APG JLUS

Aberdeen Proving Ground Joint Land Use Study

PUBLIC DRAFT

AUGUST 2015

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This study was prepared under contract with the Chesapeake Science and Security Corridor (an arm of Harford County), with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of the key JLUS partners involved in the development of this study and does not necessarily reflect the views of the Office of Economic Adjustment.

Matrix DESIGN GROUP

ABERDEEN PROVING GROUND

JOINT LAND USE STUDY

Public Draft

Prepared for

Chesapeake Science and Security Corridor,
Harford County

CHESAPEAKE
SCIENCE & SECURITY
CORRIDOR

Prepared by

Matrix
DESIGN GROUP

August 2015

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APG JLUS

Acknowledgements

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The Executive Committee served an active and important role in the development of the Aberdeen Proving Ground (APG) Joint Land Use Study (JLUS). The Chesapeake Science and Security Corridor would like to thank the following individuals for their review, guidance, and assistance:

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Figures and Tables

APG JLUS

Acronyms

A

AA	Aberdeen Area
AB	Assembly Bill
ac	acres
ACEC	Areas of Critical Environmental Concern
ACUB	Army Compatible Use Buffer
AE	Alternative Energy Development
AE	Ammunition and Explosives
AEC	U.S. Army Evaluation Center
AGL	above ground level
ALUC	Advisory Land Use Committee
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
AMSAA	Army Material Systems Analysis Activity
APG	Aberdeen Proving Ground
APZ	Accident Potential Zone
AR	Army Regulation
AR	Attainment Report
ARL	Army Research Lab
ARWG	Adaptation and Response Working Group
AQ	Air Quality
AT	AT
AT / FP	AT / FP
ATC	ATC
ATCT	ATCT
ATEC	ATEC

B

BAH	Basic Allowance for Housing
BASH	Bird / Wildlife Aircraft Strike Hazard
BEH	Bachelor Enlisted Housing
BEMP	Bald Eagle Management Plan
BHWG	Bird Hazard Warning Group
BIO	Biological Resources
BLM	Bureau of Land Management
BOH	Bachelor Officer Housing
BOS	Board of Supervisors
BO	Biological Opinion
BOSS	Better Opportunities for Single Soldiers
BRAC	Base Realignment and Closure

C

CALA	Combat Aircraft Loading Ordnance Area
CAS	Close-Air Support
CB	Chemical and Biological
CBP	Chesapeake Bay Program
CDNL	Community Day-Night Average Noise Level
CECOM	U.S. Army Communications Electronics Command
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERDEC	U.S. Army Communications Electronics Research, Development and Engineering Command
CEWMP	Comprehensive Energy and Water Master Plan
CFR	Code of Federal Regulations
CIS	Capital Investment Strategy
CL	Community Legacy
CNEL	Community Noise Equivalent Level
CNRSW	Commander Naval Region Southwest
CO_2	Carbon Dioxide
COA	Critical Operations Area
CCOM	Interagency Coordination / Communication
CP	Comprehensive Plan
CR	Cultural / Historic Resources
CRP	Cultural Resources Program
CRPO	Cultural Resources Program Office

CSAR	Combat Search and Rescue
CSD	Customer Service Desk
CSSA	Chesapeake Science and Security Corridor
CSTA	Combat Systems Test Activity
CTP	Consolidated Transportation Program
CUP	Conditional Use Permit
CWA	Clean Water Act
CZ	Clear Zone
CZMS	Coastal Zone Management Act
C4ISR	Command, Control, Communications, Computers, Intelligence, Survivability and Reconnaissance

D

dB	decibel
DeCA	Defense Commissary Agency
DEIS	Draft Environmental Impact Statement
DNL	Day-Night Level
DoD	Department of Defense
DoDD	Department of Defense Directive
DoDI	Department of Defense Instruction
DON	Department of Navy
DS	Dust, Smoke, and Steam

E

E-1	Enlisted Sailor
EA	Edgewood Area
EA	Environmental Assessment
EAP	Encroachment Action Plan
EAS	Essential Air Service
EB	Eastbound
ECBC	Edgewood Chemical Biological Center
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EMS	Emergency Management Services
EO	Executive Order
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESLC	Eastern Shore Land Conservancy
EUL	Enhanced Use Lease

F

FAA	Federal Aviation Administration
FAD	Floodplain Accommodation District
FCC	Federal Communication Commission
FCD	Floodplain Accommodation District
FI	Frequency Spectrum Interference / Impedance
FISC	Fleet Industrial Supply Center
FL	flight level
FLPMA	Federal Land Management and Policy Act
FONSI	Finding of No Significant Impact
FRC	Fleet Readiness Center
ft	feet / foot
FYDP	Future Years Defense Plan
FY	fiscal year

G

GATE	Government and Technology Enterprise
GCA	Ground Control Approach
GIS	Geographic Information Systems

H

HA	Housing Availability
HUD	U.S. Department of Housing and Urban Development

I

I	Interstate
ICRMP	Integrated Cultural Resources Management Plan
ICUZ	Installation Compatible Use Zone
IDA	Intensely Developed Area
IE	Infrastructure Extensions
IFR	instrument flight rule
IGA	Intergovernmental Agreement
ILA	Industrial, Landscaping, and Agricultural
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
ITAM	Integrated Training Area Management

J

JLENS	Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System
JLUS	Joint Land Use Study
JPEO-CBD	Joint Program Executive Office for Chemical and Biological Defense
JSHS	Junior Science & Humanities Symposium

K

km	kilometers

L

Ldn	Day-Night Average Sound Level
LDA	Limited Development Area
LG	Light and Glare
LGTR	Laser-guided Training Round
LI	Legislative Initiatives
LRC	Long Range Component
LS	Competition for Land / Air Space
LSHG	Lower Susquehanna Heritage Greenway
LU	Land Use
LUO	Land Use Ordinance
LUPZ	Land Use Planning Zone
LZ	Landing Zone

M

MARC	Maryland Area Regional Commuter
MCA	Military and Civilian Aviation
MCA	Military Compatibility Area
MCCC	Maryland Commission on Climate Change
MDA	Maryland Department of Agriculture
MDARNG	Maryland Army National Guard
MDE	Maryland Department of the Environment
MDNR	Maryland Department of Natural Resources
MDOT	Maryland Department of Transportation
MEA	Maryland Energy Administration
MET	Maryland Environmental Trust
MGE	Municipal Growth Element
MHT	Maryland Historical Trust
MHEC	Maryland Higher Education Commission
MOA	Memorandum of Agreement
MOA	Military Operating Area
MOU	Memorandum of Understanding
MSL	mean sea level
MTP	Maryland Transportation Plan
MTR	Military Training Route

N

NAAQS	National Ambient Air Quality Standards
NACo	National Association of Counties
NATO	North Atlantic Treaty Organization
NBW	Neighborhood Business Works
NDAA	National Defense Authorization Act
NEIEN	National Environmental Information Exchange Network
NEPA	National Environmental Policy Act
NGO	Non-governmental Organization(s)
NHPA	National Historic Preservation Act
NMP –	Nutrient Management Plan
NRHP	National Register of Historic Places
NLR	Noise Level Reduction
NM	nautical mile
NMFS	National Marine Fisheries Service
NO_x	nitrous oxides
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPIAS	National Plan of Integrated Airport Systems
NPS	National Park Service
NV	Noise and Vibration
NVG	night vision goggles

O

O_3	Ozone
OCRM	Office of Coastal Resource Management
OEA	Office of Economic Adjustment
OHV	Off-Highway Vehicle
ONMP	Operational Noise Management Program
OSD	Office of the Secretary of Defense

P

PAAF	Phillips Army Airfield
PEO C3T	Program Executive Office for Command, Control and Communications - Tactical
PEO IEW&S	Program Executive Office for Electronic Warfare & Sensors
PFA	Priority Funding Areas
PG	Policy Group
PL	Public Law
PM	Particulate Matter
PPE	Priority Preservation Element
PSD	Personnel Support Detachment
PT	Public Trespassing
PUC	Public Utilities Code

Q

QD	Quantity Distance Arcs

R

R	Restricted Airspace
RA	Restricted Airspace
RAB	Restoration Advisory Board
RC	Roadway Capacity
RCA	Resource Conservation Area
RCI	Residential Communities Initiative
RCZ	Range Compatibility Zone
RDECOM	U.S. Army Research, Development and Engineering Command
RDT&E	Research, Development Test and Evaluation
REAT	Renewable Energy Action Team
REPI	Readiness and Environmental Protection Initiative
RESI	Regional Economic Studies Institute
RGGI	Regional Greenhouse Gas Initiative

RMP	Resource Management Plan
ROD	Record of Decision
ROW	Right-of-Way
RPMP	Real Property Master Plan
RPS	Renewables Portfolio Standard
RSZ	Range Safety Zone
RTLP	Range and Training Land Program
RV	Recreational Vehicle
R&D	Research and Development

S

SA	Safety
SAR	Search and Rescue
SB	Senate Bill
SEAP	Science and Engineering Apprentice Program
SF	square feet
SG	Smart Growth
SGSC	Smart Growth Subcabinet
SHA	State Highway Administration
SIP	State Implementation Plan
SLR	Sea Level Rise
SMART	Science, Mathematics & Research for Transformation
SNR	Scarce Natural Resources
SOI	Sphere of Influence
SOP	Standard Operating Procedures
SPA	Specific Plan Area
SR	Slow Route
SR	State Route
SRBC	Susquehanna River Basin Commission
SRP	Sustainable Range Program
SRT	State Report on Transportation
STA	State Transit Assistance
STC	sound transmission class
STEM	Science, Technology, Engineering, and Mathematics
SUA	Special Use Airspace
SWDA	Safe Water Drinking Act
SWPP	Source Water Protection Plan
S&E	Scientists and Engineers

T

TACTS	Tactical Aircrew Combat Training System
TACAN	Tactical Air Navigation
TOD	Transit Oriented Development
TDA	Transportation Development Act
TDML	Total Maximum Daily Loads
TR	Town-Residential Zoning
TWG	Technical Working Group

U

UAS	Unmanned Aerial System
UGB	Urban Growth Boundaries
US	United States
USAF	United States Air Force
USAPHC	United States Army Public Health Command
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	US Fish and Wildlife Service
USMC	United States Marine Corps
UXO	Unexploded Ordnance

V

VFR	visual flight rule
VO	Vertical Obstructions

W

WAH	Weide Army Heliport
WB	Westbound
WCM	Water Conservation Measure
WIP	Watershed Implementation Plan
WISS	Weapons Impact Scoring System
WRE	Water Resources Plan Element
WUI	Water Use Intensity

Z

ZO	Zoning Ordinance

APG JLUS

1 Introduction

Introduction

Military installations are critical to local, regional, and state economies, generating thousands of jobs and millions of dollars in annual economic activity and tax revenue. In the past, incompatible development has been a factor in the loss of training operations and restructuring of mission-critical components to other military installations. The loss of military missions and closure of military installations have been detrimental to their host communities. To protect the missions of military installations and health of local 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 mitigate existing compatibility issues, facilitate the prevention of future issues, and improve coordination between the local communities and Aberdeen Proving Ground (APG).

The APG JLUS advocates a proactive approach to encourage increased communication about decisions relating to land use regulation, conservation and natural resource management issues affecting the Study Area communities 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 planning process.

Gateway signage at Aberdeen Proving Ground entry

What Is A Joint Land Use Study?

A JLUS is a planning process accomplished through the collaborative efforts of a comprehensive list of stakeholders in a defined Study Area. These stakeholders include local community, state, and federal officials, residents, and the military who come together to identify compatible land uses and growth management recommendations within, and adjacent to, active military installations. The intent of the process is to establish and encourage a working relationship between the local communities, agencies and APG.

Joint Land Use Study Goal

The goal of the APG JLUS is to protect the viability of current and future military 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 guiding principles were identified:

- **Understanding.** Convene community and military representatives to identify, confirm, and understand the issues in an open forum, taking into consideration both community and APG perspectives and needs. This includes public awareness, education, and input organized in a cohesive outreach program.

- **Collaboration.** Encourage cooperative land use and resource planning among APG and surrounding communities so that future community growth and development are compatible with the operational missions at APG, while at the same time seeking ways to reduce operational impacts on adjacent lands within the Study Area.
- **Actions.** Provide a set of mutually supported tools, activities, and procedures from which local jurisdictions, agencies, and APG can select, prepare, and approve / adopt and then use to implement the recommendations developed during the JLUS process. The actions proposed include both operational measures to mitigate installation impacts on surrounding communities and local government and agency approaches to reduce community impacts on military operations. These tools will help decision makers resolve compatibility issues and prioritize projects within the annual budgeting process of their respective entity / jurisdiction.

Why Prepare A Joint Land Use Study?

Although military installations and nearby communities may be separated by a fenceline or geography including water bodies 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 produce unintended negative 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 challenges.

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. Working together also enhances the health of economies and industries of the communities before incompatibility becomes an issue. Recognizing the close relationship that should exist between installations and adjacent communities, the Department of Defense, Office of Economic Adjustment (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 operational and training missions at APG.

Public Outreach

The JLUS process is designed to create a locally relevant document that builds consensus and obtains support from the various stakeholders involved. To achieve the JLUS goals and objectives, the process included a public outreach program with a variety of participation opportunities for interested and affected parties.

Stakeholders

An early step in any planning process is the identification of stakeholders. Informing or involving them early in the project is instrumental to understanding, addressing, and resolving 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. Stakeholders identified for the APG JLUS included, but were not limited to, the following:

- Local jurisdictions (counties and cities)
- DOD officials (including OEA representatives)
- APG
- Local, regional, and state planning agencies
- Nongovernmental organizations
- The public (including residents and landowners)

Executive and Advisory Committees

The development of the APG JLUS was guided by two committees, comprising city, county, APG personnel, federal and state agencies, local governments, and other stakeholders.

Executive Committee. The Executive Committee (EC) consists of officials from participating jurisdictions, military installation leadership, and representatives from APG and federal and state agencies. The EC 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.

Advisory Committee. The Advisory Committee (AC) is responsible for identifying and studying technical issues. Membership includes county and municipal planners, military base planners and staff, and other subject matter experts as needed to help assist in the development and evaluation of implementation strategies and tools. Items discussed by the AC were brought before the EC for consideration and action.

The EC and AC served as liaisons to their respective stakeholder groups. The EC and AC members were charged with conveying committee activities and information to their organizations and constituencies and relaying their organization's comments and suggestions to both committees for consideration. The EC members were encouraged to conduct meetings with their organizations and / or constituencies to facilitate this input.

Public Workshops

In addition to the EC and AC meetings, a series of public workshops were held throughout the development of the JLUS. These workshops 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 an opportunity for input on the proposed strategies. Each workshop included an interactive presentation and facilitated exercise for the public to participate in the development of the plan.

Public Outreach Materials

Joint Land Use Study Overview / Compatibility Factors Fact Sheet. At the beginning of the JLUS process, a Fact Sheet was developed describing the JLUS program, objectives, public participation methods, and the APG JLUS proposed Study Area. This Fact Sheet was made available at the meetings for review by interested members of the public.

This Fact Sheet also served as an informational brochure describing each of the 24 compatibility factors used for JLUS analysis. While not every factor may apply to the APG JLUS, this list provides an effective tool to ensure a comprehensive evaluation of compatibility factors is conducted within the JLUS Study Area.

Strategy Tools Fact Sheet. JLUS strategies comprise a variety of actions that local governments, military installations, agencies, and other stakeholders can take to promote compatible land use planning. This Fact Sheet provided an overview of the strategy types that could be applied to address compatibility issues in the Study Area.

Website. A project website was developed to provide 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, documents, maps, public meeting information, and other JLUS resources. The project website is located at www.apgjlus.com.

JLUS Study Area

APG is situated on the northwestern shore of the Chesapeake Bay in Harford County, Maryland. The installation comprises approximately 72,165 acres, including nearly 40,425 acres of land at noncontiguous locations with the remaining area of 31,740 acres consisting of portions of the Chesapeake Bay and Bush and Gunpowder Rivers.

APG is approximately 35 miles northeast of the Maryland state capital of Annapolis, and strategically located between major cities - approximately 30 miles northeast of Baltimore, 60 miles northeast of

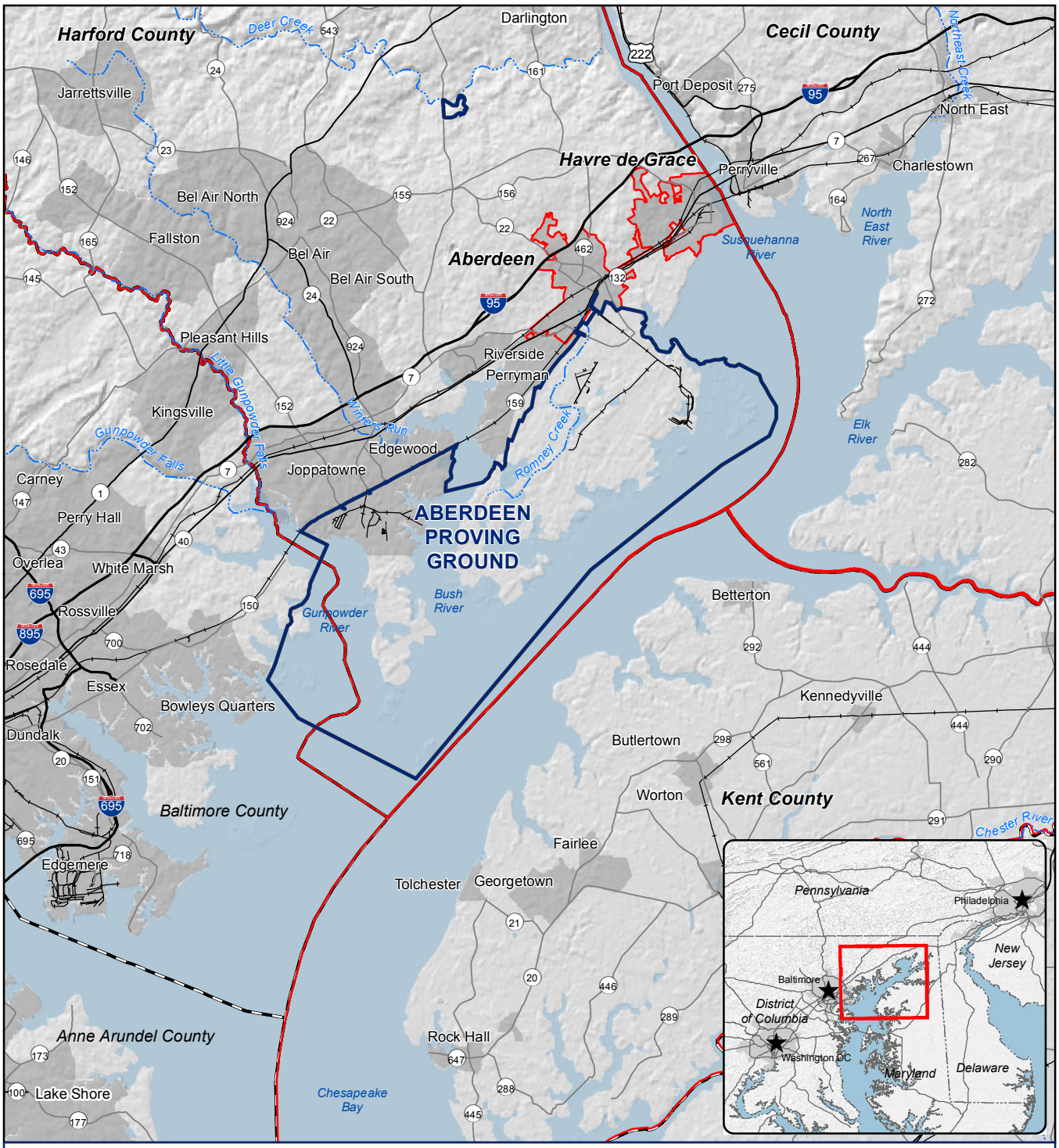
Washington DC, and 65 miles southwest of Philadelphia.

The APG JLUS Study Area encompasses all land near APG and areas that may impact current or future military operations or be impacted by operations. Due to its location and operational areas including the surrounding waters, the general JLUS Study Area was identified as the APG Aberdeen Area; Edgewood Area; Churchville Test Area; Spesutie Island; Graces Quarters; Carroll Island; range areas including portions of the Chesapeake Bay, Bush and Gunpowder Rivers; and the general area affected by operations including military airspace, range safety areas, and noise contours within the counties of Harford, Cecil, and Kent, and the cities of Aberdeen and Havre de Grace as illustrated in Figure 1.

JLUS Implementation

It is important to note that once the JLUS process is completed, the final document is not an adopted plan, but rather a set of strategies to be used by local jurisdictions, agencies, and organizations in the APG JLUS Study Area to guide their future compatibility efforts. Acceptance of the study by stakeholders (i.e. committees, jurisdictions, and the public) will be sought to confirm their collective support for identified implementation efforts. For instance, local jurisdictions and counties may use the strategies in this JLUS to guide future subdivision regulation, growth policy, and zoning updates, as well as formal coordinating procedures for the review of development proposals.

APG may use the JLUS process as a guide for interaction with local jurisdictions on future projects, and to manage internal planning processes with a compatibility-based approach.



Legend

- Installation Area
- Airfield
- Partnering JLUS Jurisdictions
- County Boundary
- City / Town / Unincorporated Community
- Interstate
- Highway
- Major Road
- Railroad
- Water Body
- River

Source: APG, 2014.

Matrix DESIGN GROUP

0 1 2 Miles

Figure 1
JLUS Study Area

Please see the next page.

APG JLUS

2 Community Profile

Introduction

This chapter provides an overview of the civilian communities within the Aberdeen Proving Ground (APG) Joint Land Use Study (JLUS) Area. Profiles of community growth and development trends are provided as is a description of the general setting of the JLUS Study Area.

Capturing and describing certain demographic characteristics of the communities in the JLUS Study Area provides a baseline context from which informed decisions can be made when developing compatibility strategies. The goal is to provide information that enables stakeholders to understand population and development trends that have the potential to affect the future of APG and its missions. This info is intended to be considered with other factors to help decision makers develop consistent, informed planning policies about future development and economic growth of the communities they represent before compatibility issues arise.

This section is intended to advise the military about the types of activities occurring "outside the fence" when considering future missions and operations at APG. This section will discuss Study Area growth trends including population projections and housing statistics; Economic drivers within each Study Area jurisdiction; projected growth; and transportation information for each Study Area jurisdiction.

APG Regional Overview

The APG JLUS Study Area encompasses the areas surrounding the military installation that are significantly influenced by military operations. The Study Area is situated at the headwaters of the Chesapeake Bay in northeast Maryland, northeast of Baltimore, near the borders of Pennsylvania and Delaware. The overall study area encompasses three counties (including several Census Designated Places or CDP's) and two cities.

Harford County

Harford County was established in 1773 and comprises a land area of approximately 437 square miles with an additional 86 square miles of water area. It is bordered by the Susquehanna River and Cecil County to the east, Baltimore County to the west, the State of Pennsylvania to the north, and the Chesapeake Bay and Kent County to the south. According to the 2010 Census, Harford County has a population of 244,826. The western portion of the Harford County Study Area comprises of largely developed areas east of Interstate 95 (I-95) from Baltimore to APG but largely rural woodlands and small farms west of I-95, with the exception of the Bel Air community and residential subdivisions. The largely developed areas east of I-95 include a mix of residential, commercial, and industrial areas encompassed by woodland areas.

Cecil County

Cecil County was first explored by Europeans in 1608 with the first European settlements occurring as early as 1633. However, it was not until 1674 that Cecil County was established separately from Baltimore County. Cecil County has a land area of approximately 350 square miles and a water area of 70 square miles. Cecil County is located in the northeastern corner of Maryland, and is bordered to the west by Harford County, the south by Kent County, the east by New Castle County Delaware, and the north by Lancaster and Chester Counties, Pennsylvania. According to the 2010 Census, Cecil County has a population of 101,108.

Cecil County has been a rural county for most of its history. However, as the metropolitan regions of Philadelphia, Wilmington, and Baltimore continue to grow, Cecil County is becoming a more favorable development area. Urban development is located along I-95/United States (US) Route 40 and along coastal areas. North and south of this corridor are more rural uses including agriculture and open space.

Source: Cecil County Comprehensive Plan, 2010

Kent County

Kent County was founded in 1642 and is the second oldest county in Maryland. Kent County has a land area of 277 square miles and a water area of 135 square miles. Kent County is bordered to the north by Cecil and Harford Counties, the east by New Castle and Kent County Delaware, the south by Queen Anne's County, and the west by Baltimore and Anne Arundel Counties. Kent County is considered primarily rural and agricultural in character, with smaller communities surrounded by farms, wetlands, and woodlands. Urban development is mostly located in small towns along coastal areas and the Chester River. According to 2010 Census, Kent County has a population of 20,197.

Economically, service and retail trade industries have experienced the largest growth in Kent County since 1985. However, Kent County takes pride in its agrarian character and takes steps towards conservation to prevent the loss of farmland to development. Measures include limiting the ability of landowners to create farmettes and promoting conservation easements.

City of Aberdeen

Aberdeen is located in Harford County along the I-95 / US Route 40 Corridor. The city is located in-between Havre de Grace and Edgewood approximately 25 miles northeast of Baltimore. The City is 6.47 square miles and shares the fenceline with APG. The 2010 Census population of Aberdeen was 14,959. The Village of Aberdeen was first settled in 1800. Aberdeen was incorporated as a town in 1892 and as a city in 1992. Aberdeen was originally an agrarian community located along the Pennsylvania and Baltimore and Ohio Railroads. When APG was established in 1917, overall availability of farmland decreased. APG also increased the need for civilian housing, which further drove Aberdeen's economy from agrarian to military support. Additionally, the City was incorporated into the Harford County Development Envelope in 1977.

The City of Aberdeen Comprehensive Plan anticipates buildout through 2030. Future growth is identified through 17 planning districts. Planning districts extend approximately one mile around the city limits. The City plans for future growth in 11 out of 17 Planning Districts. Of the 11 districts which anticipate growth, one is the existing City of Aberdeen and represents infill opportunities. Not including existing and infill opportunities, this equates to an area of 4,511 acres and roughly 8,770 equivalent dwelling units. The City of Aberdeen is also designated as a "Maryland Sustainable Community", as part of the Maryland Sustainable Communities Program.

The City of Aberdeen houses the only two entrance points to APG at the Maryland Boulevard and Harford gates. This gate placement impacts the city's roadways during the morning and evening rush hour.

City of Havre de Grace

The City of Havre de Grace is located in Harford County approximately 35 miles northeast of Baltimore. Havre de Grace is roughly six miles north of APG and situated at the mouth of the Susquehanna River in-between Aberdeen and Perryville. Havre de Grace lies along the I-95 and US Route 40 Corridors and is incorporated in the Harford County's Development Envelope. The city has a land area of approximately 6.9 square miles and as of the 2010 census, has a population of 12,952.

