



Air Installations Compatible Use Zones Addendum

Naval Air Station Oceana
Naval Auxiliary Landing Field Fentress



FINAL
MARCH 2014





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Subj: APPROVAL OF THE AIR INSTALLATIONS COMPATIBLE USE ZONES
(AICUZ) STUDY ADDENDUM FOR NAVAL AIR STATION (NAS) OCEANA
AND NAVAL AUXILIARY LANDING FIELD (NALF) FENTRESS

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FINAL

**AIR INSTALLATIONS COMPATIBLE USE ZONES
ADDENDUM
NAVAL AIR STATION OCEANA
NAVAL AUXILIARY LANDING FIELD FENTRESS**

March 2014



Prepared by

UNITED STATES DEPARTMENT OF THE NAVY
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ACRONYMS AND ABBREVIATIONS

- A -

ACP	Acquisition and Conformity Program
AICUZ	Air Installations Compatible Use Zones
ANSI	American National Standards Institute
APZ	accident potential zone
ATC	Air Traffic Control

- B -

BASH	bird/animal aircraft strike hazard
BRAC	Base Closure and Realignment

- C -

CFR	Code of Federal Regulations
CNEL	Community Noise Exposure Level
CNIC	Commander, Navy Installations Command
CNO	Chief of Naval Operations
CO	Commanding Officer
CVW	carrier air wing

- D -

dB	decibel
dBA	A-weighted decibel
DNL	day-night average sound level
DOD	United States Department of Defense

- E -

EA	Environmental Assessment
EIS	Environmental Impact Statement
EMI	electromagnetic interference
EPA	U.S. Environmental Protection Agency

- F -

FAA	Federal Aviation Administration
FBC	Form Based Code
FCLP	Field Carrier Landing Practice
FICON	Federal Interagency Committee on Noise
FICUN	Federal Interagency Committee on Urban Noise
FY	Fiscal Year

- H -

HRPDC	Hampton Roads Planning District Commission
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- I -

IFR	instrument flight rules
ISIS	Interactive Sound Information System
ITA	Interfacility Traffic Area

- J -

JLUS	Joint Land Use Study
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- M -

MCAS	Marine Corps Air Station
MOU	Memorandum of Understanding
mph	miles per hour
MSL	mean sea level

- N -

NAAS	Naval Auxiliary Air Station
NALF	Naval Auxiliary Landing Field
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
Navy	United States Department of the Navy
NM	nautical mile
NS	Naval Station

- O -

OLUCC	Oceana Land Use Conformity Committee
ORD	Oceanfront Resort District
OPNAVINST	Chief of Naval Operations Instruction

- R -

RAA	Rural AICUZ Area
REPI	Readiness and Environmental Protection Initiative
RT	Resort Tourist

- S -

SEGA	Special Economic Growth Area
SUA	Special Use Airspace

- T -

TACAN	tactical air navigation system
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- U -

USMC	United States Marine Corps
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- V -

VFR	visual flight rules
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EXECUTIVE SUMMARY

ES.1 Purpose of the AICUZ Addendum

ES.2 NAS Oceana

ES.3 Aircraft Operations

ES.4 Aircraft Noise

ES.5 Airfield Safety

ES.6 Land Use Analysis

ES.7 Programs and Initiatives

ES.8 Appendices

This 2014 Air Installations Compatible Use Zones (AICUZ) Addendum (hereafter referred to as the AICUZ Addendum or Addendum) has been prepared in accordance with federal regulations and guidelines and United States Department of the Navy (Navy) instructions to protect the public's health, safety, and welfare, and to prevent incompatible development from degrading the operational capability of Naval Air Station (NAS) Oceana and Naval Auxiliary Landing Field (NALF) Fentress in the future. NAS Oceana and NALF Fentress are located in southeastern Virginia. The findings presented in this AICUZ Addendum focus on the noise impact areas affected by air operations and the safety zones associated with both airfields' runways. The Navy and NAS Oceana encourage compatible development in the noise and safety zones, and are committed to working with neighboring communities to ensure a mutually safe environment to live and work, while continuing to meet the mission of the installation.

This Executive Summary provides a preview of the AICUZ Addendum's outline and a brief overview of what is discussed and presented in each section.

ES.1 PURPOSE OF THE AICUZ ADDENDUM

The core of the AICUZ Program is the development of land use guidelines that promote compatible uses by communities in the vicinity of a military installation. In the early 1970s, the United States Department of Defense (DOD) established the AICUZ Program to balance the need for aircraft operations and community concerns over aircraft noise and accident potential. The AICUZ Program was developed in response to growing incompatible urban development around military airfields. Today, the AICUZ Program is considered

a vital tool that is used by all branches of the military to communicate with neighboring counties, communities, municipalities, and individuals to inform them of the importance of preventing incompatible land use near military installations.

As an Addendum, this document is intended to capture and document all AICUZ Program initiatives for NAS Oceana and NALF Fentress. This addendum is based on the noise contours and Accident Potential Zones (APZs) from the adopted 2005 Joint Land Use Study (JLUS) and provides new land use analysis. No new noise zones or APZs were prepared for this document. This AICUZ Addendum also provides background information on NAS Oceana and NALF Fentress, presents the AICUZ noise zones and accident potential zones (APZs) associated with aircraft operations, identifies areas where the Navy and neighboring communities have coordinated to ensure compatible development within the noise and safety zones, and presents the accomplishments achieved to-date by the Navy and its neighbors in managing existing and future development near the installations.

ES.2 NAS OCEANA

Located in Virginia Beach, Virginia, NAS Oceana is the Navy's only Master Jet Base on the East Coast and supports the training and deployment of the Navy's Atlantic and Pacific Fleet FA-18 C/D Hornet and FA-18 E/F Super Hornet squadrons. Four carrier air wings (CVWs) are homebased at NAS Oceana and deploy with carrier strike groups embarking from Naval Station Norfolk (NS) in Norfolk, Virginia. Strike Fighter Wing Atlantic, which mans, trains, and equips 18 FA-18 Hornet and Super Hornet squadrons, also is homebased at NAS Oceana.

NALF Fentress, located 7 miles southwest of NAS Oceana in Chesapeake, Virginia, is equipped to simulate aircraft carrier flight decks and supports training operations by strike fighter squadrons from NAS Oceana.

NAS Oceana

- ★ Home to four East Coast carrier air wings.
- ★ Supports the Navy's Atlantic and Pacific Fleet FA-18C/D Hornet and FA-18 E/F Super Hornet squadrons.

The Navy employs 15,000 personnel at NAS Oceana, NALF Fentress, and a third annex property (NAS Oceana Dam Neck Annex, also located in Virginia Beach). NAS Oceana generates \$1.2 billion in payroll and \$1.3 billion in expenditures on goods and services annually (NAS Oceana 2012a).

ES.3 AIRCRAFT OPERATIONS

The FA-18 C/D Hornet and FA-18 E/F Super Hornet are the predominant aircraft stationed at NAS Oceana and account for the majority of aircraft operations at the airfield. Operations conducted as part of the typical training syllabus for flight crews include departures, arrivals, touch-and-gos, and practice radar approaches. NAS Oceana flight crews also conduct field carrier landing practice (FCLP) at NALF Fentress and training operations in offshore training areas.

Aircraft generally follow designated flight tracks, which are routes an aircraft follows while conducting an operation at the airfield. Flight tracks provide safety, consistency, and control of an airfield. They are graphically represented as single lines; however, because flights vary due to aircraft performance, pilot technique, and weather conditions, the actual flight track is most accurately represented as a band, often one-half to several miles wide.

A second type of aircraft operation, aircraft engine maintenance “run-up,” is primarily conducted in NAS Oceana’s aircraft acoustical enclosure (known as a “hush house”). A “hush house” is used to test engines in an enclosed, noise suppressed setting to reduce noise impacts on the airfield’s neighbors.

ES.4 AIRCRAFT NOISE

The chief sources of noise at an airfield are maintenance run-ups and flight operations. Data on both sources of noise is incorporated into NOISEMAP, the DOD-approved computer model that projects noise impacts around military airfields, to develop a graphic depiction of noise exposure. Noise exposure is assessed for AICUZ purposes using the day-night average sound

level (DNL) noise metric. The DNL is depicted graphically as a noise contour that connects points of equal noise value.

The AICUZ Program divides noise exposure into three categories, known as noise zones. Noise zones 1 through 3 are developed based on the DNL, and each noise zone has associated land use control recommendations. The noise zones provide the community and planning organizations with a necessary tool to plan compatible development near airfields. The noise zones for NAS Oceana and NALF Fentress presented in this AICUZ Addendum are the noise zones presented in the 2005 Joint Land Use Study (JLUS).

ES.5 AIRFIELD SAFETY

While the likelihood of an aircraft mishap occurring is remote, the Navy identifies areas of accident potential based on historical data from aircraft mishaps, known as APZs, to assist in land use planning. The Navy recommends certain land uses that concentrate large numbers of people—apartments, churches, and schools—are constructed outside APZs.

Historical data show that most aircraft mishaps occur on or near the runway, diminishing in likelihood with distance from the runway. APZs follow departure, arrival, and pattern flight tracks and are based, in part, on the number of operations conducted for specific flight tracks. The three standard APZs, in order of accident potential, are the clear zone, APZ I, and APZ II. Thus, an accident is more likely to occur in the clear zone than in APZ I or II, and is more likely to occur in APZ I than APZ II. The APZs for NAS Oceana and NALF Fentress presented in this AICUZ Addendum are the APZs presented in the 2005 JLUS. These APZs illustrate the dominant flight tracks currently flown at each airfield.

ES.6 LAND USE ANALYSIS

A composite noise contour and APZ map has been developed and overlaid on an aerial photograph to show the AICUZ footprint for both NAS Oceana and NALF Fentress. The AICUZ footprint shows the minimum acceptable area within which land use controls are recommended to protect the

public health, safety, and welfare and preserve the defense flying mission. The AICUZ footprint for NAS Oceana and NALF Fentress and the related land use planning accomplishments and Navy recommendations included in this AICUZ Addendum are fundamental tools for the continued success of the compatible land use planning model that has been in place in the region over the last several years. In addition, an updated analysis of the number of people within the existing AICUZ footprint was conducted. Using census block-level population data and the boundaries of the AICUZ footprint, it is estimated that approximately 153,320 people live within the existing AICUZ contour.

Control over land use and development in areas neighboring the airfields ultimately is the responsibility of local governments. The Navy, through the AICUZ Program, encourages local governments to plan for compatible development. This AICUZ Addendum incorporates city land use planning documents and zoning regulations as the basis for identifying existing and future land use and zoning in areas in the AICUZ footprint. The updated land use and zoning data presented in this AICUZ Addendum highlight the results of the cooperative land use planning efforts that have occurred between NAS Oceana and the local communities and identify any future land use and development issues that could benefit from application of the successful compatible land use planning model currently in place.

ES.7 PROGRAMS AND INITIATIVES

Recognizing the need to balance community growth with the Navy's mission, the Cities of Virginia Beach and Chesapeake have partnered with the Navy to develop various interrelated programs and initiatives to guide and control growth in the AICUZ footprint. These programs and initiatives, which in most cases began during development of the Hampton Roads JLUS in 2004 and 2005, have already lessened the Navy's operational impacts on adjacent land while simultaneously easing pressure on the Navy's defense flying mission. The final section of this Addendum discusses these accomplishments.

ES.8 APPENDICES

ES.8.1 Appendix A: Discussion of Noise Science

Appendix A provides a detailed discussion of the basics of sound and sound measurements.

ES.8.2 Appendix B: Compatibility Guidance

Appendix B presents the overlay district ordinances adopted by the Cities of Virginia Beach (Appendix B.1) and Chesapeake (Appendix B.2) to regulate development in the AICUZ footprint of NAS Oceana and NALF Fentress. Appendix B also includes, for reference purposes, the comprehensive Navy Land Use Recommendations tables within noise zones and APZs as provided in Chief of Naval Operations Instruction (OPNAVINST) 11010.36C, “Air Installations Compatible Use Zones Program” (Appendix B.3).

