west of the NSF Dahlgren fence line. With a population of 2,655 as of the 2010 Census, Dahlgren is characterized by single-family residential development, a small commercial core, with the primary artery through the heart of the community – Dahlgren Road, terminating at the NSF Dahlgren main gate.

Outside of the Dahlgren community and US Highway 301 corridor, the majority of land surrounding NSF Dahlgren is rural, comprising agricultural, forestland, and low density residential uses. Further west of the installation on Interstate-95 lies Fredericksburg, which is the largest incorporated city close to the installation, where higher density development occurs.

The area north, west, and south of NSF Dahlgren includes area in King George County and Westmoreland County including the Town of Colonial Beach. Most of the area in these two counties is zoned for agricultural uses or rural residential. The Town of Colonial Beach is located approximately three miles to the southeast on the southern shores of the Potomac River which includes more concentrated residential and commercial development.

NSF Dahlgren is bounded to the east by the Potomac River. The land east of the river is under the jurisdiction of Charles and St. Mary's counties in the state of Maryland. These counties are predominately rural in character with limited development in districts along major highways and arterials. Some of the larger communities in the area include the towns of La Plata and Leonardtown, and the unincorporated communities of Waldorf, Lexington Park, Great Mills, California, and Hollywood.



Introduction

Identifying and describing the various activities performed on the military installation provides valuable insight into the importance of NSF Dahlgren as a strategic national defense asset. This information enables stakeholders to make informed decisions about the future development of NSF Dahlgren and the economic growth of the communities within significant proximity of the installation, which could potentially impact the existence and future role of the facility.

NSF Dahlgren Economic Benefit

NSF Dahlgren is located in King George County, Virginia, along the Potomac River. In addition to its strategic military value, NSF Dahlgren contributes to both the local and regional economy, serving as one of the largest employers in King George County and the surrounding area. For fiscal year 2013, commands located within NSF Dahlgren generated over \$1 billion in regional economic benefit.

Source: 2014 Profile- Naval Support Facility Dahlgren

Installation Setting

NSF Dahlgren encompasses over 4,300 acres of land that is split between two tracts in King George County, Virginia, separated by Upper Machodoc Creek. The larger of the two tracts, referred to as Mainside, consists of approximately 2,680 acres bounded by the community of Dahlgren to the west, Upper Machodoc Creek to the south, the Potomac River to the east, and US Route 301 to the north. The smaller tract, known as the Pumpkin Neck Annex or the Explosives Experimental Area (EEA), is a 1,641-acre peninsula located across Upper Machodoc Creek from Mainside.

Approximately 40 percent of Mainside is composed of residential and developed areas, located in the area's southern portion. The northern and western portions of Mainside contain large blocks of forest, an airfield, and designated locations where explosives are handled, tested, and stored at controlled locations. Facilities at Mainside are used primarily for administration, research and development, housing, and community support activities.

There are five land ranges located along the eastern edge of Mainside that are part of the PRTR. From north to south, these ranges consist of the Missile Test Range, Terminal Range, Main Range, Anti-Aircraft (AA) Fuze Range, and Machine Gun Range.

The EEA is located to the south of Machodoc Creek on Tetotum Flats. It is primarily used for research, development, testing, and evaluation (RDT&E) and as well as the storage of ammunition and explosives (A&E). The site is mostly undeveloped and wooded to provide a safe environment for the testing of explosives. Approximately eight percent of the EEA consists of developed areas that provide support for testing activities. Two large open field test areas are located in the center of the EEA which are primarily used for the testing of A&E.

Source: NSF Dahlgren Master Plan, September 2011

Military Mission and Commands

NSF Dahlgren is one of two installations under the Naval Support Activity (NSA) South Potomac, with Naval District Washington regional installations including NSF Indian Head in Maryland. Naval District Washington is the broader regional entity whose mission is to strengthen the operational readiness of its shore installations, provide ceremonial support for Navy and

national leadership, and support Joint Force Headquarters National Capital Region. Regional activities include Naval Air Station Patuxent River, NSA Annapolis, NSA South Potomac, NSA Bethesda, Joint Base Anacostia-Bolling, and NSA Washington.

NSA South Potomac Mission

NSA South Potomac's mission is to sustain combat readiness through effective and efficient management of land and facilities and support of NSF Dahlgren tenant commands. NSA South Potomac serves as host command and provides a variety of support functions at NSF Dahlgren.

Supported Commands

Current supported commands located at NSF Dahlgren include the Naval Surface Warfare Center Dahlgren Division (NSWCDD), Navy Air and Missile Defense Command, Aegis Ballistic Missile Defense, the Center for Surface Combat Systems (CSCS), the Aegis Training and Readiness Center (ATRC), the Joint Warfare Analysis Center (JWAC), and the US Air Force 614th Air and Space Operations Center, Detachment 1.

Naval Surface Warfare Center Dahlgren Division

The NSWCDD is the premier naval scientific and engineering institution and the largest mission-oriented supported command at NSF Dahlgren. Its mission is to provide RDT&E for weapons, combat, and warfare systems for the Navy, Joint Forces, and the nation. The NSWCDD also provides systems engineering, including systems integration and certification for weapons, and executes other responsibilities as assigned by the Commander, Naval Surface Warfare Center. Their vision is to be the Navy's leading warfare system architect and system engineer, recognized as the technical leader in delivering innovative, affordable, and effective solutions for the Navy, Joint Forces, and the nation.

Navy Air and Missile Defense Command

Navy Air and Missile Defense Command was established in 2009 and is the Navy's primary authority and lead organization for naval, joint, and coalition integrated air and missile defense matters.

Aegis Ballistic Missile Defense

The Aegis BMD is the Navy's element of the Department of Defense (DOD) Missile Defense Agency and a field activity of the Naval Sea System Command. The program office is responsible for Aegis BMD program and system integration; shipboard installation; and test and certification for engagement capability against short- and medium-range ballistic missiles.

Center for Surface Combat Systems

The CSCS was established at Dahlgren in September 2004 to develop and deliver surface ship combat systems training to achieve surface warfare superiority. CSCS uses a mix of blended learning made up of instructor led classes, hands-on labs, simulation and computer-based training.

Aegis Training and Readiness Center

The ATRC is a component of the CSCS. Its mission is to provide enlisted personnel with the knowledge, ability, and skill to operate and maintain the Aegis Combat System through timely, effective, and integrated training and to provide officers the knowledge, ability, and skill to operate, employ, and assess the readiness of the Aegis and Ship Self Defense System aboard surface warships. The ATRC offers technical training courses specifically designed to prepare individuals to serve in a combat system role and support the shipboard technologies implemented by Aegis BMD.

Joint Warfare Analysis Center

The JWAC provides combatant commands, Joint Staff, and other customers with precise technical solutions for implementing national security and military strategies. The JWAC is a joint subordinate command of US Strategic Command based in Omaha, Nebraska, and serves as a premier science and engineering agency contributing to national security. JWAC develops and adapts modeling and simulation technologies for analysis, computation, and presentation of response options to combatant commanders, the Joint Staff, and other customers through partnerships with DOD and industry technology centers.

US Air Force 614th Air and Space Operations Center, Detachment 1

The 614th Air and Space Operations Center, Detachment 1 is responsible for providing space command and control and space superiority for US forces as well as space situational awareness to government and civilian customers.

Sources: Readiness and Environmental Protection Integration; NSF Dahlgren Master Plan, September 2011

Military Operations

NSF Dahlgren hosts nearly a dozen tenants and supporting organizations including an RDT&E facility which tests a variety of weapons systems. Mission activities include the use and detonation of ordnance, high-powered electromagnetic (EM) energy systems, high-power lasers, and chemical / biological simulants. The use and testing of these systems helps to ensure their safe operation for the users, while developing and improving upon better delivery systems and accuracy of weapons.

Source: NSWCDD RDT&E Final Environmental Impact Statement, 2013; NAVSEA Range Condition Assessment Report, 2010

NSF Dahlgren Mission Footprint

Mission and training activities within NSF Dahlgren generate a number of impacts that can affect the health, safety, and overall quality of life in the surrounding community. Examples of these mission impacts include noise and vibration overhead from weapons testing or the risk of a vessel or aircraft accident. Conversely, the military mission is susceptible to hazards created by certain nearby civilian activities and land use development that may obstruct air space, waterways, locate noise sensitive uses in high noise zones, or allow for the gathering large numbers of people in areas deemed vulnerable to potential safety incidents.

A military mission footprint is described as the area outside the installation boundaries on which military activities can have an impact or be impacted by civilian uses. Several elements or mission profiles comprise the mission footprint that extends outside NSF Dahlgren's boundaries. The following

outlines the different elements or mission profiles that contribute to the NSF Dahlgren footprint in support of the NSWCDD Mission.

Potomac River Test Range Complex

The PRTR Complex, managed by NSWCDD, consists of 715 acres of land and 169 square nm of water test areas that support RDT&E of warfare systems integration, ordnance, lasers, EM energy, sensors, unmanned systems, and chemical simulants. The PRTR allows for the safe conduct of testing in a realistic, controlled environment, effectively serving as a "ship on shore" space to collect real-time data from a number of instrument stations.

The PRTR includes leased range stations that are strategically placed along the Potomac River. Many of these range stations are located on private and federal land that is leased to NSWCDD. The range stations are used to collect key test and evaluation information and are vital in supporting safe operations during ordnance testing. Also, many of the range stations have sound monitoring equipment for collecting sound data to assist in sound management, improve real time sound monitoring, and identify other factors associated with sound propagation.

Water Ranges

The water portion of the range is 51 nautical miles (nm) long, covers 169 square nm, and is divided into three danger zones – the upper danger zone (UDZ), middle danger zone (MDZ) and lower danger zone (LDZ). They are each designated on nautical charts and divided as such for the purposes of managing the degree of waterway restriction required to allow for safe conduct of military operations. These zones only denote geographic location, not varying levels of danger.

Sources: NSWCDD RDT&E Final Environmental Impact Statement, 2013

Special Use Airspace

While NSF Dahlgren is not designated as an air station and accommodates minimal flight activity, Special Use Airspace (SUA) areas have been established by the Federal Aviation Administration (FAA) for the purpose of preventing hazards to aircraft from NSWCDD's RDT&E activities. The SUA areas are necessary to restrict air traffic over a portion of both the PRTR and the EEA.

Ordnance Systems

When RDT&E events are scheduled, the river range in use is closed to vessel traffic. The range operations center works with vessel operators to minimize delays by allowing transit during pauses in operations.

Activities involving the use of NSWCDD's large caliber guns located at NSF Dahlgren mainly fire inert (non-explosive) projectiles; however, the firing of live (explosive) projectiles into the Potomac River is also conducted. Live projectiles produce noise both at the gun when they are fired and at the target downriver when they detonate. Inert projectiles only produce noticeable noise at the gun when they are fired. There is no set standard for labeling ammunition size, so the caliber of ammunition can be labeled in both millimeters (mm) and inches (in); often determined by the manufacturer. For the purposes of consistency, the size of ammunition will be labeled in mm (inches) throughout this JLUS. The guns range in caliber from more than 20mm (0.8 inches) up to 203mm (8 inches).

Large Caliber Arms

There are a variety of guns that are fired at NSF Dahlgren annually. These operations are conducted on and from the land ranges of the PRTR Complex and other firing ranges along the installation.

Small Caliber Arms

The firing of these guns can take place on any of the ranges, but primarily takes place on the Machine Gun Range, AA Fuze Range, and Main Range. In addition to the small arms operations, the Machine Gun Range is used to test the penetration of light armor materials and of primers (caps or tubes containing a small amount of explosive used to detonate the main explosive

charge of a firearm). Active gun mounts can be found on a wide variety of small caliber handguns, machine guns, and rifles.

Unmanned Systems

Various types of unmanned systems such as unmanned, self-propelled aerial, terrestrial, sea-borne, or submersible platforms that operate without a human being positioned on or within the vehicle/platform are used to perform various components of the range operations.

Unmanned Aerial Vehicles

NSWCDD uses unmanned aerial vehicles (UAVs) for various RDT&E functions as a platform for weapons-system integration by NSWCDD. UAVs can be used for targeting, reconnaissance, surveillance, and communications relay. These vehicles can also carry lasers, radar, and ordnance. The UAVs that are used by NSWCDD are on a smaller scale, from micro air vehicles, that can be carried by personnel and assembled and launched by hand to the Tiger Shark, with a wingspan range of 17 to 21 feet and a weight of 400 pounds. There are two UAV runways located at NSF Dahlgren on the Terminal and Churchill Ranges. These runways are dedicated to UAV operations and operating aircraft are only permitted to fly within the SUA. Other operating restrictions include an altitude of 2,000 to 3,000 feet although an altitude of 5,000 feet is allowed in selected areas.

Unmanned Surface Vehicles

An unmanned surface vehicle (USV) is an unmanned boat or amphibious craft that can travel on the surface of the water. Some of the watercraft that the NSWCDD maintains at NSF Dahlgren can be used as USVs. Operations involving USVs include testing their ability to be detected and scanned by radar, their reaction to counter-terrorism measures, or to the ability to disable their equipment, stop them, or destroy them. USVs may be used as one component in tests of integrated warfare systems.

Unmanned Ground Vehicles

Unmanned ground vehicles (UGVs) refer to vehicles that travel on the land surface and are operated autonomously or through remote control. NSWCCD uses UGVs as platforms for sensors and weapons on the land ranges and the Mission Area. UGVs are used to gain information about an area that may be dangerous for personnel to access and relay the information back remotely. Some UGVs can be fitted with weaponry to remotely fire on targets in areas unsafe for warfighters.

Manned Vehicles

Manned ground, water, and air vehicle operations occur at NSF Dahlgren. No manned aircraft are currently stationed at NSF Dahlgren, but occasional access to the installation to perform testing operations may occur. Air operations at NSF Dahlgren typically involve the aircraft flying into the SUA to test a sensor system either onboard the aircraft or on the ground. Fixed-wing aircraft used in RDT&E activities do not land on NSF Dahlgren's airfield, which currently is closed for fixed-wing aircraft landings. Helicopters on occasion may transport personnel and in one recent instance the US Marine Corps used the airfield for landing and takeoff training.

Noise Contours

Measurements of Noise

A number of factors affect sound as it is perceived by the human ear. These include the actual level of noise, the frequencies involved, the period of exposure to the noise, and changes or fluctuations in noise levels during exposure. The most common noise frequency-weighting measurements that are related to operations at NSF Dahlgren include the following:

- **A-weighted Scale** – The human ear cannot perceive all pitches or frequencies equally; therefore, measures can be adjusted, or weighted, to compensate for the human lack of sensitivity to low-pitched and high-pitched sounds. This adjusted measurement unit is known as the A-weighted decibel.

The A-weighted decibel is used to evaluate noise from transportation activities (traffic and aircraft) and from small arms firing. It is commonly expressed as an A-weighted sound exposure level.

- **C-weighted Scale** – The C-weighted scale measures more of the low-frequency components of noise than does the A-weighted scale. This unit (C-weighted decibel) is used for evaluating impulse noise and vibrations generated by heavy weapons such as artillery, mortars, and explosive charges. C-weighted noise levels are often expressed as a C-weighted sound exposure level.
- **Peak Sound Level** – The peak sound level (dBP) is a flat-weighted scale that can be used to measure noise from small arms (less than or equal to 20 mm) firing, heavy artillery, and explosives.
- **Day-Night Sound Level** – The day-night average sound level (DNL) is useful to account for the difference in response to noises that occur during sleeping hours as compared to waking hours. This indicator is defined as the average sound level in decibels during a 24-hour period, with a 10-decibel weighting (penalty) applied to nighttime sound levels. The 10-decibel nighttime weighting accounts for the fact that noises at night sound louder because of the typically quieter environmental conditions at that time.

Noise Zones

Noise impacts can be caused by various sources such as the firing of a weapon or the explosion and detonation of a projectile. The Navy considers the operational impacts on the local community by calculating the DNL. The DNL is used as a metric for evaluating the combined effects of noises from both aircraft and gun firing. To assist the communities in land use decisions, the DOD uses varying decibel noise zones to illustrate the exposure to noise associated with different activities. Noise zones are developed based on annual average noise, measured in C-Weighted Day-Night Average Levels (CDNL). A general definition of the noise zones are:

3. Naval Support Facility Dahlgren JLUS

- **Noise Zone I** – Noise Zone I is an area in which DNL is lower than 62 dB CDNL for large caliber weapons. Sound attenuation is typically not required within this zone as all types of land use are generally acceptable.
- **Noise Zone II** – Noise Zone II is an area where the noise is between 62 dB CDNL and 70 dB CDNL for large caliber weapons. This zone is considered to have moderate noise exposure and requires some land use noise control.
- **Noise Zone III** – Noise Zone III is an area around the source of noise in which the DNL is greater than 70 dB CDNL for large caliber weapons. This zone is considered an area of severe noise exposure and requires the greatest degree of land use noise control. It is recommended that no noise-sensitive land uses be developed within this zone.
- **Land Use Planning Zone** – The Land Use Planning Zone includes the noise contour where noise is between 57 to 62 dB CDNL and represents an annual average that separates the Noise Zone II from the Noise Zone I. Some uses that are more noise-sensitive may be recommended to include sound attenuation if developed in this zone.

Potomac River Test Range Noise Contours

There are two types of noise resulting from range activities that add to ambient noise levels.

- **Ammunition and Explosives Tests** – Impulse noise (sudden, short-duration, and sharp noise) occurs from small arms firing, large caliber gun firing, and explosive detonations on the EEA and PRTR range complexes.
- **Aircraft Flights** – Noise is generated from helicopters using the NSF Dahlgren airfield, aircraft brought from other installations to be used in tests, and UAVs launched from the land ranges of the PRTR Complex and the EEA Complex and flown within the SUA.

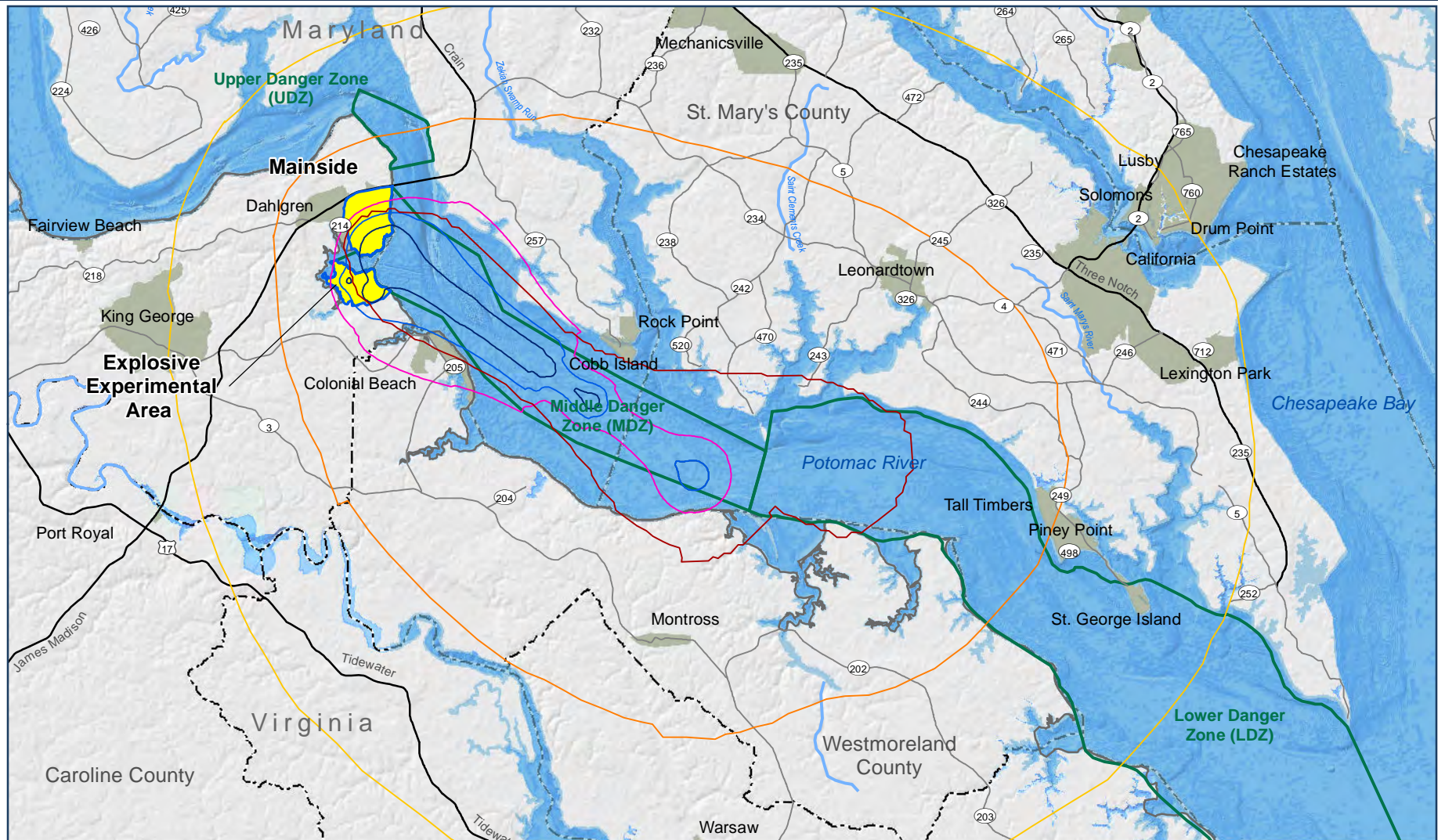
Impulse noise at NSF Dahlgren, which consists of almost instantaneous sharp sounds, is caused in part by large caliber gun and small arms firing in the PRTR. This firing includes that of an electromagnetic launcher. As shown on Figure 2, most Noise Zone III ADNL noise contours are contained within the installation and the PRTR MDZ and LDZ. As shown, noise contours for Noise Zone II extend slightly beyond NSF Dahlgren and the MDZ.