Havre de Grace was explored by Europeans as early as the 1620's, incorporated as a town in 1785, and incorporated as a city in 1878. Havre de Grace's history has been heavily influenced by its location at the mouth of the Susquehanna River. Havre de Grace was home to the first legally established ferry crossing on the Susquehanna River and has served as a midpoint on one of the most direct routes along the Atlantic Seaboard since colonial times. Establishment of APG in 1917 was also important for Havre de Grace, as the city provided entertainment and housing opportunities for military troops.

Havre de Grace has 7 revitalization areas, 5 new neighborhood developing areas, and 18 growth areas within the 2004 Comprehensive Plan Area. Revitalization areas focus mainly on the historic old town and properties while new neighborhoods and growth areas are located further away from the historic center; some areas within municipal limits and some outside municipal limits.

The City of Havre de Grace is also designated as a "Maryland Sustainable Community".

Source: Havre de Grace Comprehensive Plan, 2004

Land Preservation and Development Impacts

Land preservation regulations in the Study Area have the ability to help or hinder military compatibility. Land preservation regulations can prevent incompatible development from developing in military influence areas. The counties within the Study Area each have an agrarian history, which each look to protect while still allowing economic growth in other sectors.

Harford County

Harford County uses four major preservation programs to conserve agricultural and natural land. These include the Harford Agricultural Land Preservation Program (HALPP), Maryland Agricultural Land Preservation Foundation (MALPF), Rural Legacy Program, and the Maryland Environmental Trust (MET). These programs have collectively protected over 47,000 acres in the County.

Source: Harford County Land Preservation, Parks, and Recreation Plan, 2013

Cecil County

As of 2007, Cecil County land use is roughly 24 percent Development Lands (including Low Density Residential, Medium/High Density Residential, Commercial Industrial, and Rural Residential) and 76 percent Resource Lands (including Agriculture, Forest, and Wetlands). When regarding future land use, approximately 24 percent of the county is included in growth areas, 71 percent of the county is included in rural areas, and five percent of the county is included in mineral extraction and village uses. Of the 71 percent of land in rural areas, 95,819 acres (60 percent) is considered rural conservation and 63,469 acres (40 percent) is considered resource protection.

Source: Cecil County Comprehensive Plan, 2010

Kent County

Kent County has multiple tools available to help preserve agricultural land. These include: MALPF, Rural Legacy, Chesapeake Country National Scenic Byway, and donated conservation easements through the Eastern Shore Land Conservancy and/or MET. As of July 1, 2014, 17,488 acres have been preserved with MALPF easements, and 15,987 acres have been preserved through donated easements. Kent County has one Rural Legacy Area. The Sassafras Rural Legacy Focus Area has protected 2,204 acres of land and stretches from the Sassafras River near Betterton along the Chesapeake Shoreline just west of Worton. Finally, 986 acres have been protected along the Chesapeake Country National Scenic Byway.

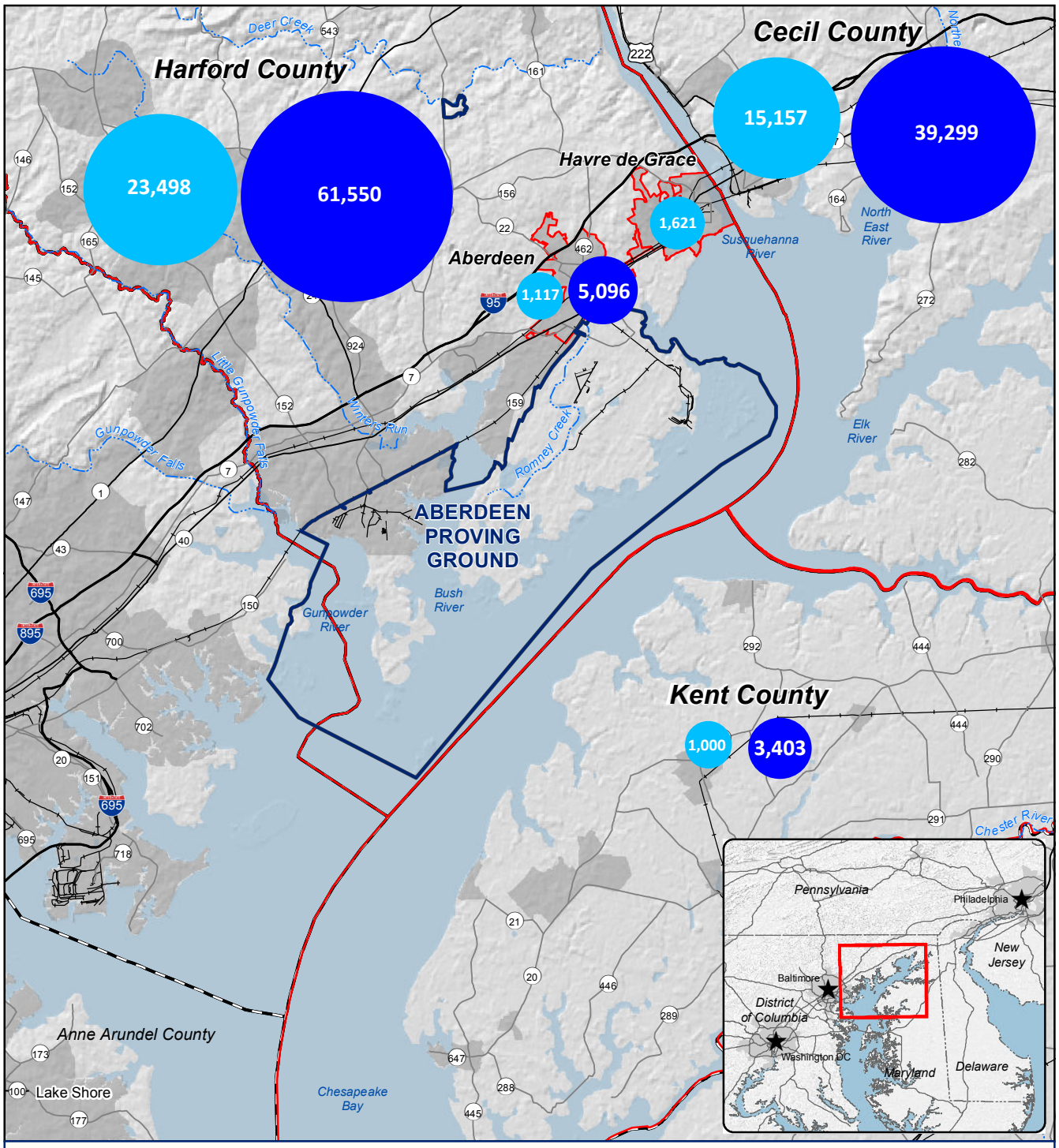
Source: Kent County Government, 2014

Study Area Growth Trends

The following section provides a summary of the study area's population growth, housing trends, and median home values. This information establishes a regional context for growth and development in the JLUS Area while providing a broad understanding of growth potential for compatibility analysis based planning.

Population

Population is based on the 2010 data provided by the US Census Bureau through the US Department of Commerce, Economics and Statistics Administration. The following section provides a comparison of the changes in population in the APG JLUS Study Area between 2000 and 2010 which is illustrated in Table 1 and the light blue circles on Figure 2.



Legend

- Installation Area
- Airfield
- Partnering JLUS Jurisdictions
- County Boundary
- City / Town / Unincorporated Community
- Interstate
- Highway
- Major Road
- Railroad
- Water Body
- River
- Population growth between 2000 and 2010 (whole numbers)
- Projected population growth between 2000 and 2030 (whole numbers)
  * data unavailable for Havre de Grace

Source: APG, 2014.

Matrix DESIGN GROUP

0 1 2 Miles

Figure 2
JLUS Study Area Growth 2000-2030

Table 1. Regional Population Growth by Study Area Jurisdiction, 2000 – 2010

Jurisdiction	2000	2010	Number Change	Percent Change
Maryland	**5,296,486**	**5,773,552**	**477,066**	**9%**
Harford County*	193,417	216,915	23,498	12%
Cecil County	85,951	101,108	15,157	18%
Kent County	19,197	20,197	1,000	5%
City of Aberdeen	13,842	14,959	1,117	8%
City of Havre de Grace	11,331	12,952	1,621	14%

Source: United States Census Bureau, profile of General Population and Housing Characteristics; 2000, 2010; Historical and Projected Total Population for Maryland's Jurisdictions, Maryland Department of Planning, 2014

**Harford County population includes the community of Bel Air but does not include City of Aberdeen or City of Havre de Grace*

The study area experienced an overall increase in population between 2000 and 2010. Harford County had the greatest population growth with the addition of 23,498 people, while Kent County experienced the least population growth at only 1,000. Similarly, Cecil County had the highest percentage of growth with an 18 percent increase during the 10-year period, while Kent County had the least percentage of growth with only a 5 percent increase within the same timeframe.

Cecil County's total population in 2010 was 101,108, which was an 18 Percent increase from the year 2000. Similar to Harford County, this growth can be partially attributed to BRAC activities but also the continued growth of both the Baltimore and Wilmington, Delaware Metropolitan areas. Kent County's population only grew by 5 Percent within the time span. Kent County's geographic setting in relation to APG means that growth due to BRAC is less likely. It can be assumed that Kent County's smaller population growth is due to a greater out-migration of youth in relation to a smaller in-migration of retirees as well as local desires to remain a rural, agrarian area.

The dark blue circles in Figure 2 graphically depict population growth for study area jurisdictions through 2030. Each county in the study area is expected to see population growth over the coming decades. Cecil County is expected to reach an approximate population of 125,250 by year 2030, a 24 percent increase from year 2010. Harford County is expected to reach an approximate population of 254,967 by year 2030, an 18 percent increase from the year 2010. Kent County is expected to reach an approximate population of 22,600 by year 2030, a 12 percent increase from the year 2010. The City of Aberdeen is expected to have a population of approximately 18,183 by year 2030, a 21 percent increase from year 2010. The City of Havre de Grace does not have readily available population projects.

Future growth will most likely be driven by the continued growth of major metropolitan areas in the region and the presence of APG.

Housing Value and Trends

Housing trends are an important indicator of economic activity and vitality, as they demonstrate the population growth or decline relative to new residential construction within an area. They also represent market decisions relative to home ownership versus rental properties. Ultimately, housing trends indicate potential future development locations and the types of residential and commercial development to come. A majority of the housing units in the Study Area jurisdictions are owner occupied. However, Aberdeen and Havre de Grace have owner occupied percentages lower than the state average and considerably lower than county averages. Since 2000, the median housing values and median monthly gross rents have increased significantly across the study area. Cecil County, Harford County, and Aberdeen have seen housing values almost double. Housing values in Kent County and Havre de Grace have more than doubled. Median monthly gross rental rates have risen by at least 50 percent in all jurisdictions. This increase can strain the affordability of the housing market close to APG, which, in turn, can lead to increased commuting distances by civilian and military personnel who work at APG and are priced out of the local housing market.

The availability of affordable multi-family dwellings is an important factor to consider for military compatibility, as some personnel with families stationed at APG may need to live off-base in the communities. It is also important for the communities within the JLUS study area to provide housing stock that meets the needs of the residents and the military personnel who are stationed at APG for indefinite periods of time.

Base Allowance for Housing

The Base Allowance for Housing (BAH) is a stipend given to military personnel who choose to live off base or cannot be accommodated in on-base housing. BAH is designed to augment the costs of living associated with private arrangements including home or apartment rent, utilities, and renter's insurance.

The BAH is determined by pay grade, local area rental market, and dependent status.

While BAH rates for APG military personnel may vary by rank and dependent status, the rate for an E-1 stationed at APG ranges from $1170 (single) to $1563 (with dependents). Excluding the potential cost of utilities and renter's insurance, this figure is moderately above the median monthly rate in the study area jurisdictions. This means that an enlisted soldier should be able to locate affordable housing within the JLUS study area.

Source: Defense Travel Management Office, 2014

Economy

The Study Area is home to a diverse economy. While agriculture is still a major economic sector in the Study Area, the presence of APG has increased the amount of government and professional jobs in the Study Area. Unemployment is below the state average in Harford and Kent Counties and in the City of Havre de Grace. Unemployment is roughly equal to the State average in Cecil County. The unemployment rate in Aberdeen is above both the state average and national average (6.0 percent).

Harford County

BRAC brought numerous research and development firms to APG and thus Harford County. Since BRAC began implementation, approximately 99 new defense contractors and 8,000 contract employees relocated to Harford County. APG has approximately $13.6 billion dollars committed to future research and development projects. The Harford County Office of Economic Development hopes to capture some of this funding by supporting the Entrepreneurs Edge program, which pushes the innovation process for individuals to develop ideas into a business.

Harford County has also grown in non-defense related sectors. Major companies, including Clorox and Pier 1, have set up distribution centers that will add over 1.5 million square feet of commercial floor space to the county. Health care is also a growing industry, adding 130,000 square feet of health-care space through an expansion of the Upper Chesapeake Health System. Harford County is also home to two Enterprise Zones, Edgewood/Joppa and Aberdeen/Havre de Grace.

Source: Harford County Economic Development Department

Cecil County

Cecil County economic growth is due in part to the county's location midway between the Baltimore and Philadelphia/Wilmington Metropolitan areas. Between 2002 and 2008, Cecil County experienced 14 percent job growth. The largest increases in jobs occurred in the manufacturing, education and health services, retail trade, transportation and utilities, and local government sectors. The fastest growing sectors in terms of growth rate were education and health services, manufacturing, professional and business services, and local government. According to the 2010 Cecil County Comprehensive Plan, Cecil County has an average annual employment of 28,351. Despite the experienced economic growth, Cecil County still has a negative jobs/housing balance.

Cecil County offers real property and income tax credits to businesses that locate within the designated Cecil County Enterprise Zone. The availability of developable land, mounting growth pressure of surrounding jurisdictions, and the many transportation corridors which link Cecil County to the Northeast

Region are indicators of future economic growth in the county.

Source: Cecil County Comprehensive Plan, 2010

Kent County

Historically, Kent County has had an economy based on farming and commercial fishing. Today, Kent County's largest job sector is management, business, science, and arts.

Kent County's Economic Development Plan seeks to capitalize on growth in high quality service industries such as financial, health and elder care, recreational charter boat fishing, and outfitter hunting. Kent County also looks to travel and tourism industries and a continued focus on agriculture. Kent County hopes to increase availability of high capacity internet access to support new and existing business. Kent County also hopes to attract new business by marketing the lower business costs and attractive features of living within the county.

Source: Kent County Comprehensive Plan, 2006

City of Aberdeen

The City of Aberdeen is heavily influenced economically by APG. As part of the 2005 BRAC, APG brought 8,200 new positions to APG and Aberdeen looks to take advantage of the contractors and services that have followed. BRAC is seen as a way for Aberdeen to redevelop and expand commercial properties and shape the future for commercial districts in the City.

Aberdeen is also home to national companies such as C&S Wholesalers, Frito Lay, Home Depot, Pier I Imports, and Saks Fifth Avenue, which have warehouses within city limits.

Aberdeen has several business incentive programs to help attract new businesses, including: the Greater Aberdeen/Havre de Grace Enterprise Zone Program, Aberdeen BRAC Revitalization Zone, Historically Underutilized Business (HUB) Zone, Community Legacy Façade Program, and the Aberdeen Revolving Loan Fund Program. Future economic potential lies in Aberdeen's ability to expand the existing business base, attract high-tech businesses, and grow hospitality and food service sectors.

Source: Aberdeen Comprehensive Plan, 2011

City of Havre de Grace

Havre de Grace has a strong tourism, industrial, and health care base which provides approximately 2,500 employment opportunities. The historic downtown and waterfront are an important part of Havre de Grace's economic viability. Specialty stores and water activities help to increase the tourism market. Chesapeake Health Systems operates the Harford Memorial Hospital in Havre de Grace. The area surrounding the hospital has numerous health related businesses.

Havre de Grace has numerous resources to help foster business including the City Department of Economic Development, various business development programs, the Chamber of Commerce, and the Economic Development Commission. Harford County Government also provides business support through the Harford County Office of Economic Development. Both organizations work with the Maryland Department of Business and Economic Development to further local economic well-being. As stated earlier, Havre de Grace is located within the Greater Aberdeen/Havre de Grace Enterprise Zone. As of 2004, the Enterprise Zone had created $58 million in new capital investment in Havre de Grace alone. This equated to roughly 600 new jobs.

Havre de Grace's location within the I-95/US Route 40 Corridor and the Northeast Rail Corridor in proximity to APG creates an environment for sustained economic growth. Future economic opportunities include new development of corporate and technology office parks, availability of small flexible office space for start-up businesses, and attracting APG technology affiliates.

Source: Havre de Grace Comprehensive Plan, 2004.

Current Development Overview within the Study Area

The APG JLUS Study Area supports a myriad of land uses that range from agricultural and parklands to residential and urban population centers, with varying sizes of employment and population levels throughout. The cities of Aberdeen, Havre de Grace, and parts of Harford County lie north and west of APG. Cecil County lies northeast and east of APG and Kent County lies south and southeast of APG. Development adjacent to APG is characterized by the following:

North

The land north of APG is urban and agricultural. Immediately north of the Aberdeen Area is the Town of Aberdeen and farmland in unincorporated Harford County. Within close proximity of the northern boundary of APG is the City of Havre de Grace and associated urban areas. The Northeast Rail Corridor lies on the northern border of the Aberdeen Area.

Land north of the Edgewood Area consists of mostly suburban uses. Immediately north of Edgewood Area are the communities of Edgewood and Joppatowne. The Northeast Rail Corridor lies on the northern border of the Edgewood Area.

East

The Chesapeake Bay lies immediately to the east of APG. Across the Chesapeake Bay from APG are Elk Neck State Park, agricultural uses, and minor residential uses located in Cecil and Kent Counties.

South

The Chesapeake Bay lies immediately to the south of APG. Across the Chesapeake Bay is Kent County. Kent County is a rural county with many agricultural land uses. A small number of communities exist along the shoreline of Kent County including Betterton, Kinnard's Point, and Rock Hall.

West

Land west of APG is suburban, industrial, and agricultural. The community of Perryman lies west of the Aberdeen Area and consists of minor residential uses and large warehouse distribution centers. The distribution centers sit on the fenceline with the Aberdeen Area.

West of the Edgewood Area are residential and state lands in Baltimore County. Minor residential uses are located in Edgewood and Joppa. A part of the land is Gunpowder Falls State Park and Dundee Natural Environmental Area.

APG JLUS

3 Military Profile

Introduction

This chapter provides an overview of the military profile including the history and current operations at Aberdeen Proving Ground (APG) within the Joint Land Use Study (JLUS) Study Area.

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

Aberdeen Proving Ground Economic Impact

The APG JLUS Study Area spans the counties of Harford, Cecil, and Kent, and the cities of Aberdeen and Havre de Grace in the northeast region of Maryland. APG is the leading employer in the Study Area with more employees than the next 20 major employers combined, resulting in a significant footprint in the regional and local economy.

APG generates $4.3 billion in economic activity and supports approximately 29,000 jobs that result in $1.6 billion in employee compensation. Economic impact categories are divided into two categories, economic output, and employee compensation. These categories are further divided into direct, indirect, and induced. Direct impacts are those which occur as a direct result of the spending associated with APG. Indirect impacts are those which are created as a result of the in-state expenditures associated with APG. Induced impacts are estimates based on the increase in local incomes due to the operation of APG.

Installation Setting

APG is owned by the DOD, Department of the Army. APG is located on the shores of the Chesapeake Bay and occupies over 72,165 acres in Harford and Baltimore Counties. This area is further divided in 40,425 acres of land and 31,740 acres of water. APG is centrally located between Baltimore and Wilmington, Delaware as well as Washington, D.C. and Philadelphia, Pennsylvania.

APG is divided amongst several areas spread across Harford and neighboring Baltimore County. Individual settings are discussed below:

Aberdeen Area

The Aberdeen Area (AA) is approximately 28,708 acres of land and is located in the northern part of APG. There are three distinct sub areas: the security area (681 acres), the Cantonment (3,111 acres), and the Research, Development Test and Evaluation (RDT&E) range area (26,630 acres). The AA is mostly used for testing and research. The AA also includes Spesutie Island and the Phillips Army Airfield.

Edgewood Area

The Edgewood Area (EA), formerly Edgewood Arsenal, is made up of approximately 10,126 acres of land and is located to the south of the AA. There are three distinct sub-areas: the security area (220 acres), the Cantonment (5,156 acres), and the RDT&E range area (4,970 acres). The EA is the chemical research and engineering center for the United States (US) Army. Range testing occurs along the northeast fenceline and the southern portion of the EA. The EA is also the home of MDARNG Weide Army Heliport and the future home of the Northeast Maryland Additive Manufacturing Authority.

Churchville Test Area

The Churchville Test Area is located in northern Harford County, approximately 10 miles north of APG in the community of Churchville. Churchville Test Area is a location of the Aberdeen Test Center (ATC) vehicle

testing facility. The site is 221 acres and contains 11 miles of interconnecting roads and test courses. Roads and test courses contain mud, dirt, and gravel surfaces on varying grades, and are used to test the endurance and reliability of cross-country tracked and wheeled vehicles.

Carroll Island, Graces Quarters and Pooles Island

Carroll Island and Graces Quarters are a noncontiguous addition to APG located across the Gunpowder River in adjacent Baltimore County. Carroll Island and Graces Quarters add an additional 1,164 acres of land to APG but see minimal activity. Carroll Island is 799 acres and is located close to urban development in Baltimore County. Graces Quarters is 365 acres and the future home of the JLENS project that will help to monitor the Eastern Seaboard for airborne national security threats. The JLENS project has been briefed, and is only expected to be a three year mission.

Pooles Island is a 206 acre island and contains a lighthouse, which is the only permanent building located at any of these three areas. All three areas exhibit quantifiable amounts of unexploded ordinance (UXO) and environmental constraints.

Local Communities Working Together

APG is an integral part of the local community. APG has been located in Harford County since 1917 and has developed programs and partnerships with local organizations. Some of the organizations include Community Covenant, Baltimore Orioles Military Program, Small Business Programs, and Educational Outreach Programs.

Military Operations

APG's primary missions are to conduct research, development, testing and evaluation (RDT&E) of ordnance and military equipment and to train personnel. APG is home to 19 major commands and supports more than 80 tenants, 20 satellite, and 17 private activities.

Major operations at APG include: performance and durability testing of weapons, equipment, and supplies; testing of projectiles for accuracy, speed, reliability, and penetration; extensive research and development in the areas of chemical and biological weapons and materials; human factors; computational and information sciences; survivability and lethality analysis; and vehicle technology.

JLUS Observation

Aberdeen Proving Ground is an essential Army asset, home to world leaders in research, development, testing and evaluation of Army materiel, and profoundly impacting the way that wars are fought.

Military Strategic Importance

APG serves as a premier Army RDT&E center. The site is located along major transportation corridors that put APG within reach of some of the largest cities on the Eastern Seaboard. APG has experienced growth over the course of the BRAC. Several tenants relocations to APG have helped maintain the installation's importance for national defense.

Major Commands

APG has five core areas of operations or military support:

- Public Health and Medical Research
- Test and Evaluation
- Research and Development
- Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE)
- US Army Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance Team (C4ISR)

The base is home to 19 major commands. Major commands usually have subordinate units that conduct specific research in accordance with the Major Command primary objective. Some major commands may in fact be considered Major Subordinate Command units of higher major commands. Below is information related to some of the major commands at APG.

Army Research Lab (ARL)

The ARL is the Army's central laboratory. ARL's program consists of basic and applied research and survivability/lethality and human factors analysis that provide enabling technologies to many of the Army's most important weapons systems. ARL acts as a link between the scientific and military communities by bringing together internal and external science and technology assets to fulfill the requirements defined by or requested by the Soldier.

Source: http://www.arl.army.mil/www/default.cfm?page=20

Edgewood Chemical Biological Center (ECBC)

Edgewood Chemical Biological Center (ECBC) is a research and development resource for non-medical chemical and biological (CB) defense. ECBC supports all phases of the acquisition life-cycle including basic and applied research through technology development, engineering design, equipment evaluation, product support, sustainment, field operations and demilitarization.

Source: http://www.ecbc.army.mil/

Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD)

The mission of the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) is to provide research, development, acquisition, fielding and life-cycle support for chemical, biological, radiological and nuclear Defense equipment, medical countermeasures, and installation and force protected integrated capabilities supporting national strategies. The JPEO-CBD executes these responsibilities through seven Joint Project Managers.

Source: JPEO-CBD

Maryland Army National Guard (MDARNG)

The Maryland Military Department mans, equips, trains, and deploys National Guard units in support of missions directed by the President of the United States and to support state responses to any major emergency or disaster. The MDARNG 29th Combat Aviation Brigade is headquartered at the Edgewood Area and provides command and control to a variety of aviation and other units. It is the major aviation command within the Maryland Army National Guard containing units from across the nation.

Source: http://www.md.ngb.army.mil/absolutenm/templates/?a=754&z=41 http://www.globalsecurity.org/military/library/news/2009/11/mil-091117-arnews01.htm; Maryland Army National Guard PowerPoint Presentation 26 November 2013

Program Executive Office for Command, Control and Communications-Tactical (PEO C3T)

The Program Executive Office for Command, Control and Communications-Tactical (PEO C3T) provides soldiers with the computer systems, radios and communications networks required in the battlefield. PEO C3T develops, acquires, and fields this range of products to all Army units. PEO C3T ensures the integration of these systems so they function seamlessly; while providing on-site training and support for the systems deployed worldwide.

Source: http://peoc3t.army.mil/c3t/

US Army Communications-Electronics Command (CECOM)

CECOM ensures the global readiness of the C4ISR systems and the information and technology for troops to communicate on battlefield. CECOM ensures global readiness by providing training; field support for software modifications and software upgrades; logistics expertise; information assurance; joint network capabilities; and interoperability certification functions.

Source: US Army Communications-Electronics Command, the Critical Link Brochure, http://cecom.army.mil/about.html

US Army Communications-Electronics Research, Development and Engineering Center (CERDEC)

CERDEC is headquartered at APG and is charged with developing and integrating Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) technologies for networked soldiers. As the Army's main developer, supplier, and integrator of C4ISR onto Army platforms, CERDEC must balance the newest technology with on-the-ground needs of soldiers.

Source: http://www.army.mil/cerdec

US Army Medical Research Institute of Chemical Defense (MRICD)

US Army Medical Research Institute of Chemical Defense (USAMRICD) is a lead science and technology laboratory, with specific studies in medical chemical countermeasures research and development. The USAMRICD has numerous laboratories located at APG and is responsible for providing research and analysis on chemical defense research for DOD and Federal Agencies.

Source: http://chemdef.apgea.army.mil/

United States Army Public Health Command (PHC)

The United States Army Public Health Command (USAPHC) has a mission to promote health and prevent disease, injury, and disability of Soldiers and military retirees, their families, and Department of the Army civilian employees and assure effective execution of full spectrum veterinary service for Army and Department of Defense veterinary missions.

Source: http://phc.amedd.army.mil/organization/Pages/default.aspx; United States Army Public Health Command, May 2014

US Army Research, Development and Engineering Command (RDECOM)

RDECOM delivers technological capabilities that ensure the Army remains the dominant force on the battlefield now and in the future. The mission of RDECOM is to empower, unburden, protect and sustain the joint warfighter through integrated research, development, and engineering solutions. This includes providing technology solutions to meet current operational needs as well as developing new technologies to aid future Soldiers. RDECOM is the Army's largest technology developer and its leading technology integrator.