ES.8.3 Appendix C: Standard Tools and Recommendations

Appendix C provides the standard land use strategies recommended by the Navy at the federal, state, and local levels to support successful implementation of the AICUZ Program at NAS Oceana and NALF Fentress and to encourage compatible land use in the established AICUZ footprint.

ES.8.4 Appendix D: Local AICUZ Zoning Resources

Appendix D provides several forms and information related to the Navy’s AICUZ Program as implemented by the City of Virginia Beach. Appendix D includes the City of Virginia Beach Reasonable Use Exception Form For Incompatible Uses in the 65-70 AICUZ (Appendix D.1), the City of Virginia Beach AICUZ Overlay Ordinance Reasonable Use Exception Form (Appendix D.2), the AICUZ Compatible Use Advisory Notice (Appendix D.3), and the Military Air Installation Disclosure Form (Appendix D.4).

1

INTRODUCTION

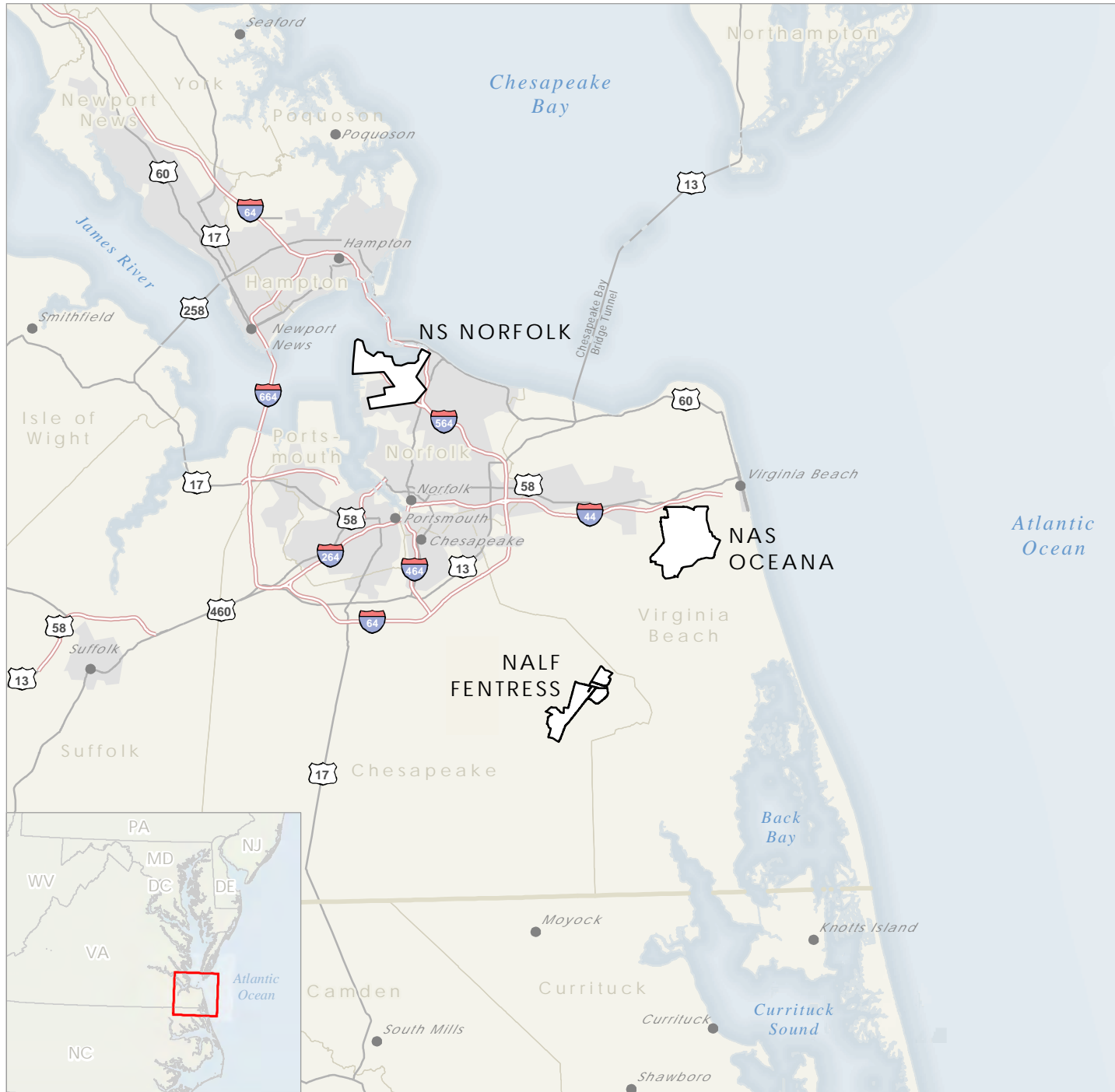
- 1.1 AICUZ Program
- 1.2 Purpose, Scope, and Authority
- 1.3 Responsibility for Compatible Land Use
- 1.4 Previous AICUZ Efforts, Joint Land Use Study, and Related Studies
- 1.5 Reasons for Preparing this AICUZ Addendum

Military airfields typically experience population growth and increased development in proximity to their “fence line.” People who work on the base want to live nearby. Others want to provide services to the employees and the base. Because of the proximity to the installation, some of this development may be incompatible with aircraft and other military operations that occur at the base and, over time, nearby residents or businesses can be adversely impacted. This incompatible development can also result in the degradation of the installation’s mission. When incompatible development occurs, the affected parties soon seek relief through the imposition of quiet hours, flight track changes, reduction in operations and even loss of flying mission. Like many communities, Naval Air Station (NAS) Oceana and its neighbors have had their challenges. Their story is a success story, showing how a military air station and its neighbors can come together to resolve mutual concerns.

The communities surrounding NAS Oceana, located in Virginia Beach, Virginia, and Naval Auxiliary Landing Field (NALF) Fentress, located in Chesapeake, Virginia, have experienced a steady increase in population and development since the 1960s (see Figure 1-1). This growth, in conjunction with urban growth around Naval Station (NS) Norfolk Chambers Field, located in Norfolk, Virginia, necessitated development of the Hampton Roads Joint Land Use Study (JLUS) in 2005. The Hampton Roads JLUS explored opportunities to achieve community interests (reducing noise impacts, accommodating necessary growth, and sustaining the regional economy) while sustaining and protecting the military’s mission at these installations.

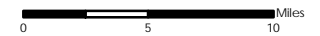


Figure 1-1
 NAS Oceana and NALF Fentress
 Virginia Beach and Chesapeake
 Virginia



Legend

- City
- State Boundary
- Interstate
- Highway
- Military Installation Boundary
- Urban Area



Source: ESRI 2012; City of Virginia Beach, 2011; Dept.of Defense - Navy 2011

This 2014 Air Installations Compatible Use Zones (AICUZ) Addendum (hereafter referred to as the AICUZ Addendum or Addendum) for NAS Oceana and NALF Fentress identifies the progress made in managing growth since completion of the Hampton Roads JLUS, and where development and population growth have occurred and are projected to occur into the future.

The United States Department of Defense (DOD) initiated the AICUZ Program in 1973 to assist governments and communities in identifying and planning for compatible land use and development near military installations. The goal of this program is to protect the health, safety, and welfare of the public while also protecting military operational capabilities. This goal is accomplished by achieving compatible land use patterns around an air installation.

The goal of the AICUZ Program is to protect the health, safety, and welfare of the public while also protecting military operational capabilities.

This goal is accomplished by achieving compatible land use patterns and activities in the vicinity of a military installation.

The AICUZ Program recommends that noise contours, accident potential zones (APZs), height and obstruction requirements, and associated land use recommendations be incorporated into local community planning to minimize the impacts to the mission and residents in the surrounding community. Mutual cooperation between the military airfield and its neighbors is a key component of the AICUZ Program. As the communities surrounding an airfield grow and develop, the United States Department of the Navy (Navy) has the responsibility to communicate and collaborate with local governments on land use planning, zoning, and mission impacts.

This Addendum is intended to capture and document all AICUZ Program initiatives for NAS Oceana and NALF Fentress, and provide the leadership of NAS Oceana with an up-to-date reference document. This Addendum incorporates operational data, noise contours, and APZs into NAS Oceana's AICUZ Program and also identifies recent zoning and land use changes. This Addendum focuses on land use within the existing AICUZ footprint for NAS Oceana and NALF Fentress.

This section of the AICUZ Addendum provides background on the AICUZ Program, historical data from the 2005 Hampton Roads JLUS and other previous planning studies, and the reasons for publishing this AICUZ Addendum. Section 2 describes the location and features of NAS Oceana and

NALF Fentress, including air space and operational areas. Aircraft type, operations, and runway use and representative flight tracks are discussed in Section 3. Sections 4 and 5 present the existing AICUZ noise contours and APZs for both NAS Oceana and NALF Fentress. Section 6 evaluates the compatibility of both current and proposed land uses, as provided by local governments. Section 7 presents encroachment management measures that have been implemented since completion of the Hampton Roads JLUS and provides additional tools and recommendations for managing growth around airfields. Section 8 presents a list of references used in this Addendum.

1.1 AICUZ PROGRAM

In the early 1970s, DOD established the AICUZ Program to balance the need for aircraft operations with community concerns over aircraft noise and accident potential. The AICUZ Program was developed to promote compatible land use near military airfields. The objectives of the AICUZ Program, according to the Chief of Naval Operations Instruction (OPNAVINST) 11010.36C, are as follows:

- To protect the health, safety, and welfare of civilians and military personnel by encouraging land use that is compatible with aircraft operations;
- To protect Navy and United States Marine Corps (USMC) installation investments by safeguarding the installations' operational capabilities;
- To reduce noise impacts caused by aircraft operations while meeting operational, training, and flight safety requirements, both on and in the vicinity of air installations; and
- To inform the public and seek cooperative efforts to minimize noise and aircraft accident potential impacts by promoting compatible development.

The Federal Aviation Administration (FAA) and DOD have developed guidance to encourage local communities to restrict development or land uses

that could endanger aircraft, including lighting (direct or reflected) that would impair pilot vision; towers, tall structures, and vegetation that penetrate navigable airspace or are constructed near the airfield; uses that generate smoke, steam, or dust; uses that attract birds, especially waterfowl; and electromagnetic interference (EMI) sources that may adversely affect aircraft communication, navigation, or other electrical systems. This is discussed in more detail in Section 5.1.1, Flight Safety.

**Development/Land Uses
that could
Endanger Aircraft and
Pilots**

- ▲ Lighting that impairs pilot vision
- ▲ Towers, tall structures, and vegetation that penetrate airspace
- ▲ Uses that generates smoke, steam, or dust
- ▲ Uses that attract birds
- ▲ EMI sources

Noise zones and APZs, which are described in detail in Sections 4 and 5, respectively, are areas of concern for air installations and local governments. Since noise zones and APZs often extend beyond the “fence line” of an installation, presenting the most current noise zones and APZs to neighboring communities is essential to fostering mutually beneficial land uses and development. One goal of the AICUZ Program is to have noise zones and APZs adopted into local ordinances so that development criteria are incorporated in areas around the base. In the case of NAS Oceana and NALF Fentress, the Cities of Virginia Beach and Chesapeake incorporated into their zoning ordinances the noise zones and APZs depicted on the 1999 NAS Oceana AICUZ Map Brochure.

1.2 PURPOSE, SCOPE, AND AUTHORITY

The DOD developed the AICUZ Program to promote compatible development between the air installation and its neighbors.

As development encroaches upon an airfield, more people are potentially exposed to noise and accident potential associated with aircraft operations. The Addendum analyzes community development trends, land use tools, and mission requirements to develop additional strategies for communities to prevent incompatible land development. Implementation requires cooperation between the air installation and local government. This Addendum differs from a traditional AICUZ Study. With concurrence from the Cities of Virginia Beach and Chesapeake, the Navy is not revising the noise zones or APZs around NAS Oceana and NALF Fentress; the Addendum does, however, provide updates to land use and population data in the installations’ existing AICUZ footprint.

These updates are discussed in more detail in Section 1.5, Reasons for Preparing this AICUZ Addendum.