In addition to the standard noise contours identified using DOD guidance, composite peak noise contours that extend beyond the PRTR and over portions of King George, Westmoreland, Charles, and St. Mary's counties have been identified by NSWCDD. The peak noise contours account for events when noise levels and disturbances may be exacerbated by an increase in testing and other environmental conditions that affect the propagation of noise. The composite peak noise contours as illustrated on Figure 2 indicate that:

- The noise level area of 130 dBP (i.e. high risk of complaint) extends off the installation over land immediately adjacent to the PRTR MDZ, such as Potomac Beach, Colonial Beach, Swan Point, Cobb Island, and Coltons Point.
- The 115 – 130 dBP exterior noise area encompasses almost all the areas along the Potomac River adjacent to the MDZ within approximately 10 miles of the river. Within this contour area, moderate noise complaints can be anticipated.

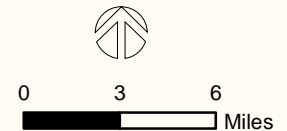
Although these composite noise contours are associated with risk of noise complaints rather than a classified noise zone associated with average noise levels, they are important to recognize as impacts resulting from both current and the potential expansion of mission to the community.

Source: NSWCDD RDT&E Final Environmental Impact Statement, 2013



Legend

Test Range Noise Contours	Peak Noise Test Range Noise Contours	Potomac River Range	County Boundary	Major Road
57 dB (Noise Zone I)	115 dB	Installation	Town/Community	Water Body
62 dB (Noise Zone II)	120 dB	State/District Boundary	Highway	River
70 dB (Noise Zone III)	130 dB			



Source: Dahlgren NSF, 2013
 Fig2_NSF_Dahlgren_Range_Noise_Military_Footprint_20141118_CJM.pdf

Figure 2: Range Noise Military Footprint

Explosive Experimental Area

Noise Contours

Impulse noise at NSF Dahlgren is caused in part by explosive detonations and munitions firing on the EEA ranges. All noise contours for Noise Zones II and III are contained within the individual firing ranges on the installation.

Source: NAVSEA RDT&E Final Environmental Impact Statement, 2013

NSF Dahlgren Airfield

NSF Dahlgren has one airstrip - Runway16/34, which is classified as a Class A runway suitable for use by small light aircraft. Current use of the airfield is restricted to daytime visual flight rules helicopter use of the helipad and support of RDT&E testing. No fixed-wing aircraft are allowed to use the runway in its current state. The runway is also used for non-aeronautic mission activities such as motorcycle training, storage, and parking.

Source: NSF Dahlgren Master Plan, September 2011

Airfield Safety Zones

Active runways have associated safety zones to limit and guide development to enable the provision of safety of the public and pilots while simultaneously allowing for continued community economic growth in areas around an airfield. Safety zones are divided into a Clear Zone (CZ), Accident Potential Zone I (APZ I) and Accident Potential Zone II (APZ II). Safety zones are developed based on historical data indicating the most likely place for an aircraft accident to occur. While an accident is unlikely to occur, the majority of aircraft accidents have historically occurred within safety zones on aircraft approach or departure. General guidelines have been developed to manage and minimize certain types, densities, and intensities of land uses within these safety zones.

Since the runway at NSF Dahlgren is not currently used for fixed-wing aircraft, it does not have associated safety zones. Safety zones could be estimated based on other similar size and class runways; however in order to have the most accurate information, the Navy would need develop safety

zones based on the type of flight operations and flight path of aircraft that use the runway.

Bird/Aircraft Strike Hazard

The Bird / Wildlife Aircraft Strike Hazard (BASH) area comprises an additional safety zone around the airfield. NSF Dahlgren has a variety of facilities and natural areas that inadvertently provide ideal habitat for a variety of wildlife. NSF Dahlgren has adopted a BASH Plan to reduce exposure to bird and wildlife hazards on and around the airfield which has resulted in minimal strike incidents. The FAA has identified a five-statute-mile area radiating outward from an airfield where birds and wildlife pose the greatest safety risk to aircraft. Referred to as the BASH relevancy area, this area is identified in Figure 3.

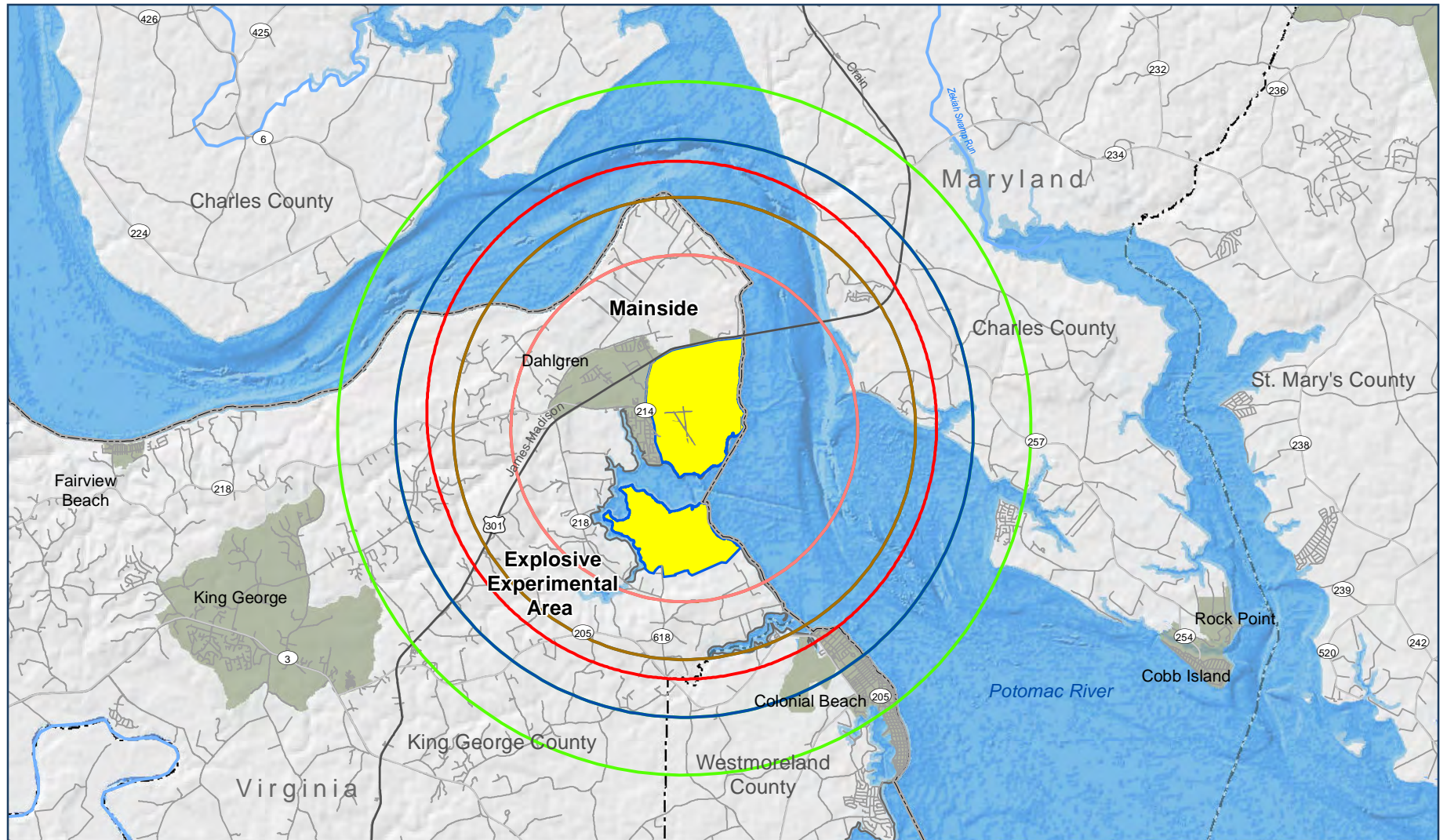
Airfield Noise Contours

The two main sources of aircraft noise at NSF Dahlgren are from helicopter and UAV activities. Due to the low number of flight operations at the facility, aircraft / helicopter flights do not generate noise contours above 65 ADNL. UAVs generate the most amount of noise when they fly near the ground during takeoff and landing. The largest size UAV generates noise levels of approximately 80 ADNL; however these noise contours have not been formally designated or identified by the installation to date.

Sources: NAVSEA RDT&E Draft Environmental Impact Statement, 2012

Airfield Imaginary Surfaces

Imaginary surfaces are designated around active runways to determine and identify where vertical obstructions could exist in the vicinity of aviation operations. The various imaginary surfaces build upon one another and are designed to eliminate obstructions to air navigation and operations, either natural or man-made. The extent or size of an imaginary surface depends on the type of runway. Since the runway is not currently used for fixed-wing operations, it does not have imaginary surfaces that extend outside the installation property.



Legend

- | | | | |
|----------------------------|---|-------------------------|------------|
| 5-mile BASH Relevancy Area | FAA Part 77 Vertical Obstruction Consideration Up to 200' @ 3NM | Installation | Highway |
| Up to 300' @ 4NM | Up to 400' @ 5NM | State/District Boundary | Major Road |
| Up to 500' @ 6NM | County Boundary | Town/Community | Water Body |
| | | | River |

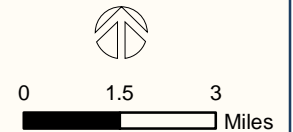


Figure 3: Safety and Vertical Obstruction Military Footprint

Source: Dahlgren NSF, 2013
 Fig3_NSF_Dahlgren_SafetyVert_Military_Footprint_20141118_CJM.pdf

Federal Aviation Act (Part 77) Obstruction Evaluation

Separately from and in addition to the imaginary surfaces, the FAA has established guidance to reduce the potential for accidents surrounding an airfield. This guidance is used to conduct obstruction evaluations based on heights of structures within concentric rings radiating from an airfield at specific distances and heights. Figure 3 illustrates the FAA Part 77 obstruction evaluation area for the NSF Dahlgren airfield.

Explosive Safety Quantity Distance Arcs

An Explosive Operating Location (EOL), such as a magazine, transfer point, operating building or range will normally cast an Explosive Safety Quantity Distance (ESQD) arc. The ESQD arc size and symmetry is dependent upon the function of the EOL and the quantities/types of explosives permitted at the EOL. Over half of the land at NSF Dahlgren must take ESQD arcs into consideration for planning and construction. The ESQD arcs do not extend off the installation and therefore do not create increased risks to local communities. ESQD arcs are generally concentrated around the ordnance and RDT&E uses.

ESQD arcs are normally concentric in shape, and are typically cast from the corners of an EOL; they provide a safety buffer to mitigate the harm an unplanned detonation could cause to personnel or adjacent structures. The radius of each ESQD arc is determined by both the operation and the net explosive weight of the material at the site.

The ESQD arcs at NSF Dahlgren are generally concentrated around the A&E and RDT&E use areas. Some of these arcs overlap with the northern portions of the airfield on Mainside.

On Mainside, ESQD arcs surround the five A&E storage areas. Additional arcs also emanate from explosive transfer points on loading docks and piers and from intentional detonation points.

On the EEA, ESQD arcs mostly emanate from numerous intentional detonation points from the Churchill and Harris test areas, but arcs are also cast from magazines and explosive operating buildings as well. Portions of

these ESQD arcs extend over the waters of Machodoc Creek and the PRTR. When activities occur that are associated with these arcs extend into the waters of the creek, range control utilizes cameras and/or boats monitor boat traffic to prevent encroachment.

It is important to note that while there is no immediate risk of munitions detonation in the area of the ESQD arcs, impacts from a potential event could be experienced off installation near this area as explosives impacts do not cease at an imaginary boundary line.

Sources: NSF Dahlgren Master Plan, September 2011; NSWCCD RDT&E Final Environmental Impact Statement, 2013



Introduction

This section provides an overview of these existing compatibility tools currently used or applied in evaluating and addressing compatibility issues in the NSF Dahlgren Joint Land Use Study (NSF Dahlgren JLUS) study area. Relative to compatibility planning, there are a number of existing plans and programs that are either designed to address compatibility directly or that indirectly address compatibility issues through the topics they cover.

Federal

Chesapeake Bay Protection and Restoration Program

Executive Order 13508 was signed in May 2009 creating a Federal Leadership Committee to oversee the development of planning processes and research centered on preserving and protecting the Chesapeake Bay. The program works as an extension of the Clean Water Act (CWA) in bringing multiple federal agencies together in six states and the District of Columbia to protect the Chesapeake Bay. As part of the headwaters of the Bay, NSF Dahlgren complies with the plans and policies surrounding water quality and habitat preservation measures outlined in the Chesapeake Bay Action Plan and subsequent Annual Progress Reports.

Clean Air Act

The Clean Air Act (CAA) is the comprehensive federal law that regulates air emissions from stationary and mobile sources in order to control air pollution in the United States. Under the CAA, the U.S. Environmental Protection Agency (EPA) establishes limits on six criteria pollutants through the National Ambient Air Quality Standards (NAAQS). Standards are set to protect public health and public welfare. The CAA also gives EPA the authority to limit emissions of air pollutants coming from sources like

chemical plants, utilities, and steel mills. Individual states may have stronger air pollution laws, but they may not have weaker pollution limits than those set by EPA. Under the law, states have to develop State Implementation Plans (SIPs) that outline how each state will control air pollution under the CAA.

Clean Water Act

The CWA governs the management of water resources and controls and monitors water pollution in the U.S. The CWA establishes the goals of eliminating the release of toxic substances and other sources of water pollution to ensure that surface waters meet high quality standards. In so doing, the CWA prevents the contamination of nearshore, underground and surface water sources. Numerous extensions of the Act have been created, including the Chesapeake Bay Protection and Restoration Program and the National Pollution Discharge Elimination System.

Coastal Zone Management Act of 1972

The Coastal Zone Management Act (CZMA) of 1972 (16 U.S.C. § 1451, et seq., as amended) encourages states, in cooperation with federal and local agencies, to develop land and water use programs in coastal zones. The CZMA provides a procedure for states to review federal actions for consistency with their own approved coastal management program, and it also provides approved states with matching federal funding to administer their programs.

Department of Defense Energy Siting Clearinghouse

Section 358 of the 2011 National Defense Authorization Act pertains to studying the impacts of the development of new energy production facilities on military operations and readiness. The Energy Siting Clearinghouse serves to coordinate the DOD review of existing applications for energy projects. Several key elements of Section 358 include designation of a senior official and lead organization to conduct the review of energy project applications, a 30-day time frame for completion of a hazard assessment associated with an application, specific criteria for DOD objections to projects and a requirement to provide an annual status report to Congress. This legislation facilitates procedural certainty and a predictable process that promotes compatibility between energy independence and military capability.

Integrated Natural Resources Management Plans

The Sikes Act Improvement Act of 1997 requires every DOD installation located in the U.S. to prepare, maintain, and implement an Integrated Natural Resources Management Plan (INRMP). An INRMP is prepared by the secretary of every military service and military installation in cooperation with the USFWS and State fish and wildlife agencies.

Navy Encroachment Management Program

An Encroachment Action Plan (EAP) is an important tool that is developed as a blueprint for an installation or range's Encroachment Management Program. An EAP is designed to identify, quantify, assess, and provide recommendations to mitigate or prevent encroachment impacts around Navy installations.

Noise Control Act of 1972

The Noise Control Act of 1972 determined that noise not adequately controlled has the potential of endangering the health and welfare of the people. It states that all Americans are entitled to an environment free from noise that can jeopardize their general health and quality of life. Along with state, local, and territorial governments, actions from the federal government were needed to ensure that the objectives of the Act were met.

Telecommunications Act of 1996 and the Federal Communications Commission

The Telecommunications Act of 1996 was the first comprehensive update to a federal telecommunication law in over 60 years and was in large part intended to open up the marketplace to greater competition. Changes in the means through which information is produced, accessed, stored, and shared made the federal government response imperative. The increasing use and development of personal mobile phones, satellite transmission, high speed fiber optics, and other related factors are often pushing demand beyond the system capacity.

New telecommunication tower siting requires compliance with the Federal Communications Commission's (FCC) environmental review standards and procedures and adherence to any applicable FAA requirements and structure registration with the FCC. The actual approval of physical installations is subject to state and local permits and approvals; however, state and local authority is limited by FCC law. For instance, states and local jurisdictions cannot base their decisions on any purported environmental effects of radio frequency transmissions. Telecommunications towers have the potential to cause line of sight issues near NSF Dahlgren. Requirements for tower placement can help to reduce potential incompatibility.

Naval Support Facility Dahlgren

Naval Support Facility Dahlgren Master Plan, 2011

The Plan outlines the study boundaries for the document, offers a land and facilities use plan, which includes information about the activities undertaken at NSF Dahlgren and the surrounding environment, and how activities may affect that land and environment. The Plan also includes a vision for the future, which is a long-term plan for the land and facilities, and finally, a capital improvements plan, which programs projects as a means to achieve the planning vision of NSF Dahlgren.

Naval Surface Warfare Center, Dahlgren Division (NSWCDD) Environmental Impact Statement, June 2013

An Environmental Impact Statement (EIS) was prepared for continued operation of RDT&E activities within the PRTR, EEA, Mission Area, and Special-Use Airspace (SUA) at NSF Dahlgren. The EIS was prepared to address the RDT&E activities that take place outdoors and have the potential to affect the human environment.

Regulations for Safe Boating in the Middle Danger Area of the Potomac River

Due to the RDT&E activities taking place at NSF Dahlgren, the PRTR Complex has been classified into three geographic areas to alert mariners where access may be restricted. The zones are classified into the Upper Danger Zone (UDZ), Middle Danger Zone (MDZ), and Lower Danger Zone (LDZ), with the Middle Danger Zone receiving the heaviest use. Naval Sea Systems Command (NAVSEA) has published regulations for safe boating in the MDZ of the PRTR, which is in the lower Potomac River.

Operational Noise Consultation

In December 2009 a noise consultation was done for Naval Facilities Engineering Command (NAVAC) to recommend which areas should be considered in the NSF Dahlgren JLUS. A noise-producing activity of concern includes the RDT&E testing of large-caliber weapons and explosive detonations on the PRTR and EEA.

To minimize the impact of noise, NSF Dahlgren uses a Sound Intensity Prediction System which monitors noise conditions. The system accounts for the amount of sound energy released by the test, landscape of the area, and current weather conditions. If the noise is predicted to be too loud, testing will be interrupted.

Naval Surface Warfare Center Dahlgren Site Area Development Plans

The Naval Surface Warfare Center Dahlgren Site Area Development Plan provides a comprehensive vision for facilities that would support current and future mission requirements. The plan focuses on the three complexes, the Warfare Systems, Weapons Development, and Advanced Concept

Complexes. The plan offers broad development concepts based on an analysis of present and future requirements, constraints, and opportunities.

Commonwealth of Virginia Plans and Programs

The Commonwealth of Virginia has several laws that establish the guidelines for its cities and counties to regulate land uses and plan for their future.

Building Code

The Virginia USBC contains the building regulations that must be complied with when constructing a new building or structure, or when adding an addition to an existing building. It must also be used when maintaining or repairing an existing building or renovating or changing the use of a building or structure.

Chesapeake Bay Preservation Act

The Chesapeake Bay Preservation Act (Bay Act), enacted in 1988, was designed to improve water quality by requiring effective land management. The goal of the Act was to maintain water standards, but still permit reasonable development to occur. The main focus is on reduction and prevention of nonpoint source pollution. Local governments maintain primary responsibility for specific land use decisions and management of water quality. The Act is the only State program that deals with the comprehensive relationship between land use planning and water quality.

Capital Improvement Program

Virginia Code § 15.2 2239 provides that the local planning commission shall prepare and submit a Capital Improvement Program (CIP) to the governing body or official charged with preparation of a local budget. The CIP is an integral component of a jurisdiction's overall growth management program that outlines the scheduling of public physical improvements and related costs over a five-year period.

Comprehensive Plans

Virginia law mandates that every local government in Virginia prepare and adopt a comprehensive plan (§ 15.2-2223). The comprehensive plan is the foundation for all decision-making in matters involving land use planning and growth management. The comprehensive plan is considered advisory and serves as a guide for the physical development of the territory within specific jurisdictional boundaries.