Additionally, ARL, CERDEC, and ECBC are all organizations apart of RDECOM.

Source: http://www.army.mil/article/39385/

Other Major Commands

Other major commands on APG include the 20th CBRNE Command, the Army Materiel Systems Analysis Activity (AMSAA), the Army Contracting Command (ACC), the US Army Evaluation Center (AEC), the US Army Civilian Human Resource Agency (CHRA) Northeast Region Office, the US Army Signal Network Enterprise Center APG (USANEC APG), the Kirk US Army Health Clinic (KUSAHC), and the Program Executive Office Intelligence Electronic Warfare & Sensors (PEO IEW&S).

Aberdeen Test Center (ATC)

ATC is a Major Range and Test Facility Base (MRTFB), one of only eight that are a part of the Army, and the only MRTFB located on the east coast. As a major national asset to the DOD, the ATC has become a lead test center for Land Vehicle Testing and Direct Fire Testing, as well as the Army's Center of Excellence for Live Fire Testing. The MRTFB designation is a driving force for the importance of the installation. In addition, ATC is the Range Officer in Charge at APG and operates on 66,000 of the over 72,000 acres.

Source: http://www.atc.army.mil/

Future Mission Operations

Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS)

The Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) provides over the horizon surveillance and fire control quality data on Army and Joint networks enabling protection from enemy cruise missiles, aircraft, unmanned air vehicles, tactical ballistic missiles, large caliber rockets, and surface moving targets.

The JLENS consists of two systems: a fire control radar system and a wide-area surveillance radar system. Each radar system has a 74-meter balloon (known as an aerostat) that is moored at a fixed location. APG's JLENS system is planned to be placed on the Gunpowder River; one at Graces Quarters and one at the Edgewood Area. However, the mission is expected to only continue for three years.

Source: Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System, Selected Acquisition Report, 2012

APG Mission Footprint

Mission and training activities at APG generates a number of impacts that can affect the health, safety, and overall quality of life in the surrounding community. Examples of these mission impacts may include noise and vibration from ordnance testing or the risk of an aircraft accident.

Conversely, the military mission is susceptible to hazards created by nearby civilian activities, land use development, and environmental constraints that may obstruct air space, locate noise sensitive uses in high noise zones, or gather large numbers of people in safety zones. Understanding the overlapping spatial patterns of these impacts around the installation and ranges is essential for promoting compatible and fully coordinated land use decisions.

These overlapping spatial patterns comprise the mission footprint. The mission footprint serves as a compatibility tool for surrounding communities in making land use decisions. Several elements of mission profiles comprise the mission footprint that extends outside the APG installation. These elements are either tangible, meaning that they are either physically seen and / or heard, or intangible, meaning that they exist within space without being seen or heard.

The following outlines the different elements or mission profiles that comprise the APG Mission Footprint:

- Aircraft Safety Zones
- Noise Contours for Aircraft
- Imaginary Surfaces
- FAA Part 77 for Vertical Obstructions
- Bird / Wildlife Air Strike Hazard (BASH) Relevancy Area
- Range and Training Areas
- Noise Contours for Large Caliber Weapons and Detonations
- Quantity Distance Arcs (QD)
- Special Use Airspace
- Microwave Line-of-Sight

Aberdeen Proving Ground Airfields

Aberdeen is home to two airfields, Phillips Army Airfield and Weide Army Heliport.

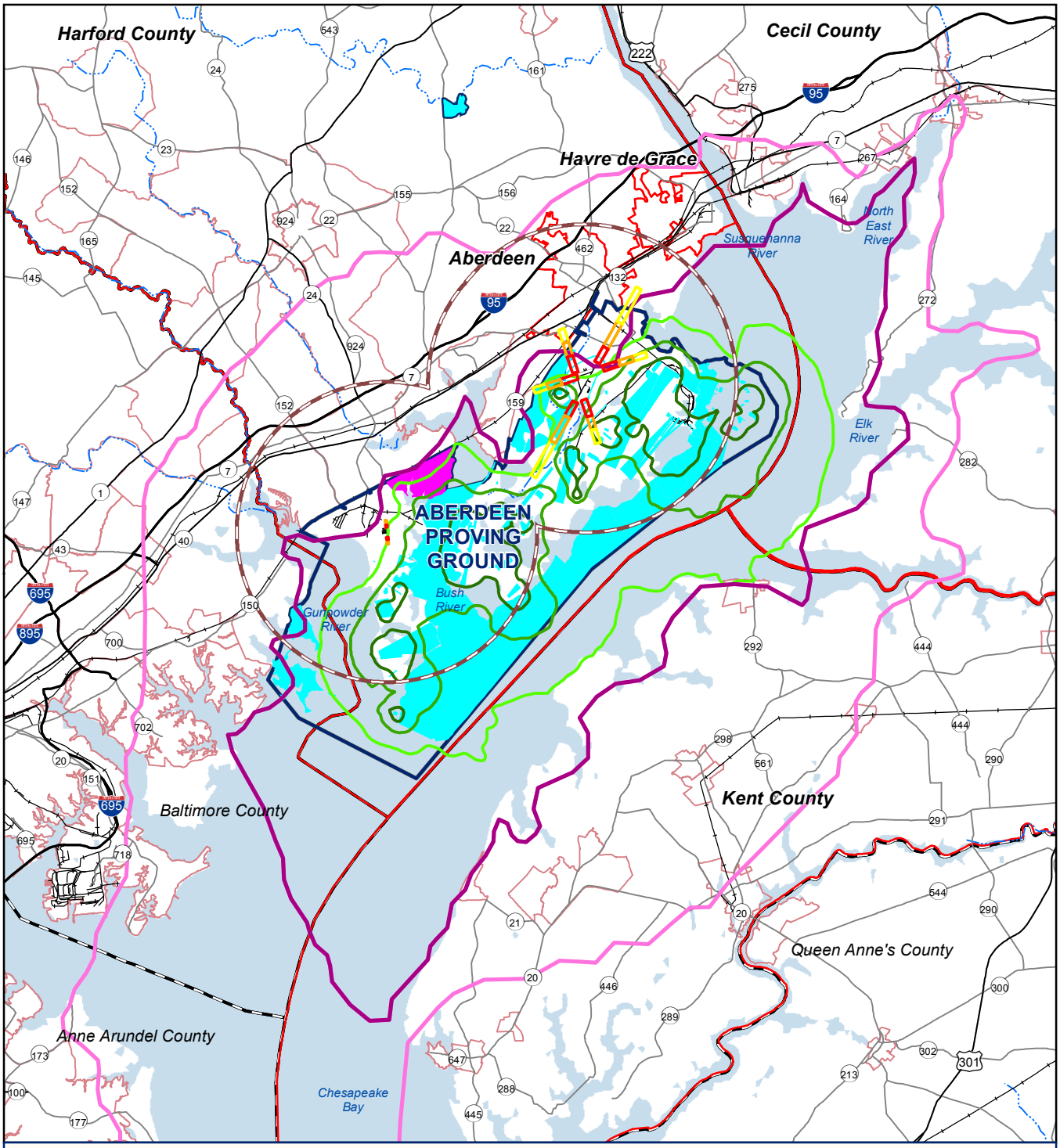
Phillips Army Airfield (PAAF) is located in the Aberdeen Area south of the Maryland Blvd Gate. PAAF is owned by APG but operated by ATC. The Airfield includes one 8,000-foot by 200-foot hard-surfaced runway, four drop zones, one helipad, and three bomb ramps. PAAF also houses several air operations support facilities including: PAAF main hanger, control tower, taxiways, off-loading area, and aprons. Non-aviation activities also take place at PAAF. ATC uses certain runways for speed and braking tests on wheeled and tracked vehicles. The C-12U Huron and RQ-7B Shadow, as well as the UH-72A Lakota utilize PAAF.

Weide Army Heliport (WAH) is located on 98.5 acres of land in the Edgewood Area. WAH was closed to fixed wing aircraft in 1980 and is now utilized as a heliport and home to the Maryland Army National Guard. WAH includes a 1,600-foot, rotary-wing-only runway. Support facilities include: one flight operations building, one counterdrug observation building, two main hangers, and a warehouse. The types of aircraft that are used at WAH include UH-60 A/L Black Hawk, CH-47D Chinook, and UH-72A Lakota.

Aircraft Safety Zones

Aircraft safety zones for APG are based on historical data of aircraft collisions, geography, and runway information. The purpose of safety zones are to provide for the general safety of the public as it relates to the land uses under and near these zones. Safety zones help limit and guide development to enable the provision of safety of the public and pilots while simultaneously allowing for continued economic growth. The safety zones are referred to as Clear Zones (CZs) and Accident Potential Zones (APZ I and II). Clear Zones are the zones which begin at the end of a runway and extend to a predetermined distance. This is the area where an accident involving an aircraft operation is most likely to occur; therefore, development is completely restricted in this area. APZs are areas following the CZs where there is still potential for accidents, but development is less regulated.

These safety zones are illustrated in Figure 3. Within these zones, there are restrictions on types, densities, and heights of land uses. Clear Zones vary between PAAF and WAH. The PAAF Clear Zone begins at the end of each runway and extends 3,000 feet beyond the end of the runway with a width of 500 feet. The WAH Clear Zone begins at the end of each runway and extends 400 feet beyond the end of the runway with a width of 300 feet. The Clear Zones do not extend off of APG, although portions of APZ I and II for PAAF extend beyond the installation boundaries.



Legend

- 5-Mile BASH Relevancy Area
- Training Area
- Range Area

Large Caliber Noise Contour

- LUP Z – 57 CDNL
- Zone II – 62 CDNL
- CDNL, Zone III – 70 CDNL

Peak Blast Noise Contour

- 115 PK15(met)
- 130 PK15(met)

Safety Zone

- Clear Zone
- APZ 1
- APZ 2

- Installation Area
- Airfield
- Partnering JLUS Jurisdictions
- County Boundary
- City / Town / Unincorporated Community
- Interstate
- Highway
- Major Road
- Railroad
- Water Body
- River

Source: APG, 2014.

Matrix DESIGN GROUP

0 1 2 Miles

Figure 3

Military Footprint Composite –Range / Training Areas, Range Noise Contours, Safety Zones, BASH

PAAF has a total of three runways, but only one of them is active. Runway 04/22 is 8,000 feet long and 200 feet wide and can handle a wide variety of aircraft including a Lockheed C5 Galaxy. The other two runways are inactive but have the potential to be used in the future.

Source: Long Range Component, APG Master Plan; UFC 3-260-01, Airfield and Heliport Planning and Design, 2008.

Imaginary Surfaces

The imaginary surfaces of an active runway are used to determine where vertical obstructions could exist in the vicinity of aviation operations. The various imaginary surfaces build upon one another and are designed to eliminate natural or man-made obstructions to air navigation and operations. The extent or size of an imaginary surface depends on the type of runway. Thus, the key terms related to imaginary surfaces relative to APG runways are described below.

- The Primary Surface defines the limits of the obstruction clearance requirements in the immediate vicinity of the landing or take-off area. It comprises surfaces of the runway, runway shoulders, and lateral safety zones and extends 2,000 feet beyond the runway end. This surface is 2,000 feet wide, or 1,000 feet on each side of the runway centerline.
- The Clear Zone defines the limits of the obstruction clearance requirements in the vicinity contiguous to the end of the primary surface. It measures 2,000 feet wide (same width of the primary surface) by 1,000 feet long. This is the area where an accident involving an aircraft operation is most likely to occur.
- The Approach-Departure Clearance Surface is symmetrical about the runway centerline and begins as an inclined plane (glide angle) 200 feet beyond each end of the primary surface of the centerline elevation of the runway end, and extends for 50,000 feet for the APG runways. The slope of the approach-departure clearance surface is 50:1 outward and upward along the extended runway (glide angle) centerline until it reaches an elevation of 500 feet above the established airfield elevation. It then continues horizontally at this elevation to a point 50,000 feet from the start of the glide angle. The width of this surface at the runway end is 2,000 feet; it flares uniformly, and the width at 50,000 feet is 16,000 feet.
- Horizontal Clearance Surfaces include an inner surface at 150 feet above airfield elevation extending to 7,500 feet from the runway, and an outer surface at 500 feet above airfield elevation extending from 14,500 feet to 44,500 feet from the runway end.
- The Transitional Surfaces connect the primary surfaces, Clear Zone surfaces, and approach-departure clearance surfaces. The slope of the transitional surface is 7:1 outward and upward at right angles to the runway centerline.

Figure 4 illustrates the imaginary surfaces relevant at PAAF and WAH. These areas extend radially outwards a distance of 8.5 miles from runways, covering portions of all Study Area jurisdictions.

Associated with the imaginary surfaces of an active airfield and in relation to flight operations from an airport (military or civilian), vertical obstructions are assessed through compliance with Federal Regulation Title 14 Part 77, which establishes standards and notification requirements for objects affecting navigable airspace. Figure 4 illustrates the Part 77 footprint based on the elevation of the runway.

Bird / Aircraft Strike Hazard

Birds and wildlife can represent a significant hazard to military training and flight operations. Certain types of land uses, such as standing water or grasslands, attract birds and wildlife. While there have been an insignificant number of fatalities associated with bird air strike hazards (BASH) in the past 30 years, the concern associated with BASH is the significant amount of damage a BASH incident can cost the federal government. According to the DOD Partners in Flight Program, strikes involving military aircraft cost approximately $75 million in damage every year.

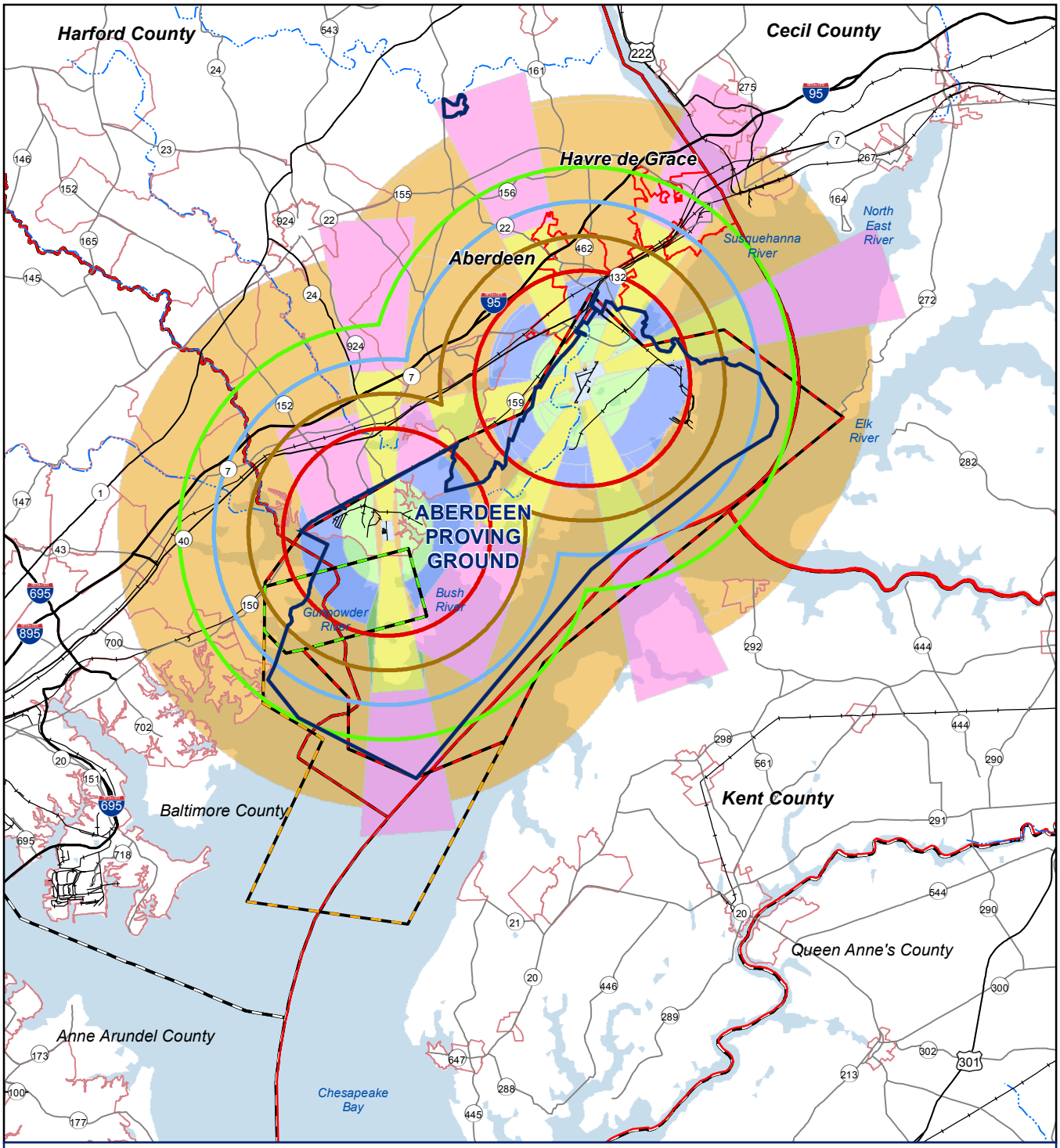


Figure 4
Military Footprint Composite – Imaginary Surfaces, FAA Part 77, Special Use Airspace

According to the APG Integrated Natural Resources Management Plan, BASH is not a significant issue at APG as bird / aircraft strikes occur very rarely. Figure 3 shows potential BASH relevancy areas.

Aberdeen Proving Ground Target Ranges and Training Areas

The RDT&E character of the APG mission means that a large part of the base is considered range area. The total range areas are approximately 66,000 acres including water (34,454 acres of land mass) and are located mainly within the AA and EA but are also located within other areas such as Graces Quarters and Carroll Island. Figure 3 illustrates the location of range and training areas.

Range areas also include water impact areas, which are located in parts of the Bush River, Gunpowder River, Romney Creek, Spesutie Narrows, and Chesapeake Bay. Currently, no munitions of any type are permitted to be fired into the waters within and surrounding APG.

All range areas are contained on installation; however, some operations and QD arcs extend over or into APG restricted area waters which are publicly accessible.

Range Management

ATC controls operations over the range complex and coordinates with Garrison on major activities that might impact the installation or community. Firing programs and operations are managed to ensure that adjacent firing programs are compatible and danger zones are established as to not affect other areas on base. All range use is scheduled to preclude conflict and adverse community impact.

Range Noise Contours

The main source of noise at APG is from ordnance testing. All operations, which will or can produce noise off-base, are conducted between certain hours.

- Weekdays between 8:30 AM and 10:00 PM
- Saturdays between 9:00 AM and 4:00 PM
- Sundays and holidays between 10:00 AM and 3:30 PM with command approval

All operations, which will or can produce noise off-base, are conducted at least 100 meters inside the installation boundary in an attempt to mitigate impacts to neighboring communities.

During normal workdays, a noise model calibration shot will be conducted between 7:30 AM and 8:00 AM. The type and extent of operations conducted during a normal work day will depend on this noise model calibration shot and if it shows adverse noise effects on surrounding communities.

The APG Noise Management Plan illustrates CDNL blast noise contours and peak blast noise contours. CDNL blast noise contours are classified as Zone III (70 CDNL), Zone II (62 CDNL), and LUP Z (57 CDNL). Though ordnance testing at APG can frequently be heard off-base, the CDNL contours extend off-base into the counties of Harford, Kent and Cecil as seen in Figure 3.

Peak blast noise contours are classified by 115 PK15(met) and 130 PK15(met). Moderate risks of noise complaints are associated with 115 PK15(met) and high risks of noise complaints are associated with 130 PK15(met). Blast noise from APG causes noise complaints in Cecil, Harford, and Kent Counties.

Depending on the amount and intensity of development that occurs over the fenceline, any source of noise may begin to conflict with local residents. This could put mission critical activities at APG at risk.

Source: Aberdeen Proving Ground Noise Management Plan, 2006.

Quantity Distance Arcs

Quantity distance (QD) arcs are the area where risk has been assessed based on the impacts of the types of munitions being stored. Quantity distance arcs extend off-base at two locations: into the Chesapeake Bay off Spesutie Island and on the Bush River. These arcs do not encroach on dry land. Additional impact areas are also clustered within the territorial waters of APG off the shore of the EA along the Bush River.

Conowingo and Harford Loops

The Conowingo and Harford Loops are meant to test fuel consumption on various in-service vehicles. Conowingo Loop is a paved, closed loop course that is made up of local and federal public highways. The course is designed to assess medium to heavy duty vehicles. The Harford Loop includes various terrain and grades where test vehicles operate at the posted speed limit. The loops are located north of the Churchville Test Area.

Aberdeen Proving Ground Special Use Airspace

Special Use Airspace (SUA) is airspace where military activity or unusual flight conditions may occur. The designation of SUA serves to alert nonparticipating aircraft (civilian or military) to the possible presence of these activities. There are six types of SUA: Alert Areas, Prohibited Areas, Controlled Firing Areas, Military Operating Areas (MOAs), Restricted Areas, and Warning Areas. Only Restricted Areas are designated within the APG.

A restricted area contains airspace that is subject to restrictions of use due to unusual, often invisible, hazards to aircraft. RDT&E uses at APG create restrictions on outside aircraft operations because of the potential to interfere with myriad testing that occurs at APG.

Restricted airspace encompasses 133 sq. nm in the immediate vicinity of the base which is divided into three areas, R-4001 A, B, and C. R-4001 A and B surround APG and R-4001C is a restricted airspace around the JLENS aerostats. Figure 4 displays APG SUAs.

Source: https://www.federalregister.gov/articles/2013/10/01/2013-23951/proposed-modification-and-establishment-of-restricted-areas-aberdeen-proving-ground-md#h-18

Microwave Line-of-Sight

The Microwave Line-of-Sight footprint is defined as the area in which electromagnetic waves or acoustic waves are transmitted or spread to various communication sites by simple unobstructed horizontal planes. This horizontal plane is at a certain height and allows for a clear, unobstructed pathway for the transmission of electromagnetic waves for electronic scoring of bombing and target practice.

Depending on a structure's height and distance from APG, obstructions built within the radio frequency line-of-sight may have a significant impact to RDT&E activities at APG.

Microwave Line of Site requirements at APG generally extend northwest of the installation to other properties within Harford County. No Line of Site extends to the Eastern Shore. A BRAC Spectrum Study comparing APG to Fort Monmouth, New Jersey showed that Line of Site conditions at APG did not reveal any unexplained or unexpected results. It was determined that no change would be needed for APG to accommodate Line-of-Site spectrum capacity.

However, as Harford County continues to grow, there may be the possibility for taller structures to be built within the APG line-of-sight areas.

APG JLUS

4 Existing Compatibility Tools

Introduction

This chapter provides an overview of compatibility tools currently used or applied in evaluating and addressing compatibility issues in the Aberdeen Proving Ground (APG) Joint Land Use Study (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 indirectly through the topics they cover.

This summary provides an overview of key plans and programs that impact compatibility planning organized by level of government. There are three types of planning tools evaluated relative to their applicability: permanent, semi-permanent, and conditional. Permanent planning tools include acquisition programs, either fee simple purchase of property or the purchase of development rights. Semi-permanent tools include regulations such as zoning or adopted legislation. Examples of conditional tools would include memorandums of understanding (MOU), intergovernmental agreements (IGA), and other policy documents such as comprehensive plans (CP) that can be periodically modified.

The overview of key plans and programs is organized in the following order:

- Federal
- Aberdeen Proving Ground
- State of Maryland
- Harford County
- Cecil County
- Kent County
- City of Aberdeen
- City of Havre de Grace
- Other tools and references

Federal

Federal policy, laws and programs have evolved to influence almost every aspect of land use. This is especially true in coastal environments that host major military facilities, like APG. A broad range of federal plans, programs and actions apply to APG both directly and indirectly. In some cases federal authority may exercise exclusive control over state and local authorities, while in other cases (such as coastal zone management), federal agencies may delegate primary "operational" responsibility to state agencies, favoring to establish policy, certify state programs, and fund and monitor their activities.

The following is not an exhaustive accounting of all relevant federal laws or programs, but rather an identification of those considered to be most relevant for assessing compatibility issues and potential strategies stakeholders might employ to avoid or mitigate conflicts.

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. Under the CAA, the EPA establishes limits on six criteria pollutants through the National Ambient Air Quality Standards. Standards are set to protect public health and public welfare. The CAA also gives the EPA the authority to limit emissions of air pollutants generated from sources such as 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 the EPA. Under the law, states have to develop State Implementation Plans that outline how each state will control air pollution under the CAA.

Clean Water Act

The Clean Water Act (CWA) establishes the regulation of water resources and water pollution. 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. The CWA prevents the contamination of near shore, underground and surface water sources.

Federal Aviation Act

An important outcome of the Act is FAA Regulation Title 14 Part 77, commonly known as Part 77, which provides the basis for evaluation of vertical obstruction compatibility. This regulation determines compatibility based on the height of proposed structures or natural features in relation to their distance from the ends of a runway. Using a distance formula from this regulation, local jurisdictions can easily assess the height restrictions near airfields.

The FAA has identified certain imaginary surfaces around runways that are used to determine how structures and facilities are evaluated to identify if they pose a vertical obstruction in relation to the airspace around a runway. The levels of imaginary surfaces build upon one another and are designed to eliminate obstructions to air navigation and operations, either natural or man-made. The dimension or size of an imaginary surface depends on the runway classification.

Federal Coastal Zone Management Act of 1972

The Coastal Zone Management Act (CZMA) was created in 1972 and is administered by NOAA's Office of Coastal Resource Management (OCRM). In 1978, to manage its extensive coastline (more than 7,000 miles), estuarine embayment's, tidal flats, tidal wetlands, creeks and other coastal assets, Maryland developed its Coastal Program.

In general, the program emphasizes protection of coastal resources, water dependent uses, and "facilities in the national interest" located in coastal areas (including military bases). Public access to the shore is also a primary CZMA objective. The CZMA is administered at the state level through Maryland's Coastal Program.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969 is a federal regulation that established a United States (US) national policy promoting the protection and enhancement of the environment and requires federal agencies to analyze and consider the potential environmental impact of their actions. The purpose of NEPA is to promote informed decision-making by federal agencies by making detailed information concerning significant environmental impacts available to both agency leaders and the public.

All projects receiving federal funding require NEPA compliance and documentation. NEPA is applicable to all federal agencies, including the military. NEPA mandates that the military analyze the impact of its actions and operations on the environment, including surrounding civilian communities. Inherent in this analysis is an exploration of methods to reduce any adverse environmental impact.

Aberdeen Proving Ground (APG)

APG Base Realignment and Closure Impact Study

The 2007 Base Realignment and Closure (BRAC) Impact Study analysis estimates the economic, fiscal and public policy implications of BRAC–related growth at APG through 2017 for a seven–jurisdiction area, which includes Harford, Cecil, Baltimore, New Castle, Lancaster and York counties and the City of Baltimore.