Key documents used in this analysis include:

- DOD Instruction 4165.57, “Air Installations Compatible Use Zones,” dated May 2, 2011;
- OPNAVINST 11010.36C, “Air Installations Compatible Use Zones Program,” dated October 9, 2008;
- Unified Facilities Criteria 3-260-01, “Airfield and Heliport Planning and Design,” dated November 17, 2008;
- Naval Facilities Engineering Command P-80.3, “Facility Planning Factor Criteria for Navy and USMC Shore Installations: Airfield Safety Clearances,” dated January 1982; and
- United States Department of Transportation, FAA Regulations, Code of Federal Regulations (CFR), Title 14, Part 77, “Objects Affecting Navigable Airspace.”

1.3 RESPONSIBILITY FOR COMPATIBLE LAND USE

Ensuring land use compatibility within the area that makes up the AICUZ is a cooperative effort of many organizations including the DOD, Navy, local naval air installation command, local governments, planning and zoning agencies, real estate agencies, residents, and developers. Military installations can make recommendations to the local governments and agencies on land use near an installation, but it is the local governments and agencies that have authority to preserve land use compatibility outside the “fence line.” Cooperative action by all parties is essential in preventing land use incompatibility and hazards.

The Navy at NAS Oceana and NALF Fentress has established a collaborative working relationship with the local municipalities and communities surrounding the airfields. These organizations meet regularly to discuss mutual

Military installations can make recommendations or advise local governments and agencies on land use near an installation, but it is the local government and agencies that have the planning and zoning authority to preserve land use compatibility near the military installation.

concerns and goals. A more detailed discussion on the Navy's compatible land use management measures is provided in Section 6.6, Standard Tools and Recommendations.

1.4 PREVIOUS AICUZ EFFORTS, JOINT LAND USE STUDY, AND RELATED STUDIES

The first AICUZ Studies for NAS Oceana and NALF Fentress were approved by the Chief of Naval Operations (CNO) and published in 1975. Since then, a variety of studies and reports has been published related to the activities at these two Navy assets. The AICUZ footprints for NAS Oceana and NALF Fentress were revised based on noise studies and installation planning documents. These historical studies reflected changes in aircraft types and number of operations, changes in flight tracks, and changes in the Navy AICUZ Instruction. The following list highlights significant documents that present noise contours used for AICUZ purposes for NAS Oceana and NALF Fentress. A timeline with a brief summary and relevance of each document is provided.

1975 – AICUZ Studies for NAS Oceana and NALF Fentress

The original AICUZ studies for the airfields were approved for implementation by the CNO in 1975. These studies established the AICUZ footprints for NAS Oceana and NALF Fentress, as well as provided compatible land use strategies.

1978 – AICUZ Study for NAS Oceana and NALF Fentress

An updated, combined AICUZ study for the airfields was approved for implementation by the CNO in 1979. The 1975 studies were updated to reflect changes in operations and changes in the Navy AICUZ policy for use of the DNL noise descriptor for noise contour development.

Previous AICUZ Efforts

- 1975** Original AICUZ Studies for NAS Oceana and NALF Fentress
- 1978** AICUZ Study update for NAS Oceana and NALF Fentress
- 1998** Environmental Impact Statement for Realignment of FA-18 C/D Hornet Squadrons from NAS Cecil Field
- 1999** NAS Oceana AICUZ Map Brochure
- 2005** Hampton Roads JLUS

1998 – Environmental Impact Statement for Realignment of FA-18 C/D Hornet Squadrons from NAS Cecil Field to Other East Coast Installations

Current and projected noise zones and APZs were evaluated as part of the Environmental Impact Statement (EIS) to assess relocation of Atlantic Fleet FA-18 C/D squadrons from NAS Cecil Field, Florida, to other East Coast Installations.

1999 – NAS Oceana AICUZ Map Brochure

This brochure provided the noise zones and APZs originally depicted in the EIS analyzing the relocation of the Atlantic Fleet FA-18 C/D squadrons from NAS Cecil Field, Florida, to other East Coast installations. These noise zones and APZs were adopted by the Navy as the AICUZ noise zones and APZs and established as the official AICUZ footprint for NAS Oceana and NALF Fentress.

2005 – Hampton Roads Joint Land Use Study

The Cities of Virginia Beach, Chesapeake, and Norfolk partnered with the Navy to develop the Hampton Roads JLUS. The study was initiated in 2004 as part of the nationwide DOD JLUS program and was published in April 2005. The primary objective of the JLUS was to provide recommendations regarding land development policy and, specifically, to address the Navy's air mission in the region related to NAS Oceana, NALF Fentress, and NS Norfolk. The study identified impacts from noise exposure and APZs resulting from aircraft operations, land uses in each jurisdiction that adversely impacted air operations, limitations on tall structures interfering with flight operations, and local government approaches to reduce the impacts associated with air operations. The JLUS policy committee eventually decided to incorporate, for the official JLUS map, the noise zones and APZs adopted for the 1999 NAS Oceana AICUZ Map Brochure.

1.5 REASONS FOR PREPARING THIS AICUZ ADDENDUM

Reasons for Preparing this Addendum:

- ▲ Include recent updates to Navy AICUZ Instruction
- ▲ Update land use data
- ▲ Update population statistics
- ▲ Provide updated compatible land use strategies developed by NAS Oceana and the Cities of Virginia Beach and Chesapeake

This 2014 AICUZ Addendum is intended to capture and document all AICUZ Program initiatives for NAS Oceana and NALF Fentress. The Addendum initiative was prompted by the need to update key information, including population statistics for areas within the existing AICUZ noise zones and APZs, and to organize all the counter-encroachment strategies and initiatives that have been implemented between NAS Oceana and the Cities of Virginia Beach and Chesapeake into one document. The reasons for preparing this AICUZ Addendum are discussed in more depth in the following sections.

1.5.1 Update Land Use within the Noise Zones and APZs

An up-to-date record of land uses within existing AICUZ noise zones and APZs is essential to understanding land use compatibility with the Navy's mission at an installation and identifying potential areas of incompatible development. The 2005 Hampton Roads JLUS used land use and demographic information that was current at the time the JLUS was developed; however, many initiatives taken by the cities and the Navy, as well as the land uses surrounding NAS Oceana and NALF Fentress, have changed since 2005. Updates to land use data provided in the 2005 Hampton Roads JLUS are provided in this Addendum (see Section 6.3, Existing Land Use and Zoning).

1.5.2 Update on Population Data from the 2010 Census

Similar to land use data within the existing AICUZ noise zones and APZs, the populations around NAS Oceana and NALF Fentress have changed since the 2005 Hampton Roads JLUS. Data from the 2010 decennial U.S. Census provide new, up-to-date population statistics for the AICUZ noise zones and APZs surrounding NAS Oceana and NALF Fentress, and these updated statistics have been incorporated into this Addendum (see Section 6.1, Estimated Population within the AICUZ Footprint).

1.5.3 Update on Programs and Initiatives

The Navy AICUZ Instruction has a variety of recommendations and strategies for working with the local municipalities on addressing incompatible development and entering into encroachment prevention partnerships. Following the 2005 Hampton Roads JLUS, and through several other related actions, the Navy has successfully implemented numerous strategies for dealing with incompatible or potentially incompatible development around NAS Oceana and NALF Fentress. This Addendum will discuss some of these strategies and the results of their implementation (see Section 7, Programs and Initiatives).

2

NAS OCEANA AND NALF FENTRESS

- 2.1 Mission
- 2.2 Location and History
- 2.3 Operational Areas
- 2.4 Local Economic Impacts and Population Growth

2.1 MISSION

NAS Oceana's primary mission is to support the fleet's FA-18 C/D Hornet and FA-18 E/F Super Hornet squadrons and Joint/Interagency Operations. The installation and its support departments, which are under the purview of Commander, Navy Installations Command (CNIC), provides facilities and functions to support the training and deployment of the strike-fighter squadrons and the missions of its other tenant commands. The major aircraft commands, which are homebased at NAS Oceana, are the five East Coast carrier air wings (CVW) and Strike Fighter Wing Atlantic. NAS Oceana provides a variety of services required to operate and maintain a fully functioning installation, from mission support and facilities and natural resources management to personnel and family support services. Departments serving the mission side of the installation include Administrative, Supply, and Munitions.

The squadrons homebased at NAS Oceana deploy as CVWs attached to carrier strike groups embarking from NS Norfolk. The common mission of all the CVWs is to "conduct carrier air warfare operations and assist in the planning, control, coordination and integration of air wing squadrons in support of combat operations." Four CVWs are homebased at NAS Oceana. Each CVW includes strike-fighter squadrons from NAS Oceana, as well as aircraft squadrons homebased at other Navy and Marine Corps installations on the East Coast and West Coast, including: NS Norfolk; NAS Jacksonville, Florida; Marine Corps Air Station (MCAS) Beaufort, South Carolina; NAS Whidbey Island, Washington; and NAS North Island, California.



Strike Fighter Wing Atlantic also is homebased at NAS Oceana. The command's mission is to "man, train, and equip strike fighter squadrons with the right capabilities, at the right time, to meet combatant and fleet commander requirements in conducting the nation's military strategy." Strike Fighter Wing Atlantic oversees wing operations, maintenance, training, inspection, administration, and safety programs for 18 FA-18 Hornet and Super Hornet squadrons and over 5,000 personnel. The East Coast FA-18 Fleet Replacement Squadron, VFA-106, which trains pilots and Weapons System Operators in the FA-18 Hornet and Super Hornet before they are assigned to a squadron, is included under Strike Fighter Wing Atlantic. Operational fleet squadrons in Strike Fighter Wing Atlantic deploy as part of carrier air groups on aircraft carriers.

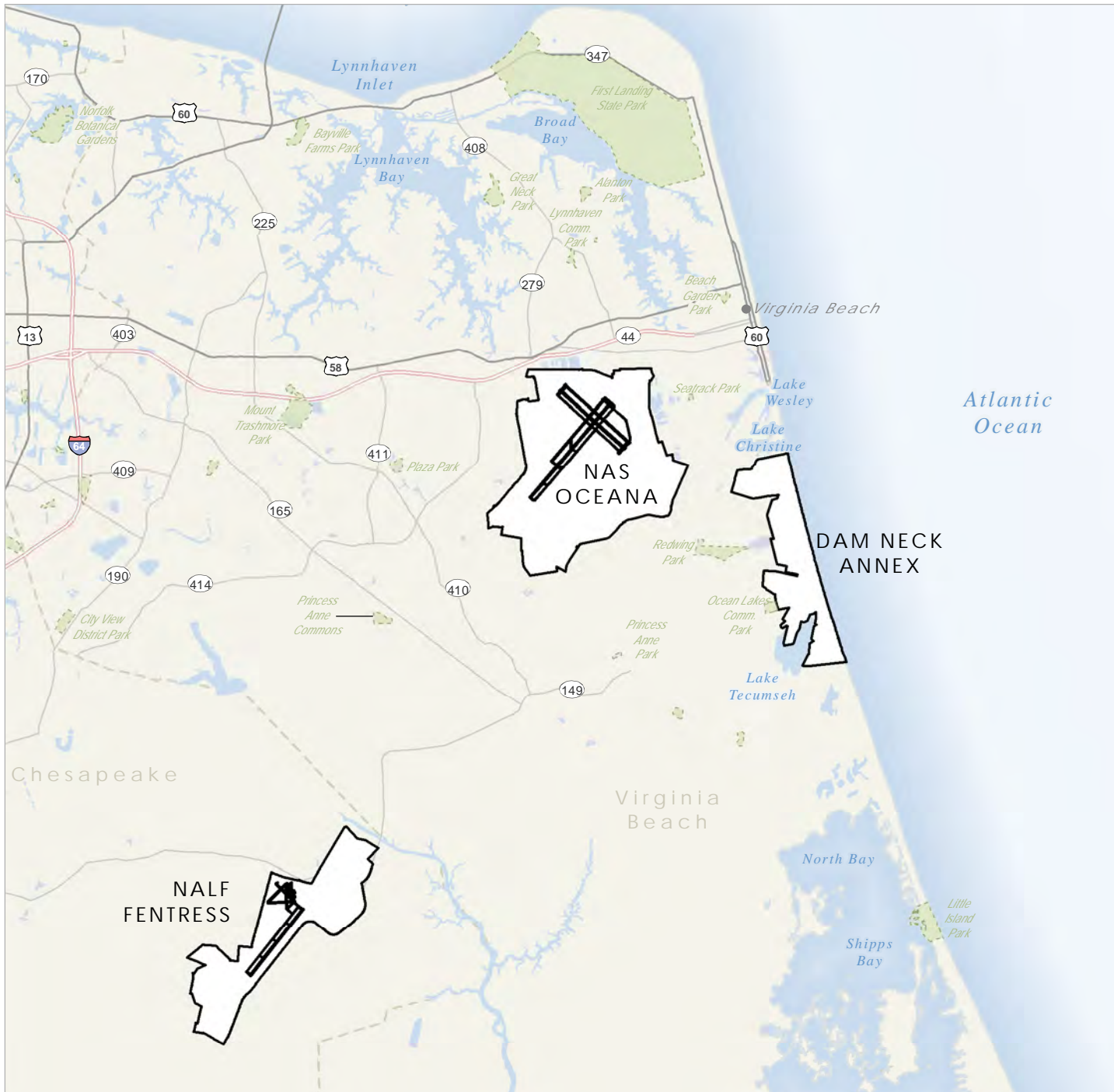
The Navy is in the process of realigning strike fighter assets from NAS Oceana to NAS Lemoore, including one CVW and two strike fighter squadrons. The reason for this home port change is to provide the strike fighter community assets where they are needed to meet the changing operational and deployment demands in the Pacific as well as Global Force Management scheduling requirements. The relocation is expected to occur between 2012 and 2016.