The state code (§ 15.2-2224) identifies four primary tools communities can use to implement local plans: Capital Improvement Program, the Official Map, Subdivision and Site Plan Regulations and Zoning.

Real Estate Disclosures

While only specifically authorized and required for use in conjunction with defined noise and accident potential areas around military air installations, the statutory framework does currently exist in Commonwealth law for the implementation of real estate disclosures for military operational impacts. Disclosures are currently required for both the sale and rental of property that is potentially impacted by noise or safety concerns from an air installation.

Subdivision and Site Plan Regulations

Land subdivision and development standards are contained in § 15.2 2240 through § 15.2 2279 of the Virginia Code. As prescribed, a subdivision ordinance will specify administrative procedures to be followed in the division of land; design standards for subdivisions; and the identification of improvements (e.g., streets, utilities) to be installed.

Virginia Residential Property Disclosure Act

The Virginia Residential Property Disclosure Act, Title 55, Chapter 27 of the Code of Virginia, governs the information owners must provide to prospective purchasers of real property. Section 55-519.1 details required disclosures for residences proximate to a military air installation.

Virginia Coastal Zone Management Act

Westmoreland and King George counties are within Virginia's designated coastal zone. Virginia has developed and implemented a federally-approved coastal resources management program describing current coastal legislation and enforceable policies. Federal consistency determinations in Virginia are reviewed by the Virginia Department of Environmental Quality, which coordinates reviews with other state agencies as well as county and regional planning agencies.

Virginia Energy Plan

The 2010 Virginia Energy Plan assesses Virginia's energy picture through an examination of the state's primary energy sources including renewable energy. Section 6 of the Energy Plan contains information regarding renewable energy sources, including wind. Estimates for potential offshore wind generating capacity exceed 28,000 megawatts. The plan includes the ambitious goal of making Virginia the "energy capital of the East Coast" and sets a target of growing in-state energy production up to 20 percent by the year 2020.

Virginia Military Advisory Council

The Virginia Military Advisory Council is a statutorily constituted body comprising military representatives from installations in the Commonwealth of Virginia as well as several elected and appointed officials. The Virginia Military Advisory Council was formed by the executive branch of the state government to maintain a cooperative and constructive relationship between the Commonwealth and the leadership of numerous Armed Forces installations within the Commonwealth, and to encourage regular communication on continued military facility viability, the exploration of privatization opportunities and issues affecting preparedness, public safety and security.

Zoning

Standards authorizing the use of zoning in Virginia are found in § 15.2 2280 of the state code. The purposes of zoning are spelled out in § 15.2 2283 of the code, while matters that a locality shall consider when developing a zoning ordinance and when applying or using the zoning ordinance are outlined in § 15.2 2284. Zoning divides a locality into specific districts and establishes regulations concerning the use, placement, spacing and size of land and buildings within the respective districts.

State of Maryland Plans and Programs

The State of Maryland has several laws that establish the guidelines for its cities and counties to regulate land uses and plan for their future.

Chesapeake Bay Critical Area

The Critical Area Program is a land use and resource protection program established by law to improve water quality and protect wildlife habitat in Maryland's tidal shoreline areas. The program operates through local county and municipal plans and ordinances. The law requires every Maryland jurisdiction with land in the Critical Area, to implement a Critical Area program through local ordinances, codes, plans, and policies.

Comprehensive Plans

Comprehensive plans capture how people want their communities to function and grow. In Maryland, local jurisdictions are required to review and, if necessary, update their comprehensive plans every ten years. The Maryland Department of Planning offers technical assistance for these updates. Land Use Article of the Annotated Code of Maryland outlines different elements that the comprehensive plan must address and gives the planning commission the authority to include additional elements not required by the Land Use Article.

Economic Growth, Resource Protection, and Planning Act

The 1992 Economic Growth, Resource Protection, and Planning Act articulates Maryland's growth policy through seven visions centered on concentrating development in suitable areas, protecting sensitive areas, and

establishing funding mechanisms to achieve the visions. This also requires local jurisdictions to review, and if necessary, update their plans once every six years, and to address these same visions in their comprehensive plans.

Maryland Coastal Zone Management Program

The Coastal Zone Management Act provides Maryland with the means to administer its Coastal Zone Management Program and the opportunity to work with partners at the local level to develop programs, plans and strategies to address specific coastal issues. The Maryland coastal zone is comprises the land, water and subaqueous land between the territorial limits of Maryland in the Chesapeake Bay, Atlantic Coastal Bays and the Atlantic Ocean, as well as the towns, cities and counties that contain and help govern the thousands of miles of Maryland shoreline.

Maryland Department of Transportation Consolidated Transportation Program

The Consolidated Transportation Program (CTP) is the six year capital budget outlook for future transportation projects and is a key part of the State Report on Transportation (SRT) that the Maryland Department of Transportation publishes each year. The CTP includes capital projects that are generally new, expanded or significantly improved facility or service that may involve planning, environmental studies, design, right-of-way acquisitions, construction, or the purchase of essential equipment related to the facility or service. The CTP reflects the priorities of the State Administration as embodied in the updated goals of the MTP and defined by studies, evaluation and analysis.

Maryland Military Installation Council

The Maryland Military Installation Council (MMIC) was established as a forum for local community, military installation, business, state agency and elected officials to dialogue on issues associated with Maryland's military installations. The MMIC is a division of the Maryland Department of Business and Economic Development and works to identify what public infrastructure and community support is needed for the development and expansion of Maryland's military installations and what the potential impact of that development and expansion will be on local communities. The

MMIC also researches how other jurisdictions cope with increased development around military installations and reviews state policies in order to best support the mission of the military installations and maximize economic benefits to local communities.

Maryland Real Property Article of the Annotated Code

The Real Property Article of the Annotated Code of Maryland, Section 14-117(k), provides that a contract for the sale of residential real property shall contain a statement, if the property is subject to high noise levels from proximity to a military installation.

Real Estate Disclosure (Southern Maryland Disclosure)

The Southern Maryland Association of Realtors has included an addendum to the standard purchase / sale contract for property buyers to acknowledge military aircraft operations associated with NSF Dahlgren.

Zoning Ordinances

The most fundamental implementation tool is zoning. A zoning ordinance establishes regulations for the use of land and some standards for development within identified zoning district boundaries. A related zoning map identifies properties that fall within different zoning categories. Zoning regulations must be uniform for each class or kind of development throughout each district, but regulations usually differ between districts.

Local Jurisdictions

In Maryland and Virginia authority to regulate land use is delegated by the state to counties and municipalities. The nature of a jurisdiction's authority to regulate local land use depends on that jurisdiction's form of local government.

Virginia County and Local Jurisdiction Tools

The Code of Virginia grants every local government in Virginia the authority to prepare and adopt a comprehensive plan (§ 15.2-2223) and grants zoning authority and the power to enact subdivision regulations to local governments (§ 15.2-2224). Comprehensive plans and subdivision ordinances are mandatory and local jurisdictions are required to prepare and implement them by state law.

King George County, VA

King George County Comprehensive Plan

The King George County Comprehensive Plan is the policy document that guides the long range development plans of the county, as mandated by COV § 15.2-2223. It sets the goals and objectives upon which the county officials base their decisions regarding the development of the county. A review of the Comprehensive Plan has identified the following related to military compatibility:

- The County Comprehensive Plan considers the Dahlgren community a "Primary Settlement Area," – a priority location to accommodate future population and employment growth.
- The Plan encourages and supports the continued stability of the Navy activities at NSF Dahlgren; however, the recommendation of increased growth in the Dahlgren Primary Settlement Area may be incompatible with the mission at NSF Dahlgren.
- There are no noise, lighting, frequency or vibration provisions associated with compatibility of military missions addressed in the plan.
- There are no goals, objectives or action items for achieving military compatibility, aside from the statement of support for the continued stability of Navy activities at NSF Dahlgren and consideration of missions in land use decisions.

Sources: King County Comprehensive Plan

King George County Zoning

King George County, in general, is zoned limited agriculture, rural agriculture, or general agriculture with small pockets of residential and commercial in established communities. Of relevance to the JLUS is the additional residential and commercial zoning in the Dahlgren Settlement Area. Zoning ordinances are considered semi-permanent tools because they can be amended. The following aspects of compatibility planning are addressed within the King George County Zoning Ordinance:

- Zoning around the western perimeter of NSF Dahlgren consists of mostly residential zoning to the southwest and commercial zoning to the northwest. The ordinance requires a minimum lot size of 15,000 sq. ft. for R-1 to R-3 and requires a minimum lot size of 5,000 sq. ft. C-1 and C-2. These districts may be incompatible with operations at NSF Dahlgren since they would introduce additional noise sensitive uses to the immediate area, add to traffic along area roads, and potentially be sited within safety areas associated with NSF Dahlgren flight operations.
- There are no provisions related to military compatibility, e.g., noise, lighting, vibration, or height.
- The zoning requirements do not require the delineation of noise contours on official maps or plan submittal maps, as applicable.
- Telecommunications facilities are restricted to a height of 199 feet; however, this height may be exceeded with the approval of a special exception permit.

Source: King George County Zoning Map 2012, King George County Zoning Ordinance, 2008 (pp.18-43)

King George County – Building Code

King George County follows the Virginia Uniform Statewide Building Code, amended in 2012.

Section 1207.4 of the Code specifically provides standards for noise attenuation to mitigate airport noise in indoor environments.

Sources:http://www.kinggeorge.va.us/component/option,com_docman/Itemid,115/task,cat_view/gid,238/

King George County Subdivision Ordinance

The King George County Subdivision Ordinance, adopted in 2011, regulates the creation, sale, conveyance, and recordation of all new parcels within the County. The Subdivision Ordinance requires compliance with all zoning regulations and consistency with the Comprehensive Plan. A review of the Subdivision Ordinance has identified the following related to military compatibility:

- The Subdivision Ordinance does not address density proximate to NSF Dahlgren or its operational areas.
- There are no provisions related to military compatibility, e.g. noise, lighting, vibration, or height.
- The Ordinance does not require the delineation of noise contours, where applicable.
- The approval process does not require notification to future property owners purchasing land in a subdivision that may be impacted by noise and vibration.

Town of Colonial Beach**Town of Colonial Beach Comprehensive Plan**

The Town of Colonial Beach 2009 Comprehensive Plan contains a community profile, existing conditions and analysis, goals and objectives, future land use plan, implementation, and environmental addendum. The following items concerning military compatibility are based on a review of the Comprehensive Plan:

- Comprehensive Plan Chapter 6 addresses future growth concentrated along the shoreline from an environmental perspective, but does not reference compatibility with NSF Dahlgren range operations.
- The plan does not address the military presence from a land use compatibility perspective.
- There are no noise, lighting, frequency, or vibration provisions associated with compatibility of the NSF Dahlgren mission in the Plan.

Town of Colonial Beach Zoning Ordinance

The Town of Colonial Beach Zoning Ordinance was last amended in 2009. The Zoning Ordinance lays out applicable codes with regard to height and bulk and residential density. Since the Town's major economic industry is tourism, zoning focuses mainly on commercial and residential. A review of the Zoning Ordinance reveals the following areas of interest related to military compatibility:

- The zoning ordinance specifies minimum lot sizes of 12,000 sq. ft. in R-1 and 5,000 sq. ft. minimums in R-2 through R-4 zoning as well as the CR (Commercial-Residential), which occupies most of the area along the shoreline of the Potomac River. These uses may be incompatible with operations at NSF Dahlgren due to the noise and vibration caused by testing operations.
- There are no provisions related to military compatibility, e.g. noise, vibration, or height.
- The zoning regulations do not require the delineation of noise contours on official town maps or plan submittal maps, as applicable.

Town of Colonial Beach Subdivision Ordinance

The Colonial Beach Subdivision ordinance regulates the creation, sale, conveyance, and recordation of all new parcels within the town and requires compliance with the Zoning Ordinance and consistency with the Comprehensive Plan. A review of the subdivision regulations has identified the following related to military compatibility:

- The subdivision ordinance does not address density proximate to the Middle Danger Zone.
- There are no provisions related to military compatibility, e.g. noise, lighting, vibration or height.
- The requirements do not require the delineation of noise contours, where applicable.
- The approval process does not require notification to future property owners purchasing land in a subdivision that may be impacted by noise and vibration.

Building Code

The Town of Colonial Beach follows the Virginia Uniform Statewide Building Code, amended in 2012.

Section 1207.4 of the Code specifically provides standards for noise attenuation to mitigate airport noise in indoor environments. While this tool is specific to mitigating airport noise, because the performance standards for sound attenuation are predicated on achieving internal sound levels (independent of the source), this section of the Code could be amended to the to apply to areas proximate to the Potomac River Testing Range with sound exposures greater than 65 dBA.

Town of Colonial Beach Business District Revitalization Plan

The Town of Colonial Beach adopted a Business District Revitalization Plan in 2010 to guide development in the Business District, but also in areas that influence it. The Plan was developed to guide the future of the community and revitalize the town's historic commercial area. The Plan highlights the importance of NSF Dahlgren to regional growth. A review of the plan has identified the following related to military compatibility:

- Though NSF Dahlgren is mentioned as a regional employer, and an important stakeholder, the plan does not discuss compatibility with Dahlgren in its goals or objectives.
- The plan recommends unique street lighting features which have not been identified as “dark-sky” compliant.
- There is no discussion regarding noise, lighting, frequency or vibration issues associated with compatibility to the NSF Dahlgren mission.

Westmoreland County, VA.

The Westmoreland County Comprehensive Plan

The Westmoreland County Comprehensive Plan is the policy document that guides the long range development plans for the county and established criteria and guidelines for land use regulation and growth policies for the unincorporated areas of the County. The 2010 update of the Comprehensive Plan contains elements outlining economy, land use, natural resources protection, transportation, and implementation and evaluation of the plan. A review of the Comprehensive Plan reveals the following areas of interest related to military compatibility:

- The Plan does not address the military presence from a land use compatibility perspective.
- There are no references to impacts or compatibility relative to NSF Dahlgren operations.

Westmoreland County Zoning Ordinance

The Westmoreland County Zoning Ordinance divides the county into base zoning districts that include agricultural, rural, village, residential, commercial, marine commercial, and industrial. Overlay zones are also incorporated such as the Chesapeake Bay Area Overlay District, to address development and water quality issues.

Although NSF Dahlgren operations are not specifically identified within the County’s Zoning Ordinance, the following provisions are relevant to compatibility with NSF Dahlgren.

- The maximum building height allowed by the Westmoreland County Zoning Ordinance is 45 feet for most buildings, measured to the highest point of the roof. Different height regulations are allowed for the following structures:
 - Rooftop antennas have a maximum height 125 feet.
 - Telecommunication monopoles and towers have a maximum height 150 feet.
 - Agricultural structures, cupolas, chimneys, flag poles, water tanks, monuments, and necessary mechanical accessories, as well as utility structures in the industrial zone are not subject to a maximum height.
- The Zoning Ordinance includes standards for noise generated by particular industrial and other uses; however, provisions associated with aircraft overflight or range activities are not addressed.
- Windmills are a permitted accessory use in all districts subject to the height regulations of the district in which they are erected (typically restricted to 45 feet in height).
- Wind turbines are not specifically identified within the Zoning Ordinance but may be considered a public utility or system component and approved throughout the county by special exception by the Board of Supervisors. There are no height provisions relating to wind turbines.

Westmoreland County – Building Code

Westmoreland County employs the Virginia Uniform Statewide Building Code, amended in 2012.

Section 1207.4 of the Code specifically provides standards for noise attenuation to mitigate airport noise in indoor environments. While this tool is specific to mitigating airport noise, because the performance standards for sound attenuation are predicated on achieving internal sound levels (independent of the source), this section of the Code could be

amended to the to apply to areas proximate to the Potomac River Testing Range with sound exposures greater than 65 dBA.

Maryland County and Local Jurisdiction Tools

In Maryland, local jurisdictions are required to review and, if necessary, update their comprehensive plans every ten years. The Maryland Department of Planning offers technical assistance for these updates. The Land Use Article of the Annotated Code of Maryland outlines different elements that the comprehensive plan must address and gives the planning commission the authority to include additional elements not required by State law.

Charles County, MD

Charles County Comprehensive Plan

The Charles County Comprehensive Plan was adopted in 2006 and undergoing an update as of November 2014. The Comprehensive Plan is the policy document that guides the long range development plans of the county. The 2014 version of the Plan addresses issues relating to land use, water resources, natural resources, energy conservation, economic development, transportation, community facilities and services, community development, and zoning. A review of the comprehensive plan has identified the following related to military compatibility:

- Land use planning efforts have been focused primarily on rural conservation, and while these efforts aid in compatibility to some extent, there are proposed residential and mixed use “villages” near the shore of the Potomac River proximate to the Middle Danger Zone.
- There are no noise, lighting, frequency or vibration references to compatibility with NSF Dahlgren operations.

Source: Draft Charles County Comprehensive Plan, 2014

Charles County–Zoning

Charles County’s Zoning Ordinance is the primary tool available to implement the land use policies established in the Comprehensive Plan. Zoning in Charles County is composed of base districts (rural, residential, commercial, mixed use, industrial and village zones) and planned development zones, which allow higher intensity and mixed used development with additional review. Charles County also employs overlay zones to address the appearance of highway corridors and protection of environmental resources. The Charles County Zoning Ordinance contains the following provisions associated with compatibility planning:

- Maximum structure heights established by the Zoning Ordinance range from 36 to 60 feet for most uses. Potential heights up to ten stories are permitted within the Waldorf and Acton Activity Centers though these areas and uses are not proximate to NSF Dahlgren. Communication towers, antennas, and certain other structures are considered exceptions to the height restrictions.
- The zoning regulations do not address airport noise, although adoption of the overlay zone recommended in the Comprehensive Plan could address this issue.

Charles County Building Code

The Charles County Building Code does not include provisions for sound attenuation as it relates to sound transmission from external noise sources to the internal spaces within a building.

Charles County Subdivision Regulations

The Charles County Subdivision ordinance, most recently updated in December 2013, regulates the creation, sale, conveyance, and recordation of all new parcels within the county. The subdivision ordinance requires compliance with all zoning regulations and consistency with the Comprehensive Plan.

St. Mary's County, MD

St. Mary's County Comprehensive Plan

St. Mary's County's current Comprehensive Plan was most recently updated in 2010 with the goal of preserving and enhancing the character of St. Mary's County and improving the quality of life for its citizens while managing the pace of growth and development. Because Naval Air Station Patuxent River is located within St. Mary's County, the provisions of the Comprehensive Plan are geared towards compatibility between this Navy installation and the surrounding communities. The Comprehensive Plan does not consider compatibility with NSF Dahlgren nor does it acknowledge the Potomac River Test Range on its southern border.

The St. Mary's County Comprehensive Plan recommends rural residential and rural preservation land uses near the Middle Danger Zone, and small core of industrial activity on the southwestern peninsula near the Piney Point Airport. The preservation of rural lands and a rural lifestyle in this area is compatible with military operations in the Middle Danger Zone.

St. Mary's County Zoning Ordinance

St. Mary's County's Zoning Ordinance is the main tool available to implement the land use policies established in the Comprehensive Plan. Zoning in St. Mary's County is composed of base districts (rural and residential, commercial and mixed use, industrial and office, and commercial marine) which correspond to general categories of land use covering most of the county and special districts intended to accommodate specific uses due to their unique conditions.

The following components relate to specific aspects of St. Mary's County's Zoning Ordinance related to compatibility with NSF Dahlgren:

The code specifies that electromagnetic and electrical interference are not allowed to be produced by any use affecting normal off-site radio, telephone or television reception, but does not specify affecting military operations.

Source: *Zoning Ordinance pg 51-34 to 51-40*

St. Mary's County Building Code

The St. Mary's County Building Code does not include provisions for sound attenuation as it relates to sound transmission from external noise sources to the internal spaces within a building.

Source: <http://www.co.saint-marys.md.us/docs/stmarysbuildingcode.pdf>

St. Mary's County Subdivision Ordinance

The St. Mary's County Subdivision ordinance adopted in August, 2010, regulates the creation, sale, conveyance, and recordation of all new parcels within the county. The subdivision ordinance requires compliance with all zoning regulations and consistency with the comprehensive plan.

Regional Plans and Tools

George Washington Regional Commission

The George Washington Regional Commission (GWRC) is the planning district commission for King George County, Virginia, which coordinates planning and provides technical and program services to ensure economic competitiveness, reduce redundancy in government, improve efficiency, enhance services, and improve implementation time of regional projects. The GWRC provides a broad array of planning services including regional environmental, energy-conservation, hazard mitigation, rural transportation planning programs, land use planning services, and mapping.

Northern Neck Planning District Commission

The Northern Neck Planning District Commission (NNPDC) is the regional planning organization and economic development agency for the Northern Neck region, which includes Westmoreland County and the town of Colonial Beach in Virginia. It is a voluntary association of local governing bodies that serves to address local issues and to solve problems with regional significance and impact through mutual cooperation.

Northern Neck Tourism Commission

The Northern Neck Tourism Commission (NNTC) was formed under the support of the Northern Neck Chesapeake Bay Region Partnership.