The analysis makes heavy use of publicly–sourced data and uses standard econometric methodologies. The study team considers analysis under three separate scenarios: low-case, mid-case and high. By calculating employment, income, population and other impacts, the study team identified by jurisdiction the most problematic elements from the perspective of ongoing BRAC accommodation, including prospective shortfalls in housing, school capacity, water/sewer capacity and wastewater treatment capacity though 2017, the final year forecasted.

Source: Aberdeen Proving Ground BRAC Impact Study, 2007.

Aberdeen Proving Ground (APG) Master Plan

All US Army installations are required to maintain a Real Property Master Plan (RPMP), in accordance with Army Regulation 210-20 and UFC 2-100-01. The Aberdeen Proving Ground Master Plan comprises three major planning component documents all of which address specific planning concerns and strategies for the future of APG.

Long Range Component (LRC). The LRC outlines APG's long-term strategies for growth with consideration of regional, local, installation, and site-specific planning issues. It contains focused, detailed planning strategies

that guide the long-range use of land and facilities throughout APG. It is a broad-based area analysis of the entire installation projected over a period of 20 to 50 years. It describes the existing conditions and baseline data used to develop the plans contained in this component, as well as the remaining components of the RPMP.

Short Range Component (SRC). The SRC defines real property projects scheduled in the near term. It is tied to the long-term strategies of the Capital Investment Strategy and the Long Range Development Plans of the LRC. The SRC reflects installation facility actions and capital investments over the current Future Years Defense Plan window (2010-2017) and marks the transition from planning to programming.

Capital Improvement Strategy (CIS). The CIS contains the holistic set of actions needed to create the Real Property Vision and links long-term planning (general strategies) to plan implementation. The CIS supports the vision of the LRC and forms the basis of programming actions. It focuses on strategies to integrate current demands with long-term facility needs, based on assessments of excesses and deficits. It also leads to the prioritization of programming actions found in the SRC.

Other Planning Initiatives Noted in the Master Plan

APG Enhanced Use Leasing (EUL) Program. EUL legislation (10 USC 2667) provides additional tools for managing installation assets. The purpose of the EUL is to achieve business efficiencies and maximize returns on investment by using lease proceeds for a variety of operational needs. Currently, APG has a EUL under development on Maryland Boulevard with St. John Properties.

Community Development and Management Plan. Corvias Military Living was contracted to develop the Community Development and Management Plan for APG, as part of the Army's Residential Communities Initiative (RCI) Program.

The RCI program is intended to improve the quality of life for Soldiers and families assigned to APG. Over the anticipated 50-year term all family housing will be rehabilitated or replaced and additional new housing will be provided. In addition, RCI will bring new community centers, other ancillary facilities and amenities to meet family housing needs at APG.

Source: Aberdeen Proving Ground Real Property Master Plan Update, 2012.

Army Compatible Use Buffer Program

The most recent ACUB plan for APG was finalized in 2011 as the "Chesapeake BAY-CUB." The plan addresses growing encroachment concerns as they relate to realistic training opportunities and the continued viability of APG as a significant training and research center for the US Army and the Maryland Army National Guard.

The 2011 revisions address multiple levels of compatibility, including environmental and safety concerns. Environmental considerations include the bald eagle and wetlands, and other local and regional species and habitats of concern in the Chesapeake Bay Critical Area. The plan outlines other anticipated training and testing restrictions such as safety and human welfare. The BAY-CUB provides a proposed action and a preliminary list of alternatives to deal with compatibility issues. These programs seek to maximize the amount of land available for research and development and training and testing operations while responsibly addressing conservation and potential nuisance concerns. The implementation of these plans and policies assist in coordinating local and regional compatibility measures around APG and the Chesapeake Bay.

Source: Aberdeen Proving Ground Army Compatible Use Buffer Program, 2011.

Integrated Cultural Resources Management Plan

The ICRMP is a planning tool employed by APG to make informed decisions regarding the cultural resources under their control in compliance with public laws, in support of military mission, and consistent with sound principles of cultural resources management.

The ICRMP includes an overview of laws, statutes, regulations, and executive orders that relate to the management of cultural resources at APG. Internal and external coordination procedures are specified through standard operating procedures to ensure compliance with cultural resources laws during the execution of

APG mission activities. The document also sets goals for APG's Cultural Resources Program (CRP) over a five- year planning horizon.

APG has reviewed and updated their ICRMP to reflect the current status of the identification and evaluation of cultural resources at APG, as well as changes in its administrative structure. The APG ICRMP is based upon information assembled from historical, archeological, ethnographic, architectural, and planning documents prepared for APG since 1996.

Source: Aberdeen Proving Ground Integrated Cultural Resources Management Plan, 2008.

Integrated Natural Resources Management Plan

APG has prepared an INRMP to address the management of the natural resources at APG and the interrelationships of the natural resources with the military mission. The INRMP reflects the commitment set forth by the Army to conserve, protect, and enhance the natural resources. The primary purpose and objective of the INRMP is to present an implementable management plan that guides APG in achieving natural resource management goals, supporting the military mission, and complying with environmental policies and regulations. In addition, the INRMP ensures that natural resources conservation measures and Army activities on APG land are integrated and consistent with federal stewardship requirements

Source: Aberdeen Proving Ground Integrated Natural Resources Management Plan, 2009.

Operational Noise Management Plan

The ONMP serves as a primer on operational noise for installation personnel and the community. Prepared by the US Army Public Health Command at APG in 2005, the ONMP identifies the specific noise environment for APG, the impacts of the noise environment and provides recommendations to manage this environment as a responsible neighbor. The objectives of the ONMP are to:

- Provide a document which can educate both the military and the public about the noise generated from APG operations.
- Manage noise complaints to reduce the potential for conflict between APG and the surrounding communities.
- Assess the compatibility of the noise environment with the existing and proposed land uses.
- Mitigate the noise and vibration environments, where feasible, to increase land use compatibility.

Source: Aberdeen Proving Ground Operational Noise Management Plan, 2006.

Readiness and Environmental Protection Initiative Projects

Coordination between the Aberdeen Test Center staff and the Harford Land Trust/Harford County helped alleviate threats to the nearby Churchville Test Area through a Readiness and Environmental Protection Initiative (REPI) project. As of September 30, 2010, the one REPI conservation project that has taken place at APG has resulted in 163 acres of preserved land, partially alleviating the threat of nearby regional growth which was causing noise, dust and other issues.

Source: US DOD Readiness and Environmental Protection Initiative (REPI) Project Fact Sheet, Aberdeen Proving Ground.

State of Maryland

Chesapeake Bay & Atlantic Coastal Critical Areas Act & Protection Program

The Critical Area Act establishes the Chesapeake Bay Critical Area and Atlantic Coastal Bays Critical Area Protection Program and the Critical Area Commission to enable the State and local governments to jointly address the impacts of land development on habitat and aquatic resources.

The law governing the Program requires that development projects within 1,000 feet of the tidal influence of the Chesapeake Bay meet standards designed to mitigate adverse effects on water quality, and fish, plant and animal habitat. Local governments can also prohibit uses that they believe would adversely affect habitat or water quality within the Critical Area. Each jurisdiction within a critical area develops and implements a plan to achieve the

objectives of the Program, which is subject to review and approval by the Commission.

Sources: Harford County Chesapeake Bay Critical Area Management Program, 2011; http://www.dnr.state.md.us/criticalarea/reg_act.asp.

Coastal Zone Management Act & Program

The Coastal Zone Management Act (CZMA) of 1972 provides for the management of the nation's coastal resources and helps balance economic development with environmental conservation. Maryland's Coastal Zone Management Program was approved in 1978 in response to the CZMA. With Coastal Zone boundaries that include 17 of the state's 23 counties bordering the Atlantic Ocean and the Chesapeake Bay, the program coordinates multi-agency initiatives that provide a framework for statewide water quality, hazard mitigation, public access and habitat restoration.

Sources: Coastal Zone Management Act of 1972; http://dnr.maryland.gov/ccs/pdfs/MD309AS2001.pdf.

Maryland's Military Installation Council

The Maryland Military Installation Council (MMIC) identifies what public infrastructure and community support is needed for the development and expansion of Maryland military installations and studies potential impacts of tentative development and expansion on local communities. The Council also researches best management practices regarding 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.

Source:http://msa.maryland.gov/msa/mdmanual/26excom/html/23military.htm

"PlanMaryland"

Maryland has implemented comprehensive state level and statewide planning and growth management policies and practices to promote "Smart Growth" (SG) principles. Smart Growth protects natural resources and promotes community character by leveraging investments in existing developed areas and limiting low density, single use "sprawl" development patterns and their associated public costs. Since 2009 local government Comprehensive Planning requirements have been expanded to include sustainable growth. PlanMaryland resulted in a sustainable growth plan for the 21st century focusing on trends and land use, visioning, state coordination and implementation, management and best management practices.

Source: http://plan.maryland.gov/plan/plan.shtml.

Transportation Plan, 2035

The 2035 Maryland Transportation Plan (MTP) looks to the future and identifies the state's most critical transportation challenges and needs, and provides a structure for how to address them through statewide visions, strategies and goals. The MTP incorporates related state goals for the economy, sustainable growth and the environment. It furthermore incorporates other agency transportation plans and public input and serves as the states guiding policy on transit. The MTP also establishes priorities and principles for implementation to be used in decision making regarding Maryland's transportation investments.

Source: Maryland Transportation Plan, 2035.

Local Jurisdictions

In Maryland 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. For instance, the "Land Use Article" of the Annotated Code of Maryland provides the legal basis for planning at the municipality and county level throughout most of Maryland. In such cases, the Article grants the authority to prepare a comprehensive or master plan, a zoning ordinance, and subdivision regulations for many of the state's municipalities.

Two of the Maryland counties within the APG JLUS study area, Cecil and Kent Counties, are "non-charter" counties and therefore derive their authority to regulate land use from the Land Use Article. Harford County is a charter county granted planning and zoning authority under the "Express Powers Act" in lieu of the Land Use Article.

These distinctions have relevance to the particular scope of the delegated authority, to procedural requirements affecting land use planning and regulation. In addition to their comprehensive plans and zoning ordinances, counties and municipalities may also elect to use other tools to address specific compatibility issues. For example, Maryland state regulations require a general notification of potential noise from military installations, but local jurisdictions may further specify that this notification be accomplished through the land development process or supplementary noise abatement techniques.

There are five incorporated jurisdictions (three counties and two cities) within the APG Study Area that are acting as "partners" in the JLUS; Harford County, Cecil County, Kent County, and the Cities of Aberdeen and Havre de Grace, with numerous smaller census designated places (CDP's) within unincorporated county lands. This JLUS focuses on areas most affected by APG activities and conversely, the areas that have the most potential to pose compatibility and mission protection issues for APG.

Harford County

Harford County extends over 526 square miles (over 15percent is water), with a 2012 population of 248,257, the people represent a sizable population that have the potential to be affected by APG missions. The County has utilized a variety of planning tools to achieve its goals for organized development and a safe environment for its residents.

Harford County Master Plan & Land Use Element Plan

The Harford County Master Plan is a policy document that assists in guiding the long range development plans of the County. The Master Plan, along with the Land Use Element Plan, establish goals and guiding principles upon which city officials' base decisions regarding development and growth. The 2012 update of the Master Plan contains elements outlining the County profile, the public engagement process, inter-jurisdictional coordination, and strategic framework of the County. The strategic framework section within the Master Plan details all of the other 'Element Plans' that were created by the various departments of the county. The visions, goals and guiding principles outlined in the various elements of the Master Plan and the Land Use Element Plan are important because they direct the implementation of specific regulations which influence the area around APG, which is located within Harford County.

Harford County Zoning Code

The Harford County Code contains the codified zoning ordinance which was adopted in 2008 and has been amended through January 2014. The ordinance categorizes the land within the County into seventeen districts, with several overlay districts, and provides development regulations for each district. Lot size requirements, lot area, parking, and height regulations are detailed under supplementary regulations, and a permitted use matrix is provided for each district. The County of Harford does not include overlay districts for airport or military zoning, although it does contain an overlay district for the Chesapeake Bay Critical Area. Article VII: District Regulations details each of the seventeen districts, their density allocations, and their height maximums. The R4 Urban Residential district allows for mid-rise and high-rise apartments up to five or six stories in height, and the B3 General Business District allows for four story row duplexes, but only within the Chesapeake Science and Security Corridor. The remainder of the residential, commercial and industrial districts restrict heights to three stories (aside from Industrial Districts which allow for 40 feet for industrial buildings). The Mixed Use Office district (MO) allows for retail and trade service buildings up to 65 feet in height, while transient housing is allowed up to a maximum height of 85 feet.

Article XI of the ordinance details regulations for telecommunication facilities. Articles V, VII and IX of the ordinance details regulations for outdoor lighting.

Airport Land Use Compatibility

Harford County does not currently regulate zoning for airport purposes, such as employing an Airport Overlay Zone, nor does it use an Airport Land Use Compatibility Plan (ALUCP). Airport Land Use Compatibility Plans establish planning boundaries and land use compatibility standards for airports that do not employ their own Airport Plan. Harford County does have authority to implement airport zoning regulations that would contribute to military compatibility in

unincorporated areas proximate to APG. Article IX: Special Exceptions of the Harford County Code gives detail regarding transportation, communications and utilities exceptions in relation to air facilities, although it is in regards to public and private airports only and not military air facilities. The regulations, taken from the Code of Maryland Regulations (COMAR), state that the height of obstacles near each end of the runway must be compatible with takeoff and landing performance.

Other Harford County Tools

Real Estate Disclosure

Section 10-702 of the Real Property Article, Annotated Code of Maryland, requires the owner of certain residential real property to furnish to the purchaser either (a) a RESIDENTIAL PROPERTY DISCLAIMER STATEMENT stating that the owner is selling the property "as is" and makes no representations or warranties as to the condition of the property or any improvements on the real property, except as otherwise provided in the contract of sale, or in a listing of latent defects; or (b) a RESIDENTIAL PROPERTY DISCLOSURE STATEMENT disclosing defects or other information about the condition of the real property actually known by the owner. Certain transfers of residential property are excluded from this requirement.

Army Alliance

The Army Alliance, Inc. is a chartered nonprofit organization created to work with local, state and federal officials to promote continuous economic viability of APG. Army Alliance works with senior Army and DOD officials and local and State officials in making sure that APG remains a major component in the Army's long-term strategy.

Army Alliance periodically updates a strategic plan that outlines a number of proactive initiatives designed to attract additional Army activities as well as other federal research and development activities across the nation.

Source: http://armyalliance.org/

MOU between APG and Harford County

A Memorandum of Understanding (MOU) was adopted in 2009 titled 'Mutual Support for Emergency or Disaster Assistance between Aberdeen Proving Ground and Harford County, Maryland.' The MOU states that due to the common relationship between APG and Harford County, effective planning and support between the two entities is necessary. It mentions that mutual areas of interest as part of the MOU are comprehensive, including support and coordination of resources such as medical, police, fire, logistical, and technical or hazardous material (HAZMAT) assistance.

Cecil County

Cecil County comprises over 415 square miles (over 15 percent is water), with a 2010 population of 101,108 people. The County has utilized a variety of planning tools to achieve its goals for organized development and a safe environment for its residents.

Cecil County Comprehensive Plan

The Cecil County Comprehensive Plan, adopted in 2010, includes Elements for: land use, water resources (including potable water, wastewater, and stormwater), transportation, public facilities (including police, emergency services, schools, parks, and libraries), economic development, housing, environmentally sensitive areas, mineral resources, and other natural resources.

Cecil County Zoning Ordinance

The Cecil County Zoning Ordinance, originally adopted in 1993 and amended through 2010, categorizes the land within Cecil County into eighteen districts, providing development regulations for each. For each respective district the Code details maximum residential density provisions, building heights and outdoor lighting requirements. The majority of Cecil County lands proximate to APG military missions or located within APG noise contours include the Open Space (OS) district, the Northern and Southern Agricultural-Residential (NAR and SAR) districts, and the Rural Residential (RR) districts. Other Cecil County zoning districts encompassed by the APG 115 PK15 peak blast noise contour include the Manufactured Home (MH) district, the Maritime-Business (MB) district, the Development Residential (DR) district, both Light and Heavy Industrial (M1 and M2) districts, the

Village Residential (VR) district, the Multifamily Residential (RM) district, the Mineral Extraction A (MEA) district, the Suburban Residential (SR) district, and the Business General (BG) district.

Article V, Part VIII discusses utilities, specifically telecommunication structures and communication towers. Section 115 states that communication towers may be permitted in the BG, M1 and M2 zones, and as a special exception in the NAR, SAR, MH and RM districts providing they have setbacks three times the height of the tower from the nearest roadway. It furthermore states new towers shall be built at the lowest height possible, but pursuant to Section 168 communication towers are not subject to district height regulations.

Article VI Schedule of Zone regulations details yard requirements, as well as building height limitations per district. The OS district purpose is preservation, recreation and protection of resources, and therefore does not allow for residential land uses and most development. The RR, NAR, SAR, SR, VR, DR, RM, MH, MB and MEA districts all have maximum height limitations of 35 feet, while the BG district has a height maximum of 55 feet for commercial/ business oriented buildings, and the M1 and M2 industrial districts have height maximums of 75 feet. Additionally, Article V details several regulations for lighting, while Article VII details density by zoning district.

Airport Land Use Compatibility

Cecil County does not currently regulate zoning for airport purposes, nor does it use an Airport Land Use Compatibility Plan (ALUCP). The county does however employ an Airport Approach Zone, defined within Section 168 of Article VII. This Airport Approach Zone is defined by the FAA, but is aimed at civilian and commercial public airports. Given that the majority of the area surrounding APG and its two air fields is incorporated, Cecil County's authority to implement airport zoning regulations is limited, nor would it apply to APG, which resides in Harford County.

Special Area Plan- Urban Growth Boundary Plan

The purpose of this Urban Growth Boundary Study is to create areas around each of the Towns, whereby the provision of water and sewer infrastructure would be closely coordinated between the County and the respective Towns. The primary focus of this Study has been to seek input from the Towns on their existing ability to serve areas currently outside incorporated boundaries, and to evaluate ways to effectuate that service. In the US Route 40 corridor, the Urban Growth Boundaries (UGB's) are subareas of the larger Development and Suburban Districts. In the outlying areas, around the Towns of Rising Sun, Chesapeake City and Cecilton, the UGB's correspond to those areas designated as Town-Residential (TR) Zoning.

This plan also details future Annexation Areas of the Towns, which are derived from each town's comprehensive plan.

Other Cecil County Tools

Real Estate Disclosure

Property disclosure is mentioned in the Zoning Ordinance for Cecil County under the Right to Farm Ordinance, as well as under Section 293 Property Disclosure and Hold Harmless Statement, the latter of which details disclosure regarding property frontage on a publicly maintained road and access to public water and sewer lines.

Cecil County Strategic Plan

The Cecil County 2014-2019 Strategic Plan is the first comprehensive plan developed, approved, and adopted under the new system of charter government and specifically responds to the regulations described in Article 6, Section 601 (a). The process for developing the plan included the work of the Strategic Planning Advisory Network, public feedback, and a review by County employees and affiliate agencies.

Priorities of the plan including advancing lifelong educational opportunities for citizens of all ages, providing fiscal stability, implementing improvements in infrastructure, creating an environment that encourages economic growth through job creation, business development, and community revitalization, and improving the quality of life for citizens by enhancing safety and health in all communities.

Eastern Shore Land Conservancy

The Eastern Shore Land Conservancy (ESLC) is a non-profit corporation in good standing with the charitable division of the office of the Secretary of State of Maryland. They assist in the conservation of natural habitats and resources along the eastern shore of Maryland. To date, ESLC has:

- Protected nearly 47,000 acres of the Eastern Shore's important natural habitat areas and prime farmland through easements on 268 properties and the creation of three preserves;
- Assisted in the protection of another 7,400 on 16 properties.
- Established a record of preservation that far exceeds any other local land conservancy in Maryland and is one of the most successful in the country;
- Received conservation easement and other property interests on which more than $40 million worth of development rights have been extinguished;
- Rescued six highly threatened priority properties on 1,146 acres and worth more than $12 million using their Land Rescue Revolving Fund. In two cases, the properties are key links in trail systems and will allow public access and serve as permanent urban growth boundaries.

Source: http://www.eslc.org/

Kent County

Kent County is comprised of approximately 415 square miles (over 30 percent is water), with a 2010 population of 20,197 people and approximately 210 miles of shoreline. The County has utilized a variety of planning tools to achieve its goals for organized development and a safe environment for its residents.

Kent County Comprehensive Plan

The Kent County Comprehensive Plan presents a series of goals and strategies to guide the preparation of County regulations and the application of County programs. These goals and policies are organized in eight functional categories dealing with the economy, towns and villages, the countryside, the environment, housing, transportation, community facilities and public services, and historic and cultural preservation. Each section contains a summary of important issues and trends, a statement of goals which should guide the County's administrative programs, and a list of strategies that the County will take to reach these goals.

Kent County Zoning Code

Chapter 222 of the Kent County Code details the Land Use Ordinance, adopted in 2002 and amended through 2013. The Kent County Land Use Ordinance divides the land within the county into seventeen major districts in which the Code provides development regulations for these districts. Kent County does not include a stand-alone district provision or sub districts for military or Airport zoning, yet they do provide a unique section on Marine district regulations, although they do not apply to APG. Districts that fall within the APG 115 peak blast noise contour include the Agricultural Zoning (AZD) District, the Resource Conservation District (RCD), the Rural Character district (RC), the Rural Residential (RR) district, the Critical Area Residential (CAR) district, the Community Residential (CR) district, the Village (V) district, the Crossroads Commercial (CC) district, the Marine (M) district, the Employment Center (EC) district, and the Industrial (I) district.

Maximum height restrictions are delegated by district, in which many of them are specific (down to the heights per residential or commercial buildings use). The CC district allows for height maximums of 45 feet for commercial buildings and 38 feet for residential buildings, while the EC and I districts allow for height maximums of 45 feet for industrial buildings and 35 feet for residential buildings. All other districts within the noise contour boundaries (AZD, RCD, RC, RR, CAR, CR, V, and M districts) restrict building heights to 38 feet.

Collocation of personal wireless facilities on existing facilities is permitted in most zoning districts. Communication towers are permitted only as a special exception in the AZD, RCD, RC, CC, C, CCA, EC and I zoning districts. New communication towers are limited to 199 feet unless a variance is granted. Article V details regulations for outdoor lighting and maximum density by district.

Airport Land Use Compatibility

Kent County does not currently regulate zoning for airport purposes, nor does it have an Airport Land Use Compatibility Plan (ALUCP) although the Land Use code does establish an Airport Safety Zone within the Land Use Overlay for a proposed public airport. Because the area surrounding APG is within Harford County, airport-specific land use controls for Kent County would not be relevant to APG.

Other Kent County Tools

Real Estate Disclosure

Chapter 85: Farming, of the Kent County Code details a section on Real Estate transfer disclosure and a right to farm notice. The real estate transfer disclosure statement is written as follows:

> *"Upon any transfer of real property by any means, the transferor shall provide the purchaser or lessee a statement specifically advising the purchaser or lessee of the existence of this chapter that shall be substantially in the form approved by the Kent County Zoning Administrator and by resolution of the Board of County Commissioners. The transferor shall require that the purchaser or lessee sign the statement and have it recorded by the Kent County Clerk of Court."*

Kent County does not require additional disclosures specific to impacts from APG.

Eastern Shore Land Conservancy

The ESLC is a nonprofit charitable organization in Maryland that helps in conservation and easement acquisition of land. More information on ESLC is detailed in the previous section, under 'Other Cecil County Tools'.

City of Aberdeen

The City of Aberdeen encompasses roughly 6.8 square miles, had a 2010 population of 14,959 people, and has long supported mission protection for APG due to the location of the installation in the City of Aberdeen.

City of Aberdeen Comprehensive Plan

The City's Comprehensive plan was most recently updated in 2011, and includes the following elements: land use, municipal growth, transportation, community facilities, mineral resources, sensitive areas, housing, and water resources. The plan concludes with an Implementation chapter which details authority, smart growth measures, the development code and the capital improvement program. The guidelines outlined in the various elements of the Comprehensive Plan are important because of their potential impacts on operations at APG, which is located in Aberdeen.

City of Aberdeen Development Code

City of Aberdeen Municipal Code Chapter 235 contains the approved development code, or zoning ordinance, which was adopted in 1990 and has been amended through 2014. The code divides the land within the county into fifteen districts, and provides development regulations for these districts. Lot size requirements, lot area, parking, and height regulations are detailed under Article IV: Provisions Applicable to All Districts and a map is provided for each district. The City of Aberdeen does not include a stand-alone district provision or sub districts for airport or military zoning.

Section 235-24 of the Aberdeen Development Code details General Height requirements for residential, commercial and industrial districts, as well as exceptions and modifications.

While communication towers are allowed in the B-3, M-1, M-2, ORE, AG and TOD districts with special exception approval, no other height provisions that reference communication or transmission towers are specified within the Aberdeen Development Code. Additionally, several sections in the Code detail regulations for outdoor lighting.

Special Area Plans

The Aberdeen TOD Master Plan was completed in 2012 and details importance of the MARC commuter rail, the local and state highways, as well as possible future transportation amenities.

The TOD Master Plan helps give a tangible vision to a future that realized the potential growth at Aberdeen Proving Ground. Some strategies include better and/or additional shuttle bus service to connect APG with the train station and downtown Aberdeen, more frequent and mid-day shuttle service between downtown, the

station, and APG employment zones, and even car-sharing at and around the station area and at APG.

Other Tools

Flood Control Ordinance

The City of Aberdeen has the responsibility under the Flood Control and Watershed Management Act, §5-801 - 809 et seq., Environmental Article of the Annotated Code of Maryland, to control floodplain development in order to protect persons and property from danger and destruction and to preserve the biological values and the environmental quality of the watersheds or portions thereof under its jurisdiction.

Chapter 275 of the City of Aberdeen Code is titled Floodplain Management and it details the establishment of a Floodplain District, development regulations for that district, as well as administration and enforcement for those floodplain regulations.

Real Estate Disclosure

While the City of Aberdeen has several sections in their Ethics chapter of their Code that refer to financial disclosure, it is not clear whether the City does or does not impose further affirmative disclosure requirements on a real estate vendor.

City of Havre de Grace

The City of Havre de Grace, located approximately five miles to the northeast of Aberdeen, encompasses roughly 6.9 square miles, including small areas of water, with a 2010 population of 12,952 people.

City of Havre de Grace Comprehensive Plan

The City of Havre de Grace has a Comprehensive Plan that was written in 2004, with amendments made to the Municipal Growth and Water Resources Elements in 2010. The Comprehensive Plan includes the following elements: municipal growth, historic preservation, economic development, transportation, community facilities, mineral resources, sensitive areas, housing, and water resources. The Plan also includes an Implementation chapter which details authority, recommendations, the development code and the capital improvement program. The guidelines outlined in the various elements of the Comprehensive Plan are important because of their potential impacts on operations at APG, which is located near Havre de Grace.

City of Havre de Grace Zoning Code

City of Havre de Grace Municipal Code Chapter 205 contains the approved development code, or zoning ordinance, which was adopted in 2000 and amended through 2009. The code divides the land within the city into seven districts, which are Residential (R, R-1, and R-2), Residential Office (RO), Residential Business (RB), Mixed Office/ Employment Center (MOE), and Commercial (C). Lot size requirements, lot area, and height regulations are detailed by district, and a map is provided for the districts. The City of Havre de Grace does not include a stand-alone district provision or overlay district for airport or military zoning.