2.2 LOCATION AND HISTORY

2.2.1 NAS Oceana

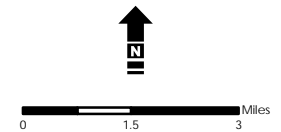
NAS Oceana is located in the eastern portion of the city of Virginia Beach, approximately 3.5 miles inland from the Atlantic coast and 17 miles north of the Virginia-North Carolina state line (see Figure 2-1). The main base occupies 5,331 acres, with an additional 5,372 acres in restrictive easements (including encroachment partnering easements) and 1,490 acres at NAS Oceana Dam Neck Annex on the Atlantic coastline of Virginia Beach.

Figure 2-1
 NAS Oceana and NALF Fentress
 Regional Location Map
 Virginia



Legend

- City
- State Boundary
- Interstate
- Highway
- Other Major Road
- ▭ Military Installation Boundary
- ▭ Waterbody
- ▭ Park



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

Naval Air Station Oceana and Naval Auxiliary Landing Field Fentress

The Navy began constructing NAS Oceana in 1940 on 328 acres of swampland. The air station was first commissioned as an Auxiliary Airfield with 32 officers and 172 enlisted personnel and, at that time, the surrounding area was mainly farmland. The air station grew during World War II and was re-commissioned as a Naval Auxiliary Air Station (NAAS) on August 17, 1943. The number of personnel grew to 160 officers and 800 enlisted personnel. Air groups homebased at the NAAS supported carriers including the USS Leyte, USS Franklin, and USS Kearsarge during World War II.

The NAAS continued to grow, expanding from three to eight squadrons. In 1952, Oceana was designated an NAS and, in 1957, was officially designated a Master Jet Base. Dedication ceremonies were held, and the airfield was named after Vice Admiral Apollo Soucek.



NAS Oceana tarmac circa 1963
[Photo Credit: Hampton Roads Naval Museum]

In 1961, A-6 Intruder and F-4 Phantom squadrons were assigned to NAS Oceana. A-6 Intruder squadrons from the air station supported the USS Independence, USS Enterprise, USS Constellation, USS Franklin D. Roosevelt, USS Kitty Hawk, USS Kennedy, and USS Forrestal during the Vietnam War. The number of personnel on base from 1965 through 1969 totaled approximately 22,000.

The Navy began acquiring restrictive easements on land around the air station in the 1970s. From the 1970s to the early 1980s, the Navy acquired restrictive easements on 3,681 acres (Note: since 2007, the Navy has added 1,691 acres of restrictive easements through encroachment partnering). In 1975, the Navy released the original AICUZ Studies for NAS Oceana and for NALF Fentress, following the assignment of the East Coast F-14 squadrons to NAS Oceana in 1974.

The 1990s began with 374 aircraft stationed at NAS Oceana and included a peak of over 353,000 annual flight operations being conducted at NAS Oceana and NALF Fentress. From 1990 to 1991, F-14 squadrons from NAS Oceana supported the USS Kennedy, USS Saratoga, USS Ranger, and USS Theodore Roosevelt during Operation Desert Storm. The West Coast F-14 squadrons were transferred to NAS Oceana in 1997 and, during the same year, the A-6 Intruder squadrons were retired. In 1998, the first two FA-18 Hornet squadrons from NAS Cecil Field, Florida were relocated to NAS Oceana, and NAS Oceana Dam Neck Annex was transferred to the air station. The transition of the NAS Cecil Field FA-18 Hornet squadrons was completed in 1999. Beginning in 2004, the FA-18 E/F Super Hornets began replacing the F-14s and older model FA-18 C/D Hornets at NAS Oceana.

NAS Oceana has grown to over 16 times its original size and currently is one of the largest and most advanced air stations in the world. Its four runways, three measuring 8,000 feet in length and one measuring 12,000 feet, are the longest runways in the Hampton Roads region and are designed for high-performance aircraft.

2.2.2 NALF Fentress

NALF Fentress is located approximately 7 miles southwest of NAS Oceana, in the eastern portion of Chesapeake, Virginia (see Figure 2-1). NALF Fentress occupies - 2,560 acres, with an additional 9,418 acres in restrictive easements (including 641 acres in encroachment partnering easements). The airfield, which predates NAS Oceana, was established in 1940 with four 2,500-foot runways equipped to simulate aircraft carrier flight decks. Commissioned in 1943, NALF Fentress was designated as the NALF for NAAS Oceana on October 24, 1951, with one 8,400-foot runway. Since 1952, jet aircraft from NAS Oceana conduct training operations at NALF Fentress.

NALFs are airfields, runways, or landing areas used for training, practice, or other routine operations to support the local, active NAS.



Buildings at NALF Fentress, circa 1954
[Photo Credit: Robert Crabtree]

2.2.3 NAS Oceana Dam Neck Annex

NAS Oceana Dam Neck Annex, commissioned in 1942, is a satellite installation of NAS Oceana and home to 14 tenant commands. NAS Oceana Dam Neck Annex is a 1,372-acre facility located along the Atlantic coast in the Hampton Roads region of Virginia, in the city of Virginia Beach. NAS Oceana Dam Neck Annex is approximately 2 miles east of NAS Oceana, and approximately 5 miles south of the main Virginia Beach resort area (see Figure 2-1). NAS Oceana Dam Neck Annex's mission is to provide facilities and resources needed to support the land, sea, and air training and operations of tenant commands.



**One of NAS Oceana Dam Neck Annex's
first crews, circa 1942**

[Photo Credit: Training Support Center Hampton Roads]

NAS Oceana Dam Neck Annex was purchased by the Coast Guard in 1930 for use as a signal station. In November 1941, the property was transferred to the Navy and commissioned as an anti-aircraft training and test center to provide a live firing range to train fleet gunnery crews. The installation gradually expanded over the decades, and training facilities at NAS Oceana Dam Neck Annex currently include small-arms firing ranges, a weapons gun line (turrets and

mounts), aerial target services, helicopter pads, munitions storage, and beach/dune amphibious training areas. A major tenant command at the installation is the Fleet Combat Training Center Atlantic, whose mission is to provide education and training in specified combat systems.

2.3 OPERATIONAL AREAS

2.3.1 Airfields

The NAS Oceana complex has two airfields – Apollo Soucek, at the main station, and NALF Fentress, seven miles to the southwest. Both airfields have associated airspace designated for military training.

Apollo Soucek Field’s elevation is 23 feet above mean sea level (MSL). The airfield is composed of two sets of parallel runways, Runways 5/23 L/R and 32/14 L/R (see Figure 2-2). Table 2-1 provides detailed information about the length and width of each runway. Runways 23L is the preferred, or “calm-wind,” runway. At NAS Oceana, winds generally blow from the southwest toward the northeast. Aircraft use wind as an aid in producing lift during take-off, typically “flying into the wind.” Therefore, aircraft use Runways 5/23 L/R more often because they are aligned with the predominant wind direction. Runways 32/14 L/R are considered crosswind runways and are used when the crosswind velocity is more than 10 miles per hour (mph) on Runways 5/23 L/R. The approximate runway utilization for NAS Oceana is 40 percent of the aircraft operations on Runway 5, 42 percent on Runway 23, 15 percent on Runway 32 and 3 percent on Runway 14, based on historical data (NAS Oceana 2012b).

Runways are numbered according to their magnetic heading for aircraft on approach or departure. Runway 5, for example, is mostly aligned with a compass heading of 50 degrees from magnetic north. Runway 23 is the opposite end of Runway 5, or 230 degrees (50 degrees plus 180 degrees) from magnetic north.

For parallel runways, a “left” (or “L”) and “right” (or “R”) designation is attached to the numerical designation, when viewed from the direction of approach.

Table 2-1. Apollo Soucek Runways

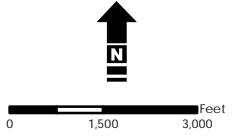
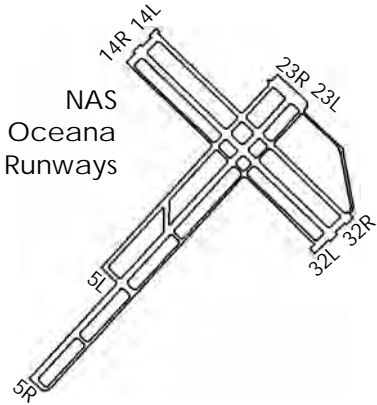
Runway	Length (feet)	Width (feet)
5R/23L	12,000	200
5L/23R	8,000	150
32R/14L	8,000	150
32L/14R	8,000	200

Figure 2-2
NAS Oceana, Apollo Soucek Field
Virginia Beach
Virginia



Legend

- Interstate
- Major Road
- Military Installation Boundary



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

NALF Fentress’s elevation is 16 feet above MSL, and the airfield’s facilities include a control tower, maintenance and safety buildings, and a fuel storage area. NALF Fentress has one operational runway, Runway 5/23, which was designed to simulate an aircraft carrier flight deck (see Figure 2-3). Four additional runways, dating from the airfield’s construction during World War II, are located in the northern portion of the airfield, but these runways are closed to aircraft. Today, Fentress serves as an outlying landing field to NAS Oceana. Table 2-2 provides detailed information about the length and width of the runway.

Table 2-2. NALF Fentress Runway

Runway	Length (feet)	Width (feet)
5/23	8,000	175

NAS Oceana and NALF Fentress have 24-hour capability. However, out of consideration for their neighbors, the Navy limits operations on federal holidays, late evening hours, and on the weekends to the extent possible consistent with operational requirements. A full discussion on the Navy’s noise abatement procedures is provided in Section 4.4, Noise Abatement and Complaints.

2.3.2 Airspace

The use of airspace over NAS Oceana and NALF Fentress is dictated by the FAA National Airspace System and seeks to ensure the safe, orderly, and efficient flow of commercial, private, and military aircraft.

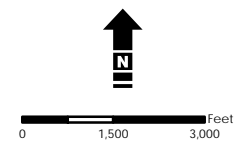
There are two categories of airspace: regulatory and non-regulatory. Within these two categories there are four types of airspace: controlled, uncontrolled, special use, and other airspace. Controlled airspace, designated Class A through Class E, covers the airspace within which Air Traffic Control (ATC) clearance is required. Uncontrolled airspace is the portion of the airspace not designated as Class A through Class E within which ATC has no authority or responsibility to control air traffic (FAA 2008) (see Figure 2-4).