Representing five historic counties and the businesses of the Northern Neck, the NNTC promotes the sites and attractions of the region capitalizing on natural, historical, cultural and recreational resources.

Northern Neck Land Conservancy

The Northern Neck Land Conservancy is a small non-profit land trust on the Northern Neck of Virginia. The Conservancy helps landowners who want to voluntarily protect their lands with permanent conservation easements to ensure that their property sustains the rural character of the Northern Neck and maintains a healthy environment for future generations.

Potomac River Fisheries Commission

The Potomac River Fisheries Commission is the Maryland-Virginia bi-state regulatory authority for fishery matters in the mainstream tidal Potomac River from Washington, DC to the Chesapeake Bay. The Commission is responsible for adopting the rules, regulations and licenses for the recreational and commercial taking, catching or attempting to take or catch fish, crabs, oysters and clams from the Potomac River.

Other References

In the interest of land use compatibility between the military and the local community, the DOD Office of Economic Adjustment (OEA) and other public interest groups, such as the National Association of Counties (NACo), have prepared educational documents and videos that educate and inform the public about encroachment issues and methods that can be used to address existing or future compatibility concerns. Five resources that have been published to inform the public on land use compatibility are identified as follows:

Guides

The Practical Guide to Compatible Civilian Development near Military Installations (July 2007), OEA

This guide offers general information on community development and civilian encroachment issues. The guide can be found at: <http://www.oea.gov/>.

Joint Land Use Study Program Guidance Manual (November 2006)

This manual provides guidance on the JLUS program, process, and efforts to support compatible development. This manual can be obtained on the OEA internet site at the following address: <http://www.oea.gov/>.

Encouraging Compatible Land Use between Local Governments and Military Installations: A Best Practices Guide (April 2007), NACo

This guidebook presents case studies of best practices between the military and communities through communication, regulatory approaches, and Joint Land Use Studies. The guide can be accessed on the NACo internet site at the following address: <http://www.naco.org/>.

Videos

The Base Next Door: Community Planning and the Joint Land Use Study Program, OEA

This informative video discusses the issue of encroachment near military installations as urban development occurs within the vicinity. This video can be accessed on the official OEA YouTube channel at: <http://www.youtube.com/watch?v=6UiyWDgLeJM>

Managing Growth, Communities Respond, OEA

This video highlights the lessons learned from three communities (Kitsap Naval Base in Bangor, Washington; Fort Drum in Jefferson County, New York; and Fort Leonard Wood in Pulaski County, Missouri) that have successful programs for managing growth near their respective military installations. This video can be accessed on the official OEA YouTube channel at: <http://www.youtube.com/watch?v=rea6d3bDp3c>



Identification of Compatibility Issues

Compatibility, in relation to military readiness, can be defined as the balance or compromise between community needs and interests and military needs and interests. The goal of compatibility planning is to promote an environment where both community and military entities communicate, coordinate, and implement mutually supportive actions that allow both to achieve their respective objectives.

A number of factors assist in determining whether community and military plans, programs, and activities are compatible or in conflict with joint land uses such as community activities and military installations. For this Joint Land Use Study (JLUS), 25 compatibility factors were reviewed to identify, determine, and establish a set of key study area issues. These compatibility factors are listed below.

COMPATIBILITY FACTORS	
AQ Air Quality	LAS Land / Air / Sea Spaces
AT Anti-Terrorism / Force Protection	LU Land Use
BIO Biological Resources	LEG Legislative Initiatives
CA Climate Adaptation	LG Light and Glare
COM Coordination / Communication	MAR Marine Environments
CR Cultural Resources	NOI Noise
DSS Dust / Smoke / Steam	PT Public Trespassing
ED Energy Development	RC Roadway Capacity
FSC Frequency Spectrum Capacity	SA Safety Zones
FSI Frequency Spectrum Impedance / Interference	SNR Scarce Natural Resources
HA Housing Availability	VO Vertical Obstructions
IE Infrastructure Extensions	V Vibration
	WQQ Water Quality / Quantity

Of the 25 compatibility factors considered, nine were determined to be inapplicable to this JLUS:

- Air Quality
- Anti- Terrorism / Force Protection
- Cultural Resources
- Dust / Smoke / Steam
- Frequency Spectrum Capacity
- Marine Environments
- Scarce Natural Resources
- Vertical Obstructions
- Water Quality / Quantity

Issues

At the initial committee workshops and subsequent public forums, groups were asked to identify the location and type of compatibility issues they thought existed today, or could occur in the future, using the 25 factors as a guide. A number of individual issues were identified for each factor. Additional technical issues were analyzed and added based on available information and similarity with other community JLUS experiences around the country.

Setting Priorities

The public and committees provided input on establishing priorities for the compatibility factors and issues. Priorities were used to determine the type and timing of associated actions for each issue. Three criteria were utilized to prioritize the compatibility factors:

- **Is it a Current Impact?** Each issue was considered based on its current impact to the compatibility of either NSF Dahlgren or the surrounding areas. Issues posing the most extensive operational constraints or community concerns constitute the highest priority.
- **Location.** This criterion assesses the proximity of each issue in relation to activities occurring on NSF Dahlgren including the Explosives Experimental Area and surrounding areas. Issues occurring near the installation are often more critical than those occurring remotely.
- **Potential Impact.** Although an issue may not have a current impact on the installation or the community, it may possess the ability to become an issue in the future. Should conditions change, adjacent or proximate development increase, or other issues become apparent, new conflicts with existing or future missions and operational activities at NSF Dahlgren could arise. Issues were considered based on their future potential using the same criteria that were established for current impact.

With a comprehensive list of issues to address in the JLUS, the public and Technical Advisory Group (TAG) identified the relative priority of each compatibility factor. The Policy Committee finalized the prioritization of issues based on public and TAG input, dividing the factors into four categories:

- **Ongoing.** These issues need to be addressed on an on-going basis and addressed immediately.
- **High-Priority.** Due to the nature of these issues, an immediate response is warranted. Issues identified as High Priority are to be initiated within the year following completion of the JLUS.
- **Medium-Priority.** To be initiated within 1-3 years following completion of the JLUS.
- **Low Priority.** To be initiated within 3-5 years following completion of the JLUS.
- **Awareness Factors.** Awareness factors are those issues that pose a minimal impact to NSF Dahlgren and/or the surrounding jurisdictions and are documented in this JLUS for the purpose of maintaining operational awareness. These items do not require action at the current time, but should be monitored in the long term.

NSF Dahlgren Compatibility Issues by Factor

Biological resources are resources that include federal and state listed species (threatened and endangered species) and the habitats they exist in or utilize. These resources may also include areas such as wetlands and migratory corridors that are critical to the overall ecosystem. The presence of sensitive biological resources may require special development considerations and should be included early in the planning process. The following Biological Resources issues were identified:

- **Bald Eagles Nesting Sites Necessitate Military Workarounds.** Several bald eagle nesting sites are located on and near the base. Increased development could induce more bald eagle nests on or near NSF Dahlgren, potentially resulting in workarounds to avoid disturbing these sites.

Climate Change is the gradual shift of global weather patterns and temperature resulting from natural factors and human activities (e.g. burning of fossil fuels) that produce long-term impacts on atmospheric conditions. The effects of climate change vary and may include fluctuations in sea levels, alterations of ecosystems, variations in weather patterns, and natural resource availability issues. The results of climate change, i.e. ozone depletion and inefficiencies in land use, can present operational and planning challenges for the military and communities as resources are depleted and environments altered. The following Climate Change issues were identified:

- **Sea Level Rise.** Due to the coastal location of NSF Dahlgren, there are potential implications of sea level rise and associated impacts to the NSF Dahlgren mission and operations.

Coordination / Communication refers to the programs and plans that promote interagency coordination. Interagency communication serves the general welfare by promoting a more comprehensive planning process inclusive of all affected stakeholders. Interagency coordination also seeks to develop and include mutually beneficial policies for both communities and the military in local planning documents such as general plans.

- **Formal Communication Procedures.** Projects in areas that experience increased noise levels, including along the waterfront, have been approved without the Navy being informed of development proposals.
- **Lack of Public Awareness of Impacts That Could Result From NSWCDD Test and Evaluation Operations.** New residents and business owners are not typically informed of their proximity to NSF Dahlgren or the military's use of the Potomac River as a test range. Newcomers are often caught off guard the first time they observe military activity, such as explosives safety testing.

- **Lack of Awareness Amongst Tourists about NSF Dahlgren's Presence and Operations in the Area.** Visitors and tourists to the area are often unaware of the NSWCDD mission or use of the Potomac River as a test range. Tourists have been escorted off of the water when range activities are planned. Tourists have also complained about noise resulting from range activity without knowing the source or that they were visiting an area with heavy military use. Striking a balance between providing enough information about the NSWCDD mission and operations to tourist and appealing to those seeking a quiet waterfront destination has become a challenge to communities in the area.
- **No Formalized Agreement Regarding Communication Coordination between Navy and Communities.** There is no formal community engagement or communication plan with communities. The NSF Dahlgren Community Planning and Liaison Officer has had to monitor activity and development in jurisdictions to find out about potential changes in the area. Relationships between community leaders and Dahlgren are further constrained by changes to and reorganization of military personnel.
- **No Formal Mutual Aid Agreement.** Dahlgren provides mutual aid to local communities for emergency response purposes. The provision of aid is based upon an informal agreement, subject to termination without a legally binding agreement that promotes continuity. A change in personnel or disruption in funding could inadvertently result in disruption of this service.

Energy Development is the likelihood of development of alternative energy within the NSF Dahlgren JLU Study Area. Alternative energy includes wind and solar energy facilities. Any current or proposed wind or solar facilities in the study area located in areas where low-altitude aviation operations can occur can create a vertical obstruction and/or visual impairment for pilots. The uncoordinated placement of these facilities can lead to incompatibilities with the NSF Dahlgren mission. The following Energy Development issue was identified:

- **Potential Wind Farm Development in Region Could Interfere with Military Devices / Operations.** Areas proximate to NSF Dahlgren have been identified by wind farm developers as an area of interest for potential alternative energy projects. The siting of wind farms within 25 miles of NSF Dahlgren and the Potomac River Test Range would result in impacts to Navy systems and operations, particularly communication infrastructure and frequency interference.

Frequency Spectrum Interference / Impedance is the interruption of electronic signals due to the existence of a structure or object between the source of the signal and its destination (receptor). The NSF Dahlgren JLUS analyzed the existing obstructions with the installation's line-of-sight to determine compatibility, as well as the likelihood of future incompatibilities with these structures. Such obstructions can include wind turbines, cell towers, and tall buildings depending on the ground-level elevation at the site and the numbers of structures within a confined area. The following Frequency Spectrum Interference / Impedance issues were identified:

- **Potential Frequency Interference.** Machinery and equipment needed for the construction of the new Harry Nice Bridge requires the use of systems that could result in frequency interference. Additional cell phone and Wi-Fi device usage would likely increase the potential for frequency interference to occur.
- **Growing Use of Part 15 Devices Can Potentially Interfere with Military Equipment.** The use of Part 15 devices (garage door openers, remote controls for electronic equipment, baby monitors, cordless telephones, laptop computers, wireless computer mice, wireless modems, etc.) continues to increase. Civilian use of Part 15 devices can interfere with equipment used at NSF Dahlgren and vice versa.
- **Potential Radio Frequency and Electromagnetic Interference Could Occur from Development Along Route 301.** The Route 301 corridor is expected to experience additional growth, particularly in the area immediately outside of NSF Dahlgren's B Gate. Additional growth in this area could result in Radio Frequency Interference (RFI) /

Electromagnetic Interference (EMI) impacting NSF Dahlgren's proposed UAV vehicle ground area.

- **Potential Wind Energy Growth in Region Could Cause Line of Sight Interference Issues.** Wind developers have shown interest in the region for the placement of wind turbines and farms. Future development of wind energy devices within the region could interfere with tracking stations that use line of sight.

Housing Availability addresses the supply and demand for housing in the region, the competition for housing that may result from changes in the number of military personnel, and the supply of military family housing provided by the installation. The following Housing Availability issues were identified:

- **Limited Off-base Housing Options for Military Workforce.** Local jurisdictions' growth policies do not address military workforce housing needs. The lack of sufficient quantities of lodging has resulted in military workforce commuting to NSF Dahlgren from as far away as Fredericksburg, which requires a minimum commute time of 45 minutes each way.
- **Additional Housing Capacity Needed for Military Transient Students.** On base lodging often turns students away due to high occupancy rates and not enough on base housing to support the transient student population. The lack of sufficient quantities of lodging has resulted in students commuting to NSF Dahlgren from as far away as Fredericksburg, which requires a minimum commute time of 45 minutes each way.

Infrastructure Extensions refers to public facilities and services such as sewers, water, electric, and roadways that are required to support development (existing and proposed). The following Infrastructure Extensions issues were identified:

- **Infrastructure Improvements / Extensions May Induce Growth Close to Dahlgren.** The new substation on base provides many mutual benefits for Dahlgren and King George County but also has the potential to induce growth due to an increase in capacity. The extension of additional / new services to the base could create the potential for growth inducement in areas subject to impacts from Dahlgren activities and operations.

Land, Air and Sea Space Competition is the management or use of land and air space to accomplish testing, training, and operational missions. These resources must be available and of a sufficient size, cohesiveness, and quality to accommodate effective training and testing. Military and civilian air operations can compete for limited air space, especially when the airfields are in close proximity to each other. Use of this shared resource can impact future growth in operations for all users. The following Competition for Land and Air Spaces issues were identified:

- **Restricted Airspace Between Dahlgren and Naval Air Station Patuxent River (NAS PAX).** There is a nine mile distance between NSF Dahlgren's restricted airspace and NAS PAX's restricted airspace. Control of this air space turns over to FAA. NSF Dahlgren is working with FAA to get a Certificate of Authorization (COA) to connect NAS PAX airspace with NSF Dahlgren airspace.
- **Private Land Subject to Disruption / Termination of Use.** Range stations on private land are subject to lease agreements with private residents. A change in property ownership or status could jeopardize the Navy's continued use of these stations in their current location.
- **Competition for Use of Waterways.** Although the NSWCDD coordinates the use of the Potomac River Test Range with the Coast Guard to clear boaters from the waterways, testing is subject to delay or cancellation due to the presence of boaters, marine commercial freight movements, commercial fishing, and recreational boating on the Potomac River.

Land Use planning and regulation relates to the government's role in protecting the public's health, safety, and welfare. Local jurisdictions' general plans and zoning ordinances can be the most effective tools for avoiding or resolving land use compatibility issues. These tools ensure the separation of land uses that differ significantly in character. Land use separation also applies to properties where the use of one property may adversely impact the use of another. For instance, industrial uses are often separated from residential uses to avoid impacts related to noise, odors, lighting, and so forth. The following Land Use issues were identified:

- **Additional Growth in Military Influence Areas.** The existing runway is constrained for use by fixed wing aircraft due to the location of growth nodes in King George County and the current airspace classification. Additional development of certain densities / intensities within airport approach and departure corridors could render aviation facilities unusable.
- **Incompatible Land Use with Military Operations.** King George County's recently updated Comprehensive Plan designates the area outside of NSF Dahlgren as a high growth area, encouraging compact forms of development with varying densities, which is potentially incompatible in both safety zones, areas of increased noise, and areas that may need vertical limits to preserve airfield capabilities. Additional growth in these areas requires proper siting and development guidelines that would allow for the development of higher densities / workforce housing in areas proximate to the base yet outside military influence areas.
- **Potential Incompatible Development.** Development pressure along the waterfront is increasing and may impact the use of range stations and range operations along the test range. Several of the range station locations are leased from private individuals. The use of these range stations may be lost as development occurs or property ownership changes

- **Legislative Initiatives** include those existing and proposed federal, state, and local laws and regulations that may have a direct or indirect effect on a military installation to achieve its current or future mission.
- **Lack of Real Estate Disclosure.** The Virginia Residential Property Disclosure Act requires disclosure only if a property's location is within a Noise Zone or Accident Potential Zone for military air installations and only for properties located within the same jurisdiction as the military air installation. Disclosure requirements do not address other potential nuisances such as frequency interference. The use of real estate disclosures is subject to the realtor's discretion on providing notification to prospective buyers.
- **Un-Specific Real Estate Disclosures.** Maryland's Real Property Annotated Code requires real estate agent to inform a prospective homebuyer that their property "may be located near a military installation that conducts flight operations, munitions testing, or military operations that may result in high noise levels." Identifying a property's proximity to a military installation, the name of the installation, and potential nuisances that may result are not required in the disclosure.
- **Frequency Spectrum Use is Not Regulated.** Part 15 devices are regulated by the Federal Communication Commission; however, not all equipment that uses RF energy is required to have a license or assignment. Additionally, Real estate disclosures do not address frequency spectrum.

Light and Glare can be generated by both military and civilian uses. Light and glare can be generated from certain construction materials during the daytime when sunlight reflects off the structure. This can create visual impairments for pilots flying at low altitudes. Certain types of alternative energy development can create glare for pilots in training, posing a safety hazard to the pilot and the aircraft. The following Light and Glare issues were identified:

- **Lighting Levels along Waterfront.** The utilization of the Potomac River Test Range at night with use of night vision devices is constrained by both existing light sources along the waterfront and the potential for increased sky glow as waterfront areas develop. There are no ordinances in place that regulate the type, size, or intensity of lighting at night. Certain types of directional lighting can produce ambient light and light trespass rendering the night vision training devices ineffective.

Noise is the result of both military training exercises and construction and development activities. This factor can be incompatible with sensitive land uses. Noise that is loud and extending into night hours can disrupt the lives of the public. The following Noise issues were identified:

- **Range Noise Concerns and Complaints.** Noise associated with range operations needs to be addressed as part of any future development proposals and approvals near the following areas. Increased noise levels are experienced in locations that are identified as growth areas of Colonial Beach, Swan Point, and Cobb Island. These areas are more populated and where the most noise complaints are received from. Charles County has identified Swan Point as a future growth area in its Master Plan, which could exacerbate complaints from residents and confusion regarding source of noise due to other military bases in the region.
- **Sensitive Land Uses Permitted in Military Influence Areas.** Noise complaints are often received from Swan Point, Colonial Beach, Cobb Island and other areas along the Potomac River waterfront. Waterfront properties are an asset to local jurisdictions; however, continued development in these areas may increase incompatibilities as a result of additional people being exposed to elevated noise levels, the potential for increased competition for waterway access, etc. If not guided appropriately, continued growth in these areas has the potential to require military workarounds or disruption in schedules to resolve conflicts.

- **Increased Noise Levels.** Due to the risk of noise complaints from off-base neighbors related to the proposed operational noise, the Navy has limited their operations. Although no federal law prohibits military training and testing activities from making noise, the Navy has limited their nighttime operations to avoid community conflicts.
- **Lack of Noise Zone Awareness by Community.** Additional testing and potential expansion of air mission will result in increased noise impacts from current levels. Additional public relations and awareness efforts will be needed as the area continues to grow. Noise zones and descriptions are not publicly available or included on land use planning maps. Newcomers often move to the area without any awareness of military operations or presence.
- **Current Building Codes do not Address Sound Attenuation.** Local jurisdictions do not require sound attenuation for residences in locations subject to elevated noise levels.
- **Public Trespassing** addresses public trespassing, either purposeful or unintentional, onto a military installation. The potential for trespassing increases when public use areas are in close proximity to the installation. The following Public Trespassing issues were identified:
 - **Public Trespassing Occurs Along Dahlgren's Waterfront.** Dahlgren is accessible from the waterfront. This open access has resulted in trespassing incidents when boaters get too close to the base.

Roadway Capacity relates to the ability of existing freeways, highways, arterials, and other local roads to provide adequate mobility and access between military installations and their surrounding communities. The following Roadway Capacity issues were identified:

- **Roadway Capacity Has Potential to Increase Safety Concerns.** Traffic entering B gate gets backed up, causing safety concerns. Travel speed is a concern in this area.

- **Installation Traffic Creates Back-ups in the Community near Dahlgren's Main Gate.** Traffic backs up into the community and near a school during peak times, causing safety concerns for pedestrians and vehicles accessing the affected neighborhoods.

Safety zones are areas in which development should be more restrictive, in terms of use and concentrations of people, due to the higher risks to public safety. Issues to consider include aircraft accident potential zones, weapons firing range safety zones, and explosive safety zones. The following Safety issues were identified:

- **Traffic Has Impacted Congested Emergency Response Routes.** Emergency response egress routes make access to service area (in King George County) from NSF Dahlgren difficult. Low levels of service on nearby roadways decrease the safety and efficiency of response.
- **Potential Incompatible Development in Safety Zones.** Should the air mission be reactivated and expanded at Dahlgren, the identification of safety zones and vertical obstruction zones (imaginary surfaces) would be necessary and could increase the potential for incompatible development in those areas where current land use designations and zoning controls don't account for aircraft safety zones.
- **Potential Concerns Related to Explosive Safety Routes Through Community.** The munitions testing on NSF Dahlgren requires the transport of hazardous materials to and from the base. Establishing explosive safety routes is necessary in order to mitigate safety concerns for both military personnel and the local community.