Height regulations are sporadically detailed in the zoning ordinance by district. Height regulations are detailed in Table 1 of the Zoning Code, and while heights are usually delegated by district, the code goes in depth, giving height maximums by use. Most residential uses in the R-1 and R-2 districts are limited to 40 feet, while conditional use residential uses, duplexes, townhouses and semi-detached residential buildings in the RO and RB districts are allowed up to 60 feet in height, as long as yard setbacks increase by one foot for every two feet in excess of the 40 foot building maximum. Multi-family residential buildings in the R-2, RO and RB districts, as well as hotels permitted in the C and RB districts are allowed up to 80 feet. Most Commercial uses such as community facilities, parking facilities, schools and clubs are allowed up to 60 feet in height, while churches (permitted in R, R-1, R-2, and RO, RB and C districts) and hospitals are allowed up to 100 feet in height.

Utility structures are allowed up to 60 feet in height, and are permitted in the C district and conditionally permitted in the R, R-1 and R-2 districts provided their height equals their setback from adjacent residential properties. Utility structures are also conditionally permitted in the RO and RB districts, and are a special exception in the MOE district. Telecommunication towers are allowed in the MOE district provided several terms are met. No other height provisions that reference communication or transmission towers are specified within the Havre de Grace zoning code.

The zoning code provides additional regulations for density, found in Table 1 of the code. Several district regulations, such as the MOE district regulations, including provisions for outdoor lighting. Additionally, Chapter 116 of the Havre de Grace Code details noise prohibitions and exemptions.

Other Tools

Flood Control Ordinance

Chapter 78 of the City of Havre de Grace Code is titled Floodplain Management and it details the establishment of a Floodplain Zones and boundaries, development regulations for these zones, as well as variances and permit enforcement for those floodplain regulations.

Real Estate Disclosure

While the City of Havre de Grace has several sections in their Ethics chapter of their code that refer to financial disclosure, it is not clear whether the city does or does not impose further affirmative disclosure requirements on a real estate vendor.

Other Tools and References

Office of Economic Adjustment and NACo

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. The following five resources have been published to inform the public on land use compatibility.

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 website 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 website 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

Professional Associations Network

The Professional Associations Network is an informal group composed of the Presidents (or their designated representative) of the APG Professional Associations. The APG PAN originated to assist in the coordination of the growing number of professional associations supporting the APG community and to accommodate the needs of our brethren and their associations that may be transitioning from other locations due to BRAC.

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. For this Joint Land Use Study (JLUS), 24 compatibility factors were reviewed to identify, determine, and establish a prioritized set of key study area issues. These compatibility factors are listed below.

Compatibility Factors	
1 Air Quality	13 Legislative Initiatives
2 Anti-Terrorism / Force Protection	14 Light and Glare
3 Coordination / Communication	15 Marine Environments / Climate Change
4 Cultural Resources	16 Noise
5 Dust / Smoke / Steam	17 Public Trespassing
6 Energy Development	18 Roadway Capacity
7 Frequency Spectrum Capacity	19 Safety Zones
8 Frequency Spectrum Impedance / Interference	20 Scarce Natural Resources
9 Housing Availability	21 Sensitive Biological Resources
10 Infrastructure Extensions	22 Vertical Obstructions
11 Land / Air / Sea Spaces	23 Vibration
12 Land Use	24 Water Quality / Quantity

Of the 24 compatibility factors considered, several were determined to be inapplicable to this JLUS: Air Quality, Anti-Terrorism / Force Protection, Cultural Resources, Energy Development, Light and Glare, and Public Trespassing.

Similar issues were consolidated into single compatibility factors. For example, the Marine Environments and Climate Adaption issues were consolidated into one factor since the impacts associated with each of these are very similar.

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 24 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 APG 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 APG 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 APG 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 Advisory Committee (AC) identified the relative priority of each compatibility factor. The Executive Committee finalized the prioritization of

issues based on public and AC input, categorizing the factors into four categories:

- High-Priority. Due to the nature of these issues, an immediate response is warranted. Issues identified as High Priority are to be initiated within 1-2 years following completion of the JLUS.
- Medium-Priority. To be initiated within 3-4 years following completion of the JLUS.
- Low Priority. To be initiated in 5 or more years following completion of the JLUS.
- Awareness Factors. Awareness factors are those issues that pose a minimal impact to APG 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.

APG Compatibility Issues by Factor

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. The following Coordination / Communication issues were identified:

- Coordination between APG and Jurisdictions. Coordination between APG and local jurisdictions on area planning and land use issues is informal and inconsistent leading to a lack of information sharing and coordinated evaluation of development impacts. Jurisdictions do not understand APG requirements that affect long-range development plans.
- Communication of Remediation Activities. Installation's Water quality improvement efforts are not adequately conveyed to the public.
- Formal Coordination Process. No formal process to notify APG of development actions outside the fenceline.
- Base Community Relations Outreach. APG community relations outreach extends to Harford and Cecil County but does not include Kent County which is informed only through media alerts.
- Communication of APG Activities. Public's nominal mission understanding affects community support for APG.
- Communication from APG with Outside Community. Because communications are not formalized, the level of APG communication with outside jurisdictions is perceived as dependent on leadership interest which can fluctuate with changes in leadership.
- Coordination on Multi-Jurisdictional Infrastructure Improvements. Coordinate multijurisdictional infrastructure improvements to ensure all jurisdictions are notified and can plan appropriately for impacts in affected areas. This will help avoid previous scenarios where intersection improvements were not fully coordinated across jurisdictions and resulted in relocation of water lines and regulatory takings of homes in roadway widening areas.
- Engagement from APG on Area Planning Issues. Installation planners attend local jurisdiction planning meetings but lack of active participation is perceived as indifference.
- Security Issues Not Communicated. Harford County Sheriff is not regularly informed about events that happen on the installation that affect the outside community.
- Complaint Documentation Process. Notifying APG and documenting noise and vibration complaints, particularly when there is private property damage, is perceived as onerous to homeowners.
- Energy Conservation Efforts. Need for coordinated effort on regional energy conservation efforts to ensure that solutions from all parties are considered. Providing an inclusive process that considers solutions from multiple sources will ensure the best outcomes for all regional stakeholders. This will alleviate organizations potentially working at cross-purposes such as with the waste-to-energy plant

where the decision to potentially reuse or demolish the facility was made after significant investment and without the transparent exploration of alternatives.

- Coordination on Public-Private Partnerships. Need for coordination between APG and surrounding jurisdictions on Public-Private Partnerships, such as housing and Enhanced Use Leasing that may impact areas outside APG to balance the viability of communities while addressing the ongoing needs of APG.
- Wildlife Hazards. Communication and coordination between various agencies is required to manage bird populations and control the size of the deer herd in the Aberdeen Area and Edgewood Areas to reduce the potential for negatively affecting military activities including aircraft strikes.

Dust, Smoke, and Steam is a by-product generated by both military and civilian activities. The primary dust, smoke, and steam-related issues in this JLUS are associated with military vehicle testing. Dust, smoke, and steam are compatibility issues if sufficient in quantity to impact military and / or flight operations, such as reduced visibility or cause equipment damage, or if military activities cause dust, smoke, or steam to interfere with civilian uses or quality of life. The following Dust, Smoke, and Steam issues were identified:

- Dust Generation from Testing Activities at APG and Dust, Smoke, and Steam from Activities outside APG. Military activities at APG automotive test areas can create fugitive dust impacts outside APG and dust, smoke, and steam from activities outside APG can migrate onto APG.

Frequency Spectrum Impedance/Interference 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). 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:

- No Coordinated Assessment of Hazards Associated with Frequency. Though there is informal coordination between CERDEC, other tenants, and APG to deconflict frequency use during CERDEC ground-to-satellite tests, there is no plan to coordinate and assess near-zone and far-zone hazards associated with ground-to-satellite tests.
- Potential for Ground-Based Interference. Line-of-sight signal transmission between Aberdeen Area and Churchville Test Site can be impacted from potential signal interference.
- Potential to Disrupt Aircraft Navigational Systems. Coordination of signal transmission frequency testing and angle of transmission with area aircraft is required to ensure that potential disruption to aircraft navigational systems does not occur.
- Potential for Harford Metropolitan Area Network to Impact APG. Harford County is pursuing the Harford Metropolitan Area Network (HMAN) project for high speed fiber optic transmission for the County, the municipalities of Havre de Grace, Bel Air and Aberdeen, and businesses throughout the county. Though current phases include only hardwiring, any proposed Wi-Fi in the future may create a radiating signal bloom that could potentially impact APG frequency testing.
- Radio Frequency Interference Affects Emergency Services Communications. Jurisdictions on both sides of Chesapeake Bay have experienced EMS radio system outages from unknown sources speculated to come from APG.
- APG Electronic Warfare Footprint. Concern that electronic warfare footprint associated with APG research and testing activities can spill-over into adjacent jurisdictions. Land uses that occur outside of APG that rely on wireless signals could have the potential to impact activities at APG.
- Coordination with Broadband Providers. Lack of coordination between broadband providers and APG can result in signal interference from use of bi-directional amplifiers outside the fenceline.

- Marine Frequency on Range. Potential for signal interference with waterfront lanes / marine frequencies on range.

Frequency Spectrum Capacity is the entire range and capacity of electromagnetic frequencies used for communications and other transmissions, which includes communication channels used for radio, cellular phones, and television. In the performance of typical operations, the military relies on a range of frequencies with reliable capacities for communications and support systems. Similarly, public and private users rely on a range of frequencies in the use of cellular telephones and other wireless devices used on a daily basis. The following Frequency Spectrum issues were identified:

- Comprehensive Frequency Management Program. Need for a comprehensive Frequency Management Program to assess current and future frequency needs of all APG tenants inside and outside the fenceline to deconflict frequency requirements.

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:

- Urban Environments. Urban city environments such as Baltimore City provide amenities and lifestyle attractive to young professionals. These urban environments are unavailable proximate to APG. APG personnel choosing to reside in an urban environment will have a longer commute adding to regional roadway congestion. The lack of urban environments proximate to APG may put the installation at a disadvantage for attracting younger job seekers.

Infrastructure Extensions covers the extension or provision of infrastructure (i.e., roads, sewer, water, etc.). The extension or expansion of community infrastructure to a military installation or areas proximate to an installation have the potential to induce growth, potentially leading to incompatible uses and conflicts between military missions and civilian communities. Through careful planning, the extension of infrastructure can serve as a mechanism to guide development into appropriate areas, protect sensitive land uses, and improve compatibility of land uses and military missions. The following Infrastructure Extensions issues were identified:

- Water provision to APG Edgewood Area. The current service agreement with Harford County for water provision to the Edgewood Area is a non-binding short-term temporary solution for Winters Run Creek production deficiencies. Long-term solutions for Edgewood water will require new infrastructure.
- Coordination of Easements on APG Property. There is utility infrastructure traversing APG property without a formal agreement with APG at the Churchville Test Site. Formal easements are necessary to know which agency requires maintenance access, to coordinate access when needed, and to prevent potential liability issues.

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:

- JLENS Program. Public perception that the JLENS program could impact rights to privacy.

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 balance land use compatibility with safety and noise zones and imaginary surfaces to promote development patterns appropriate for the airfield vicinity while protecting public property rights. 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:

- Incompatible Land Development. More intense land development throughout the Study Area has the potential to inhibit mission-critical activities at APG.
- Real Estate Disclosures Inconsistent Across Jurisdictions. Inconsistent application of real estate disclosures results in patchwork of new home buyer knowledge of installation impacts on properties.
- Potential for New Mission Footprints Constrained by Environmental Constraints. Buffers for wetlands, wildlife, and eagle nesting potentially reduce developable land for additional missions at Aberdeen Area.
- Eastern Shore Properties Present Possible Encroachments. Real estate easement instruments for properties with noise monitoring equipment on Eastern Shore do not contain legal descriptions resulting in access that may be outside the easements.
- Identification of Encroachment Buffers. Encroachment buffers around APG are not identified on City and County planning documents.

Legislative Initiatives are proposed changes in relevant policies, laws, regulations or programs which could potentially have a significant impact on one or more substantive areas of concern to both the facility and to the stakeholder communities. The focus of this compatibility issue is on initiatives with general and broad implications. The following Legislative Initiative issues were identified:

- Environmental Regulatory Impacts. Federal and state environmental regulations reduce the APG buildable footprint and ability to accommodate new missions.

Marine Environments / Climate Adaptation is attempting to mitigate the potential impacts caused by climate change, which 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 Marine Environments / Climate Adaptation issues were identified:

- Dredging Requests to Aberdeen Proving Ground. The Port of Baltimore has engaged APG over the last couple of decades about receiving dredging spoils. Though APG is not currently a designated receiver site in the Army Corps of Engineers Dredged Material Management Plan, the upland placement of dredging spoils could be used to combat potential sea-level rise.
- Long-Term Plan for Environmental Impacts from Climate Change. Sea level rise studies indicate that portions of APG may be underwater as early as 2050 necessitating a long-term mitigation plan for APG.
- Conowingo Dam Impacts Aberdeen Proving Ground. When Conowingo Dam floodgates are open, debris, sediment, and flooding occur along Spesutie Island.
- Disposal of Dredged Material Destined for Cecil County and Associated Risk from Unexploded Ordnance. Concern that dredging spoil disposed of in Cecil County may carry risks of unexploded ordnance. Consideration that these spoils could be used for shoreline stabilization at APG to combat sea-level rise.

Noise is the result of both military mission 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:

- Noise from Installation Activity. Noise from activities at APG has the potential to affect sensitive noise receptors in surrounding communities.
- Regional Noise Sources. There are other sources of blasting than APG within the region which can be misattributed to APG testing.
- Overflight of the City of Havre de Grace. APG overflight of the City of Havre de Grace creates general noise nuisance.

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:

- Peak Hour Traffic (Traffic Loads at Gates). Peak hour traffic including a mid-day peak causes congestion and traffic delays outside the installation which have a quality of life impact for those working at APG and those traveling the area.
- Public Transportation Connections. Amtrak and MARC commuter trains stop near the boundary of both APG and Edgewood, but there is no direct transit connection from the stations into the installation.
- Increased APG Commuter Traffic Affects Local Roads and Level of Service. APG commuter traffic affects local roads and contributes to level of service impacts:
    - Westbound commuter traffic to APG cuts through local subdivisions via I-95 to reach the installation
    - Traffic switching between Route 40 and I-95 to avoid higher I-95 eastbound toll creates failing LOS at US Route 40 and State Hwy. 222 interchange
    - Congestion on Harford County cross arteries such as MD 543 and 152
- Traffic congestion creates safety hazard at MD 543 at I-95 interchange.

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:

- Awareness of Range Fires. During dry months of the year, certain testing procedures can cause brush fires. These fires need to be maintained and proper communication needs to be provided outside of APG regarding their potential effects.
- Unexploded Ordnance. Areas at APG could still contain unexploded ordnance buried underground which potentially pose a safety risk for adjacent development outside the fenceline.
- Incompatible Uses in Accident Potential Zones. Incompatible uses in the Accident Potential Zones extend into Harford County and the City of Aberdeen creates a safety concern.

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

- Eagle Nesting Sites. Eagle nesting site buffers impact ability to carry out mission-critical activity and contribute to reduced development areas.

Scarce Natural Resources involves pressure to gain access to valuable natural resources, such as oil, natural gas, and minerals, located on military installations, within military training areas, or on public lands historically used for military operations, can impact land utilization and military operations. The following Scarce Natural Resources issues were identified:

- Water Quantity / Quality at Edgewood. Harford County water supply to Edgewood is temporary because of Harford County's own service demand.

Vertical Obstructions are structures that impede navigable airspace for both military and civilian aircraft operations. Structures that pose a threat to the airspace for military and civilian aviation include tall wind turbines and wireless communication towers. It is important to ensure the communities adjacent to APG plan accordingly to safeguard against unintended safety concerns relative to structures that obstruct navigable airspace. The following Vertical Obstructions issues were identified:

- Vertical Obstructions Understanding. Lack of awareness of vertical obstruction requirements within jurisdictions surrounding APG can lead to incompatible development.

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. Some studies have shown that homeowners become concerned about the structural rattling and potential damage when the peak decibels exceed 120 dBP (peak sound level), but actual damage isn't likely to occur at decibels lower than 150 dBP. The following Vibration issues were identified:

- Vibration Damage in Study Area Communities. Vibration from APG ordnance testing has the ability to cause physical property damage in areas throughout the study area on both sides of the Chesapeake Bay.

Water Quality and Quantity is the factor that assesses the quantity and quality of water resources in the APG JLUS Study Area. This factor evaluates the amount of water that is utilized by the installation relative to the available supply of water and then compares that with the demand and supply that is utilized by the surrounding communities to provide for the necessary public services. In addition to evaluating the water supply, this factor also reviews the overall quality of public water use in the JLUS Study Area. Water quality can be affected by military operations, public recreation use and stormwater drainage. The following Water Quality and Quantity issue has been identified:

- Havre de Grace Marina Siltation. The Spesutie Island Causeway is a potential source of sediment buildup near the Havre de Grace Marina which is reported to affect local boating and the Chesapeake Bay ecosystem.
- Edgewood Area Lacks an Uninterruptable Water Supply. The Edgewood Area water source is subject to periodic production shortages. Supplemental water to the Edgewood Area from Harford County is temporary. A reliable source of water to serve the Edgewood Area is needed to meet current and future needs.
- Aberdeen Area Lacks an Uninterruptable Water Supply. The source of water for the Aberdeen Area suffers from periodic production shortages due to flows that cannot be maintained during moderate drought periods. Back-up water supplies are provided from Harford County by way of the City of Aberdeen through a collective MOU which expires in 2017.
- EUL Site On Top of Aquifer Recharge Infiltration Field. The EUL site is located within the Source Water Protection Area that encompasses the water wells for Harford County and the City of Aberdeen. There is a concern that future EUL development can impact the aquifer recharge associated with the wells.
- Stewardship of Chesapeake Bay Waters. Perception that counties are providing a disproportionate amount of funding versus APG to clean the Chesapeake Bay.

Please see the next page.

Implementation Plan

This section identifies and organizes the recommended courses of action (strategies) that have been developed through a collaborative effort between representatives of Harford County and its JLUS partners: local jurisdictions, APG, state and federal agencies, local organizations, the general public, and other stakeholders that own or manage land or resources in the region. Because the APG JLUS is the result of a collaborative planning process, the strategies 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.

The JLUS strategies incorporate a variety of actions that can be taken to promote compatible land use and resource planning. Existing and potential compatibility issues arising from the civilian / military interface can be removed or mitigated through implementation. The recommended strategies function as the heart of the JLUS document and are the culmination of the process.

The key to the implementation of strategies is the establishment of the JLUS Implementation Coordination Committee (see Strategy COM-1A) to oversee the execution of the JLUS. Through this committee, local jurisdictions, APG, and other selected partners can continue their collaboration to establish procedures, recommend, or refine specific actions, and adjust strategies over time to promote the resolution of key compatibility issues through realistic strategies and implementation.

Implementation Plan Guidelines

The key to a successful plan is balancing the different needs of all involved stakeholders. In working towards a balanced plan, several guidelines became the basis upon which the strategies were developed. These guidelines included:

- In concert with the 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, it may be determined that 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 issues identified.
- 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% buy-in by all stakeholders, it was determined that the solution / strategy may result in the creation of multiple strategies that address the same issue but would be tailored to individual jurisdictions or agencies.

APG Military Compatibility Areas

In compatibility planning, the generic term "Military Compatibility Area" (MCA) is the term 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 carry out its mission. The MCAs are geographic areas where the majority of the recommended strategies apply. The proposed APG Military Compatibility Area Overlay District (MCAOD) is an area that incorporates all of the MCAs.

The use of MCAs and the MCAOD ensures that strategies are applied to the appropriate areas, and that locations not affected by a specific compatibility issue are not impacted by regulations or policies that are not appropriate for their location or circumstance.

The MCAs are proposed to accomplish the following purposes:

- 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 the awareness of the size and scope of military mission areas to protect areas separate from the actual military installation (i.e., critical air space) used for mission purposes.
- Establish compatibility requirements within the designated area, such as requirements for sound attenuation, real estate disclosure, and air navigation easements.

There are four proposed MCAs for the area around APG that comprise the MCAOD. These MCAs (described in the following paragraphs) are:

- Noise MCA
- Safety MCA
- Vertical Obstruction MCA
- BASH MCA

Figure 5 shows the combined MCAOD and Figures 6 through 9 provide maps of the respective MCAs.

Noise Military Compatibility Area

The Noise MCA includes all land located outside APG within the noise contours for 115 PK15 (met) peak blast or 57 decibels averaged C-weighted (CDNL) noise levels (Land Use Planning Zone) associated with ordnance testing and other military activities at APG. This MCA encompasses land areas which are identified by APG as posing the potential for noise complaints from ordnance testing. The APG Noise MCA is illustrated on Figure 6.

Noise is often a concern to the public surrounding military installations that have flying or ordnance testing missions. The siting of residential and other land uses such as schools and hospitals which are particularly sensitive to noise, are not recommended within areas identified in this MCA.

Coordination among local jurisdictions, developers, and organizations and agencies responsible for the siting of noise sensitive uses is recommended within the Noise MCA. Including the Noise MCA in local planning documents will provide public awareness, and where possible, land use controls may be used to reduce the potential for the proliferation of noise sensitive uses where they are most impacted by APG operations.

Additional information and technical background explaining the various noise measurement units [i.e. CDNL vs. PK15 (met)] and specific noise contours associated with ordnance testing is provided in the Military Profile found within the Chapter 3 of the Background Report.

Safety Military Compatibility Area

The Safety MCA comprises the existing Phillips Army Airfield Clear Zone (CZ), Accident Potential Zones I and II (APZ I and APZ II), and the Weide Army Heliport CZ and APZ I. The APG Safety MCA is illustrated on Figure 7.

The proposed Safety MCA identifies areas where measures would be applied to regulate compatible land use types and densities / intensities of development outside APG. Since the safety zones at Weide Army Heliport and the Phillips Army Airfield CZs do not extend off the installation, the MCA contains only portions of APZ I and APZ II associated with Phillips Army Airfield that extend into Harford County and the City of Aberdeen. The current location of the safety MCA is based on the Phillips Army Airfield layout and air operations identified in the APG Master Plan and dimensions identified in DOD's United Facilities Criteria (UFC) 3-260-01, Airfield and Heliport Planning and Design.

Each of the safety zones has recommended guidelines of the type of development that should not occur within them. These guidelines are found in the DID Instruction 4165.57. Compatibility guidelines preclude land uses that concentrate large numbers of people, such as residences, apartments, churches, and schools, from being sited within APZs. While the likelihood of an accident is remote, the DOD recommends low density