Figure 2-3
NALF Fentress
Chesapeake
Virginia



Legend

- Interstate
- Major Road
- Military Installation Boundary



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

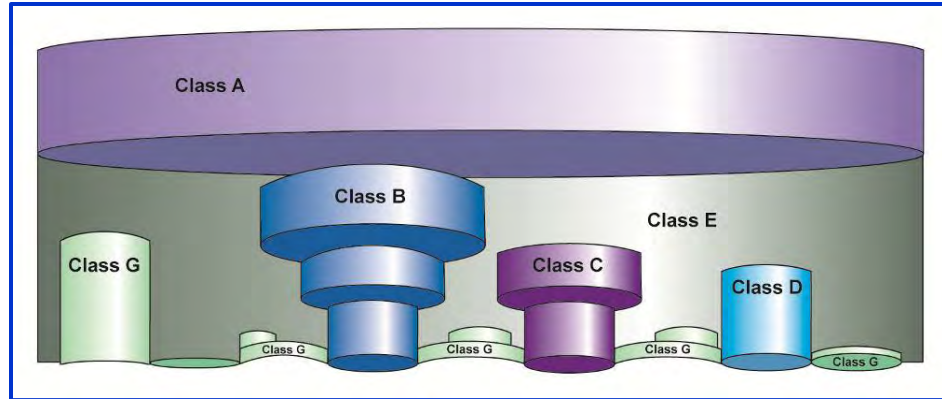


Figure 2-4. General Airspace Classifications

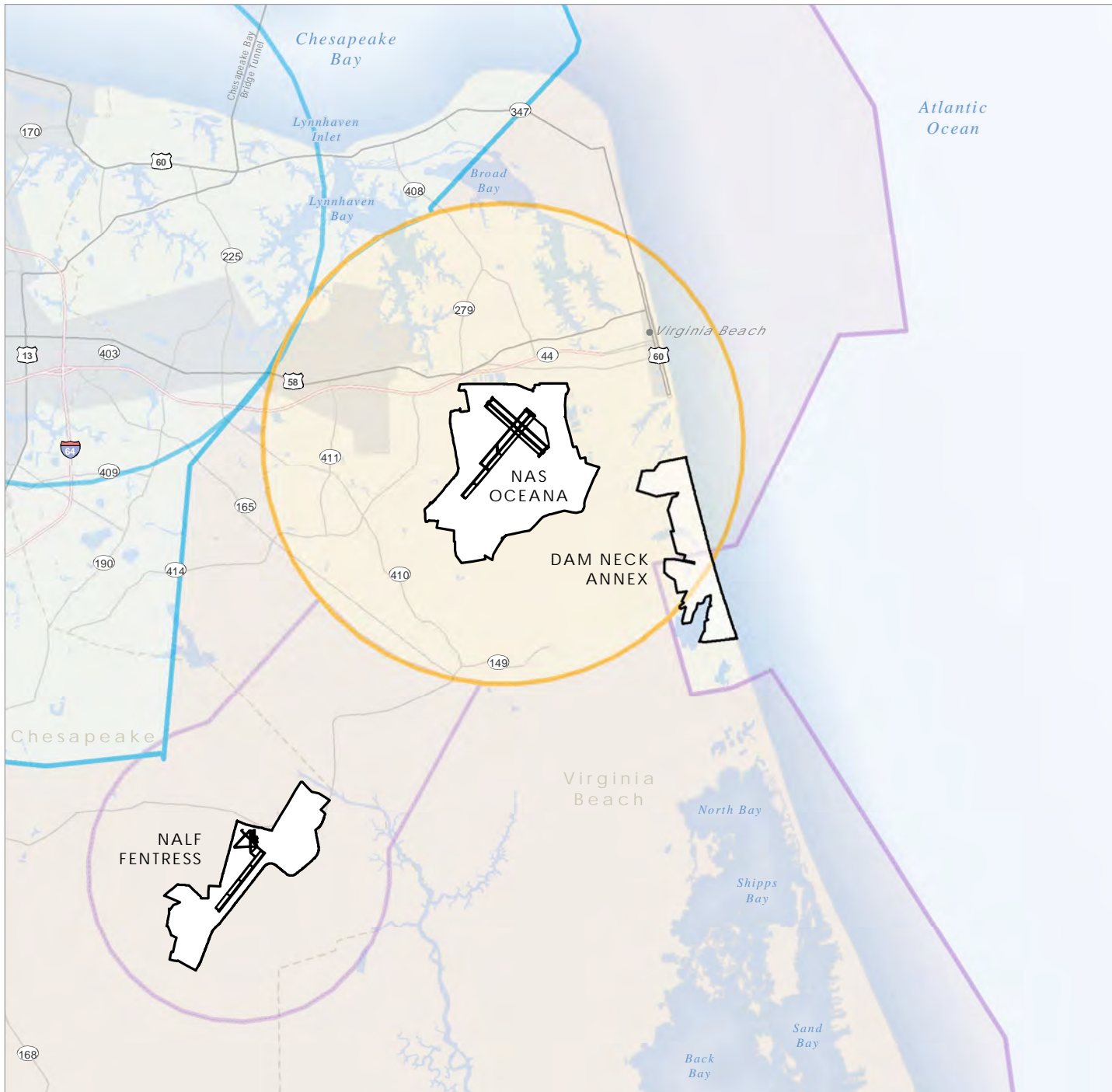
The controlled airspace under the jurisdiction of an airfield’s control tower and immediately adjacent to the runways is defined by the FAA as Class D airspace. NAS Oceana’s Class D airspace extends from the surface to 2,500 feet within 4.3 nautical miles (NM) of the center of the airfield (see Figure 2-5). The typical pattern altitude at NAS Oceana is 1,000 feet above MSL, but flights operating within Class D airspace may be routed at higher or lower altitudes, when necessary for takeoff or landing, anywhere within the 4.3-NM radius. Aircraft within NAS Oceana’s Class D airspace must maintain communications with the air traffic controller.

NAS Oceana is located within Class D airspace.

Airspace surrounding NALF Fentress is designated as Class E.

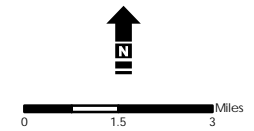
Airspace surrounding NALF Fentress is classified as Class E4 airspace. Class E4 airspace extends upwards from the surface and is an extension of the Class D airspace surrounding NAS Oceana. NALF Fentress’s Class E4 airspace is active when Navy aircraft are in approach or in the pattern around NALF Fentress. The Class E4 airspace associated with NALF Fentress includes the area within a 2.7-mile radius of the airfield and connects to the Class D airspace associated with NAS Oceana to the northeast (see Figure 2-5).

Figure 2-5
 Airspace Classification and
 Special Use Airspace
 NAS Oceana and NALF Fentress
 Virginia



Legend

- City
- State Boundary
- Interstate
- Highway
- Other Major Road
- ▭ Military Installation Boundary
- Urban Area
- Waterbody
- Airspace Class
- Class C
- Class D
- Class E



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010; DoD AVDAFIF 2010

Special Use Airspace (SUA) is the designation of airspace that confines or provides a boundary where certain operations or activities can take place or where restrictions are imposed on other aircraft that are not part of those operations. SUAs range in restrictiveness, from areas where flight is always prohibited except to authorized aircraft, to areas that are used by the military for potentially hazardous operations. There are six major types of SUAs: prohibited areas, restricted areas, warning areas, military operating areas, alert areas, and controlled firing areas. SUAs in the immediate vicinity of NAS Oceana and NALF Fentress include areas off-shore originating from NAS Oceana Dam Neck Annex (see Figure 2-5).

2.4 LOCAL ECONOMIC IMPACTS AND POPULATION GROWTH

2.4.1 Local Economic Impacts

The military installations located in Virginia Beach include NAS Oceana, NAS Oceana Dam Neck Annex, and Joint Expeditionary Base Little Creek/Fort Story. This extensive military presence creates a stable and consistent source of revenue for Virginia Beach, Chesapeake, and the Hampton Roads region that is somewhat resistant to economic fluctuations experienced by the rest of the nation.

The Navy employs 15,000 personnel at NAS Oceana, NALF Fentress, and NAS Oceana Dam Neck Annex. Combined, these installations generate \$1.2 billion in payroll and \$1.3 billion in expenditures on goods and services annually (NAS Oceana 2012a). The average composite salaries of military and civilian personnel employed at NAS Oceana (\$96,100 for military personnel and \$96,700 for civilian personnel) are among the highest in the Hampton Roads region (HRPDC 2010).

2.4.2 Population Growth

Virginia Beach is the most populous city in the Hampton Roads region and the commonwealth of Virginia as a whole. The Hampton Roads region includes the cities of Virginia Beach and Chesapeake and surrounding cities and counties in southeastern Virginia. The region is defined differently by various organizations (see margin). This analysis refers to the region defined by the University of Virginia Weldon Cooper Center for Public Service, Demographics and Workforce Group, a research focused group which provides demographic data, estimates, and projections for government agencies and other organizations in Virginia. The Weldon Cooper Center for Public Service defines regions of the commonwealth based on 2010 Census and annual American Community Survey data, as well as “shared economic conditions, such as cost of living, and commonly accepted geographical boundaries” (Tippett 2011a). The Center includes 14 localities (Gloucester County, Isle of Wight County, James City County, Mathews County, York County, Chesapeake city, Hampton city, Newport News city, Norfolk city, Poquoson city, Portsmouth city, Suffolk city, Virginia Beach city, and Williamsburg city) in the Hampton Roads region. The Hampton Roads region is one of the most densely populated areas in the commonwealth, behind only northern Virginia (Tippett 2011a).

Virginia Beach-Norfolk- Newport News, VA-NC Metropolitan Statistical Area

Currituck County (NC)
Gates County
Gloucester County
Isle of Wight County
James City County
Mathews County
York County
Chesapeake city
Hampton city
Newport News city
Norfolk city
Poquoson city
Portsmouth city
Suffolk city
Virginia Beach city
Williamsburg city

Hampton Roads Planning District Commission Region

Gloucester County
Isle of Wight County
James City County
Southampton County
Surry County
York County
Chesapeake city
Franklin city
Hampton city
Newport News city
Norfolk city
Poquoson city
Portsmouth city
Suffolk city
Virginia Beach city
Williamsburg city

Sources: U.S. Census Bureau
2013; Hampton Roads
Planning District Commission
2012



Virginia Beach Boardwalk
[Photo Credit: City of Virginia Beach]

In 2010, the region had a population of over 1.6 million people (Weldon Cooper Center for Public Service 2011). Between 2000 and 2010, the city of Virginia Beach and the Hampton Roads region each grew (3 percent and 7 percent, respectively). The city of Chesapeake grew at a significantly faster rate during this period, with a growth rate of 11.6 percent. Between 2010 and 2020, the population of the Hampton Roads region is expected to increase at a growth rate of 7.6 percent. While the city of Virginia Beach's population is expected to remain essentially static, the city of Chesapeake is projected to continue to grow faster than the region as a whole, with a projected growth rate of 14.2 percent. The growth rate in Chesapeake is projected to exceed the growth rate of the commonwealth during this period. Population data and growth projections for the city of Virginia Beach, city of Chesapeake, Hampton Roads region, and the commonwealth of Virginia are summarized in Table 2-3.

Table 2-3. Population Data for Virginia Beach, Chesapeake, and the Hampton Roads Region¹

Population Area	1990	2000	2010	% Growth 2000-2010	2020 (Projected)	% Growth 2010-2020
City of Virginia Beach	393,069	425,257	437,994	+3.0	438,114	<0.1
City of Chesapeake	151,976	199,184	222,209	+11.6	253,813	+14.2
Hampton Roads Region ²	1,417,909	1,533,739	1,641,078	+7.0	1,765,238	+7.6
Commonwealth of Virginia	6,187,358	7,078,515	8,001,024	+13.0	8,811,512	+10.1

Sources: U.S. Census Bureau 2011; U.S. Census Bureau, American FactFinder 2011a; U.S. Census Bureau, American FactFinder 2011b; U.S. Census Bureau, American FactFinder 2011c; U.S. Census Bureau, American FactFinder 2011d; Weldon Cooper Center for Public Service, Demographics and Workforce Group 2003; Weldon Cooper Center for Public Service, Demographics and Workforce Group 2011.