Vibration is an oscillation or motion that alternates in opposite directions and may occur as a result of an impact, explosion, noise, mechanical operation, or other change in the environment. Vibration may be caused by military and / or civilian activities. The following Vibration issues were identified:

- **Reported Property Damage from Range Activity.** Dahlgren has received complaints of property damage resulting from Navy operations. The Navy has prepared a standard damage claims package that addresses community complaints of property damage resulting from Navy operations.



Implementation Plan

This section identifies and organizes the recommended actions (strategies) developed through a collaborative effort between representatives of local jurisdictions, NSF Dahlgren, state and federal agencies, local organizations, the general public and other stakeholders that own or manage land or resources in the region. Because the NSF Dahlgren JLUS is the result of a collaborative planning process, the recommendations in this section represent a true consensus plan; a realistic and coordinated approach to compatibility planning developed with the support of stakeholders involved throughout the process.

JLUS strategies incorporate a variety of actions that can be implemented to promote compatible land use and resource planning. Upon implementation, existing and potential compatibility issues arising from the civilian / military interface can be removed or significantly mitigated. As such, the recommended strategies function as the heart of the JLUS document and are the culmination of the planning process.

The key to the implementation of the strategies is the establishment of the JLUS Implementation Coordinating Committee to oversee the JLUS execution. Through this committee, local jurisdictions, NSF Dahlgren, and other interested parties can continue their initial work together to establish procedures, recommend or refine specific actions for member agencies, and make adjustments to strategies over time to ensure the JLUS continues to resolve key compatibility issues through realistic strategies and implementation.

Concurrent with the efforts of the JLUS Implementation Coordinating Committee, each Study Area jurisdiction is responsible for establishing their

own course of action to execute strategies unique to them through collaboration of planners, leadership, and the public. Since the Implementation Plan is intended to be a living document, each jurisdiction has the flexibility to revise and refine the Plan for their unique circumstances and use for tracking implementation actions and progress.

It is important to note that the JLUS is not an adopted plan, but rather a recommended set of strategies which should be implemented by the JLUS participants to address current and potential future compatibility issues.

Implementation Plan Guidelines

The key to a successful plan is balancing the different needs of all involved stakeholders. Several guidelines formed the basis upon which the strategies were developed:

- In concert with the Virginia and Maryland state laws, the Implementation Plan was developed with the understanding that the recommended strategies must not result in a taking of property value. In some cases, the recommended strategies can only be implemented with new enabling legislation.
- In order to minimize regulation, where appropriate, strategies were recommended only for specific geographic areas to resolve the compatibility issue.

- Similar to other planning processes that include numerous stakeholders, the challenge is to create a solution or strategy that meets the needs of all parties. In lieu of eliminating strategies that do not have 100 percent buy-in from all stakeholders, it was determined that the solution / strategy may result in the creation of multiple strategies that address the same issue but tailored to individual circumstances.

NSF Dahlgren Military Compatibility Area Overlay District (MCAOD)

In compatibility planning, the term “Military Compatibility Area” (MCA) is used to formally designate a geographic area where military operations may impact local communities, and conversely, where local activities may affect the military’s ability to conduct its mission. The MCAs are geographic areas where specific types of recommended JLUS strategies apply.

- An MCA is designated to accomplish the following:
- Promote an orderly transition between community and military land uses so that land uses remain compatible.
- Protect public health, safety, and welfare.
- Maintain operational capabilities of military installations and areas.
- Promote an awareness of the size and scope of military training areas to protect areas separate from the actual military installation (i.e., critical air space) used for training purposes.
- Establish compatibility requirements within the designated area, such as requirements for sound attenuation and aviation easements.

An MCA delineates a geographic area where strategies are recommended to support compatibility planning and JLUS goal and objectives.

The Military Compatibility Area Overlay District (MCAOD) is a zoning technique that ensures the JLUS strategies are applied to the appropriate areas, and that locations deemed not subject to a specific compatibility issue

are not adversely impacted by regulations or policies inappropriate for their location or circumstance. The MCAOD encompasses all the MCAs and its geographic boundary is defined by the largest MCA boundary. The MCAOD should be used by local jurisdictions to address ways to prevent or mitigate compatibility issues. Each jurisdiction’s MCAOD boundary is determined by the largest geographic boundary of all the MCAs that fall within their jurisdiction.

For the purpose of this JLUS Implementation Plan, there is one MCAOD as depicted in Figure 4.

The NSF Dahlgren MCAOD comprises four MCAs:

- Safety MCA
- Noise MCA
- Vertical Obstruction MCA
- Energy Development MCA

These MCAs are discussed in the following sections.

Naval Support Facility Dahlgren Military Compatibility Areas

Safety MCA

The Safety MCA addresses areas that could be affected by aircraft associated with military flight operations. The Safety MCA comprises two components – the Bird / Wildlife Aircraft Strike Hazard (BASH) Relevancy Area and Clear Zones associated with the airfield as indicated on Figure 5. These Clear Zones are a subzone of the MCA and do not extend outside the installation boundary. Because of the aircraft types and frequency of use at NSF Dahlgren there are no Accident Potential Zones (I and II) normally associated with an airfield.

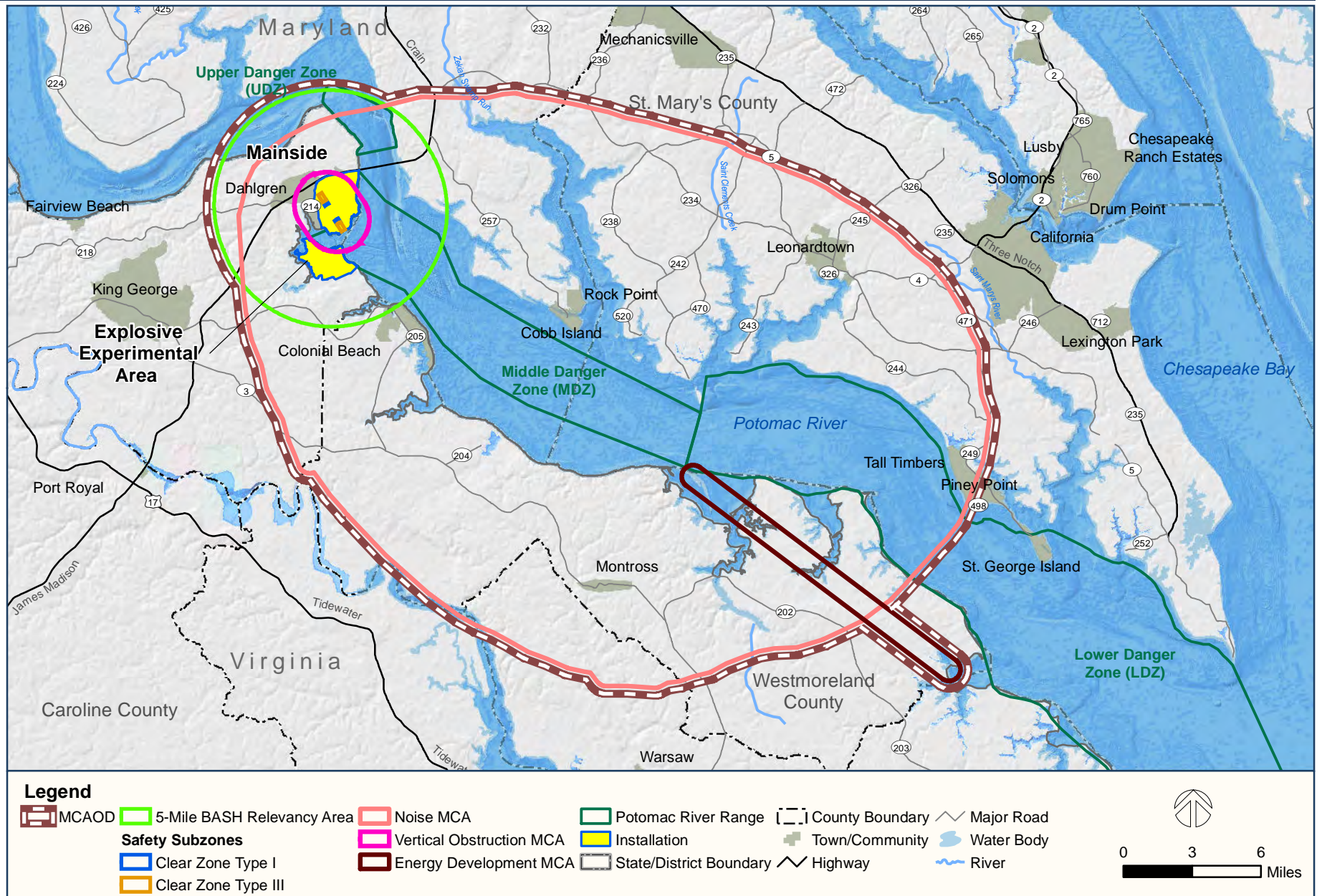
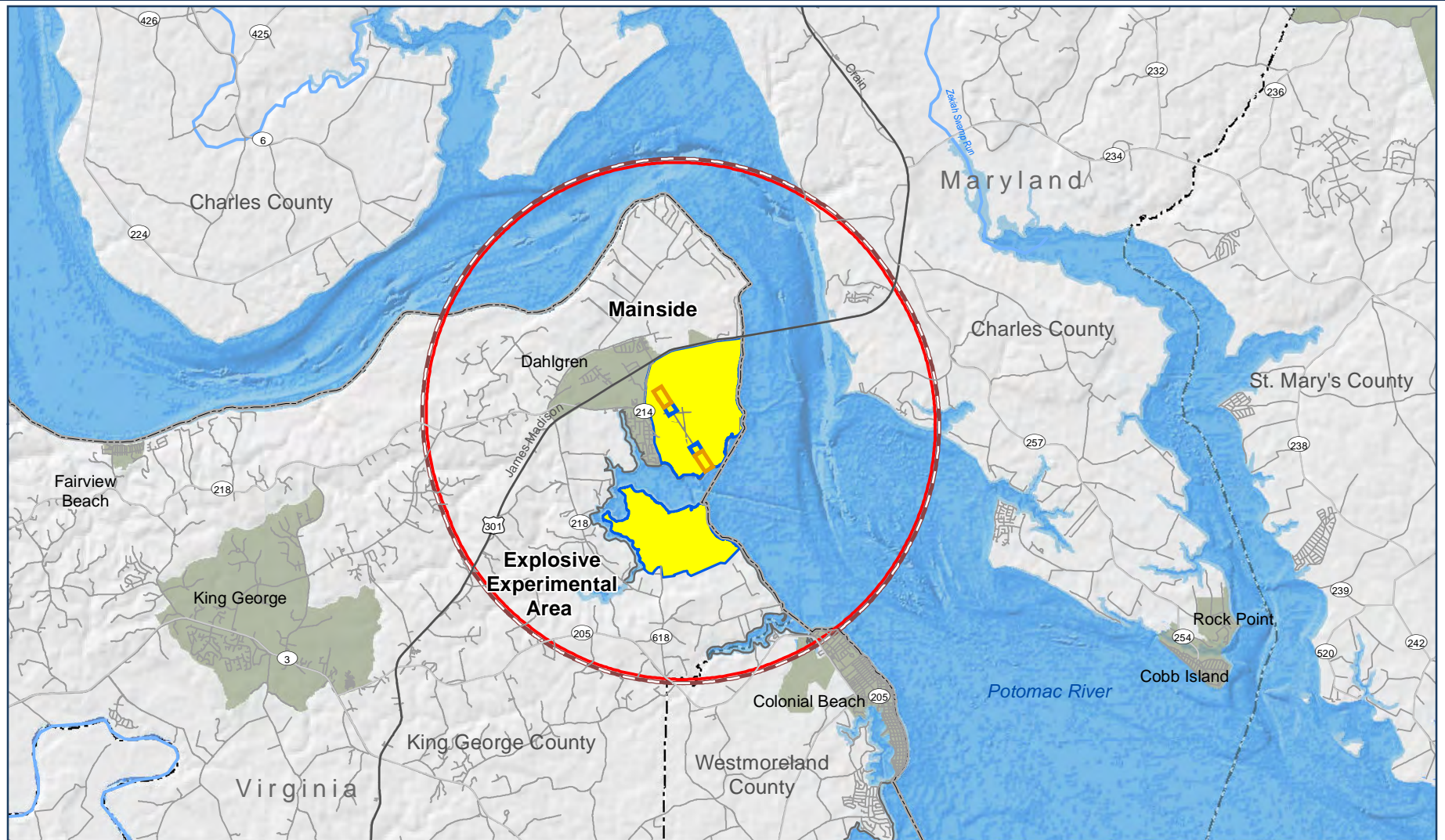


Figure 4: Military Compatibility Area Overlay District



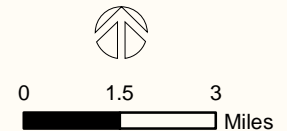
Source: Dahlgren NSF, 2013
 Fig4_NSF_Dahlgren_MCAOD_20150112_JKC.pdf

6. Naval Support Facility Dahlgren JLUS



Legend

- | | | |
|----------------------------|-------------------------|------------|
| Safety MCA | Installation | Highway |
| Clear Zone Type I | Clear Zone Type III | Major Road |
| 5-Mile BASH Relevancy Area | State/District Boundary | Water Body |
| County Boundary | Town/Community | River |



Source: Dahlgren NSF, 2013
 Fig5_NSF_Dahlgren_SafetyMCA_20141118A_CJM.pdf

Figure 5: Safety Military Compatibility Area

The BASH Relevancy Area extends out from the primary surface (runways) a distance of five statute miles per FAA recommended standards for managing bird attractants around runways. This area includes areas around the airfield with the highest safety concerns if concentrations of birds or bird-attractions uses were located there such as landfills, landfill transfer stations, and developments with major water features. Bird strikes with aircraft can pose serious safety concerns, including the potential for loss of life and / or aircraft.

The safety profile at NSF Dahlgren would need to be adjusted with the reintroduction of fixed wing aircraft at NSF Dahlgren dependent on future runway needs and likely result in expanded safety zones including the addition of Accident Potential Zones. If the safety zones extend off-installation, they would be subject to recommended guidelines for the type of development occurring within them. These guidelines can be found in the Chief of Naval Operations Instruction (OPNAVINST) 11010.36C under Land Use Compatibility Guidelines for Clear Zone and Accident Potential Zones.

Noise MCA

The Noise MCA includes all land located off-installation within noise contours greater than 120 peak decibel noise levels associated with military activities, as well as an additional one-half mile buffer outside the 120 dB noise contour to be proactive for possible future NSF Dahlgren operational changes. This buffer incorporates land areas that may pose a risk for noise complaints to occur. This MCA is depicted in Figure 6.

Strategies recommended for this area include

- Incorporating policies and guidelines that address impacts from current and future aircraft operations and DOD compatibility guidelines as an appendix to current planning documents.
- Developing noise overlays and / or contour maps for inclusion in planning documents.

- Incorporating policies and guidelines that address noise impacts from weapons firing and explosives operations and DOD compatibility guidelines as an appendix.
- Revise comprehensive plans to define areas that may be suitable for future real estate disclosure, sound attenuation or other measures to mitigate impacts from military operations.
- Amend the building codes to require sound attenuation that achieves an interior noise level of 45 dB for any new buildings or significant changes or additions to current buildings.
- Work with local construction and development organizations to ensure that builders and relevant skilled trades are familiar with the noise attenuation measures, how to incorporate them in a cost effective manner and how to market them as a benefit to clients and prospective clients.
- Develop a voluntary sound attenuation retrofit program for residential uses.

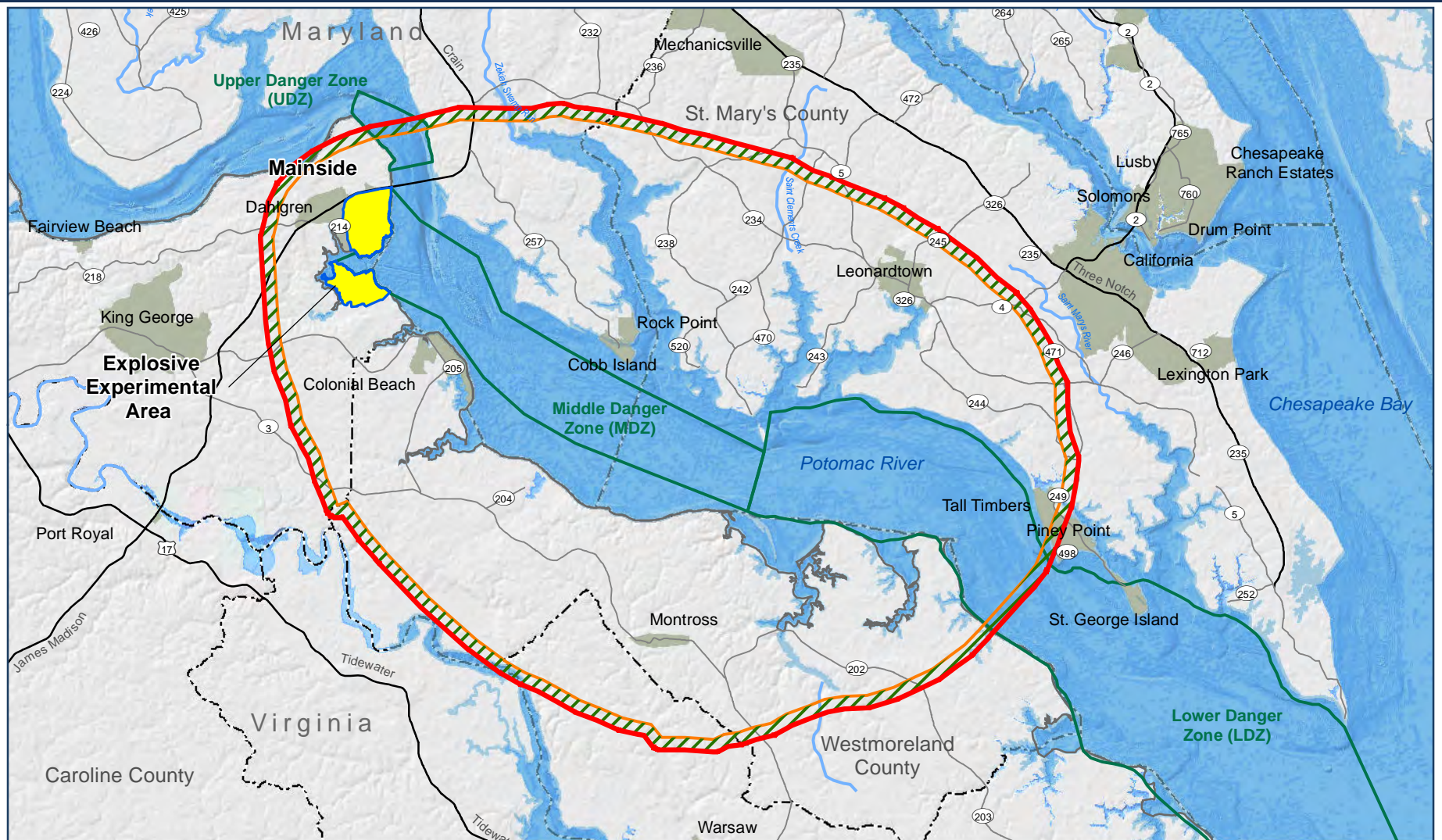
Vertical Obstruction Military Compatibility Area

The Vertical Obstruction MCA serves to protect important flight areas for aircraft that operate out of NSF Dahlgren. Within this MCA, strategies address height restrictions to avoid vertical obstructions. The Vertical Obstruction Military Compatibility Area at NSF Dahlgren is depicted on Figure 7.

The Vertical Obstructions MCA includes the estimated Inner Horizontal Surfaces and Approach-Departure Clearance Surfaces for the runway at NSF Dahlgren up to 150 feet. In this surface, for every 50 horizontal feet extending from the end of runway, development can extend one vertical foot. Land uses should be coordinated with NSF Dahlgren to ensure safety to the public and pilots is of highest priority. These surfaces may need to be adjusted by the Navy dependent on future runway needs.

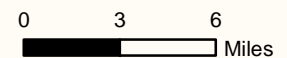
Strategies for this MCA include adopting the MCA into local comprehensive plans and zoning codes.