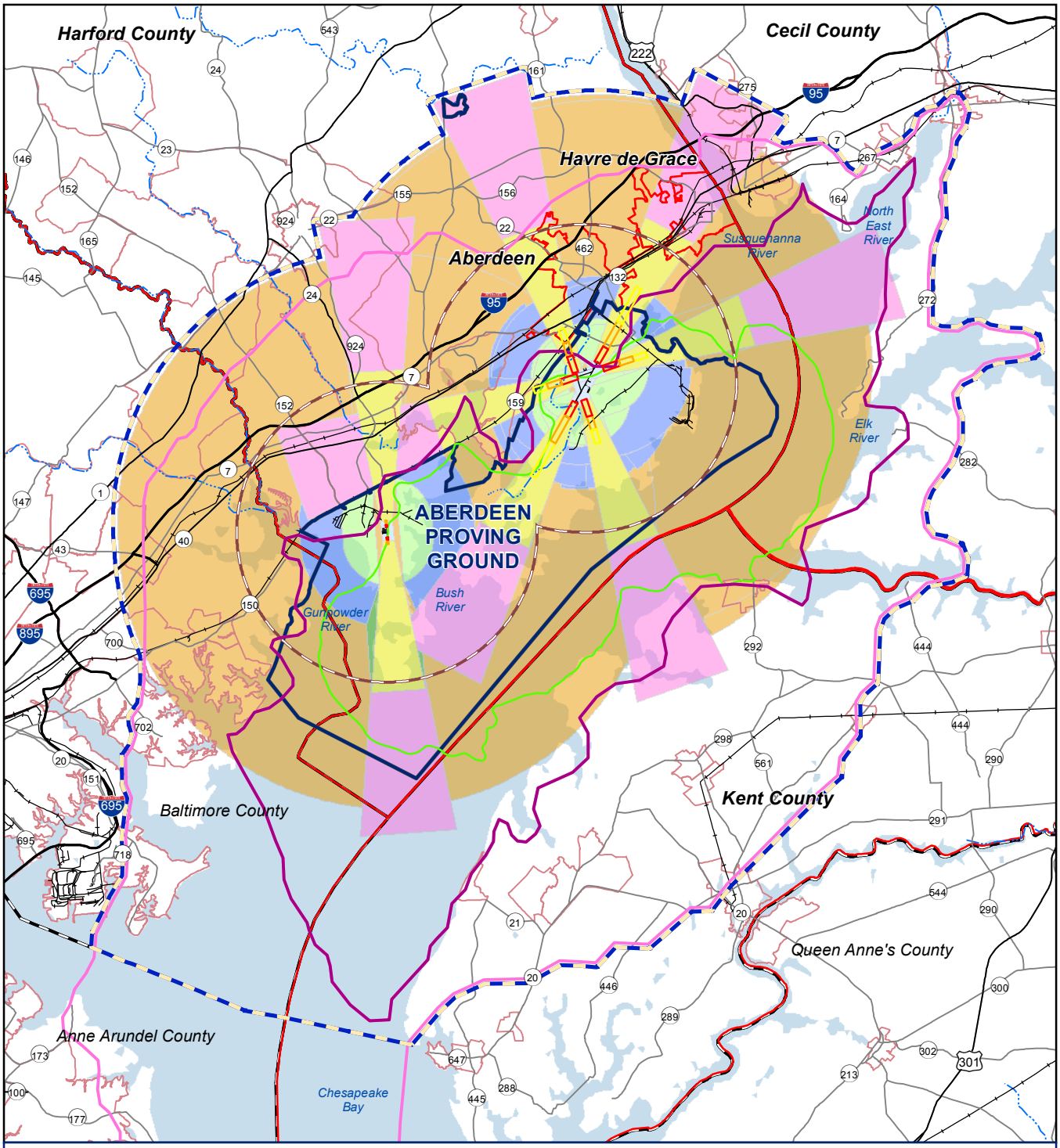


Figure 5
Military Compatibility Area Overlay District (MCAOD) and MCAs Composite

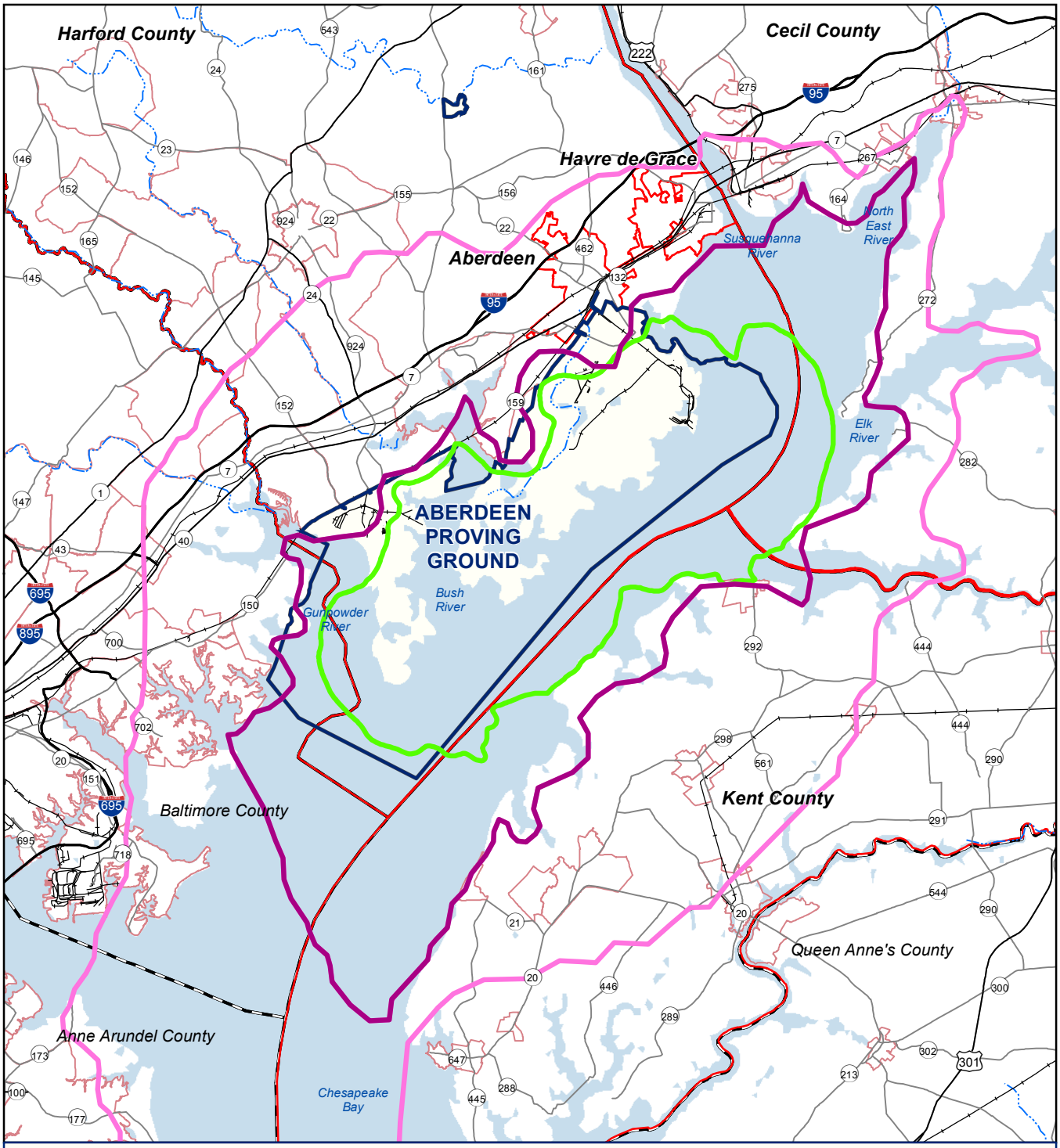


Figure 6
Noise MCA

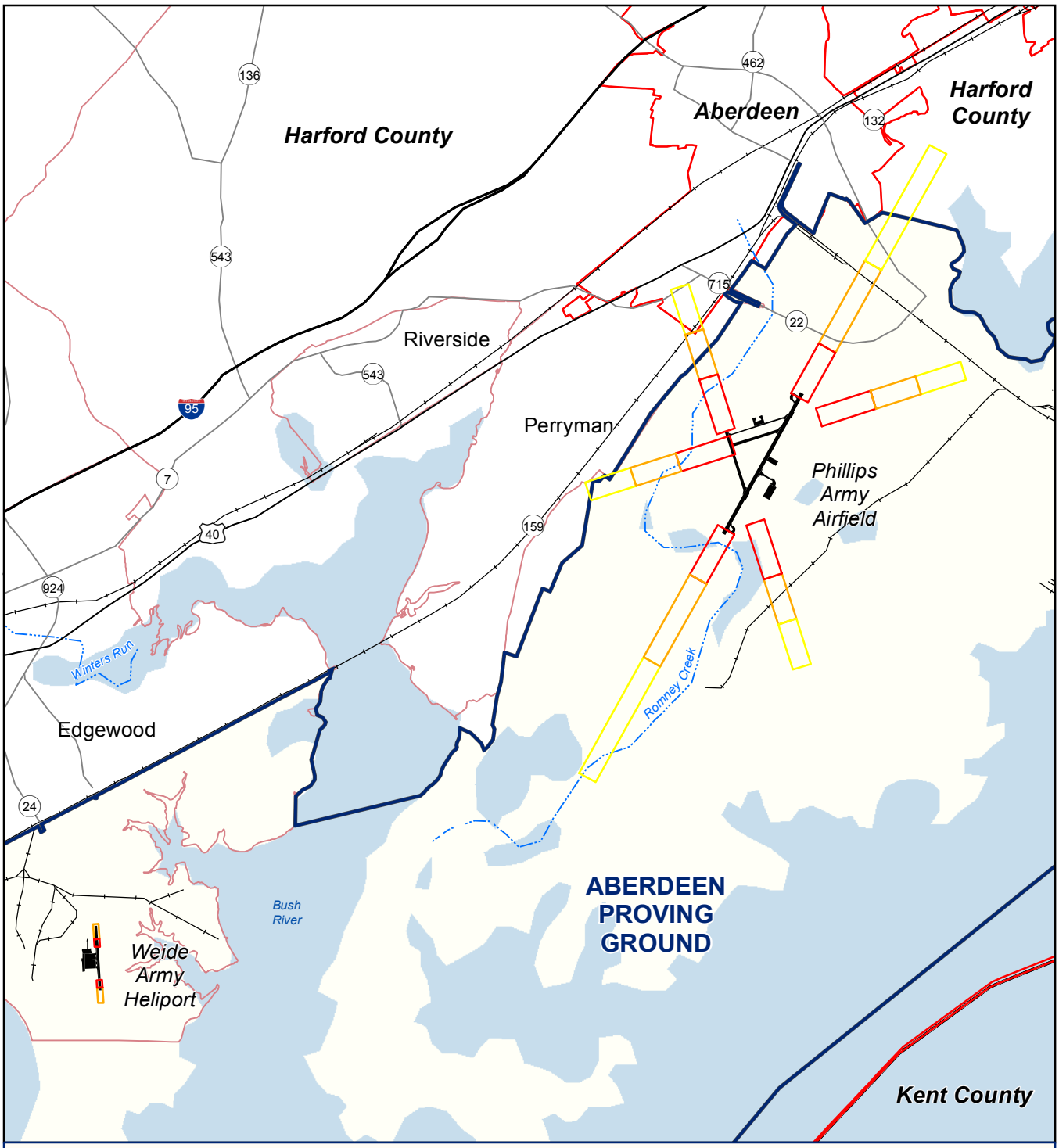


Figure 7
Safety MCA

land uses within the APZs to ensure the maximum protection of public health and property.

Within APZ I, residential uses are not recommended and only limited low intensity non-residential uses are recommended. Detached single family residential uses – up to 2 units per acre are recommended within APZ II. Other compatible uses in APZ II include agriculture, limited intensity office / retail, and light industrial. Development within the areas proximate to these safety zones should be reviewed for compatibility with both current military mission and future missions.

Vertical Obstruction Military Compatibility Area

The Vertical Safety MCA is based on the DOD Imaginary Surfaces – a set of surfaces in 3-dimensional space designated to prevent the risk of structures becoming vertical obstruction hazards to aircraft. These surfaces include both sloping surfaces radiating outward from the runway and surfaces with maximum heights that extend along the horizontal plane. Some of the more critical surfaces include the Inner Horizontal Surface, which restricts development of structures up to 150 feet above airfield elevation and the Approach-Departure Clearance Surface which includes a 500-foot slope from the end of the runway out to a distance of approximately 4.7 miles. The Vertical Obstruction MCA is intended to follow the DOD imaginary surfaces with regard to structure height and is not intended to reduce or change DOD guidance with regard to maximum height of structures.

A potential source for aircraft accidents to occur is related to the presence of vertical obstructions in areas that are frequently used by low flying aircraft. Vertical obstruction issues are a major concern to flight operations and training due to the potential for a building or structure to extend into navigable airspace and impede the safety of flight operations. Vertical obstructions can affect flight safety, line of sight, and even frequency. Examples of potential vertical obstructions include communications towers (radio, television, cellular, microwave, etc.), silos, electric transmission towers and lines, and similar manmade structures.

While the presence of vertical obstructions can sometimes be mitigated by altering flight tracks, increasing minimum allowable flight altitudes or similar risk reduction measures, the proliferation of vertical obstructions or their placement along key flight routes can cause long term changes in the viability of navigable airspace, ultimately affecting the sustainability of military missions. The APG Vertical Obstruction MCA is illustrated on Figure 8.

BASH Military Compatibility Area

The APG Bird and Wildlife Strike Hazard (BASH) MCA extends out from nearest air operations area of both the Phillips Army Airfield and the Weide Army Heliport a distance of five statute miles. This MCA is meant to include areas around the airfield with the highest safety concerns if concentrations of birds or bird-attracting uses were located there. Bird strikes with aircraft can have serious safety concerns, including the potential for loss of life and / or aircraft. Even minor bird strikes can cause costly repairs to aircraft and interfere with flight missions. However, helicopters are less likely than most fixed-wing aircraft to suffer major damage from BASH incidents.

The five-mile distance associated with the BASH MCA is an FAA recommended standard for managing bird attractants around runways. Developments like landfills, landfill transfer stations, developments with major water features are just some examples of uses that may attract birds within the approach and departure flight corridors in an around APG. The APG BASH relevancy area MCA is illustrated on Figure 9.

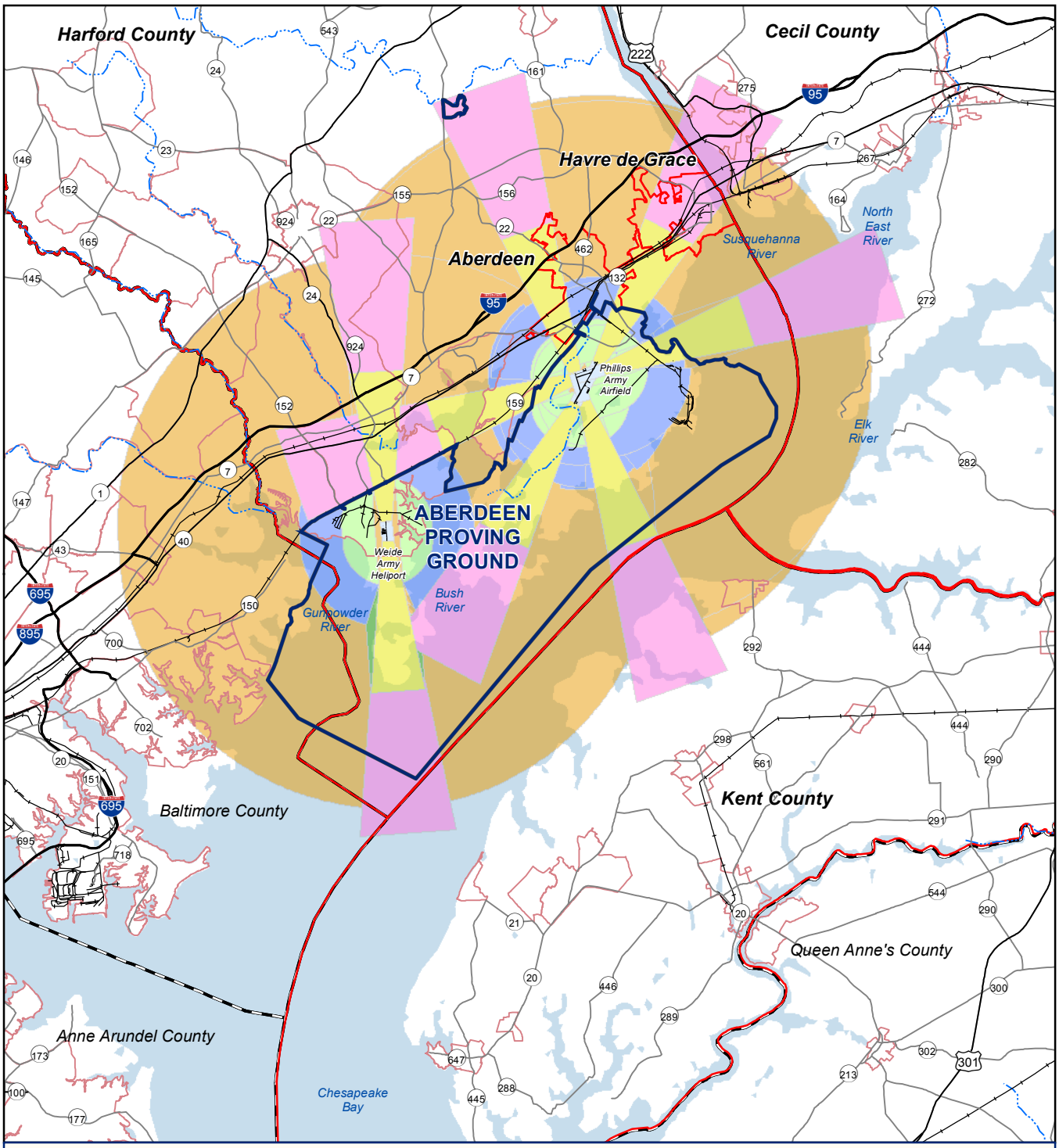
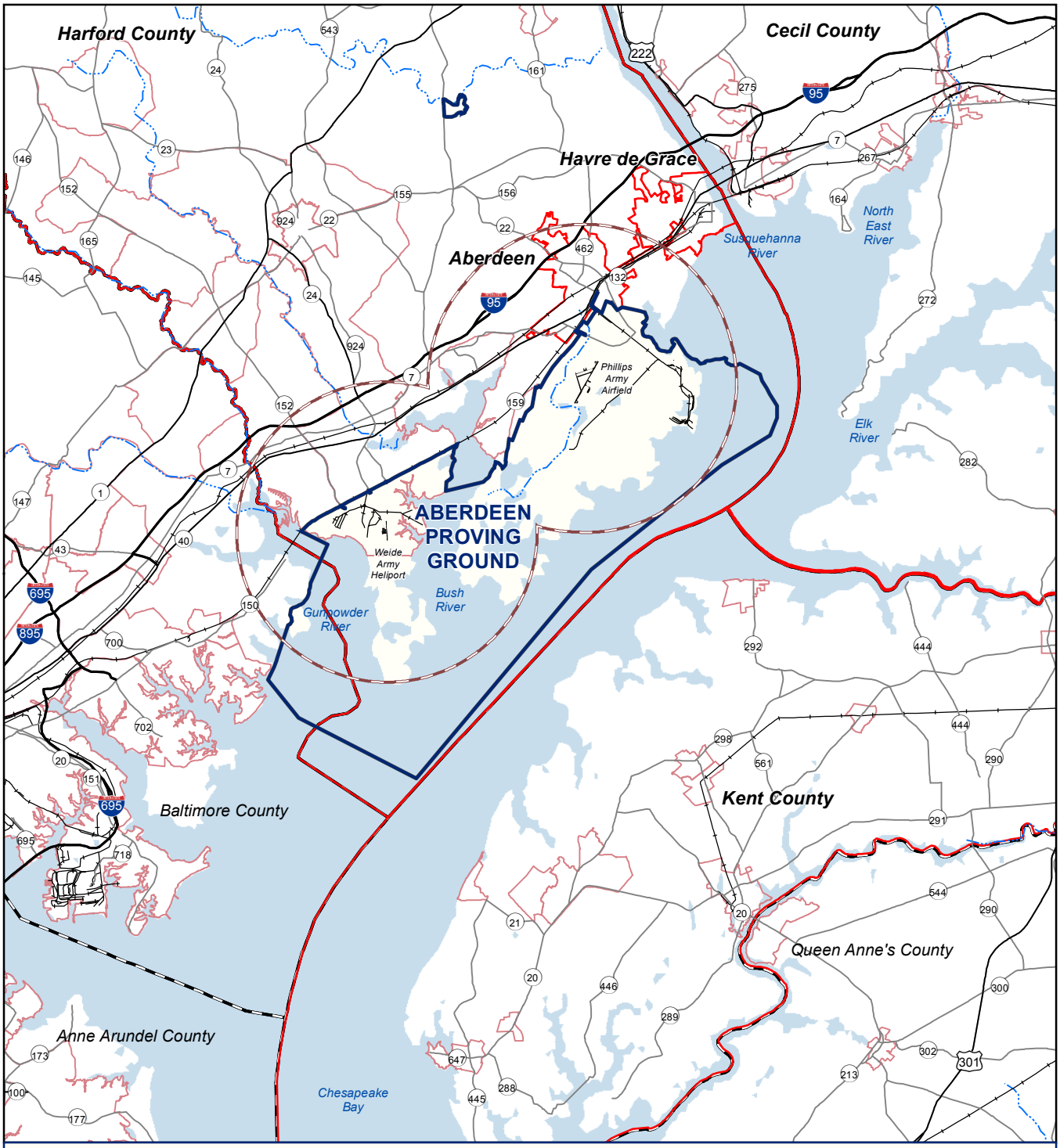


Figure 8
Vertical Obstruction MCA



Source: APG, 2014.

Matrix DESIGN GROUP

0 1 2 Miles

Figure 9
BASH MCA

How to Read the Implementation Plan

The strategies developed are designed to address the issues identified during preparation of the JLUS. The purpose of each strategy is to:

- avoid future actions, operations, or approvals that would cause a compatibility issue,
- eliminate an existing compatibility issue,
- reduce the adversity of an existing issue, and / or
- provide for on-going communications and collaboration.

In an effort to list and describe the strategies in an efficient manner, they have been arranged in a table to correspond with their compatibility factor. The issue within each factor topic is presented first to provide a linkage between the strategy and the condition it is to resolve or minimize. The following paragraphs provide an overview of how to read the information presented for each strategy in the JLUS.

Strategy ID Number. Each strategy is assigned a unique identifier (i.e., COM-1A, COM-1B, COM-1C, etc.) to provide an easy reference. A Strategy ID is composed of the Compatibility Issue to which it applies, i.e. "COM" for Communications / Coordination strategies and a sequential number.

Military Compatibility Area (MCA) / Location. The MCA / location identifies the geographic area applicable to the strategy (i.e., Safety MCA, Noise MCA, etc.). The MCA geographies for the APG strategies are described and illustrated on the previous pages of this JLUS. Some of the strategies are designated as "General" if they do not have a specific associated geography; some are designated as "MCAOD" if they apply to the entire MCAOD for the JLUS Study Area, while others may apply only to APG or a specific jurisdiction.

Strategy. In bold type is a title that describes the strategy. This is followed by the complete strategy description of a recommended action.

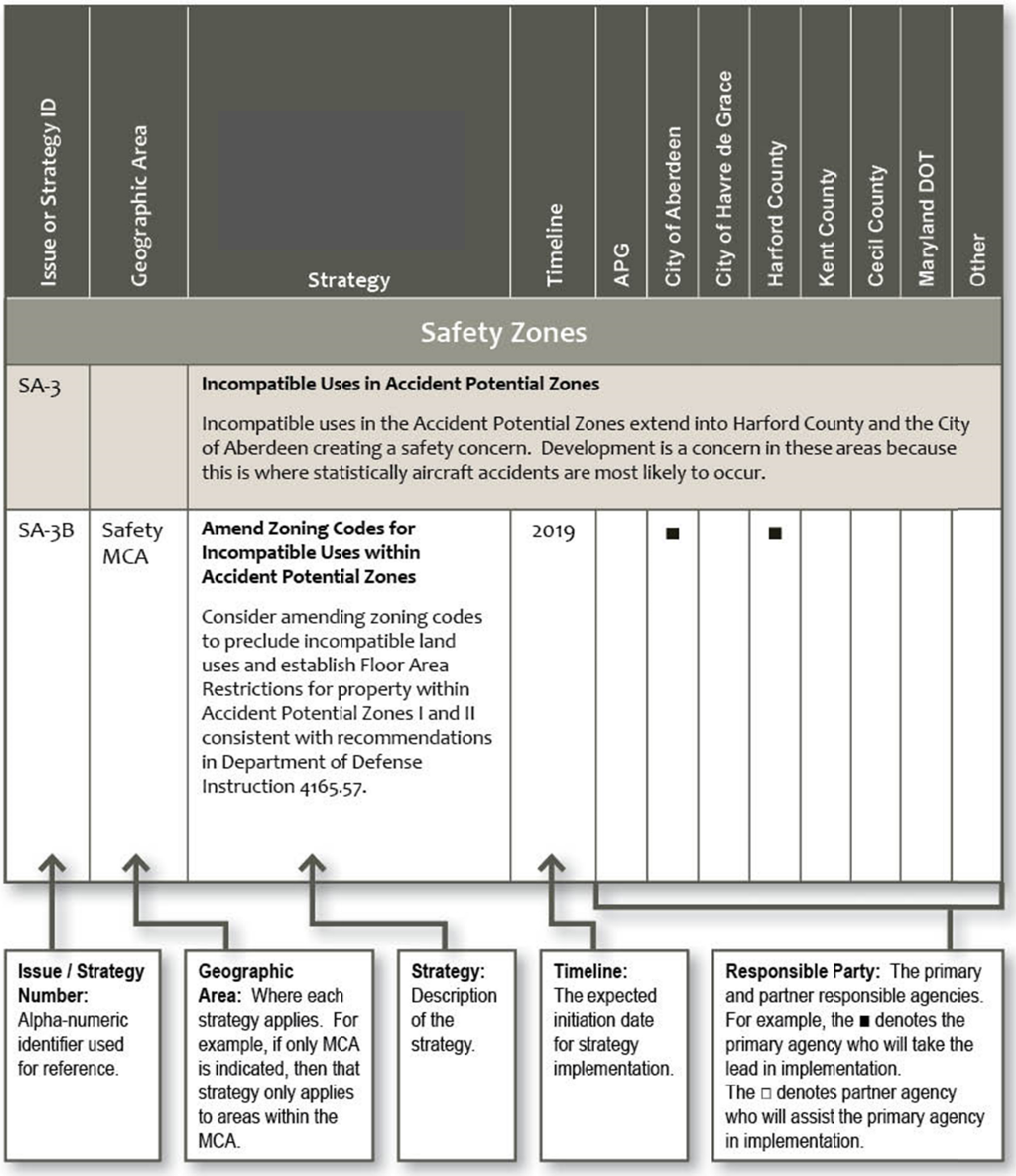
Timeframe / Priority. The timeframe or priority is an estimate of when a strategy is anticipated to be initiated – High [2016]; Medium [2017-2018] and Low [2019 and beyond]). Awareness refers to strategies that will be needed on a continuous, intermittent, or as-needed basis.

Responsible Partner. At the right end of the strategy table are a set of columns, one for each jurisdiction, military entity, agency, and organization with responsibilities relevant to implementation of the JLUS strategies. A column is also assigned as "Other" where parties are only required for select strategies. These parties are identified at the end of the strategy description if they apply.

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 has a primary responsibility 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 name or assigned acronym in the heading at the top of the page.

Figure 10 illustrates how to read the Implementation Strategies. The JLUS strategies are presented on the following pages organized alphabetically by compatibility factor.