Notes:

¹Population count data from 1990, 2000, and 2010 are from the U.S. Census Bureau decennial census population data. Population projection data and Hampton Roads region population estimate and projection data are from the Weldon Cooper Center for Public Service, Demographics and Workforce Group.

²The Weldon Cooper Center for Public Service's estimates for the Hampton Roads region do not include data for Surry County, Southampton County, or the city of Franklin, which are member localities of the Hampton Roads Planning District Commission.

Key:

+ Indicates a positive growth rate

The Commonwealth of Virginia's growth rate between 2000 and 2010 was faster than the national growth rate of 9.7 percent (Tippett 2011b). This growth primarily occurred in the "urban crescent"—including Northern Virginia, the Richmond region, and Hampton Roads. Northern Virginia accounted for more than half of Virginia's growth over the course of the decade. Virginia is becoming increasingly urbanized, with two-thirds of Virginians living in the urban crescent. The Hampton Roads region is growing more slowly than either Northern Virginia or Richmond but is growing steadily (Tippett 2011b). Localities can anticipate the increased development resulting from the continuing steady growth of the region by developing land use and zoning policies that direct growth to areas of existing compatible land uses.

As noted in Section 1.5.2, Update on Population Data from 2010 Census, data from the 2010 decennial U.S. Census has been utilized to estimate population statistics within the existing AICUZ noise zones and APZs surrounding NAS Oceana and NALF Fentress. This information is provided in Section 6.1, Estimated Population within the AICUZ Footprint.

3

AIRCRAFT OPERATIONS

- 3.1 Aircraft Types
- 3.2 Aircraft Operations
- 3.3 Runway and Flight Track Utilization

3.1 AIRCRAFT TYPES

There are two basic types of aircraft: fixed-wing (such as jet fighters) and rotary-wing (helicopters). Only fixed-wing aircraft are permanently stationed at NAS Oceana.

The FA-18 C/D “Hornet” and FA-18 E/F “Super Hornet” are the predominant aircraft stationed at NAS Oceana and account for the majority of aircraft operations at Apollo Soucek Field. Small numbers of other aircraft are also stationed at NAS Oceana. The air station also is used by various transient aircraft originating from other airfields. Descriptions of the aircraft stationed at NAS Oceana are provided below.

No aircraft are stationed at NALF Fentress. The majority of operations at the NALF are by FA-18 C/D Hornets and FA-18 E/F Super Hornets from NAS Oceana and various aircraft, including E-2C “Hawkeyes,” E-2D “Advanced Hawkeyes”, and C-2A “Greyhounds” homebased at NS Norfolk Chambers Field in the city of Norfolk.

3.1.1 FA-18 C/D Hornet

The FA-18 C/D Hornet is an all-weather supersonic aircraft, used as an attack (strike) aircraft as well as a fighter. It is the nation’s first strike-fighter aircraft. In its fighter mode, the FA-18 is primarily used as a fighter escort, for reconnaissance, and for fleet air defense; in its strike mode, it is used for force projection, interdiction, and close and deep air support.



Designed by McDonnell Douglas and Northrop, the FA-18 Hornet is 56 feet long with a 40-foot wing span and a height of 15 feet. The aircraft is powered by two General Electric F404-GE-402 engines that deliver 17,750 pounds of thrust each. The range of the aircraft is 500+ NM with a maximum airspeed of Mach 1.8.

3.1.2 FA-18 E/F Super Hornet



FA-18 E/F Super Hornet

The FA-18 E/F Super Hornet is the Navy's latest strike-fighter. The Super Hornet, with its increased fuel capacity, is designed to fly farther and carry a heavier payload than its predecessor, the FA-18 Hornet. Its aerodynamics, maneuverability, survivability, and suitability for carrier operations are superior to the older Hornet, and the aircraft is capable of refueling other aircraft in the air.

Designed by Boeing, the FA-18 Super Hornet is 60 feet long with a 45-foot wing span and a height of 16 feet. The FA-18 Super Hornet is powered by two General Electric F414-GE-400 engines that each deliver 22,000 pounds of thrust. Its range is 1,275 NM, and it has an airspeed of over Mach 1.8.

A "hush house" is used to test engines in an enclosed, noise suppressed setting. NAS Oceana's hush house was constructed as a means to reduce noise impacts on surrounding residential properties.

3.2 AIRCRAFT OPERATIONS

3.2.1 Maintenance Run-Up Operations

Aircraft engine maintenance "run-up" operations are

primarily conducted in NAS Oceana's aircraft acoustical enclosure (known as a "hush house"). In addition, there are four internal engine test cells for "out of aircraft" engine tests located towards the southern end of Runway 5R/23L. Engine maintenance activities include engine rinses and washes, maintenance turns, and high-power turns.



NAS Oceana's hush house used for engine testing

NALF Fentress does not have any engine maintenance run-up locations, because all engine maintenance is done at NAS Oceana.

3.2.2 Flight Operations

Flight operations that are conducted into and out of NAS Oceana as part of the typical training syllabus for flight crews include departures, arrivals, touch-and-gos, and practice radar approaches, and are described below. NAS Oceana aircrews also conduct flights to and from NALF Fentress and offshore training areas.

A flight operation is anytime an aircraft crosses the runway threshold. The aircraft can be in the act of conducting an arrival, departure, or a component of a pattern operation.

- **Departures.** An aircraft taking off to a local training area, a non-local training area, or as part of a training maneuver (e.g., touch-and-go).
- **Arrivals.** An arrival involves aircraft returning and landing from a local training area, a non-local training area, or part of a training maneuver (e.g., touch-and-go).
 - **Straight-In/Full-Stop Arrival.** An aircraft lines up on the runway centerline, descends gradually, lands, comes to a full stop, and then taxis off the runway.
 - **Overhead Break Arrival.** An expeditious arrival using visual flight rules (VFR). An aircraft approaches the runway 500 feet above the altitude of the landing pattern. Approximately midway down the runway, the aircraft performs a 180-degree turn to enter the landing pattern. Once established in the pattern, the aircraft lowers landing gear and flaps and performs a 180-degree descending turn to land on the runway.
 - **Radar Approach.** A radar instrument approach provided with active assistance from ATC with the use of a radio transmitter and receiver. The ATC vectors the aircraft to align it with the runway centerline. The controller continues the vectors to keep the aircraft on course until the pilot can complete the approach and landing by visual reference to the surface. A radar approach

may be given to any aircraft upon request and may be offered to pilots of aircraft in distress or to expedite traffic.

- **Aircraft Pattern.** Pattern work refers to traffic pattern training where the pilot performs take-offs and landings in quick succession by taking off, flying the pattern, and then making a touch-and-go landing.
 - **Touch-and-Go.** An aircraft lands and takes off on a runway without coming to a full stop. After touching down, the pilot immediately goes to full power and takes off again. The touch-and-go actually is counted as two operations—the landing is counted as one operation, and the takeoff is counted as another.
 - **Ground Controlled Approach.** A radar or “talk down” approach directed from the ground by ATC personnel. ATC personnel provide pilots with verbal course and glide slope information, allowing them to make an instrument approach during inclement weather. The Box Pattern is flown to practice ground controlled approaches, utilizing a flight pattern with four 90-degree turns done at a set altitude.
 - **Field Carrier Landing Practice (FCLP).** Aviators need to train for operations on land and at sea. This operation is conducted to prepare for flight operations when deployed aboard ships at sea. These ships and carriers have different flight deck configurations and optical landing systems (lighting). This operation requires different touchdown points on the runway and mimics situations found at sea. An FCLP is counted as two operations—the landing is counted as one operation, and the takeoff is counted as another.

NALF Fentress is used for FCLP training by squadrons stationed at and transient to NAS Oceana and NS Norfolk Chambers Field. The majority of FCLP operations are conducted at night because landing at night, without visual references available in daylight, requires a much higher level of skill and therefore, performing FCLPs at night is the best preparation for upcoming carrier

based flight operations. FCLP training events are typically conducted in 45-minute periods, with up to five aircraft conducting eight to 10 landings in each period. FCLP operations primarily are conducted at NALF Fentress, but can be conducted at NAS Oceana under extenuating circumstances, such as when NALF Fentress is undergoing maintenance or if NALF Fentress is at capacity.

3.3 RUNWAY AND FLIGHT TRACK UTILIZATION

3.3.1 NAS Oceana

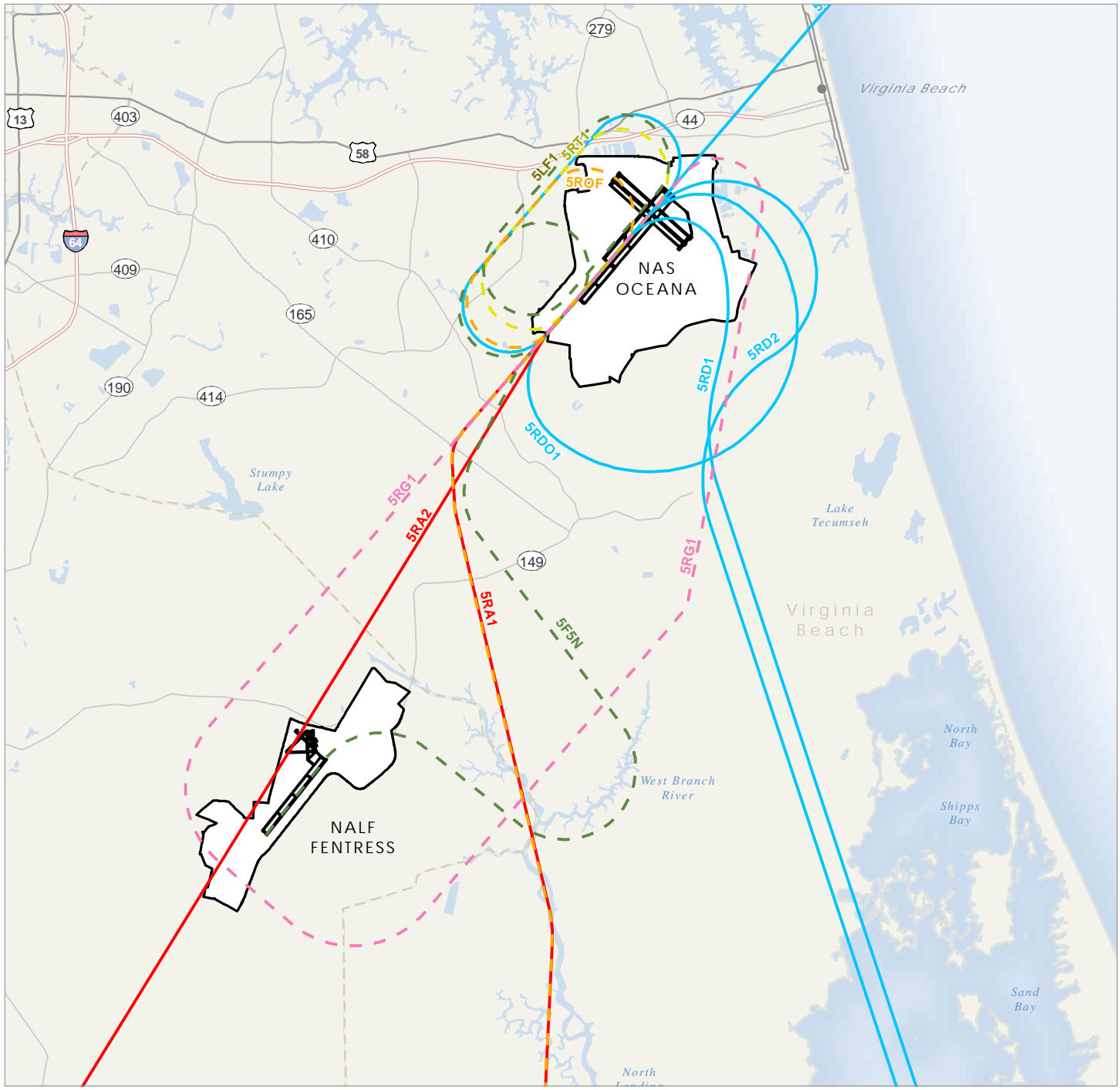
Each of NAS Oceana's four runways has designated flight tracks associated with the various aircraft operations being conducted. A flight track is a route an aircraft follows while conducting an operation at the airfield, between airfields, or at a military operating area (MOA). Flight tracks typically depict departure and arrival patterns to demonstrate how the aircraft fly in relation to the airfield. Flight tracks provide for safety, consistency, and control of an airfield. Flight tracks are graphically represented as single lines, but because flights vary due to aircraft performance, pilot technique, and weather conditions, the actual flight track is most accurately represented as a band, often one-half to several miles wide. Because of the various types of operations and patterns flown at NAS Oceana, each runway has multiple associated flight tracks.