6. Naval Support Facility Dahlgren JLUS



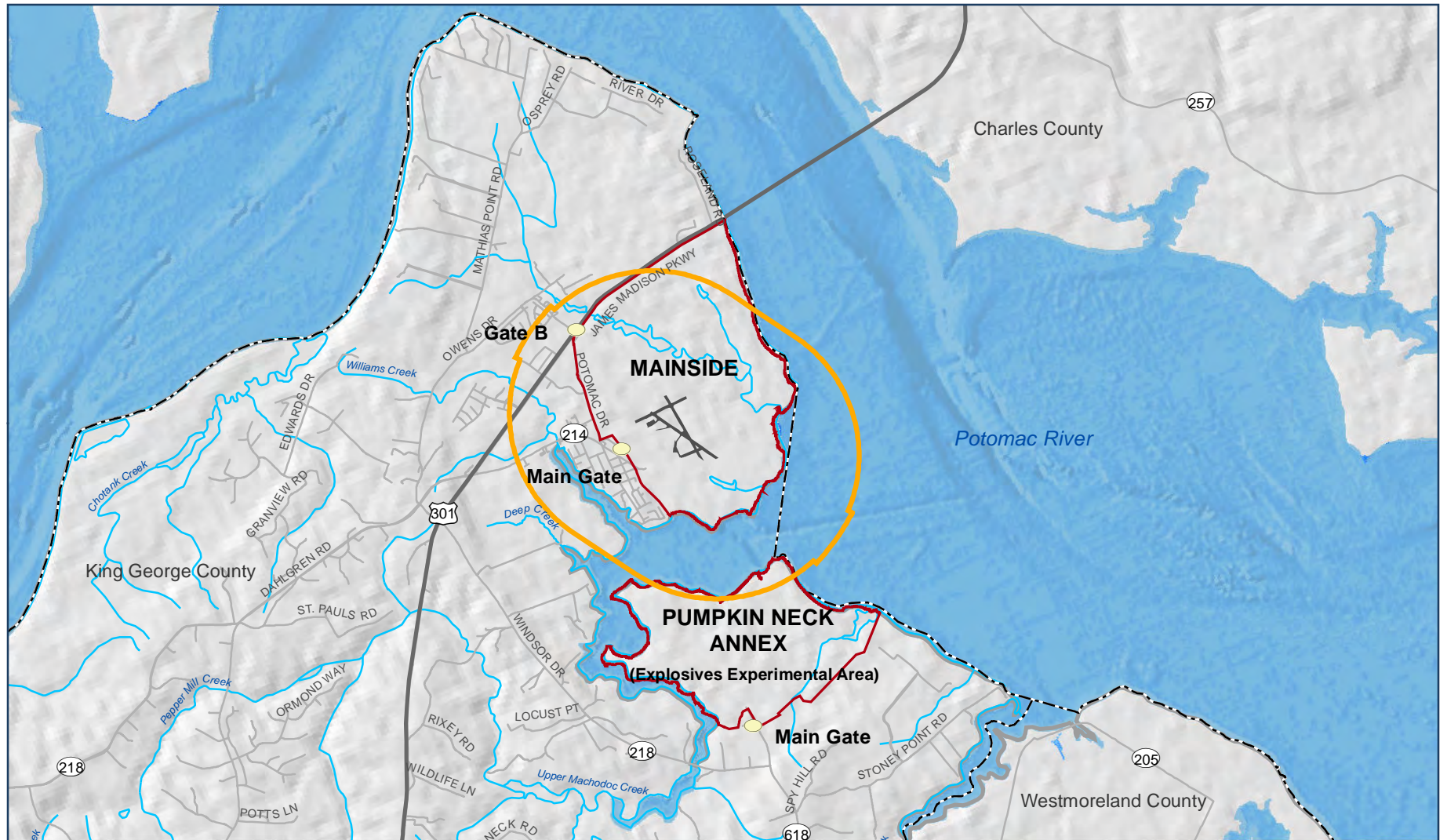
Legend

- Noise MCA
- Peak Noise
- Potomac River Range
- County Boundary
- Major Road
- Noise Buffer
- 120 dB
- Installation
- Town/Community
- Water Body
- State/District Boundary
- Highway
- River



Source: Dahlgren NSF, 2013
 Fig6_NSF_Dahlgren_NoiseMCA_20141118_CJM.pdf

Figure 6: Noise Military Compatibility Area



Legend

- Vertical Obstruction MCA
- Installation
- County Boundary
- River
- Gate
- Highway
- Road
- Water Body



0 0.75 1.5
Miles



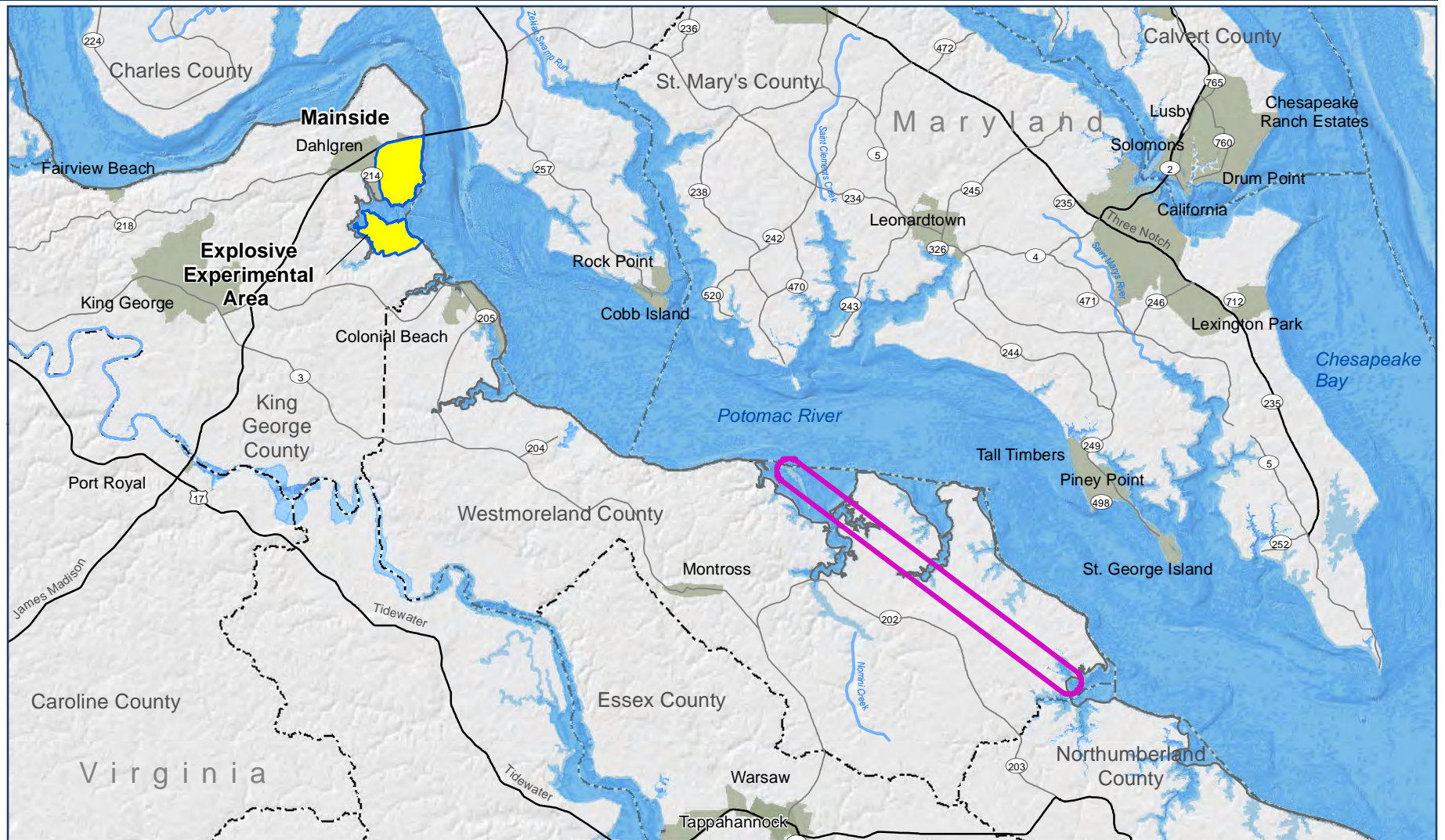
Figure 7: Vertical Obstruction Military Compatibility Area

Source: Dahlgren NSF, 2013
Fig7_NSF_Dahlgren_VertMCA_20141118_CJM.pdf

Energy Development MCA

The Energy Development MCA is an area characterized by existing, proposed, or potential areas for alternative wind energy development or other types of proposed structures that may have an impact on the radar line-of-sight requirement between NSF Dahlgren and the Navy tracking station in Northumberland County, Virginia. Wind turbines within this line of sight could create frequency interference issues that conflict with military operations. This area illustrated in Figure 8, traverses Westmoreland County in Virginia. Wind energy development such as wind turbines and transmission towers in this area should be coordinated with NSF Dahlgren.

Strategies recommended for this area include amending the Comprehensive Plan and Zoning Ordinance to restrict heights of structures to 75 feet within a half mile on each side of the Line-of-Sight.



Legend

- Energy Development MCA
- Installation
- Highway
- State/District Boundary
- Major Road
- County Boundary
- Water Body
- Town/Community
- River

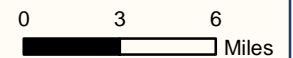


Figure 8: Energy Development Military Compatibility Area

Source: Dahlgren NSF, 2013
Fig8_NSF_Dahlgren_Energy_20141118_CJM.pdf

How to Read the Implementation Plan

The strategies developed were designed to address the issues identified during preparation of the JLUS. It is important to note that the outlined strategies may or may not be applicable to all agencies, depending upon further implementation details yet to be determined.

The purpose of each strategy is to:

1. Avoid future actions, operations, or approvals that would cause a compatibility issue,
2. Eliminate an existing compatibility issue,
3. Reduce the adversity of an existing issue, or
4. Provide for on-going communications and collaboration.

To make the strategies easier to use, they are presented in a table format that provides the strategy and information on when and how that strategy will be implemented. Table 2 highlights the format and content of the strategy table in Table 3, and the following paragraphs provide an overview of how to read the information presented within each strategy.

Issue / Strategy ID. The Issue / Strategy ID is an alpha-numeric number that provides a unique reference for each specific issue and strategy.

Strategy. In bold type is a title that describes the strategy. This is followed by the complete strategy statement that describes the action needed.

Geographic Area. This column indicates the applicable geographic area applicable to the strategy, if it relates to an area outside NAS PAX. Geographic Areas may consist of the following:

- **County.** Specific county only (county is identified)
- **General.** Generally applicable throughout the Study Area
- **NSF Dahlgren.** Applicable to the NSF Dahlgren Installation Area
- **MCAOD.** Military Compatibility Area Overlay District (a composite of all MCAs)
- **MCA.** Military Compatibility Area (Safety, Noise, Vertical Obstruction, Energy Development)

Timeframe. This column indicates the projected timeframe of each strategy. The timeframes are described below:

- **2015** Strategy to be initiated by 2014 (within same year of JLUS completion).
- **2016** Strategy to be initiated by 2015 (within 1-2 years of JLUS completion).
- **2018** Strategy to be initiated by 2017 (3 to 5 years from JLUS completion).
- **On-going** These issues need to be addressed on an on-going basis and addressed immediately.

Responsible Party. At the right end of the strategy table are a series of columns, one for each jurisdiction, military entity, agency, and organization with responsibility for implementing the JLUS strategies. If an entity has responsibility relative to implementing a strategy, a mark is shown under their name. This mark is one of two symbols that represent their role. A solid square (■) designates that the entity identified is responsible for implementing the strategy. A hollow square (□) designates that the entity plays a key supporting role, but is not directly responsible for implementation. The responsible parties are identified by their assigned acronym in the heading at the top of each page.

Table 2. NSF Dahlgren Strategy Key

Issue / Strategy ID	Geographic Area	Strategy	Timeline	Charles County	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
NOI-5		Current Building Codes do not Address Sound Attenuation. Local jurisdictions do not require sound attenuation for residences in locations subject to elevated noise levels.								
NOI-5A	Noise MCA	Amend Building Codes. Amend the building codes to require sound attenuation that achieves an interior noise level of 45 dB for any new buildings or significant changes or additions to current buildings located within areas identified as experiencing noise levels greater than 60 dBA.	2016	■	■	■	■	■		

Issue / Strategy Number: Alpha-numeric identifier used for reference.

Geographic Area: Where each strategy applies. For example, if only MCA is indicated, then that strategy only applies to areas within the MCA.

Strategy: Description of the strategy.

Timeline: The expected initiation date for strategy implementation.

Responsible Party: The primary and partner responsible agencies. For example, the ■ denotes the primary agency who will take the lead in implementation. The □ denotes partner agency who will assist the primary agency in implementation.

Table 3. Strategy Table

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
AIR QUALITY										
		No compatibility issues have been identified for this factor.								
ANTI-TERRORISM / FORCE PROTECTION										
		No compatibility issues have been identified for this factor.								
BIOLOGICAL RESOURCES										
BIO-1		Bald Eagle Nesting Sites Necessitate Military Workarounds Several bald eagle nesting sites are located on and near the base. Increased development could induce more bald eagle nests on or near Dahlgren, potentially resulting in workarounds to avoid disturbing these sites.								
BIO-1A	NSF Dahlgren	Continue Monitoring Bald Eagle Nests. Continue to coordinate with US Fish and Wildlife Service to maintain records of Bald Eagle nesting sites and monitor any change in nesting sites to maintain coordinated management strategies that allow continuation of operational activities while providing necessary habitat and species protections. Other partner: US Fish and Wildlife Service	On-going						■	□
BIO-1B	General	Coordination Among Management Agencies. Work with all management agencies to develop approaches to protect the Bald Eagle and its associated ecosystem and avoid disruption of nesting sites and habitat by providing management strategies that provide adequate habitat protection. Other partners: US Fish and Wildlife, Virginia Department of Game and Inland Fisheries, Maryland Department of Natural Resources, Northern Neck Land Conservancy, The Nature Conservancy, The Trust for Public Land	2018						■	□

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
BIOLOGICAL RESOURCES (continued)										
BIO-1C	General	<p>Website Outreach. Incorporate prevention and protection information concerning protected species on publicly accessible websites to ensure maximum outreach and public engagement.</p>	2018	■	■	■	■		■	
BIO-1D	General	<p>Seek REPI Funding to Protect Areas of Environmental Concern. Leverage Department of Defense Readiness and Environmental Protection Integration (REPI) program funds by submitting applications for REPI funding to acquire those environmentally important lands that, if developed, would not only remove important habitat, but also impact the military mission. NSF Dahlgren and the surrounding counties should consider additional REPI funding for preservation of sites that would provide the benefit of protecting operations near the installation including range areas. Other partners: Northern Neck Land Conservancy, The Conservation Fund, The Nature Conservancy, The Trust for Public Land</p>	2018	■	■	■	■		■	□
BIO-1E	NSF Dahlgren	<p>Strengthen Partners in Flight (PIF) Program to Address Migratory Bird Species Potentially Impacted by Military Activities. The PIF program provides a forum for natural resources managers from a diverse group of public, private, and international agencies to cooperate to achieve enhanced protection of wildlife and standardized policies and procedures for reporting and studying wildlife. One such program is the Monitoring Avian Productivity and Survivorship (MAPS) initiative, which focuses on the protection of the neotropical migratory bird resource. MAPS research should occur at NSF Dahlgren, with all data contributed to the national database at the Institute for Bird Populations. Other partner: Institute for Bird Populations</p>	2018						■	□

6. Naval Support Facility Dahlgren JLUS

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other		
COORDINATION / COMMUNICATION												
COM-1		<p>No Formal Process or Designated Point of Contact for Military to Review or Provide Technical Input into Community Development Projects.</p> <p>There is no formal agreement or standard process for including the Navy in the review and approval of community development projects proposed within the study area. Projects in areas that experience increased noise levels, including along the waterfront, have been approved without the Navy being informed of development proposals.</p>										
COM-1A	General	<p>Incorporate NSF Dahlgren as One of the Agencies that Review Development Applications / Proposals.</p> <p>Establish an MOU between local jurisdictions and NSF Dahlgren to formalize a process that provides copies of certain types of development proposals including dredging, rezoning, and other land use or regulation changes for lands located within the MCAs to NSF Dahlgren for review and comment. Such review periods should conform to existing community review periods for providing comment. This supports a proactive approach for identifying potential conflicts in the proposed development application.</p> <p>The process of formalizing NSF Dahlgren review and comment should include:</p> <ul style="list-style-type: none"> ■ definition of project types that require review, ■ definition of project types that require military attendance at pre-application meetings, where applicable, ■ identification of the points of contact for all coordination, ■ establishing a formal procedure for requesting and receiving comments, ■ establishing a standard timeline for responses, keeping in mind mandated review time periods as specified by state law and local/county procedures, and ■ providing notice to the military on all public hearings regarding projects identified for coordination. <p>Procedures should be reviewed annually and updated as appropriate by the JLUS Coordination Committee.</p>			On-going	■	■	■	■	■	□	

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
COORDINATION / COMMUNICATION (continued)										
COM-1B	MCAOD	<p>Seek Regular Input From Navy Representatives for Technical Assistance as Needed.</p> <p>Request a Navy representative presence in processes associated with plan updates, code updates, and development review processes on an as-needed / as-requested basis, especially in the MCAOD</p>	On-going	■	■	■	■	■	■	
COM-1C	General	<p>Develop Memorandum of Agreement for Multiple Land Management Agencies.</p> <p>The counties, Colonial Beach, and other land management agencies should develop a Memorandum of Agreement that delineates roles and responsibilities, points-of-contact, and an action plan for managing the multiple land uses within proximity of NSF Dahlgren.</p> <p>Other partners include: US Coast Guard, State of Virginia, State of Maryland</p>	On-going	■	■	■	■	■	■	□
COM-1D	General	<p>NSF Dahlgren Staff Representative on Local Planning and Zoning Commissions.</p> <p>Invite a representative from NSF Dahlgren to serve as a technical advisor to jurisdiction planning and zoning commissions to allow for NSF Dahlgren to provide input on proposed developments in the MCAOD that may impact the NSF Dahlgren mission. Formalize the invitation through an MOU.</p>	On-going	■	■	■	■	■	■	□

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Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
COORDINATION / COMMUNICATION (continued)										
COM-2		<p>Lack of Public Awareness of Impacts That Could Result From NSWCDD Test and Evaluation Operations. New residents and business owners are not typically informed of their proximity to NSF Dahlgren or the military's use of the Potomac River as a test range. Newcomers are often caught off guard the first time they observe military activity, such as explosives safety testing.</p>								
COM-2A	General	<p>Establish an NSF Dahlgren Outreach Program. Create an outreach program to share information with the community. The public outreach program should describe outreach activities to include tours of the installation, development of informational brochures to be mailed to neighbors and posted on websites (NSF Dahlgren and local jurisdictions), identification of a single public relations point of contact for NSF Dahlgren, and making contact information widely available. It should also include a military and community communication protocol directory that identifies the different level of communication channels between the appointed and elected officials, to staff, the general public, and NSF Dahlgren. Consider hosting regularly scheduled open houses on a semi-annual or annual basis for the public to provide an overview of training activities, construction, or other items of public interest. This forum should also allow residents the opportunity to comment on concerns. Open house activities that invite civilians onto NSF Dahlgren should be deconflicted with installation activities such as changes in command or senior leadership.</p>	On-going	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
COM-2B	General	<p>Media Announcement of Unusual Activities. When possible, prepare a weekly general schedule of any special or unusual activities or night activities that may be occurring that week to be published in local media.</p>	On-going	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
COORDINATION / COMMUNICATION (continued)										
COM-2C	General	<p>Conduct a Good Neighbor Program. Conduct, on a bi-annual basis, a Good Neighbor Program where letters are sent to property owners within the region inviting them to an NSF Dahlgren Open Forum. The purpose of the meeting will be to allow for an open exchange of information to maintain transparent communication and provide a platform for NSF Dahlgren to inform neighbors and interested citizens of any upcoming mission changes or operations and maintenance events that may have an impact on the neighbors and whereby the adjacent property owners can provide input and pose questions to Navy representatives. The Open houses would be held in rotating locations on or near NSF Dahlgren and within the region on a semi-annual basis and require participation by each local jurisdiction.</p>	2016	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
COM-2D	General	<p>Review of Military Planning Documents. NSF Dahlgren should provide public versions of key planning documents for review and comment by jurisdictions prior to finalization, where feasible.</p>	On-going	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
COM-2E	General	<p>Share Military Operational Brochures with Community. NSF Dahlgren should make regular contact and offer to share informational brochures, (e.g., noise contours brochure, PRTR usage brochure) with community planning and development departments within counties and the Town of Colonial Beach to display in their offices. This will provide another level of transparency and offer the community another platform to learn about the military mission.</p>	On-going	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		See Strategies LI-1A and LI-2A.								

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Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
COORDINATION / COMMUNICATION (continued)										
COM-3		<p>Lack of Awareness Amongst Tourists About Dahlgren's Presence and Operations in the Area. Visitors and tourists to the area are often unaware of the NSWCCD mission or use of the Potomac River as a test range. Tourists have been escorted off of the water when range activities are planned. Tourists have also complained about noise resulting from range activity without knowing the source or that they were visiting an area with heavy military use. Striking a balance between providing enough information about the NSWCCD mission and operations to tourist and appealing to those seeking a quiet waterfront destination has become a challenge to communities in the area.</p>								
COM-3A	General	<p>Improved Informational Signage of Military Activities. NSF Dahlgren should assist and cooperate with local jurisdictions to establish better signage identifying the installation operations from the Potomac River including along the PRTR.</p>	On-going	■	■	■	■	■	□	
COM-3B	King George County	<p>Partner with private organizations to improve awareness. NSF Dahlgren should continue to partner with the Dahlgren Heritage Museum to generate public awareness of the base and its impact to the community and the Navy. Other partner: Dahlgren Heritage Museum</p>	On-going						■	■
		See Strategies COM-2A, COM-2B, COM-2C, and COM-2E.								