Figure 10. Strategy Key



Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
Coordination / Communication											
COM-1		**Coordination Between APG and Jurisdictions** Coordination between APG and local jurisdictions on area planning and land use issues is informal and inconsistent leading to a lack of information sharing and coordinated evaluation of development impacts. Jurisdictions do not understand APG requirements that affect long-range development plans.									
COM-1A	Study Area	**Establish a JLUS Coordination Committee** Establish a JLUS Coordination Committee to maintain efficient and effective coordination among the JLUS partners and to oversee the implementation of JLUS recommendations. The JLUS Coordination Committee should meet on a regular basis as agreed upon by the Committee and be responsible for establishing effective and timely means of communication for the purpose of coordinating and addressing compatibility concerns and issues. Consider committee membership from the JLUS Executive Committee as well as other community partners as deemed appropriate to maintain continuity and institutional project knowledge. Consider the formation of a technical subcommittee comprising Advisory Committee members to address technical aspects of the JLUS implementation. *Other Partners: Town of Perryville, other members as deemed required*	2016	■	■	■	■	■	■	■	■
COM-1B	Study Area	**Provide Mutual Briefings** To perpetually enhance support and cooperation, and reinforce the partnership between APG and local jurisdictions, APG should annually present a "state of the installation" briefing including strategic goals, operational changes, and proposed construction projects that may impact the greater community to the Study Area county commissions and city councils. The counties and cities should provide annual briefings to APG of changes within the communities that may impact the installation including comprehensive plans, master plans, transportation plans, zoning, development	2016	■	■	■	■	■	■		■

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		projects, and capital improvement plans. *Other Partner: Town of Perryville*									
COM-1C	Study Area	**Conduct Quarterly Planning Coordination Meetings** APG Department of Public Works Planning Division and the planning department heads from Study Area jurisdictions should conduct quarterly meetings to share short and long-term visions and goals including changes in federal agency, DOD and APG policy / guidelines as they apply to development outside the fenceline, real property development at APG, and changes to jurisdiction comprehensive plans, master plans, transportation plans, zoning, development projects, and capital improvement plans. *Other Partner: Town of Perryville*	2016	■	■	■	■	■	■		■
COM-1D	Study Area	**Develop and Maintain a Repository of Requirements Documentation to Inform the Community Planning Decision-Making Process** APG Department of Public Works Planning Division should develop and maintain a repository of non-classified requirements documentation relevant to planning and development outside the fenceline. Requirements documentation may include information related to vertical obstructions, frequency spectrum, energy development, bird and wildlife attractants, etc. The repository should be available to Study Area jurisdictions for consultation to ensure development is compatible with APG mission operations.	2016	■							
COM-2		**Communication of Remediation and Water Improvement Activities** Installation's remediation and water quality improvement efforts are not adequately conveyed to the public.									
COM-2A	General	**Reinstate the Restoration Advisory Board Website** Reinstate and maintain the APG Restoration Advisory Board (RAB) website. Include updates on restoration activities as part of	2016	■							

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		outreach activities to educate the community outside the fenceline and foster community support. Consider leveraging APG social media to disseminate information to the public. Consider leveraging APG social media to maximize communication to the public of RAB activities and remediation status.									
COM-2B	General	**Public Communication of Water Quality Improvements** Identify public outreach methods to convey status of water quality improvements at APG. Leverage existing APG resources and outreach methods. Consider incorporating water improvement activities as part of the outreach efforts recommended in Strategies COM-5A, COM-5B, and COM-5C.	2016	■							
COM-3		**Formal coordination process for Development Notification** No formal process to notify APG of development actions outside the fence line.									
COM-3A	Study Area	**Include APG in an Advisory Capacity to Local Planning Commissions and Development Advisory Committees** Establish a formal agreement between all Study Area jurisdictions and APG to formalize a process that provides copies of certain types of development proposals, rezoning, and other land use or regulation changes for lands located within the APG influence area for review and comment. The agreement should address an effective method that promotes a productive communication and coordination process that can be maintained and reproduced in the future. This supports a proactive approach for identifying potential conflicts early in the proposed development application. Review periods shall conform to existing community processes for providing comment. The process of formalizing Army review and comment should include: ▪ Definition of project types that require review ▪ Definition of project types that require military attendance at pre-application meetings, if applicable Identification of	2016	□	■	■	■	■	■		■

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		the points of contact for all coordination Formal procedures for requesting and receiving comments ▪ Standard timelines for responses consistent with State law and local/county procedures. The Army representative will provide technical information on items being considered, but shall not directly vote to approve, conditionally approve, or deny a project or development application. Procedures should be reviewed annually and updated as appropriate by the JLUS Coordination Committee. *Other Partner: Town of Perryville*									
COM-3B	Study Area	**Formalize Development Review Coordination** Consider formalizing coordination processes to ensure long-term consistency in information sharing and communication between local jurisdictions and agencies with APG that will also supplement existing coordination requirements in overlay district regulations. Establish a Memorandum of Agreement (MOA) to formalize processes for APG review and comment on development proposals, rezoning applications, other land use or regulation changes or master plans that may pose operational impacts on APG. The MOA should outline an effective process that promotes productive communication and coordination that can be maintained and replicated in the future. The MOA should provide a proactive approach for identifying potential conflicts with the military as early in the development review process as possible. The MOA with APG should include: ▪ Definition of project types that require review ▪ Definition of project types that warrant military participation at development review meetings ▪ Identification of points of contact for all coordination	2016	■	■	■	■	■	■		■

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		▪ Notification procedures for requesting and receiving comments ▪ Timeframes for responses consistent with state law and similar jurisdiction procedures. ▪ Provide notice to APG on all public hearings regarding projects identified for coordination. Procedures should be reviewed annually and updated as appropriate by the JLUS Coordination Committee. *Other Partner: Town of Perryville*									
COM-3C	Study Area	**Consider Web-Based Tool for Coordinated Development Reviews** Consider implementing a web-based tracking tool for coordinating development reviews with APG using automation through e-mail notifications. The tool could provide a clearinghouse to discuss various project types and a forum for discussion on broader long-term project review, such as comprehensive plan updates, zoning ordinance language, and capital improvement plans for public facilities. Ensure that project uploads include contact information, project location information, a project description, and a deadline for comments.	2016	■	■	■	■	■	■		
COM-4		**Base Community Relations Outreach within Study Area** APG community relations outreach extends to Harford and Cecil County but does not include Kent County which is informed only through media alerts.									
COM-4A	Cecil County / Kent County	**Strengthen Outreach to Eastern Shore Communities** APG should develop and implement a plan to strengthen outreach efforts and coordination with the Eastern Shore communities in Cecil and Kent counties to educate the public and garner support for APG. Outreach should include press releases, notification of events, education, and operational changes and anomalies outside of normal procedures that may impact the Eastern Shore communities. Outreach should employ community meetings, area newspapers, television, radio,	2019	■				□	□		

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		jurisdiction websites, social media, and other outreach methods as employed with Harford County.									
COM-5		**Communication of Aberdeen Proving Ground Activities with Outside Communities** Public's nominal mission understanding affects community support for APG.									
COM-5A	Study Area	**Develop an Outreach Campaign Plan** Develop an Outreach Campaign Plan to identify public outreach goals and action items, metrics and milestones for activities, and responsible parties for conducting outreach activities. Goals should support a range of activities including public appearances, speaking engagements, educational seminars, open houses, media engagements, exhibits, press and news release and publication development/distribution that reinforces the community understanding of APG, enhances its strategic value within the community, and strengthens the community support base. The Public Outreach Campaign Plan should address current issues, concerns, and potential changes at APG. Consideration should be given to a broad mix of outreach channels including in person, print, video, and digital tools such as websites, social media, and podcasts and support from area jurisdictions and organizations. *Other Partner: CSSC*	2019	■	☐	☐	☐	☐	☐		☐
COM-5B	Study Area	**Establish an APG Public Outreach Program** APG should create an outreach plan to share information with the community. The public outreach program should describe outreach activities to include possible installation tours / open houses, development of informational brochures to be mailed to neighbors and posted on the APG website, a single location identifying public relations points of contact for APG, and making contact information widely available. It should also include a military and community communication protocol directory that identifies the different	2019	■							

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		level of communication channels between the appointed and elected officials, to staff, to the general public and APG.									
COM-5C	Study Area	**Conduct a Good Neighbor Program** APG should conduct, on a bi-annual basis, a Good Neighbor Program where they send out letters to property owners within the region inviting them to an APG 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 APG 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 Army representatives. The open houses would be held in rotating locations on or near APG and within the region on a semi-annual basis and require participation by each local jurisdiction. *Other Partner: CSSC*	2019	■	☐	☐	☐	☐	☐		☐
COM-5D	Study Area	**Make APG Points of Contact More Widely Known** Advertise and increase awareness of APG Public Affairs Office and other contact numbers for all community complaints and inquiries. Communication procedures, including methods for providing input, posing inquiries, and expected response time should be made publicly available through the APG and local jurisdiction websites, social media sources, and posted in public facilities such as community centers, municipal buildings, and local newsletters. *Other Partner: CSSC*	2019	■	☐	☐	☐	☐	☐		☐

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
COM-6		**Communication from APG with Outside Community** Because communications are not formalized, the level of APG communication with outside jurisdictions is perceived as dependent on leadership interest which can fluctuate with changes in leadership.									
COM-6A	Study Area	**Expand Communication Efforts with All Jurisdictions within the Study Area** Update jurisdictions' and regional planning organizations websites to recognize APG, its mission, location, links to the APG webpage, contact information for key organizations, and relevant installation activities potentially affecting the communities. *Other Partner: CSSC*	2019	■	☐	☐	☐	☐	☐		☐
COM-6B	Study Area	**Increase Awareness through APG News Publication** Increase circulation of the APG News at public locations throughout the Study Area and publish distribution locations on the APG website.	2019	■							
		For other strategies that address this issue see Strategies COM-1B, COM-1C, and COM-3A.									
COM-7		**Coordination on Multi-Jurisdictional Infrastructure Improvements** Coordinate multijurisdictional infrastructure improvements to ensure all jurisdictions are notified and can plan appropriately for impacts in affected areas. This will help avoid previous scenarios where intersection improvements were not fully coordinated across jurisdictions and resulted in relocation of water lines and regulatory takings of homes in roadway widening areas.									
COM-7A	Study Area	**Regional Infrastructure Technical Working Group** Consider the formation of a regional Infrastructure Technical Working Group comprising subject matter experts to collaborate, share information, and coordinate during the planning, programming, design, and construction of multi-jurisdictional infrastructure projects. *Other Partners: Town of Perryville, Maryland DOT, CSSC, BMC, WILMAPCO*	2019	■	■	■	■		■	■	■

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
COM-7B	Cities of Aberdeen and Havre de Grace	**Participation on Baltimore Regional Transportation Board** Request participation on the Baltimore Regional Transportation Board, which functions as the Metropolitan Planning Organization serving Harford County, to ensure that MPO mission of providing comprehensive, coordinated and continuous ("3C") transportation planning is inclusive of the cities of Aberdeen, Havre de Grace during all project phases to provide the cities with a shared awareness of planned and programmed improvements surrounding APG and to appropriately coordinate and budget for impacts. *Other Partner: Baltimore Regional Transportation Board (BRTB)*	2019		■	■			■		☐
COM-8		**Engagement from Aberdeen Proving Ground on Area Planning Issues** Installation planners attend local jurisdiction planning meetings but lack of active participation is perceived as indifference.									
		For strategies that address this issue see Strategies COM-1C and COM-3A.									
COM-9		**Security Issues Not Communicated to Outside Law Enforcement** Harford County Sherriff is not regularly informed about events that happen on the installation that affect the outside community.									
COM-9A	Study Area	**Establish and Formalize Coordination Procedures and Protocols** Establish an MOA to formalize procedures, protocols, and points of contact for the coordinated and timely dissemination of security and safety information reciprocally between APG and Study Area law enforcement offices and departments that affect areas outside and inside the fenceline. Ensure that all MOA's are current and updated. *Other Partner: CSSC*	2019	■	■	■	■	■	■		☐

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
COM-10		**Complaint Documentation Process to Aberdeen Proving Ground** Notifying APG and documenting noise and vibration complaints, particularly when there is private property damage, is perceived as onerous to homeowners.									
COM-10A	Study Area	**Consolidate Information on Damage Claims Process** Preparation and development of a fact sheet on the damage claims process can be provided upon request to homeowners if they believe damage from vibration caused by mission activities has occurred. The fact sheet should include where to locate and submit claim forms, points of contact for the process, and what to expect during the claims review process.	2019	■							
COM-11		**Coordination on Regional Energy Conservation Efforts** Need for coordinated effort on regional energy conservation efforts to ensure that solutions from all parties are considered. Providing an inclusive process that considers solutions from multiple sources will ensure the best outcomes for all regional stakeholders. This will alleviate organizations potentially working at cross-purposes such as with the waste-to-energy plant where the decision to potentially reuse or demolish the facility was made after significant investment and without the transparent exploration of alternatives.									
		For a strategy that addresses this issue see Strategy COM-7A.									
COM-12		**Coordination on Public-Private Partnerships** Need for coordination between APG and surrounding jurisdictions on Public-Private Partnerships, such as housing and Enhanced Use Leasing that may impact areas outside APG to balance the viability of communities while addressing the ongoing needs of APG.									
		For a strategy that addresses this issue see Strategy COM-1C.									
COM-13		**Communication and Coordination to reduce Wildlife Hazards** Communication and coordination between various agencies is required to manage bird populations and control the size of the deer herd in the Aberdeen Area and Edgewood Areas to reduce the potential for negatively affecting military activities including aircraft strikes.									
COM-13A	Study Area	**Educate the Public Surrounding APG about Wildlife Hazards** Provide enhanced public awareness and educational programs and brochures to improve the public awareness and understanding of the hazards of bird attractants and wildlife habitats on the activities at APG including aviation operations to enhance interagency management. Coordinate the education process with area	2021	☐	☐	☐	☐	☐	☐		■

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		agencies to incorporate as part of their outreach. Include this information on agency, jurisdiction and APG websites, and include as part of the Public Outreach Program in COM-5B. *Other Partners: Maryland Department of Planning and Maryland Department of Natural Resources*									
Dust / Smoke / Steam											
DSS-1		**Dust Generation from Testing Activities** Military activities at the Automotive Test Areas and Churchville Test Area can create fugitive dust impacts outside the test sites.									
DSS-1A	Harford County / City of Aberdeen	**Pursue Acquisition and Easements through ACUB Program** Identify priority property outside APG subject to the potential for fugitive dust impacts from test facilities and incorporate in ACUB program for either fee simple acquisition or the acquisition of easements. *Other Partners: Harford Land Trust*	2021	■	■		■				☐
DSS-1B	City of Aberdeen / Harford County	**Ensure Community Activities such as Construction, Prescribed Burns and Industrial Processes Employ Best Management Practices** Ensure regulations require best management practices and enforcement mechanisms to control fugitive dust, smoke, and steam impacts that may migrate onto APG and impact operations.	2021		■		■				

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
Frequency Spectrum Capacity											
FSC-1		**Comprehensive Frequency Management Program** Need for a comprehensive Frequency Management Program to assess current and future frequency needs of all APG tenants inside and outside the fence line to deconflict frequency requirements.									
FSC-1A	APG	**Develop a Comprehensive Frequency Management Program** Develop and implement a Comprehensive Frequency Management Program for all tenants at APG to establish a spectrum planning process that ensures the current and future availability of spectrum and procedures for deconflicting future spectrum needs.	2019	■							
Frequency Spectrum Impedance / Interference											
FSI-1		**No Coordinated Assessment of Hazards Associated with Frequency Use** Though there is informal coordination between CERDEC, other tenants, and APG to deconflict frequency use during CERDEC ground-to-satellite tests, there is no plan to coordinate and assess near-zone and far-zone hazards associated with ground-to-satellite tests.									
FSI-1A	APG	**Develop a Plan to Formalize Assessment and Mitigation of Frequency Hazards** Develop and implement a Frequency Hazard Mitigation Plan to coordinate, assess, and establish mitigation procedures for potential near-zone and far-zone hazards associated with ground-to-satellite tests that may impact other APG tenant operations, APG personnel, and activities outside the fenceline.	2019	■							
FSI-2		**Potential for Ground-Based Interference** Line-of-sight signal transmission between Aberdeen Area and Churchville Test Area can be impacted from potential signal interference.									
FSI-2A	City of Aberdeen / Harford County	**Establish Procedures to Avoid Frequency Conflicts** The City of Aberdeen and Harford County should coordinate with APG on review of projects with frequency requirements that could impact communications off-installation. The criteria that triggers coordination includes: ▪ proximity to APG ▪ tower height	2019	■	□		□				

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		▪ power emission from tower sources ▪ high output transmission devices									
FSI-2B	City of Aberdeen / Harford County	**Pursue Acquisition and Easements through ACUB Program** Identify priority property outside APG within the line-of-sight requirement and incorporate in ACUB program for either fee simple acquisition or the acquisition of easements. *Other Partners: Harford Land Trust*	2019	■	■		■				☐
FSI-3		**Potential to Disrupt Aircraft Navigational Systems** Coordination of signal transmission frequency testing and angle of transmission with area aircraft is required to ensure that potential disruption to aircraft navigational systems does not occur.									
		For a strategy that addresses this issue see Strategy FSI-1A.									
FSI-4		**Potential for Harford Metropolitan Area Network to Impact APG** Harford County is pursuing the Harford Metropolitan Area Network (HMAN) project for high speed fiber optic transmission for the County, the municipalities of Havre de Grace, Bel Air and Aberdeen, and businesses throughout the county. Though current phases include only hardwiring, any proposed Wi-Fi in the future may create a radiating signal bloom that could potentially impact APG frequency testing.									
FSI-4A	City of Aberdeen / City of Havre de Grace / Harford County	**Coordinate on Harford County Long-Term IT Infrastructure Planning** Include the ongoing coordination for the HMAN long-term IT infrastructure project including any pre-planning for future wireless requirements throughout the service area as part of the coordination in Strategies COM-1B, COM-1C, and COM-3A.	2019	■	☐	☐	■				
FSI-5		**Radio Frequency Interference Affects Emergency Services Communications** Jurisdictions on both sides of Chesapeake Bay have experienced EMS radio system outages from unknown sources speculated to come from APG.									
FSI-5A	Study Area	**Formalize Communication Procedures** Identify and convene a coalition of spectrum stakeholders to discuss use of frequencies and notification procedures for mitigating and troubleshooting possible service interruptions. *Other Partner: CSSC*	2019	■	☐	☐	☐	☐	☐		☐

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
FSI-6		**APG Electronic Warfare Footprint** Concern that electronic warfare footprint associated with APG research and testing activities can spill-over into adjacent jurisdictions. Land uses that occur outside of APG that rely on wireless signals could have the potential to impact activities at APG.									
FSI-6A	Study Area	**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*	2019	■	☐	☐	☐	☐	☐		☐
FSI-6B	City of Aberdeen / City of Havre de Grace / Harford County	**Employ RF Spectrum Analysis Technology** Employ "RF spectrum analyzer" technologies used to detect interference between frequency bands. Identify interference from on- and off-installation sources including military and public/commercial users.	2019	■							
FSI-7		**Coordination with Broadband Providers** Lack of coordination between broadband providers and APG can result in signal interference from use of bi-directional amplifiers outside the fenceline.									
FSI-7A	City of Aberdeen / City of Havre de Grace / Harford County	**Develop an Educational Outreach Program with Broadband Providers to Ensure They are Aware of APG Frequency Requirements** APG should work with broadband providers to ensure that providers are aware of the installation frequency requirements when planning wireless broadband transmission facilities to deconflict and prevent future interference with required installation frequencies. *Other Partner: Local Broadband providers*	2019	■							☐
FSI-7B	General	**Develop Outreach Materials** Work with affected jurisdictions to develop public outreach materials including website updates and public service announcements to	2019	■	☐	☐	☐	☐	☐		☐

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		inform the public about the potential for interruption of cellular service and GPS devices within areas associated with APG testing. *Other Partner: CSSC*									
FSI-7C	City of Aberdeen / City of Havre de Grace / Harford 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 APG, power emission from tower sources, and high output transmission devices. Coordinate with jurisdictions on RF projects that could impact off-installation communications. *Other Partners: Federal Communications Commission*	2019	☐	■	■	■				☐
FSI-7D	APG	**Adjust Frequency Usage** Evaluate the feasibility of adjusting frequency usage to utilize different frequencies that would not interfere with, or be impacted by, bi-directional amplifiers.	2019	■							
FSI-8		**Marine Frequency on Range** Potential for signal interference with waterfront lanes / marine frequencies on range.									
		For strategies that addresses this issue see Strategies FSI-5A and FSI-6A.									
Housing Availability											
HA-1		**Urban Environments** Urban city environments such as Baltimore City provide amenities and lifestyle attractive to young professionals. These urban environments are unavailable proximate to APG. APG personnel choosing to reside in an urban environment will have a longer commute adding to regional roadway congestion. The lack of urban environments proximate to APG may put the installation at a disadvantage for attracting younger job seekers.									
HA-1A	City of Aberdeen	**Implement Transit Oriented Development Master Plan** Continue implementation of Master Plan for the Transit Oriented (TOD) development in downtown Aberdeen including strategies and coordinated funding.	2016/On-going		■						

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
HA-1B	City of Aberdeen	**Coordinate Aberdeen TOD Development with APG** Coordinate the development of the TOD with APG to leverage opportunities and synergies to support the APG workforce.	2016	☐	■						
HA-1C	Harford County	**Master Plan for Transit Oriented Development in Edgewood** Develop a Master Plan for Edgewood that creates a pedestrian-oriented live / work / play community leveraging local and regional transportation connections incorporating the MARC Station. Conduct a market analysis to determine the optimum mix of housing types, commercial opportunities and amenities to attract a diverse workforce and support area growth into the future. *Other Partner: Harford County Office of Economic Development*	2016	■			■				☐
HA-1D	Harford County	**Edgewood Community Area Plan** Amend the Harford County Land Use Element Plan and Edgewood Community Area Plan to recognize the development of TOD for Edgewood. Develop specific regulations that support and incentivize its development. Identify and evaluate partnership opportunities with APG for (P4) Private-Public Public-Public development to catalyze investment and buildout.	2019	☐			■				
HA-1E	Harford County	**Incorporate Infrastructure Improvements in Harford County Capital Improvements Plan to facilitate Edgewood Transit Oriented Development** Identify and program necessary infrastructure projects in the Harford County Capital Improvements Plan to facilitate the creation and development of Edgewood TOD.	2019				■				

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
Infrastructure Extensions											
IE-1		**Water provision to APG Edgewood Area** The current service agreement with Harford County for water provision to the Edgewood Area is a non-binding short-term temporary solution for Winters Run Creek production deficiencies. Long-term solutions for Edgewood water will require new infrastructure.									
IE-1A	APG	**Master Plan for Long-Term Infrastructure Improvements for Potable Water Provision to Edgewood Area** Develop a Master Plan including assessment of existing conditions; quantified supply and future demand based on anticipated need; defined courses of action for supply including a reliable source of water and any conservation and reuse measures; and funding for infrastructure improvements to achieve the safe and reliable provision of water to the Edgewood Area without relying on temporary sources. Consider as options: ▪ A long-term service agreement with Harford County ▪ Provision from the Aberdeen Area by way of Harford County infrastructure (connection fees which support capital construction of the County system to provide the water and capital construction by the Army to enhance the connection to the county system would be required) ▪ Provision form the Aberdeen Area entirely within the jurisdiction of APG to reduce all reliance on external infrastructure and safeguard the potable water supply. *Other Partners: Army Corps of Engineers, US Environmental Protection Agency, Maryland Department of the Environment, Maryland Department of Natural Resources, Harford County*	2016	■			☐				☐

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
IE-1B	APG	**Plan and Coordinate for the Implementation of Infrastructure Improvements to Achieve a Safe and Reliable Potable Water Supply to the Edgewood Area** Develop a coordinated Implementation Plan to execute the Water Provision Master Plan in Strategy IE-1A. Include measurable milestones, Capital Improvement Plan projects, dedicated funding sources, and multijurisdictional / multiagency coordination. *Other Partners: Army Corps of Engineers, US Environmental Protection Agency, Maryland Department of the Environment, Maryland Department of Natural Resources*	2017	■							☐
IE-1C	APG	**Implement Water Reduction Projects** Implement programmed projects to reduce potable water usage in the Edgewood Area through the beneficial reuse of treated groundwater for non-potable uses.	2016	■							
IE-2		**Coordination of Easements on APG Property** There is utility infrastructure traversing APG property without a formal agreement with APG at the Churchville Test Area. Formal easements are necessary to know which agency requires maintenance access, to coordinate access when needed, and to prevent potential liability issues.									
IE-2A	Churchville Test Area	**Research Undocumented Utilities and Execute any Necessary Access Easements with Respective Utility Companies** Confirm with APG DPW Master Planning Real Estate Branch whether active easement instruments are located at the Churchville Test Area. Research historical real property instruments to identify whether utilities are present. Consider employing Miss Utility to identify subsurface utilities onsite. Execute easement instruments with any utility than runs through the property not having an easement agreement with APG. *Other Partners: Miss Utility, utility providers*	2019	■							☐

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Land / Air / Sea Space											
LAS-1		**JLENS Program** Public perception that the JLENS program could impact rights to privacy.									
LAS-1A	Study Area	**Develop a JLENS Educational Program** Create an informational brochure and/ or packet to distribute to the public in surrounding communities about the nature of the JLENS program, reinforcing the public safety benefit. Incorporate the brochure into public outreach efforts in Strategies COM-5B and COM-6A.	Aware-ness	■							
Land Use											
LU-1		**Incompatible Land Development** More intense land development throughout the Study Area has the potential to inhibit mission-critical activities at APG.									
LU-1A	MCAOD	**Define and Establish Military Compatibility Areas (MCAs)** Create a Military Compatibility Area Overlay District (MCAOD) containing Military Compatibility Areas (MCAs) that reflect the types and intensity of compatible uses. The MCAOD is the collective geographic area of all of the MCAs combined. The MCAs established should be used by local jurisdictions to identify areas where specific compatibility issues are more likely to occur and address ways to avoid compatibility issues. The MCA's should include: **Safety MCA** - Includes the Accident Potential Zones (APZs) I and II. **Noise MCA** - Includes areas within the averaged 57 dB CDNL noise zone and 115 dB PK15 (met) and 130 dB PK15 (met) impulse noise zones. **Vertical Obstruction MCA** – Based on the DOD imaginary surfaces map, horizontal area which limits development of buildings and structures. **BASH MCA** – 5-mile radius from the center of the airfield at Phillips Army Airfield and the	2017	□	■	■	■	■	■		■

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		Weide Army Heliport. 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 and understanding by the public. *Other Partner: Town of Perryville*									
LU-1B	Noise MCA	**Continue to Pursue Properties for ACUB Program and Seek Partnership Opportunities** Continue to pursue property in Priority Areas identified in the ACUB Program for fee simple acquisition and conservation easements to meet multipurpose goals including noise compatibility and environmental stewardship. *Other Partners: Harford Land Trust, Cecil Land Trust, The Eastern Shore Land Conservancy, Maryland Agricultural Land Preservation Foundation*	2016	■							■
LU-1C	MCAOD	**Incorporate Compatibility Planning Concepts into CIPs / Infrastructure Master Plans.** Incorporate compatibility planning concepts into CIPs / Infrastructure Master Plans for infrastructure extensions and improvements. Avoid extension of infrastructure service within APG area of influence for rezoning applications, except to serve approved community / area plans or commercial and industrial development which provides a compatible land use pattern.	2019		■	■	■	■	■	□	
LU-2		**Real Estate Disclosures Inconsistent Across Jurisdictions** Inconsistent application of real estate disclosures results in patchwork of new home buyer knowledge of installation impacts on properties.									
		For strategies that address this issue see Strategies NOI-1F and NOI-1G.									
LU-3		**Potential for New Mission Footprints Constrained by Environmental Conditions** Buffers for wetlands, wildlife, eagle nesting and other natural resources potentially reduce developable land for additional missions at Aberdeen Area.									
LU-3A	APG	**Developable Areas Plan** Produce a Developable Areas Plan that provides an overview of all constraints - bird /	2021	■							

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		wildlife habitat areas, environmental, wetlands and shoreline buffers, an assessment of changes / trends in those areas, and mitigation measures to manage birds / wildlife including ongoing adaptive management. The Plan should identify remaining developable areas unencumbered by all constraints at APG and include facility demolitions to provide a comprehensive examination of areas to support additional future missions and mission growth. Enhance the existing "Red, Yellow, Green" Map for areas suitable for development, suitable for development with mitigation (on- or off-site), and areas where development is inappropriate. Actively seek input from APG tenants in the Plan development to incorporate programmed facilities, future mission changes, and geographic areas where tenant synergies can be leveraged towards future facilities.									
LU-4		**Properties Present Possible Encroachments** Real estate easement instruments for properties with noise monitoring equipment on the Western and Eastern Shore do not contain legal descriptions resulting in access that may be outside the easements.									
LU-4A	Study Area	**Review and Revise Easements for Noise Monitoring Equipment** Review and revise access easements for private properties with noise monitoring equipment where metes and bounds legal descriptions are not delineated on the real estate instruments. Consider conducting field surveys to identify locations of access easements to prevent potential encroachments.	2021	■							
LU-5		**Identification of Encroachment Buffers** Encroachment buffers around APG are not identified on City and County planning documents									
		For a strategy that address this issue see Strategy LU-1A.									