Figures 3-1 through 3-5 depict some representative flight tracks for operations conducted at and between NAS Oceana and NALF Fentress, including arrivals, departures, patterns, and inter-facility operations. These representative flight tracks, and any established flight tracks, are subject to modification based upon evolving conditions at the installations.

3.3.2 NALF Fentress

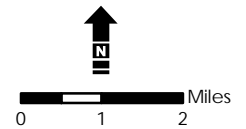
The vast majority of operations on Runway 5/23 at NALF Fentress are FCLP operations. Thus, the flight tracks associated with Runway 5/23 are for arrivals, departures, and FCLP patterns (see Figure 3-5).

Figure 3-1
 Representative Flight Tracks
 for Runway 5
 NAS Oceana
 Virginia



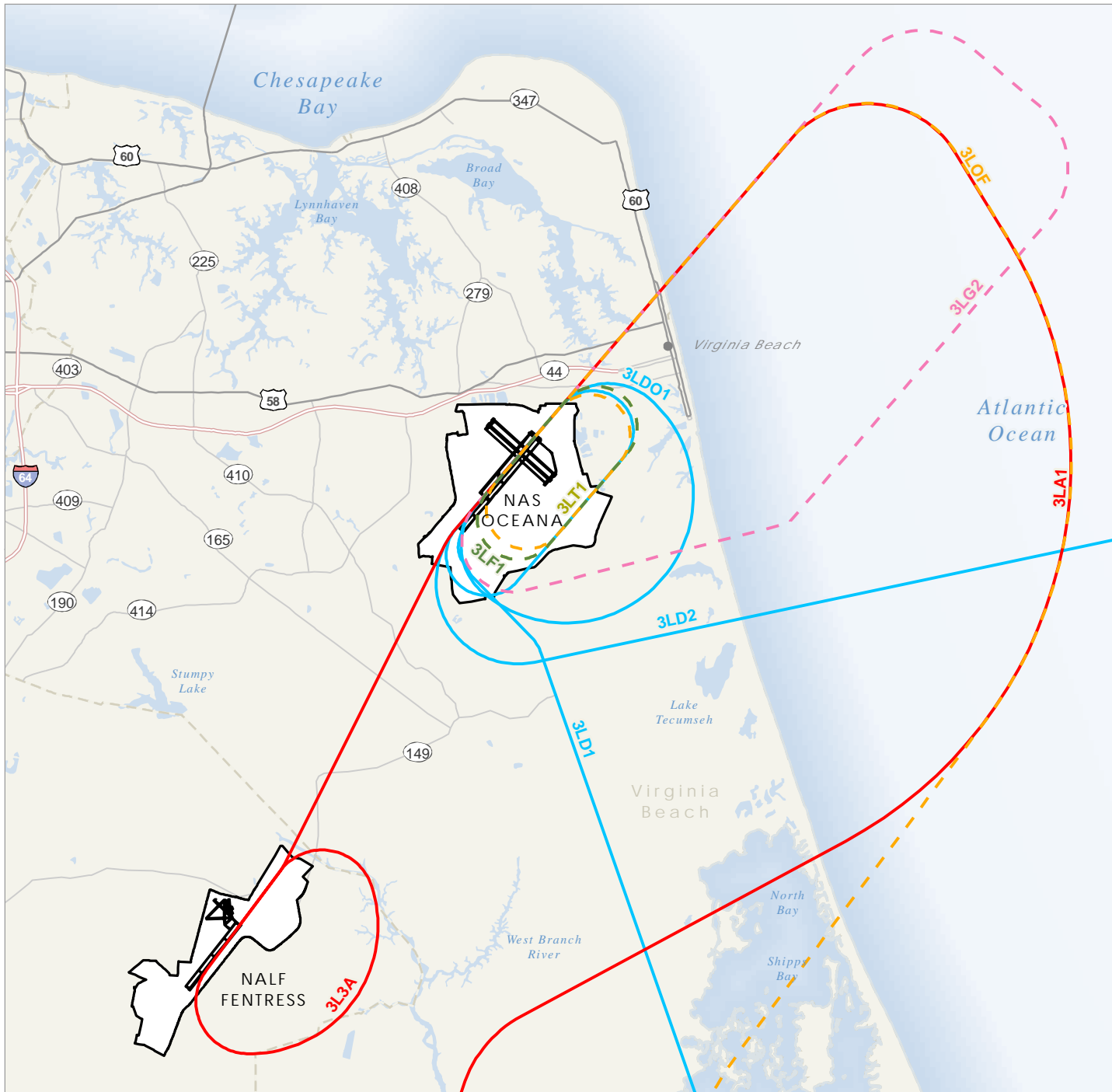
Legend

- City
- State Boundary
- Interstate
- Highway
- Other Major Road
- ▭ Military Installation Boundary
- Waterbody
- Flight Tracks
 - Arrival
 - Departure
 - - - GCA Box
 - - - Overhead Arrival
 - - - FCLP
 - Touch & Go and FCLP

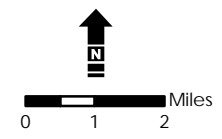


Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2012; VGIN 2010

Figure 3-2
 Representative Flight Tracks
 for Runway 23
 NAS Oceana
 Virginia

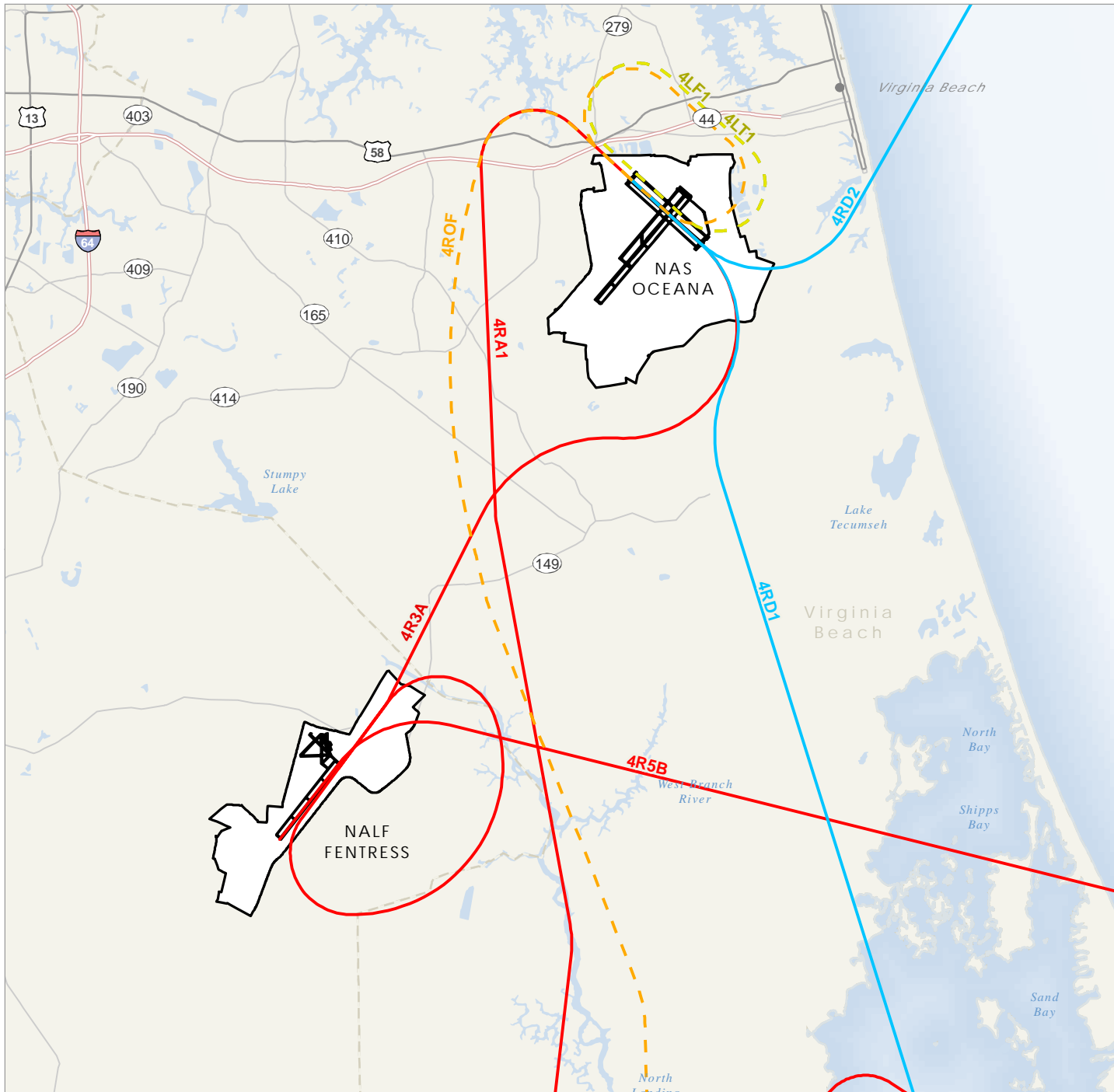


- Legend
- City
 - State Boundary
 - Interstate
 - Highway
 - Other Major Road
 - Military Installation Boundary
 - Waterbody
- Flight Tracks
- Arrival
 - Departure
 - Touch & Go and FLCP
 - GCA Box
 - Overhaed Arrival
 - FLCP



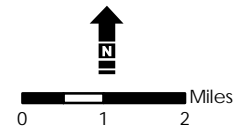
Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2012; VGIN 2010