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
COORDINATION / COMMUNICATION (continued)										
COM-4		<p>No Formalized Agreement Regarding Communication Coordination Between Navy and Communities.</p> <p>There is no formal community engagement or communication plan with communities. The NSF Dahlgren Community Planning and Liaison Officer has had to monitor activity and development in jurisdictions to find out about potential changes in the area. Relationships between community leaders and NSF Dahlgren are further constrained by changes to and reorganization of military personnel.</p>								
COM-4A	General	<p>Establish a JLUS Implementation Coordination Committee.</p> <p>Establish a JLUS Implementation Coordination Committee to provide oversight and monitoring of the JLUS implementation and facilitate efficient and effective coordination among the JLUS partners. Consider establishing a Sub Committee comprising JLUS Technical Advisory Group members to provide technical assistance during the JLUS implementation.</p> <p>Other partners: US Coast Guard, Maryland DOT, Virginia DOT, COMREL, George Washington Regional Council, Northern Neck Planning District Commission, Fredericksburg Regional Chamber of Commerce Military Affairs Council, Colonial Beach Foundation, Northern Neck Tourism Commission, Dominion, Northern Neck Land Conservancy, Maryland Department of Natural Resources, Virginia Department of Game and Inland Fisheries, The Conservation Fund, The Nature Conservancy, The Trust for Public Land</p>	On-going	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COM-4B	General	<p>Formalize Communication Through MOAs and MOUs.</p> <p>Formalize communication between Navy, communities and agencies through MOAs and MOUs. Formalize communication to be reproducible into the future.</p>	On-going	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
COM-4C	General	<p>Develop Intergovernmental Coordination Element.</p> <p>King George County and other local jurisdictions should consider developing an Intergovernmental Coordination Element to include in comprehensive plans that set provisions for the multiple land management agencies and their roles and responsibilities.</p>	On-going	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

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Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
CULTURAL SITES										
		No compatibility issues have been identified for this factor.								
DUST / SMOKE / STEAM										
		No compatibility issues have been identified for this factor.								
ENERGY DEVELOPMENT										
ED-1		Potential Wind Farm Development in Region Could Interfere with Military Devices / Operations. Areas proximate to NSF Dahlgren have been identified by wind farm developers as an area of interest for potential alternative energy projects. The siting of wind farms around NSF Dahlgren and the Potomac River Test Range could result in impacts to Navy systems and operations, particularly communication infrastructure and frequency interference.								
ED-1A	General	Develop Alternative Energy Ordinance. Consider development of alternative energy development ordinances to coordinate siting within military influence areas and limit heights within restricted and special use airspace.	2016	■	■	■	■			
ED-1B	General	Coordination With the National Oceanic and Atmospheric Administration. Coordinate the review of wind energy development projects within the recommended "No-Build Zone" with the National Oceanic and Atmospheric Administration (NOAA). Incorporate NOAA's recommendations concerning wind turbine placement into local zoning regulations. Other Partner: National Oceanic and Atmospheric Administration	2016	■	■	■	■			□

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
ENERGY DEVELOPMENT (continued)										
ED-1C	General	<p>Identify and Map Locations Suitable for Wind Energy Development.</p> <p>Work with the Navy to identify and publish locations for alternative energy development that are ideal for wind developers as well as compatibility with military operations. Develop a "Red, Yellow, Green" map that communicates and illustrates specific locations where structures that exceed a mutually agreed upon height should be prohibited to avoid incompatibility with military operations.</p> <p>Other partner: Wind Industry</p>	2016	■	■	■	■		□	□
ED-1D	General	<p>Coordinate With Wind Developers to Reach an Agreement that Supports Wind Energy and Military Missions.</p> <p>Seek local support to develop agreements between the military, county, and wind farm developers that can be used to support wind projects by identifying conditions that will allow for mission sustainment and economic feasibility of proposed projects.</p> <p>Other Entity: Wind Energy Developers</p>	2016	■	■	■	■		■	■
ED-1E	General	<p>Coordinate with DOD Siting Clearinghouse.</p> <p>The DOD Siting Clearinghouse requirements and standards published in Title 32, Code of Federal Regulations, Part 211, advise and guide the process to facilitate the early submission of renewable energy project proposals to the Clearinghouse for military mission compatibility review.</p> <p>Amend applicable local planning documents (comprehensive plans, regional plans, and energy system ordinances) to incorporate procedures requiring coordination of alternative energy development applications with the DOD Siting Clearinghouse.</p> <p>Other Entity: DOD Siting Clearinghouse, Wind Energy Developers</p>	2016	■	■	■	■		□	□

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Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
FREQUENCY SPECTRUM CAPACITY										
		No compatibility issues have been identified for this factor.								
FREQUENCY SPECTRUM INTERFERENCE / IMPEDANCE										
FSI-1		Potential Frequency Interference Could Occur from Construction Activities Associated with Nice Memorial Bridge Improvement Project. Machinery and equipment needed for the construction of the new Harry Nice Bridge requires the use of systems that could result in frequency interference. Additional cell phone and Wi-Fi device usage could likely increase the potential for frequency interference to occur.								
FSI-1A	King George County / Charles County	Formalize Communication Procedures. Identify and convene a coalition of spectrum stakeholders to discuss use of frequencies and notification procedures for possible interruption of service. Other partners: Maryland DOT, bridge construction contractor	On-going						■	□
FSI-1B	General	Ensure Compatible Frequencies. The Federal Communications Commission is the government entity responsible for managing frequency usage. The military is assigned certain frequencies to use that generally do not interfere with civilian uses. The continued usage of only assigned frequencies should ensure no interference between military and civilian uses. Other partner: Federal Communications Commission	On-going						■	□

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
FREQUENCY SPECTRUM INTERFERENCE / IMPEDANCE (continued)										
FSI-2		<p>Growing Use of Part 15 Devices Can Potentially Interfere with Military Equipment. The use of Part 15 devices (garage door openers, remote controls for electronic equipment, baby monitors, cordless telephones, laptop computers, wireless computer mice, wireless modems, etc.) continues to increase. Civilian use of Part 15 devices could interfere with equipment used at NSF Dahlgren and vice versa.</p>								
FSI-2A	NSF Dahlgren	<p>Acquire and Improve RF Spectrum Analysis Technology Devices. Pursue acquisition and development of "RF spectrum analyzer" technologies used to detect interference between frequency bands. This tool can be used to identify interference from on- and off-installation sources including military and public/commercial users.</p>	On-going						■	
FSI-2B	NSF Dahlgren	<p>Adjust Frequency Usage Evaluate the feasibility of adjusting frequency usage to utilize different frequencies that would not interfere with, or be impacted by, Part 15 devices.</p>	On-going						■	
		See Strategies FSI-1A and FSI-1B.								

6. Naval Support Facility Dahlgren JLUS

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
FREQUENCY SPECTRUM INTERFERENCE / IMPEDANCE (continued)										
FSI-3		Potential RFI radio frequency and/ EMI electromagnetic interference Could Occur from Development Along Route 301. The Route 301 corridor is expected to experience additional growth and construction activity particularly in the area immediately outside of NSF Dahlgren's B Gate. Additional growth in this area could result in Radio Frequency Interference (RFI) / Electromagnetic Interference (EMI) impacting the proposed UAV ground area at NSF Dahlgren.								
FSI-3A	Charles County / King George County	Develop Highway Signage Describing Potential Frequency Interference. Work with the Maryland and Virginia transportation departments and appropriate county transportation departments on the placement of signs noting that GPS and cellular technologies could be impacted by military training operations in the area and appropriate care should be taken when entering these areas. NSF Dahlgren shall provide information to the transportation departments on areas subject to this interference. Other partners: Maryland DOT, Virginia DOT	2016	<input type="checkbox"/>	<input type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
FSI-3B	Charles County / King George County	Develop Outreach Materials. Work with affected jurisdictions to develop public outreach materials including website updates and public service announcements to inform the public about the potential for interruption of cellular service and GPS devices within areas associated with NSF Dahlgren testing.	2016	<input type="checkbox"/>	<input type="checkbox"/>				<input checked="" type="checkbox"/>	
FSI-3C	Charles County / King George County	Establish Procedures to Avoid Frequency Conflicts / Issues. Identify telecommunications projects that should be referred to the military for review and communicate this information to jurisdictions. The criteria that triggers coordination includes tower height, proximity to NSF Dahlgren, power emission from tower sources, and high output transmission devices. Coordinate with jurisdictions on RF projects that could impact off-installation communications. Other partner: FCC, Naval Air Station Patuxent River	2016	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
FREQUENCY SPECTRUM INTERFERENCE / IMPEDANCE (continued)										
		See strategies FSI-1A and FSI-1B.								
FSI-4		Potential Wind Energy Growth in Region Could Cause Line of Sight Issues Wind developers have shown interest in the region for the placement of wind turbines and farms. Future development of wind energy devices within the region could interfere with tracking stations that use line-of-sight.								
FSI-4A	Energy Dev MCA	Incorporate Military Compatibility Areas for Military Operations in Comprehensive Plans and Zoning Ordinances. Amend the Comprehensive Plan and Zoning Ordinance to restrict heights of structures to 75 feet within a half mile on both sides of the Line-of-Sight.	2018				■		□	
		See Strategies ED-1A, ED-1B, ED-1C, ED-1D, and ED-1E.								
HOUSING AVAILABILITY										
HA-1		Limited Off-base Housing Options for Military Workforce. Local jurisdictions' growth policies do not fully address military workforce housing needs. The lack of sufficient quantities of lodging has resulted in military workforce commuting to NSF Dahlgren from as far away as Fredericksburg, which requires a minimum commute time of 45 minutes each way.								
HA-1A	General	Incorporate Transient Housing Needs in Comprehensive Plans. Update comprehensive plan housing element in consultation with NSF Dahlgren to account for and consider the transient housing needs of NSF Dahlgren personnel.	2016	■	■		■	■	□	
HA-1B	General	Navy Rental Housing Investigate the feasibility of a local government / Navy / Private Development project to build Navy Rental Housing. Other partners: Private Developers	2016	■	■	■	■	■	■	□

6. Naval Support Facility Dahlgren JLUS

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
HOUSING AVAILABILITY (continued)										
HA-1C	General	<p>Military Housing in Local Communities</p> <p>If additional or replacement housing is needed to serve NSF Dahlgren, work with local jurisdictions to determine if this housing need can be met locally with existing housing stock or new privatized housing in the community. Emphasis on providing housing, especially rentals, in the community is desired.</p> <p>Other partner: Fort A.P. Hill</p>	2016	■	■	■	■	■	■	□
HA-2		<p>Additional Housing Capacity Needed for Military Transient Students.</p> <p>On-base lodging often turns students away due to high occupancy rates and not enough on-base housing to support the transient student population. The lack of sufficient quantities of lodging has resulted in students commuting to NSF Dahlgren from as far away as Fredericksburg, which requires a minimum commute time of 45 minutes each way.</p>								
		See Strategies HA-1A, HA-1B, and HA-1C								
INFRASTRUCTURE EXTENSIONS										
IE-1		<p>Infrastructure Improvements / Extensions May Induce Growth Close to NSF Dahlgren.</p> <p>The new substation on base provides many mutual benefits for NSF Dahlgren and King George County but also has the potential to induce growth due to an increase in capacity. The extension of additional / new services to areas outside the base could create the potential for growth inducement in areas subject to impacts from NSF Dahlgren activities and operations.</p>								
IE-1A	King George County	<p>Incorporate Compatibility Planning Concepts into CIPs / Infrastructure Master Plans.</p> <p>Incorporate compatibility planning concepts into CIPs / Infrastructure Master Plans for infrastructure extensions and improvements.</p> <p>Avoid extension of infrastructure service adjacent or proximate to NSF Dahlgren for rezoning applications, except to serve approved community / area plans or commercial and industrial development which provides a compatible land use pattern.</p>	2018		■				□	

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
INFRASTRUCTURE EXTENSIONS (continued)										
IE-1B	General	<p>Inform NSF Dahlgren of Infrastructure Extensions.</p> <p>If any of the jurisdictions develop plans to extend infrastructure towards NSF Dahlgren or the PRTR, they should inform NSF Dahlgren and discuss alternatives that would help reduce potential future development along the infrastructure line (growth-inducement). The coordination should be done early in the planning process to optimize compatibility and reduce costs associated with plan changes.</p>	2018	■	■	■	■		□	
LAND / AIR/ SEA SPACE COMPETITION										
LAS-1		<p>Nine (9) Mile Gap In Restricted Airspace Between Dahlgren and Naval Air Station Patuxent River (NAS PAX).</p> <p>There is a nine mile distance between Dahlgren's restricted airspace and NAS PAX's restricted airspace. Control of this air space turns over to FAA. NSF Dahlgren is working with FAA to obtain a Certificate of Authorization (COA) to connect NAS PAX airspace with NSF Dahlgren airspace.</p>								
LAS-1A	St. Mary's County	<p>Create a Civilian / Military Aviation Coordination Committee.</p> <p>The Navy, FAA, St. Mary's County Regional Airport, and NSF Dahlgren should create a coordination committee to discuss, understand, and coordinate civil and military aviation matters.</p> <p>Other partner: FAA</p>	2016			■			■	■
LAS-1B	General	<p>Obtain FAA Certificate of Authorization.</p> <p>Prepare & finalize the FAA Certificate of Authorization to connect the airspace between NSF Dahlgren and NAS PAX.</p> <p>Other partner: FAA, Mid-Atlantic Aviation Partnership</p>	On-going						■	■

6. Naval Support Facility Dahlgren JLUS

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
LAND / AIR/ SEA SPACE COMPETITION (continued)										
LAS-2		Dahlgren's Range Stations on Private Land Subject to Disruption / Termination of Use. Range stations on private land are subject to lease agreements with private residents. A change in property ownership or status could jeopardize the Navy's continued use of these stations in their current location.								
LAS-2A	Charles County / King George County / Westmoreland County / Colonial Beach	Pursue Purchase of Land or Easements. Evaluate the purchase of land or easements from willing property owners to secure future use of existing sites of range stations.	2016						■	
LAS-2B	Charles County / King George County / Westmoreland County / Colonial Beach	Evaluate Funding Options for Potential Purchase of Land. Identify potential funding sources and/or partnerships among public agencies, non-governmental organizations (NGO) and/or private entities to leverage funds that may be able to purchase the land if property owners are willing to sell. Other partners: Northern Neck Land Conservancy, The Conservation Fund, The Nature Conservancy, The Trust for Public Land, Virginia Federal Action Contingency Trust (FACT) Fund	2016						■	□

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
LAND / AIR/ SEA SPACE COMPETITION (continued)										
LAS-3		<p>Competition for Use of Waterways Places Limitations on Water Range Operations. Although the NSWCCD coordinates the use of the Potomac River Test Range with the Coast Guard to clear boaters from the waterways, testing is subject to delay or cancellation due to the presence of boaters, marine commercial freight movements, commercial fishing, and recreational boating on the Potomac River.</p>								
LAS-3A	General	<p>Expand Outreach to Boating Community. Engage boating community through formal education session to increase awareness of the range area. This could include methods such as:</p> <ul style="list-style-type: none"> ■ increased and enhanced signage, ■ engagement of boating community through marinas and boating associations, and boating clubs, ■ expanded radio communications, and ■ requirement of all boaters in area to have an onboard radio (potential for equipment rental option). <p>Other partners: marinas, boating associations, boating clubs</p>	2016						■	□
LAS-3B	General	<p>Partner With Other Entities to Clear the Area of Non-Military Users. NSF Dahlgren should develop MOUs with other entities, such as the Potomac River Fisheries Commission, Maryland Department of Natural Resources, Virginia Marine Resources Commission, Department of Game and Inland Fisheries, and the Atlantic States Marine Fisheries Commission, to help secure the range areas from public access during training times.</p>	2016						■	■
		See Strategies COM-2A, COM-2B, COM-2C, COM-2E, and COM-3A.								

6. Naval Support Facility Dahlgren JLUS

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
LAND USE										
LU-1		Additional Growth in Military Influence Areas May Impair Use of Dahlgren's Aviation Assets. The existing runway has the potential to be constrained for use by fixed wing aircraft due to the location of growth nodes in King George County and the current airspace classification. Additional development of certain densities / intensities within airport approach and departure corridors could render aviation facilities unusable.								
LU-1A	NSF Dahlgren / King George County	Develop Clear Zones and Accident Potential Zones for the Runway. The Navy should develop and identify runway safety zone dimensions (Clear Zones and Accident Potential Zones) relevant to the size and type of runway located at NSF Dahlgren. The DOD has standard recommendations for the types of land uses that are compatible and incompatible in each of the three zones. These recommendations could be used by the Navy and King George County to evaluate future development trends.	2016		<input type="checkbox"/>				■	
LU-1B	NSF Dahlgren/ King George County/ Charles County / Westmoreland County / Colonial Beach	Develop Imaginary Surfaces for the Runway. The Navy should develop and identify the dimensions of imaginary surfaces relevant to the size and type of runway located at NSF Dahlgren. Each type of imaginary surface has different heights at which any development, structure, or natural object exceeding that height may pose a risk to flight operations. The imaginary surface height criteria could be used by the Navy and surrounding jurisdictions to evaluate future development trends.	2016						■	

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
LAND USE (continued)										
LU-1C	King George County	<p>Update King George County Zoning Code to Include Runway Safety Zones. If the Navy moves forward with the development of runway safety zones (per Strategy LU-1A), King George County should consider incorporating these zones into the zoning code to protect future runway operational areas.</p>	2016		■				□	
LU-1D	NSF Dahlgren/ King George County/ Charles County/ Westmoreland County/ Colonial Beach	<p>Update Local Zoning Codes With Imaginary Surfaces (Vertical Obstruction Zones). If the Navy moves forward with the development of imaginary surfaces (per Strategy LU-1B), the jurisdictions within them should incorporate the imaginary surfaces into their zoning code to protect future runway operational areas.</p>	2016	■	■		■	■	□	
		See Strategies BIO-1D and LU-3A.								

6. Naval Support Facility Dahlgren JLUS

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
LAND USE (continued)										
LU-2		<p>Portions of the King George County's Comprehensive Plan Goals and Future Land Use are Potentially Incompatible with Military Operations. King George County's recently updated Comprehensive Plan designates the area outside of Dahlgren as a high growth area, encouraging compact forms of development with varying densities, which is potentially incompatible in both safety zones, areas of increased noise, and areas that may need vertical limits to preserve airfield capabilities. Additional growth in these areas requires proper siting and development guidelines that would allow for the development of higher densities / workforce housing in areas proximate to the base yet outside military influence areas.</p>								
LU-2A	King George County	<p>Update the King George County Comprehensive Plan to Include Military Compatibility Policies. Policies that support and encourage uses that are compatible with NSF Dahlgren operations should be incorporated into King George County's comprehensive plan. Update and adopt future land use maps and supporting goals, objectives, and policies that encourage compatible growth around NSF Dahlgren. Navy representatives should be included as a stakeholder in the development and regular updates of the plans.</p>	2015		■					
		See Strategies COM-1A, COM-1B, COM-1C, LU-1C, and LU-1D.								