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
LU-6		**Environmental Regulatory Impacts** Federal and state environmental regulations reduce the APG buildable footprint and ability to accommodate new missions.									
LU-6A	Study Area	**Comprehensive Planning for Development** Develop a comprehensive plan that assesses the impacts of federal and state environmental regulations on the operations at APG and considers mitigation alternatives to address ongoing mission needs. Identify potential on- and off-site mitigation strategies and techniques. *Other Partners: Maryland Department of the Environment, US Environmental Protection Agency, US Army Corps of Engineers*	2019	■			■	■			☐
		For another strategy that address this issue see Strategy LU-3A.									
Marine Environments / Climate Change											
MEC-1		**Dredging Requests to Aberdeen Proving Ground** The Port of Baltimore has engaged APG over the last couple of decades about receiving dredging spoils. Though APG is not currently a designated receiver site in the Army Corps of Engineers Dredged Material Management Plan, the placement of clean dredge spoils along the shoreline could be used to combat potential sea-level rise.									
MEC-1A	APG	**Assess the Viability of Receiving Dredging Spoils** Evaluate the viability of receiving clean dredging spoils at APG shoreline areas as part of a long-term strategy for mitigating sea-level rise. If determined favorable, coordinate with state and federal agencies to include APG as a receiver site for clean dredging spoils from the Port of Baltimore as part of the Dredged Material Management Plan, from areas along the Susquehanna River upstream of the Conowingo Dam, and from the Chesapeake and Delaware Canal. *Other Partners: Maryland Department of the Environment, US Environmental Protection Agency, US Army Corps of Engineers*	2021	■							☐

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
MEC-2		**Long-Term Plan for Environmental Impacts from Climate Change** Sea level rise studies indicate that portions of APG may be underwater as early as 2050 necessitating a long-term mitigation plan for APG.									
MEC-2A	APG	**Develop Long-Range Plan for Sea-Level Rise** Develop a long-range strategic plan for mitigating upland impacts of sea-level rise and shoreline erosion at APG. Incorporate updated analysis and quantifiable impacts of projected real property loss by APG area on mission capability and capacity, and identify strategies to mitigate impacts.	2021	■							
MEC-2B	City of Aberdeen / City of Havre de Grace / Harford County	**Quantify Regional Sea-Level Rise and Consider Adoption of Sea-Level Rise Ordinance** Conduct a study to quantify the regional impacts of development on sea-level rise and consider adoption of a sea-level rise ordinance to address any cumulative regional impacts including those experienced at APG. The ordinance may contain revisions to existing floodplain ordinances to allow tailored regulations for high-risk areas including more resilient development within high-risk areas and directing development away from vulnerable areas to preserve valuable coastal resources and strategic assets. *Other Partners: Army Corps of Engineers, US Environmental Protection Agency, Maryland Department of the Environment, Maryland Department of Natural Resources, Clean Chesapeake Coalition*	2021	□	■	■	■				□
		For another strategy that addresses this issue see Strategy MEC-1A.									
MEC-3		**Conowingo Dam Impacts Aberdeen Proving Ground** When Conowingo Dam floodgates are open, debris, sediment, and flooding occur along Spesutie Island.									
MEC-3A	Harford County / Cecil County	**Reduce Upstream Sediment Load Flowing Into the Susquehanna River** Consider land use regulations that reduce the sediment load from discharging into the Susquehanna River. *Other Partners: Army Corps of Engineers, US Environmental Protection Agency, Maryland*	2019				■		■		□

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		Department of the Environment, Maryland Department of Natural Resources, Clean Chesapeake Coalition									
MEC-3B	APG / Havre de Grace	**Work with the Army Corps of Engineers** Educate the Army Corps of Engineers on the downstream impacts of opening the Conowingo Dam floodgates on APG operations to ensure that solutions being considered by the Army Corps of Engineers in their ongoing study of sedimentation control minimize impacts on APG operations and shoreline / basin areas near Havre de Grace. *Other Partner: Army Corps of Engineers Baltimore District, Town of Perryville*	2016	■		☐					☐
		For another strategy that addresses this issue see Strategy MEC-1A.									
MEC-4		**Disposal of Dredged Material Destined for Cecil County and Associated Risk from Unexploded Ordnance** Concern that dredging spoil disposed of in Cecil County may carry risks of unexploded ordnance. Consideration that these spoils could be used for shoreline stabilization at APG to combat sea-level rise.									
		For a strategy that addresses this issue see Strategy MEC-1A.									
Noise											
NOI-1		**Noise from Installation Activity** Noise from activities at APG has the potential to affect sensitive noise receptors in surrounding communities.									
NOI-1A	Noise MCA	**Increase Public Understanding of Noise Sources** Increase community awareness of flight schedules and military testing and evaluation operations throughout the entire APG area of influence through the use of local media sources, newsletters, brochures, and annual outreach functions hosted by APG in cooperation with each Study Area jurisdiction. Include information that there are other noise generating uses such as quarries within the Study Area.	2021	■	☐	☐	☐	☐	☐		

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
NOI-1B	Noise MCA	**Seek Assistance from APG to Incorporate Maps and Updates to Planning Documents to Minimize Noise Concerns Among Residents** Based on additional noise data and input from APG, consider revisions to communities' 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. *Other Partners: Town of Perryville*	2019	☐	■	■	■	■	■		■
NOI-1C	Noise MCA	**Educational Materials on Sound Attenuation Methods** Use DOD or FAA sound attenuation educational materials as a supplemental educational document, describing techniques to reduce indoor vibration associated with impulse noise. Local jurisdictions should make use of already available technical support materials from the Federal Aviation Administration and Department of Defense.	2021		■	■	■	■	■		
NOI-1D	Noise MCA	**Require Noise Easements** Require noise easements for properties within the Noise MCA that notify property owners of the nearby noise and vibration associated with APG operations. These easements allow for these impacts with no liability on the jurisdictions where the noise impacts occur or on the organization generating the noise impacts.	2021		■	■	■	■	■		
NOI-1E	Noise MCA	**Adopt Real Estate Disclosure Amendment that Notifies Potential Buyers of Property within Noise Zones that Property is Located in a Host Community of APG and Subject to Operational Impacts including Noise from Overflight and Range Activities** Develop a Military Compatibility Real Estate Disclosure to provide appropriate information about missions and operations at APG. The disclosure should be provided at the earliest possible point in the interaction between realtor / real estate agent and / or owner and	2019	■	☐	☐	☐	☐	☐		☐

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		buyer or renter and required during title transfers. The disclosure should specify that a property is located near an active military installation and may be subject to aircraft overflight and range activities generating noise, vibration and other related impacts associated with military testing, training and readiness. ▪ Work with Maryland Association of Realtors and local real estate representatives to develop and implement adequate language for inclusion in disclosure notices ▪ Include language in the real estate disclosure that property located in Accident Potential Zone (APZ) I are not eligible for government-backed loans ▪ Introduce legislation requiring military compatibility real estate disclosures for jurisdictions. ▪ Work with the Maryland Real Estate Commission, Maryland Association of Realtors, and local realtors to ensure compliance with notification requirements. *Other Partners: Town of Perryville, Maryland Real Estate Commission, Maryland Association of Realtors*									
NOI-1F	Noise MCA	**Develop Information to Facilitate Accurate Disclosures** Provide current and adequate information to facilitate informed decisions by jurisdictions, developers and interested citizens relative to a property's location proximate to the APG area of influence. Include an information packet that provides information on applicable regulations that govern development within the APG area of influence. *Other Partners: Town of Perryville, Maryland Real Estate Commission, Maryland Association of Realtors*	2019	☐	■	■	■	■	■		■

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
NOI-1G	Noise MCA	**Develop a Memorandum of Understanding (MOU) with School Districts** APG should develop a MOU with the surrounding school districts to coordinate on all future school master plans to prevent schools from being planned in noise sensitive areas. *Other Partners: School Districts*	2019	■	☐	☐	☐	☐	☐		■
		For other strategies that address this issue see Strategies LU-1B, LU-2A, LU-2B, and LU-5A.									
NOI-2		**Regional Noise Sources** There are other sources of blasting than APG within the region which can be misattributed to APG testing.									
		For other strategies that addresses this issue see Strategies NOI-1A.									
NOI-3		**Overflight of the City of Havre de Grace** APG overflight of the City of Havre de Grace creates general noise nuisance.									
NOI-3A	City of Aberdeen / City of Havre de Grace / Harford County	**Consider Developing an Airfield Awareness Program** Consider developing an Airfield Awareness Program targeted to the landowners and homeowners to educate and increase awareness of the effects of aircraft operations at Phillips Army Airfield and Weide Army Heliport. Distribute as part of public outreach efforts in Strategies COM-5B and COM-5C, and post on the APG website.	2017	■	☐	☐	☐				
		For other strategies that addresses this issue see Strategies NOI-1A, NOI-1B, NOI-1C, and NOI-1D.									
Roadway Capacity											
RC-1		**Peak Hour Traffic (Traffic Loads at Gates)** Peak hour traffic including a mid-day peak causes congestion and traffic delays outside the installation which have a quality of life impact for those working at APG and those traveling the area.									
RC-1A	City of Aberdeen / City of Havre de Grace / Harford County	**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	2019	☐	■	■	■			■	■

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		military or communities to provide for more services. *Other Partners: BRTB*									
RC-1B	City of Aberdeen / Harford County	**Conduct a Traffic Study to Assess Community Impacts on APG 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 APG. *Other Partners: BRTB*	2019	■	□	□	□			■	■
RC-1C	APG / City of Aberdeen	**Coordinate and Budget for Gate Improvements that Affect Off-Installation Roadway Capacity and Level of Service** Identify, coordinate and budget for, necessary improvements to achieve more efficient functionality of installation egress / ingress points and improve localized congestion outside entry gates. This strategy should be implemented in conjunction with Strategies RC-1D and RC-2C.	2019	■	■					□	
RC-1D	City of Aberdeen / Harford County	**Consider Implementing Transportation Demand Management** Assess, develop, and implement Transportation Demand Management strategies and policies to reduce travel demand (specifically single-occupancy private vehicles), or to redistribute the trip generation across space (additional entry gates) or time (staggered work hours / telecommuting). *Other Partner: BRTB*	2019	■	■		■				■
RC-2		**Public Transportation Connections** Amtrak and MARC commuter trains stop near the boundary of both APG and Edgewood, but there is no direct transit connection from the stations into the installation.									
RC-2A	City of Aberdeen / Harford County	**Conduct a Feasibility Study to Assess Viability of Public Transit on to APG** Conduct a transportation feasibility study to quantify the possibility of public transit to reduce overall trip generation to APG. The study should evaluate trip generation including origin and destination pairs; driver	2019	■	□	□	□			■	■

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		behavior and preference; peak trip periods; and cost, management, funding of a suitable public transit system, and access on to APG. *Other Partners: Baltimore Regional Transportation Board, Maryland Transit Administration*									
RC-2B	City of Aberdeen / Harford County	**Bike Share Programs and BikeLids at MARC Train Stations** Coordinate with the Maryland Transit Administration and Maryland DOT to establish a bike share program at the Edgewood and Aberdeen MARC stations. This strategy should be implemented in conjunction with Strategy RC-2C. *Other Partners: Maryland Transit Administration*	2019		■		■			■	■
RC-2C	City of Aberdeen / Harford County	**Bike Lanes along State Routes 22 and 24** Request that Maryland DOT plan, program, and install bike lanes along Routes 22 and 24. Identify appropriate roadway segments but ensure lanes are provided to the APG entry gates. It should also address bicycle access at the interchange between 24, 924 and I-95. This strategy should be coordinated and implemented in conjunction with Strategy RC-2B. *Other Partners: Baltimore Regional Transportation Board*	2019	■	■		■			□	■
RC-3		**Increased APG Commuter Traffic Affects Local Roads and Level of Service** APG commuter traffic affects local roads and contributes to level of service impacts: ▪ Westbound commuter traffic to APG cuts through local subdivisions via I-95 to reach the installation ▪ Traffic switching between Route 40 and I-95 to avoid higher I-95 eastbound toll creates failing LOS at US Route 40 and State Hwy. 222 interchange ▪ Congestion on Harford County cross arteries such as MD 543 and 152 ▪ Traffic congestion creates safety hazard at MD 543 at I-95 interchange									
RC-3A	City of Havre de Grace	**Consider Traffic Calming Devices to Discourage Cut-Through Traffic in Subdivisions** Consider installing traffic calming devices in subdivisions to discourage cut-through traffic in residential subdivisions. Consider traffic calming devices such as roundabouts,	2019			■					

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		medians, and speed humps to limit excessive through-traffic on local roads within neighborhoods.									
RC-3B	City of Havre de Grace / Harford County / Cecil County	**Transportation Projects to Reduce Congestion** Identify regional transportation projects that address overall roadway congestion and capacity, regional transportation goals, improvements to current and projected conflict points, and promote a multi-modal transportation system to promote an environment that supports APG mission growth and workforce needs. *Other Partners: Baltimore Regional Transportation Board, Wilmington Area Planning Council, Town of Perryville*	2019		■	■	■		■	☐	☐
RC-3C	City of Aberdeen / City of Havre de Grace / Harford County / Cecil County	**Seek Alternative Funding Sources for Transportation Improvements** Seek additional and alternative sources of funding for transportation improvements at the federal and state level such as the federal Transportation Alternatives Program administered through Maryland MPOs (including the Baltimore Regional Transportation Board and Wilmington Area Planning Council) and (P3) Public-Private Partnerships enacted through House Bill 560 to leverage expertise and efficiencies of the private sector. *Other Partners: Baltimore Regional Transportation Board, Wilmington Area Planning Council*	2019	■	■	■	■		■	☐	☐
Safety Zones											
SA-1		**Awareness of Range Fires** During dry months of the year, certain missions can cause brush fires. These fires need to be maintained and proper communication needs to be provided outside of APG regarding their potential effects.									
		For strategies that address this issue see Strategies COM-6A and COM-9A.									

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
SA-2		**Unexploded Ordnance** Areas at APG could still contain unexploded ordnance buried underground which potentially pose a safety risk for adjacent development outside the fence line.									
SA-2A	APG	**Efforts to Identify and Clear Unexploded Ordnance from APG** Establish a program and plan to identify and clear unexploded ordnance at APG. Consider expanding the UXO Technology Demonstration Site Program to clear areas near the greatest concentrations of personnel inside the fenceline and within a quarter-mile of the installation perimeter at the Aberdeen Area to provide a buffer outside the fenceline.	2021	■							
SA-3		**Incompatible Uses in Accident Potential Zones** Incompatible uses in the Accident Potential Zones extend into Harford County and the City of Aberdeen creating a safety concern. Development is a concern in these areas because this is where statistically aircraft accidents are most likely to occur.									
SA-3A	Safety MCA	**Incorporate Safety Military Compatibility Areas into Local Planning Documents** Incorporate the Safety Military Compatibility Area and associated compatible development guidelines from Department of Defense Instruction 4165.57 into local zoning codes and comprehensive plans for the safety of their citizens. Examples of regulations in this area should include conditions associated with types of uses such as restricting new development that attracts large congregations of people and uses that attract concentrations of birds that create a hazard to aircraft.	2019		■		■				
SA-3B	Safety MCA	**Amend Zoning Codes for Incompatible Uses within Accident Potential Zones** Consider amending zoning codes to preclude incompatible land uses and establish Floor Area Restrictions for property within Accident Potential Zones I and II consistent with recommendations in Department of Defense Instruction 4165.57.	2019		■		■				
SA-3C	Safety MCA	**Amend Zoning Codes to Address Accident Potential Zones** Amend zoning codes to require all allowable uses within Accident Potential Zones I and II to undergo a conditional use approval	2019		■		■				

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		process that requires APG review. Uses that would require additional review include, but are not limited to residential uses and those that encourage the congregation of people such as places of worship, daycares, and group care facilities.									
SA-3D	Safety MCA	**Provide Safety zone Maps to Local Realtors and Title Companies** Harford County and the City of Aberdeen should provide maps of the Safety Zones to local realtors and title companies. Maps should include a delineation of areas that are, and may be in the future, subject to safety risks associated with APG flight operations.	2019		■		■				
SA-3E	Safety MCA	**Voluntary Conservation Easements for Property in Accident Potential Zones** Develop a conservation easement program to reduce development potential within the Accident Potential Zones. *Other Partners: Harford Land Trust, The Eastern Shore Land Conservancy*	2019	■	■		■				■
SA-3F	Safety MCA	**Pursue Properties for ACUB Program in Accident Potential Zones and Seek Partnership Opportunities** Pursue property in Priority Areas identified in the ACUB Program within Accident Potential Zones for fee simple acquisition and conservation easements to meet multipurpose goals including safety and environmental stewardship. *Other Partners: Harford Land Trust*	2016	■							■
SA-3G	BASH MCA	**Amend Zoning Ordinances to Include Bird / Wildlife Air Strike Hazard Regulations** Amend zoning ordinances to regulate land uses and guide building standards that will not attract birds and other wildlife in the BASH MCA, specifically within the Approach / Departure Clearance Surface. Such controls should prohibit certain trees and foliage that attract birds in this area.	2019		■	■	■		■		

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
Scarce Natural Resources											
SNR-1		**Water Quantity / Quality at Edgewood** Harford County water supply to Edgewood is temporary because of Harford County's own service demand.									
		For strategies that address this issue see Strategies IE-1A and IE-1B.									
Sensitive Biological Resources											
SBR-1		**Eagle Nesting Sites** Eagle nesting site buffers impact ability to carry out mission-critical activity and contribute to reduced development areas.									
SBR-1A	APG	**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*	2017	■							☐
SBR-1B	APG	**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, Maryland Department of Game and Inland Fisheries, Maryland Department of Natural Resources, The Nature Conservancy, The Trust for Public Land*	2017	■							☐
		For another strategy that addresses this issue see Strategy LU-1B.									

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
Vertical Obstructions											
VO-1		**Vertical Obstructions Understanding** Lack of awareness of vertical obstruction requirements within jurisdictions surrounding APG can lead to incompatible development.									
VO-1A	Vertical Obstruction MCA	**Identify and Map Specific Areas of Concern Related to Tall Structures** Develop a "Red, Yellow, Green" (RYG) Map, in consultation with APG, that identifies locations throughout the Vertical Obstruction MCA where tall structures (with defined heights) are permissible, permissible with height restrictions, and prohibited to protect public safety and ensure compatibility. *Other Partner: Town of Perryville*	2017	☐	■	■	■		■		■
VO-1B	Vertical Obstruction MCA	**Incorporate Vertical Obstruction MCA into Local Planning Documents** Adopt height regulations, incorporating mapping from Strategy VO-1A, for all proposed structures within the Vertical Obstruction MCA to ensure they do not pose a safety hazard to air operations in the region. *Other Partner: Town of Perryville*	2017		■	■	■	■	■		■
VO-1C	Vertical Obstruction MCA	**Optimize Use of Communication Towers** In order to reduce the number of communication towers needed in the future, providers should be encouraged to design new towers, structurally and electrically, to accommodate the applicant / licensee's antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), unless this design would require the addition of lights or guy wires to an otherwise unlighted and / or unmanned tower.	2017		■	■	■	■	■		
VO-1D	Vertical Obstruction MCA	**Ensure Part 77 Compliance** For all new, redeveloped, or rehabilitated structures (including electrical transmission towers/lines, cellular and radio transmission towers, etc.), ensure compliance with the Federal Aviation Administration (FAA) Part 77 height limit requirements to minimize vertical	2017		■	■	■	■	■		■

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
		obstructions. *Other Partner: Town of Perryville*									
VO-1E	Vertical Obstruction MCA	**Develop a 3-Dimensional Imaginary Surfaces Model** The cities of Havre de Grace and Aberdeen and Harford County should collaborate, with the assistance of APG and the FAA, to develop a digital and printed 3D model of existing height regulations compared to allowable heights for the imaginary surfaces. This tool will assist the jurisdictions in considering amendments to their zoning regulations to further enhance military compatibility and for determining whether heights of proposed structures obstruct the navigable airspace during the review of development applications. *Other Partner: FAA*	2017	☐	■	■	■	■	■		☐
VO-1F	Vertical Obstruction MCA	**APG Review of Proposed Structures** Establish partnerships between each jurisdiction and APG to allow for APG review and comment on any proposed new, redeveloped, or rehabilitated structures (including electrical transmission towers/lines, cellular and radio transmission towers, etc.) within the imaginary surfaces.	2017	☐	■	■	■	■	■		
VO-1G	Vertical Obstruction MCA	**Pursue Properties for ACUB Program in Vertical Obstruction Military Compatibility Area and Seek Partnership Opportunities** Pursue property in ACUB Program Priority Areas within the "Red Zone" on Map in Strategy VO-1A for fee simple acquisition and conservation easements to meet multipurpose goals including vertical obstruction safety and environmental stewardship. *Other Partners: Harford Land Trust, The Eastern Shore Land Conservancy*	2016	■							■

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
Vibration											
VIB-1		**Vibration Damage in Study Area Communities** Vibration from APG ordnance testing has the ability to cause physical property damage in areas throughout the Study Area on both sides of the Chesapeake Bay.									
		For strategies that address this issue see Strategies COM-10A and LU-1B.									
Water Quality											
WQQ-1		**Havre de Grace Marina Siltation** The Spesutie Island Causeway is a potential source of sediment buildup near the Havre de Grace Marina which is reported to affect local boating and the Chesapeake Bay ecosystem.									
		For strategies that address this issue see Strategies MEC-3A and MEC-3B.									
WQQ-2		**Edgewood Area Lacks an Uninterruptable Water Supply** The Edgewood Area water source is subject to periodic production shortages. Supplemental water to the Edgewood Area from Harford County is temporary. A reliable source of water to serve the Edgewood Area is needed to meet current and future needs.									
		For strategies that address this issue see Strategies IE-1A, IE-1B, and IE-1C.									
WQQ-3		**Aberdeen Area Lacks an Uninterruptable Water Supply** The source of water for the Aberdeen Area suffers from periodic production shortages due to flows that cannot be maintained during moderate drought periods. Back-up water supplies are provided from Harford County by way of the City of Aberdeen through a collective MOU which expires in 2017.									
WQQ-3A		**Continue to Plan for Onsite Potable Water** Continue to plan for onsite potable water to reduce reliance on Deer Creek and the Chapel Hill Treatment Plant and to provide a secure and reliable source of water. Develop a Master Plan including quantified supply and future demand based on anticipated need, determination of onsite well capacity at APG, modernization plan for onsite facilities, identification of additional / new infrastructure, funding sources, and commitment from the Maryland Department of the Environment of a water permit to draw the necessary quantity to support long-term APG demand. *Other Partner: Maryland Department of the Environment*	2016	■	☐						☐

Issue/Strategy ID	Geographical Area	Strategy	Timeline	APG	City of Aberdeen	City of Havre de Grace	Harford County	Kent County	Cecil County	Maryland DOT	Other
WQQ-3B	APG	**Plan and Coordinate for the Implementation of Infrastructure Improvements to Achieve a Secure and Reliable Potable Water Supply to the Aberdeen Area** Develop a coordinated Implementation Plan to execute the Water Provision Master Plan in Strategy WQQ-3A. Include measurable milestones, Capital Improvement Plan projects, dedicated funding sources, and multijurisdictional / multiagency coordination. *Other Partners: Maryland Department of the Environment*	2017	■	☐						☐
WQQ-4		**EUL Site On Top of Aquifer Recharge Infiltration Field** The EUL site is located within the Source Water Protection Area that encompasses the water wells for Harford County and the City of Aberdeen. There is a concern that future EUL development can impact the aquifer recharge associated with the wells.									
WQQ-4A	APG	**Plan for Cumulative Impacts** Develop a plan to ensure that cumulative development impacts of The G.A.T.E. development do not have a detrimental impact on the aquifer recharge for the Source Water Protection Area that would affect the viability of water wells at APG. *Other Partner: St. John Properties*	2019	■	☐		☐				☐
WQQ-5		**Stewardship of Chesapeake Bay Waters** Perception that counties are providing a disproportionate amount of funding versus APG to clean the Chesapeake Bay.									
WQQ-5A	Study Area	**Quantify APG Funding and Include in APG Education Efforts** To demonstrate good stewardship of the Chesapeake Bay, quantify the value of, and document ongoing conservation efforts of the Chesapeake Bay ecosystem by APG. Incorporate as part of the public outreach in conjunction with Strategies COM-5B, COM-5C, and COM-6B.	2019	■							

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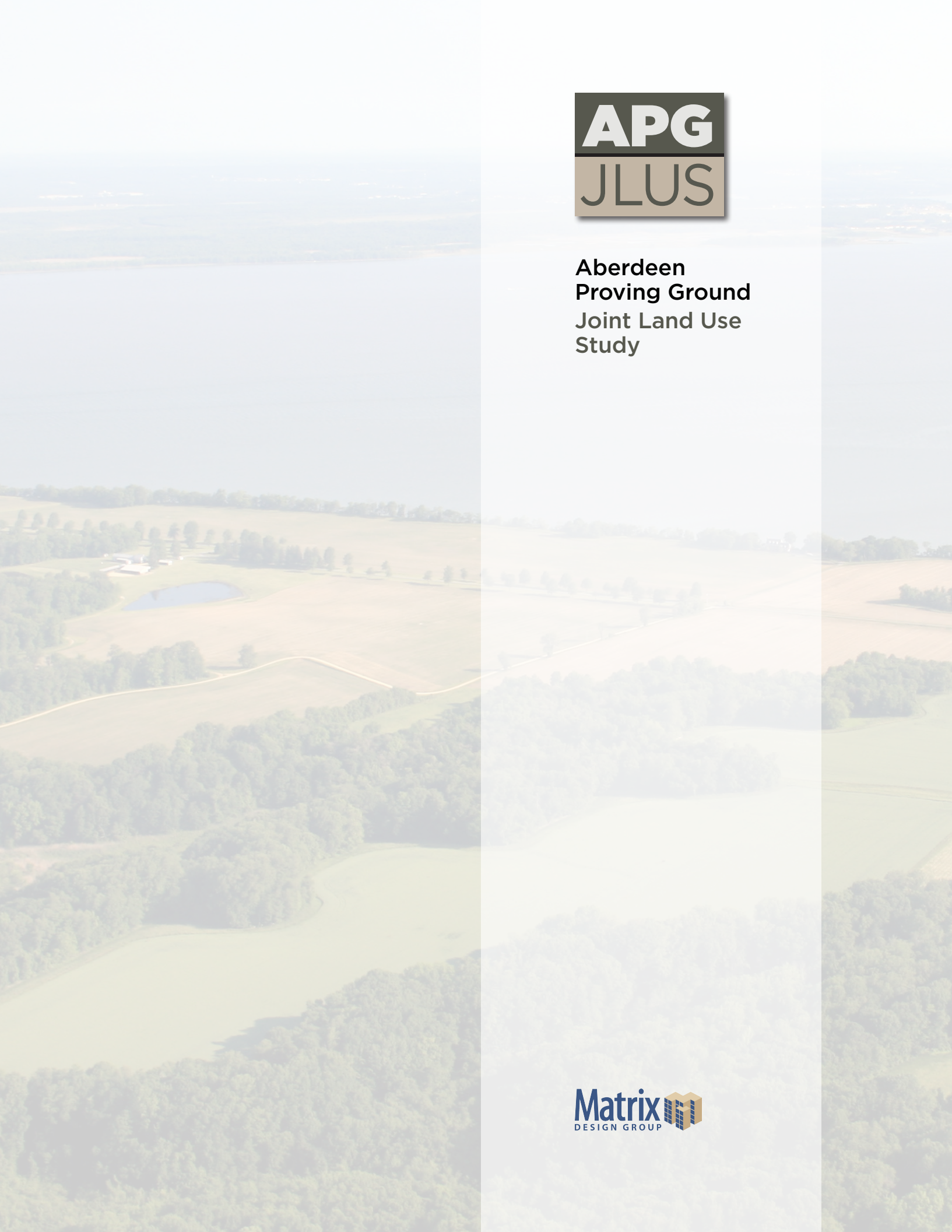

APG JLUS

Aberdeen Proving Ground

Joint Land Use Study

Matrix DESIGN GROUP

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