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
LAND USE (continued)										
LU-3		<p>Potential Incompatible Development Along the Potomac River Test Range and Near the Range Stations.</p> <p>Development pressure along the waterfront is increasing and may impact the use of range stations and range operations along the test range. Several of the range station locations are leased from private individuals. The use of these range stations may be lost as development occurs or property ownership changes.</p>								
LU-3A	MCAOD	<p>Military Compatibility Area Overlay District (MCAOD).</p> <p>Create a Military Compatibility Area Overlay District (MCAOD) containing Military Compatibility Areas (MCAs) that reflects the types and intensity of land uses compatible with military activities at NSF Dahlgren and the PRTR. The MCAOD is the collective geographic area of all of the MCAs combined. The MCAs should be used by local jurisdictions to identify areas where specific compatibility issues related to safety, noise, vertical obstructions and energy development are more likely to occur. Implementation of the MCAOD and associated strategies for these zones will:</p> <ul style="list-style-type: none"> ■ create a broader framework for making sound planning decisions around military operating areas; ■ more accurately identify areas that can affect or be affected by military missions; ■ protect the public health, safety, and welfare; ■ protect the military missions; ■ create a compatible mix of land uses; and ■ promote an orderly transition and rational organization of land use around military operating areas. 	2015	■	■	■	■	■	■	■

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Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
LAND USE (continued)										
LU-3A (cont'd)		<p>The MCAs are defined as follows:</p> <ul style="list-style-type: none"> ■ Safety MCA. Includes the land within the BASH Relevancy Area. The safety zone may need to be adjusted by the Navy to include Clear Zone and Accident Potential Zones outside the installation dependent on future runway needs. ■ Noise MCA. Includes areas within the 120 dBP peak noise contours, as well as an additional half mile beyond the noise contour boundary. ■ Vertical Obstructions MCA. Includes the estimated Inner Horizontal Surfaces and Approach-Departure Clearance Surfaces for the runway at NSF Dahlgren up to 150 feet. These surfaces may need to be adjusted by the Navy dependent on future runway needs. ■ Energy Development MCA. Includes a half-mile buffer on each side of the radar line-of-sight through Westmoreland County to the tracking station in Northumberland County. <p>To assist in this effort, geographic information system (GIS) files of these boundaries can be obtained from King George County following finalization of this JLUS and approval of these MCAs. Updates to the noise contours, safety zones, and imaginary surfaces data should be provided by NSF Dahlgren dependent on mission or operational changes, or development of an Air Installation Compatible Use Zone (AICUZ) study.</p> <p>Where appropriate, the jurisdictions should incorporate the MCAOD and MCA boundaries on their zoning map and future land use maps and include the zones on their websites for easy access by the public</p>								

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
LAND USE (continued)										
LU-3B	MCAOD	<p>Update Local Jurisdiction Comprehensive Plans To Include Military Compatibility Policies That Support And Promote Compatible Land Uses.</p> <p>Update and adopt the jurisdiction’s future land use map, and supportive goals, objectives, and policies that encourage a compatible land use pattern for new development and appropriate capital improvement investments. They should incorporate the MCAs and recommended land uses relative to safety, noise, vertical obstructions, and energy development into comprehensive plans to assist in compatible long-range planning. Include NSF Dahlgren as one of the stakeholders in the Plan updates.</p>	2015	■	■	■	■	■	□	
LU-3C	General	<p>Update Local Jurisdiction Zoning Codes.</p> <p>Update zoning map and zoning code to be consistent with any changes or updates resulting from the comprehensive plan updates as part of Strategy LU-3B.</p>	2015	■	■	■	■	■	□	
LU-3D	General	<p>Update Comprehensive Plans with the Compatibility Policy Set.</p> <p>The goals and policies (to be developed) are proposed for inclusion into each comprehensive plan, as appropriate, to supplement the jurisdiction’s existing policies. These changes provide a complete policy package for compatibility planning and provide a policy basis for many of the other strategies contained in this JLUS.</p>	2015	■	■	■	■	■	□	
LU-3E	General	<p>Economic Development Marketing.</p> <p>Establish economic development marketing guidelines that identify the type of industries that are compatible with the NSF Dahlgren mission and the type of industries that are incompatible with the military mission.</p>	2015	■	■	■	■	■	□	

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Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
LAND USE (continued)										
LU-3F	MCAOD	<p>Property Owner JLUS Packet. Develop an information packet for property owners that identify JLUS issues regarding land development concerns that could impact or be impacted by NSF Dahlgren operations. The packet should include current regulations that restrict certain types of development incompatible with NSF Dahlgren operations or types of development that would not be compatible. Include contact information for a community representative who can direct property owners where to find additional information.</p>	2015	■	■	■	■	■	□	

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
LEGISLATIVE INITIATIVES										
LEG-1		<p>Lack of Virginia Requirement for Real Estate Disclosure to Identify Proximity to Dahlgren. The Virginia Residential Property Disclosure Act requires disclosure only if a property's location is within a Noise Zone or Accident Potential Zone for military air installations only and only for properties located within the same jurisdiction as the military air installation. Disclosure requirements do not address other potential nuisances such as frequency interference. The use of real estate disclosures is subject to the realtor's discretion on providing notification to prospective buyers.</p>								
LEG-1A	MCAOD	<p>Develop an Enhanced Real Estate Disclosure Statement. Develop an enhanced real estate disclosure statement that includes appropriate information about NSF Dahlgren operations, the NSF Dahlgren Operating Area, use of civilian airports, and potential noise and vibration effects that may result from certain types of events and activities performed. The disclosure should state that the building / structure for sale or lease is located within the NSF Dahlgren Operating Area and that weapons firing and explosives operations are conducted within the region that may have an impact on the community such as noise or vibration. Work with state real estate boards, local real estate representatives, and the development community to develop and implement adequate language for inclusion in disclosure notices. Technical information should be provided by and approved by NSF Dahlgren prior to release. Other partners: Virginia Real Estate Board, Virginia Association of Realtors, realtors, land developers</p>	2016		■		■	■	□	□

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Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
LEGISLATIVE INITIATIVES (continued)										
LEG-1B		<p>Revise Virginia Administrative Code. Request the Commonwealth of Virginia update the Virginia Administrative Code Section § 55-519.1 regarding real estate disclosure near military installations to include firing range areas and associated noise as a trigger for requiring real estate disclosure. Other partner: Commonwealth of Virginia</p>	2015		■		■	■		□
LEG-2		<p>Maryland Real Estate Disclosure Does Not Specify Military Base or Potential Nuisances. Maryland's Real Property Annotated Code requires real estate agent to inform a prospective homebuyer that their property "may be located near a military installation that conducts flight operations, munitions testing, or military operations that may result in high noise levels." Identifying a property's proximity to a military installation, the name of the installation, and potential nuisances that may result are not required in the disclosure.</p>								
LEG-2A	General	<p>Develop an Enhanced Real Estate Disclosure Statement. Develop an enhanced real estate disclosure statement that includes appropriate information about NSF Dahlgren operations, the NSF Dahlgren Operating Area, use of civilian airports, and potential noise and vibration effects that may result from certain types of events and activities performed. The disclosure should state that the building / structure for sale or lease is located within the NSF Dahlgren Operating Area and that weapons firing and explosives operations are conducted within the region that may have an impact on the community such as noise or vibration. Other partner: Maryland Real Estate Commission, Maryland Association of Realtors, realtors, land developers, local realtors</p>	2018	■		■			□	□

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
LEGISLATIVE INITIATIVES (continued)										
LEG-2A (cont'd)		Work with state real estate boards, local real estate representatives, and the development community to develop and implement adequate language for inclusion in disclosure notices. Technical information should be provided by and approved by NSF Dahlgren prior to release. Consider combining this effort with the implementation of other regional JLUS efforts.								
LEG-2B		Revise Maryland Annotated Code. Request the State of Maryland revise the Maryland Annotated Code Real Property Section § 14-117 regarding real estate disclosure near military installations to include firing range areas and associated noise as a trigger for requiring real estate disclosure. Other partners: State of Maryland, local realtors	2018	■		■				□
LEG-3		Frequency Spectrum Use is Not Regulated on the Consumer Level. Part 15 devices are regulated by the Federal Communication Commission; however, not all equipment that uses RF energy is required to have a license or assignment. Additionally, Real estate disclosures do not address frequency spectrum.								
		See Strategies FSI-1A, FSI-1B, FSI-2A, FSI-2B, LI-1B, and LI-2B.								

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Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
LIGHT AND GLARE										
LG-1		<p>Lighting Levels Along Waterfront Could Impact Dahlgren’s Ability to Perform Night Training / Testing. The utilization of the Potomac River Test Range at night with use of night vision devices is constrained by both existing light sources along the waterfront and the potential for increased sky glow as waterfront areas develop. There are no ordinances in place that regulate the type, size, or intensity of lighting at night. Certain types of directional lighting can produce ambient light and light trespass rendering the night vision devices ineffective.</p>								
LG-1A	MCAOD	<p>Develop and Establish Dark Sky Lighting Ordinance. Adopt a “Dark Sky” ordinance to minimize urban sky glow and the potential for light trespass onto adjacent properties within the NSF Dahlgren Operating Area. Items to be addressed should include controls for downward directional lighting, placement of lighting fixtures, and types of lighting fixtures. Specific development standards should be incorporated into the zoning ordinances and building codes of each jurisdiction and address areas adjacent to the installation boundary. The lighting ordinance should also include regulation of lighting such as LED billboards in important flight paths and the imaginary surfaces approach and departure corridors.</p>	2016	■	■	■	■	■		
MARINE ENVIRONMENTS										
		No compatibility issues have been identified for this factor.								

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
NOISE										
NOI-1		<p>Range Noise Concerns and Complaints from Affected Sensitive Users. Noise associated with range operations needs to be addressed as part of any future development proposals and approvals near the following areas. Increased noise levels are experienced in locations that are identified as growth areas of Colonial Beach, Swan Point, and Cobb Island. These areas are more populated and where the most noise complaints are received from. Charles County has identified Swan Point as a future growth area in its Master Plan, which could exacerbate complaints from residents and confusion regarding source of noise due to other military bases in the region.</p>								
NOI-1A	Noise MCA	<p>Identify Noise Compatibility Policies for Inclusion in Local Planning Documents. Incorporate policies and guidelines that address noise impacts from aircraft operations and DOD compatibility guidelines as an appendix to current planning documents that are easily accessible by the public.</p>	2016	■	■	■	■	■		
NOI-1B	Noise MCA	<p>Incorporate Noise Contour Maps Into Local Planning Documents. Develop noise overlays and / or contour maps for inclusion in planning documents. Incorporate policies and guidelines that address noise impacts from aircraft operations and DOD compatibility guidelines as an appendix easily accessible to the public.</p>	2016	■	■	■	■	■		
NOI-1C	Noise MCA	<p>Identify Noise Contours on County Documents and in the Decision-Making Process. Develop noise overlays and / or contour maps for inclusion in planning documents to address both existing and future operations that may result in noise and vibrations impacts to the community.</p>	2016	■	■	■	■	■		

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Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
NOISE (continued)										
NOI-1D	Noise MCA	Identify Noise Compatibility Policies for Inclusion in Local Planning Documents. Incorporate policies and guidelines that address noise impacts from weapons firing and explosives operations and DOD compatibility guidelines as an appendix to current planning documents that are easily accessible by the public.	2016	■	■	■	■	■		
		See Strategies COM-2A, LU-2A, LU-3A, LU-3B, LU-3D, LU-3F, LI-1A, and LI-2A.								
NOI-2		Potentially Incompatible Land Uses Located and Permitted in Military Noise Influence Areas. Noise complaints are often received from Swan Point, Colonial Beach, Cobb Island and other areas along the Potomac River waterfront. Waterfront properties are an asset to local jurisdictions; however, continued development in these areas may increase conflicts as a result of additional people being exposed to elevated noise levels. Existing development policies and regulations permit sensitive land uses (such as places of worship, group homes, and day cares) by right in areas that are subject to elevated noise levels. If not guided appropriately, continued growth in these areas has the potential to require military workarounds or disruption in schedules to resolve conflicts.								
		See Strategies COM-2A, LU-2A, LU-3A, LU-3B, LU-3D, LU-3F, LI-1A, and LI-2A.								
NOI-3		Noise Levels Limit Opportunities to Increase Nighttime Operations. Due to the risk of noise complaints from off-base neighbors related to the proposed operational noise, the Navy has limited their operations. Although no federal law prohibits military training and testing activities from making noise, the Navy has limited their operations to avoid community conflicts.								
NOI-3A	Noise MCA	Seek Assistance From NSF Dahlgren to Incorporate Maps and Updates to Planning Documents and Guidelines that Minimize Noise Concerns Among Residents. Based on noise data, provide information to local jurisdictions to add as revisions to comprehensive plans to define areas that may be suitable for future real estate disclosure, sound attenuation or other measures to mitigate impacts from military operations.	2016	■	■	■	■	■	□	

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
NOISE (continued)										
NOI-4		<p>Lack of Noise Zone Awareness by Community. Additional testing and potential expansion of air mission will result in increased noise impacts from current levels. Additional public relations and awareness efforts will be needed as the area continues to grow. Noise zones and descriptions are not publicly available or included on land use planning maps. Newcomers often move to the area without any awareness of military operations or presence.</p>								
NOI-4A	General	<p>Develop Noise Informational Brochure for Base Operations. Develop an informational / educational brochure about the noise generated from the operations that occur over the installation to include the large weapons noise contour and any low-level altitude operating areas. Points-of-contact should also be included in this brochure.</p>	2018						■	
		See Strategies COM-2A, COM-2B, COM-2C, COM-2E, and NOI-1B.								
NOI-5		<p>Current Building Codes do not Address Sound Attenuation. Local jurisdictions do not require sound attenuation for residences in locations subject to elevated noise levels.</p>								
NOI-5A	Noise MCA	<p>Amend Building Codes. Amend the building codes to require sound attenuation that achieves an interior noise level of 45 dB for any new buildings or significant changes or additions to current buildings located within areas identified as experiencing noise levels greater than 60 dBA.</p>	2016		■			■		
NOI-5B	Noise MCA	<p>Educate Local Builders on Sound Attenuation. Work with local construction and development organizations to ensure that builders and relevant skilled trades are familiar with the noise attenuation measures, how to incorporate them in a cost-effective manner and how to market them as a benefit to clients and prospective clients.</p>	2016	■	■	■	■	■		

6. Naval Support Facility Dahlgren JLUS

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
NOISE (continued)										
NOI-5C	Noise MCA	<p>Develop Sound Attenuation Retrofit Program. Develop a voluntary sound attenuation retrofit program for residential uses. Develop a program that provides guidance on sound attenuation standards for retrofitting existing residential and commercial facilities. The program could include grant opportunities and tax rebates available to assist property owners in retrofitting structures in noise sensitive areas. Other funding sources for retrofitting homes should be identified and provided within the program materials.</p>	2016	■	■	■	■	■		
PUBLIC TRESPASSING										
PT-1		<p>Public Trespassing Occurs Along NSF Dahlgren's Waterfront. NSF Dahlgren is accessible from the waterfront. This open access has resulted in trespassing incidents when boaters get too close to the base.</p>								
		This issue is adequately managed at the current time.								
ROADWAY CAPACITY										
RC-1		<p>Roadway Capacity Near B Gate Has the Potential to Increase Safety Concerns. Traffic entering B gate gets backed up, causing safety concerns. Travel speed is a concern in this area.</p>								
RC-1A	NSF Dahlgren	<p>Consider Recertifying Munitions Storage Facilities to Realign Gate and Queuing. Consider recertifying or decertifying selected munitions storage facilities to reduce quantity distance explosive safety arcs. This would allow the base to be able to move its entry gate further into the installation to allow for a longer queuing area that would help reduce traffic impacts on public roads of personnel waiting to enter the base.</p>	2016						■	

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
ROADWAY CAPACITY (continued)										
RC-1B	General	<p>Monitor Capital Improvements for Roadway Capacity. Monitor capital improvement projects to ensure roadway capacity is sufficient and increases traffic flow and mobility without causing unintentional pressures on the military or communities to provide for more services. Other partner: Virginia Department of Transportation</p>	2016	■	■					□
RC-1C	King George County	<p>Conduct a Traffic Study to Assess Community Impacts on NSF Dahlgren and Vice Versa. Conduct a traffic study to quantify demand cycles and address alternatives such as repositioning or improvements to gate access to allow for alternative routes to NSF Dahlgren. Other partner: Virginia Department of Transportation</p>	2016		■				■	□
RC-1D	King George County	<p>Conduct a Feasibility Study to Assess Viability of Public Transit to NSF Dahlgren. Conduct a transportation feasibility study to quantify the possibility of public transit to reduce overall trip generation to NSF Dahlgren. The study should evaluate trip generation including origin and destination pairs; driver behavior and preference; peak trip periods; and cost, management, and funding of a suitable public transit system. Other partner: Virginia Department of Transportation</p>	2016		■				■	□

6. Naval Support Facility Dahlgren JLUS

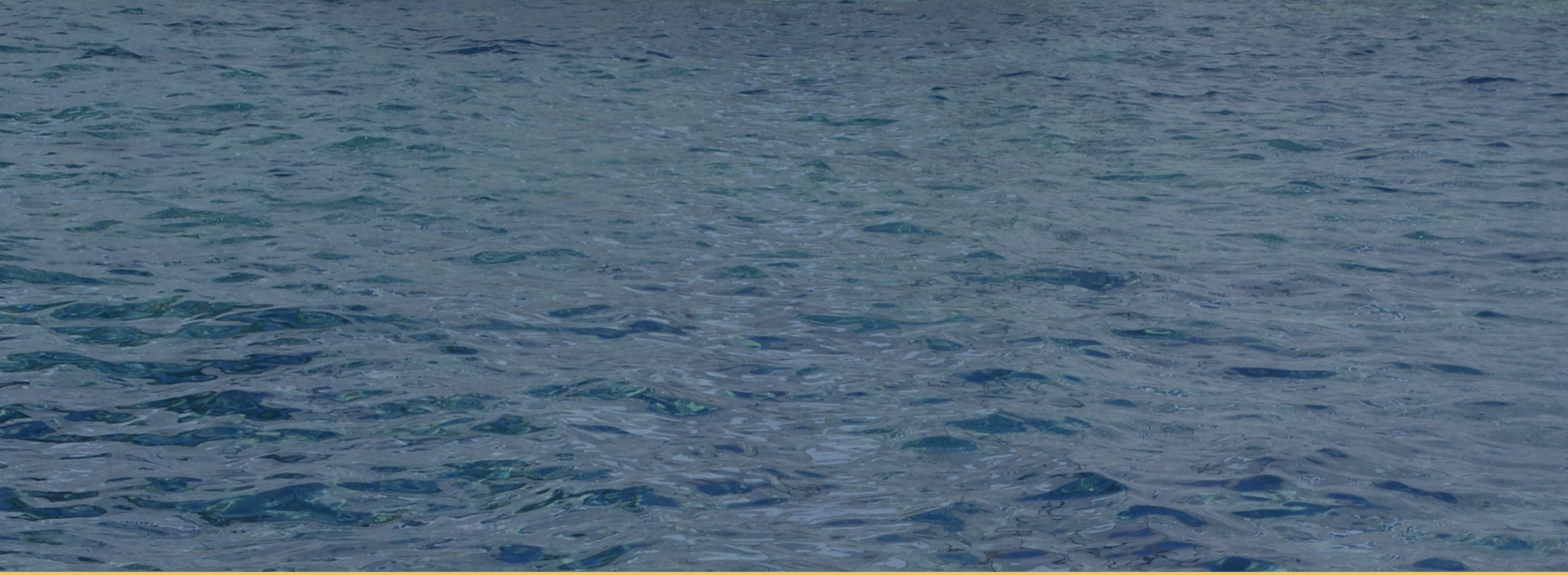
Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
ROADWAY CAPACITY (continued)										
RC-2		Installation Traffic Creates Back-ups in the Community Near NSF Dahlgren Main Gate. Traffic backs up into the community and near a school during peak times, causing safety concerns for pedestrians and vehicles accessing the affected neighborhoods.								
RC-2A	King George County / Charles County	Seek Alternative Funding Sources for Transportation Improvements. Seek additional and alternative sources of funding for improvements. Other partner: Virginia Department of Transportation	2016		■				■	□
RC-2B	NSF Dahlgren	Coordinate and Budget for Gate Improvements that Affect Off-Base Roadway Capacity and Level of Service. Identify, and budget for, necessary improvements to achieve AT / FP and more efficient functionality of egress / ingress points. See Strategy RC-1C	2016						■	
SAFETY										
SA-1		Traffic Has Impacted Congested Emergency Response Routes. Emergency response egress routes make accessing the entire service area (in King George County) difficult. Some areas have a low chance (40%) of being reached within the desired response time.								
SA-1A	Safety MCA	Consider the development of an EMS response study to accurately quantify and classify the specific issues and impacts.			■					

Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
SAFETY (CONTINUED)										
SA-2		<p>Potential Incompatible Development in Safety Zones and Imaginary Surfaces with Expanded Air Operations. Should the air mission at NSF Dahlgren be expanded to include fixed wing aircraft, the identification of safety zones and imaginary surfaces (vertical obstruction zones) would be necessary and could increase the potential for incompatible development in those areas where current land use designations and zoning controls don't account for aircraft safety zones.</p>								
		See Strategies LU-1A, LU-1B, LU-1C, LU-1D, and LU-3A.								
SA-3		<p>Potential Concerns Related to Explosive Safety Routes Through Community.</p>								
SA-3A	Safety MCA	<p>Increase the awareness of the designated Hazardous Cargo routes through the community. Other partner: VDOT</p>			<input type="checkbox"/>				<input type="checkbox"/>	<input checked="" type="checkbox"/>
SCARCE NATURAL RESOURCES										
		No compatibility issues have been identified for this factor.								
VERTICAL OBSTRUCTIONS										
		No compatibility issues have been identified for this factor.								

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Issue / Strategy ID	Geographic Area	Strategy	Timeframe	Charles County,	King George County	St. Mary's County	Westmoreland County	Town of Colonial Beach	NSF Dahlgren	Other
VIBRATION										
V-1		Area Residents Have Reported Property Damage from Range Activity. NSF Dahlgren has received complaints of property damage resulting from navy operations. The Navy has prepared a standard damage claims package that addresses community complaints of property damage resulting from Navy operations.								
V-1A	General	Maintain Damage Claims Package. As part of its ongoing damage claims process, NSF Dahlgren should consider a package for homeowners to complete if damage from vibration caused by military activities is believed to occur. The package should include instructions for completion of the claims forms, an overview of the inspection process, procedures for Navy review of potential damage, and potential courses of action.	On-going						■	
WATER QUALITY / QUANTITY										
		No compatibility issues have been identified for this factor.								





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