Figure 3-3
 Representative Flight Tracks
 for Runway 14
 NAS Oceana
 Virginia



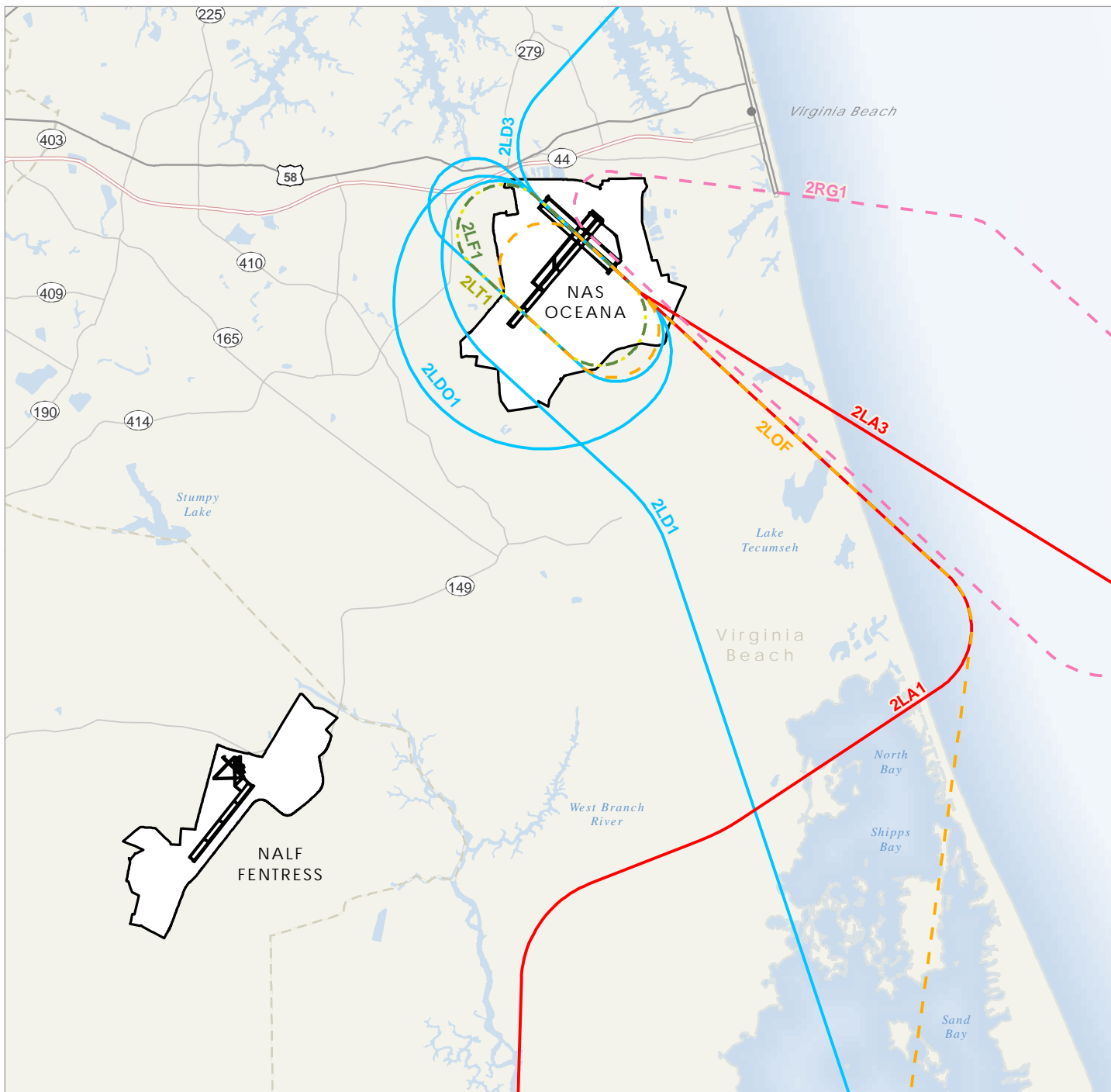
Legend

- City
 - State Boundary
 - Interstate
 - Highway
 - Other Major Road
 - Military Installation Boundary
 - Waterbody
- Flight Tracks
- Arrival
 - Departure
 - - - Touch & Go and FLCP
 - - - Overhead Arrival
 - - - FLCP



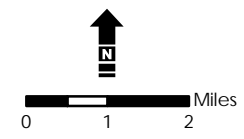
Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2012; VGIN 2010

Figure 3-4
 Representative Flight Tracks
 for Runway 32
 NAS Oceana
 Virginia



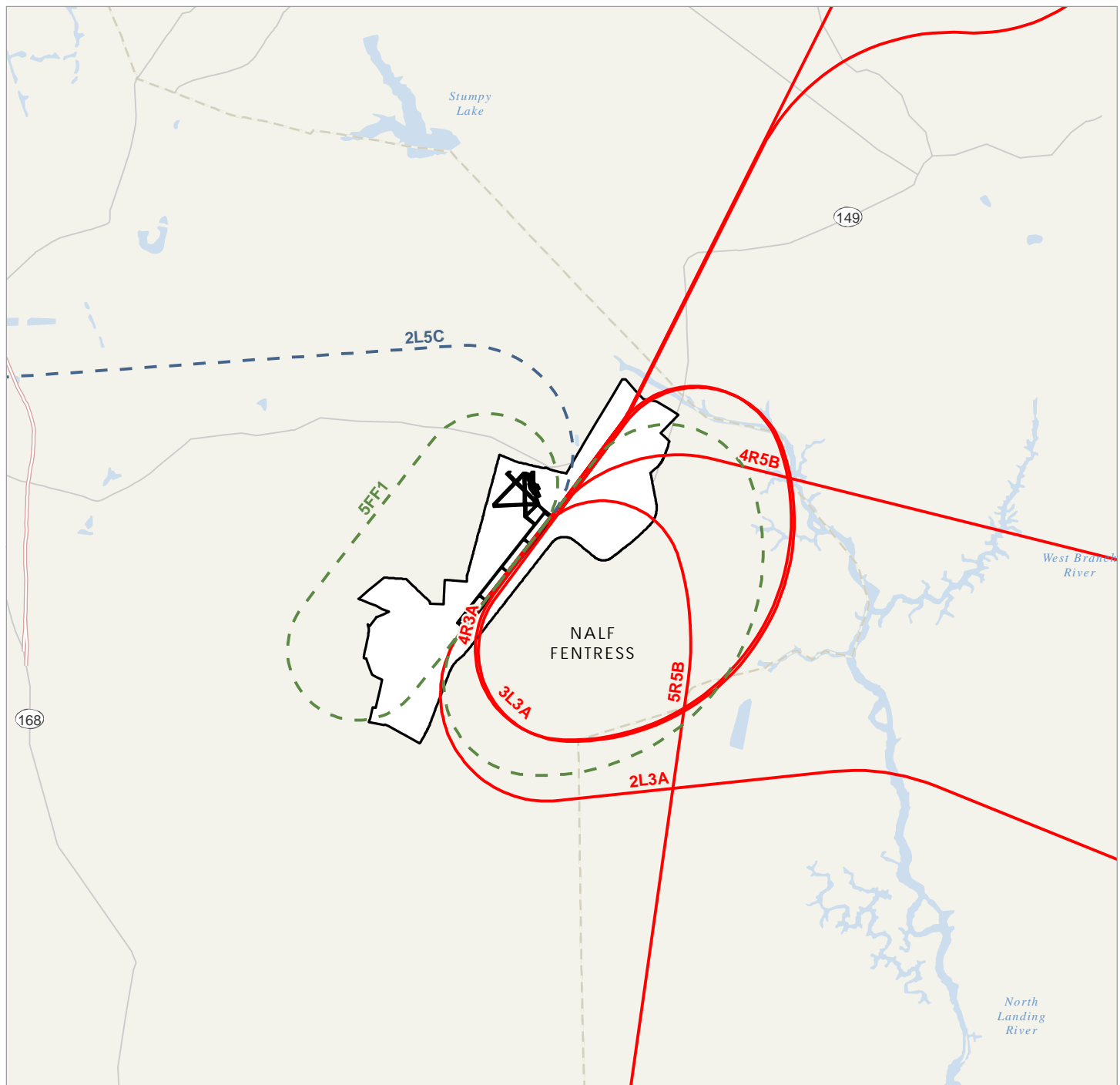
Legend

- City
- State Boundary
- Interstate
- Highway
- Other Major Road
- Military Installation Boundary
- Waterbody
- Flight Tracks**
- Arrival
- Departure
- Touch & Go and FLCP
- GCA Box
- Overhead Arrival
- FLCP
- Other



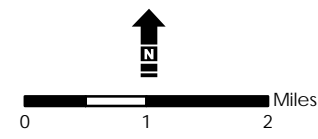
Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2012; VGIN 2010

Figure 3-5
 Representative Flight Tracks
 NALF Fentress
 Virginia



Legend

- City
- State Boundary
- Interstate
- Highway
- Other Major Road
- ▭ Military Installation Boundary
- Waterbody
- Flight Tracks
 - Arrival
 - FLCP
 - Other



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2012; VGIN 2010

4

AIRCRAFT NOISE

- 4.1 What is Sound/Noise?
- 4.2 Airfield Noise Sources and Noise Modeling
- 4.3 AICUZ Noise Contours
- 4.4 Noise Abatement and Complaints

How an installation manages the aircraft noise it generates can play a key role in shaping its relationship with its neighbors. It is also a key factor in local land use planning. Noise from aircraft operations affects areas surrounding NAS Oceana and NALF Fentress. The Navy has established certain areas around the installations as noise zones, using the guidance provided in the AICUZ Instruction. These noise zones provide the community and planning organizations with a necessary tool to plan compatible development near airfields.

This section discusses noise associated with aircraft operations, including average noise levels, noise abatement/flight procedures and noise complaints, sources of noise, and airfield specific noise contours.

4.1 WHAT IS SOUND/NOISE?

Sound is vibrations in the air that can be generated by a multitude of sources. Some sources of noise include roadway traffic, recreational activities, railway activities, and aircraft operations. Noise is, simply, unwanted sound. Generally, sound becomes noise to a listener when it interferes with normal activities. For further discussion of noise science, see Appendix A.

On an A-weighted scale, barely audible sound is set at 0 decibels (dB), and normal speech has a sound level of approximately 60 to 65 dB. Generally, a sound level above 120 dB will begin to provide discomfort to a listener, and the threshold of pain is 140 dB.

Typical A-Weighted Sound Levels and Common Sounds

0 dB – Threshold of Hearing
20 dB – Ticking Watch
45 dB – Bird Calls (distant)
60 dB – Normal Conversation
70 dB – Vacuum Cleaner (3 ft)
80 dB – Alarm Clock (2 ft)
90 dB – Motorcycle (25 ft)
100 dB – Ambulance Siren (100 ft)
110 dB – Chain Saw
120 dB – Rock Concert
130 dB – Jackhammer
140 dB – Threshold of Pain

* Refer to Appendix A for additional examples and details on sound levels.

For this Addendum, all sound or noise levels are measured in A-weighted decibels (dBA), which represent sound pressure adjusted to the range of human hearing. When the use of A-weighting is understood, the adjective “A-weighted” is often omitted and the measurements are expressed as decibels (or “dB”). For the purposes of this Addendum, dB units refer to A-weighted sound levels.

For land use planning purposes the noise exposure from aircraft is measured using the DNL metric. The DNL metric, established in 1980 by the Federal Interagency Committee on Urban Noise (FICUN), presents a reliable measure of community sensitivity to aircraft noise and has become the standard metric used in the United States (except California, which uses the Community Noise Exposure Level [CNEL]).

DNL averages the sound energy from aircraft operations at a location over a 24-hour period. DNL also adds an additional 10 dB to events occurring between 10:00 p.m. to 7:00 a.m. This 10-dB “penalty” represents the added intrusiveness of sounds occurring during normal sleeping hours, both because of the increased sensitivity to noise during those hours and because ambient sound levels at night are typically lower.

By combining factors most noticeable about noise—maximum noise levels, duration, the number of events over a 24-hour period, and nighttime events—DNL provides a single measure of overall noise impact. Scientific studies and social surveys have found DNL correlates with community annoyance (FICUN 1980, U.S. Environmental Protection Agency [EPA] 1982, American National Standards Institute [ANSI] 1990, Federal Interagency Committee on Noise [FICON] 1992). Although DNL provides a single measure of overall noise impact, it does not provide specific information on the number of noise events or the individual sound levels that occur during the day. For example, a DNL of 65 dB could result from a few noisy events or a large number of quieter events.

The DNL is depicted on a map as a noise contour that connects points of equal noise value in 5-dBA increments (60, 65, 70, 75, 80, and 85 dB DNL). The

AICUZ Program generally divides noise exposure into three categories, known as noise zones, for land use planning purposes:

- **Noise Zone 1:** Less than 65 dB DNL; low or no noise impact.
- **Noise Zone 2:** 65 to 75 dB DNL; moderate impact, where some land use controls are recommended.
- **Noise Zone 3:** Greater than 75 dB DNL; most severely impacted area, where the greatest degree of land use control is recommended.

Land use planning accomplishments and further recommendations pertaining to these noise zones are discussed in Section 7, Programs and Initiatives. Calculated noise contours do not represent exact measurements and are discussed further in Section 4.4, Noise Abatement and Complaints. Noise levels inside a contour may be similar to those outside a contour line. Where the contour lines are close together, the change in noise level is greater. Where the lines are far apart, the change in noise level is gradual.

4.2 AIRFIELD NOISE SOURCES AND NOISE MODELING

This Addendum presents the existing noise contours at NAS Oceana and NALF Fentress. NOISEMAP, the DOD-approved computer model that projects noise impacts around military airfields, was used to develop the noise contours. The main sources of noise at an airfield are maintenance run-ups and flight operations. NOISEMAP incorporates the following types of data on these maintenance run-ups and flight operations to generate DNL noise contours:

- Type of operation (e.g., arrival, departure, and pattern);
- Number of operations per day;
- Time of day;
- Flight track;
- Aircraft model and type;
- Aircraft power settings, speeds, and altitudes;

- Maximum sound levels;
- Operation duration and flight profiles;
- Number and duration of pre-flight and maintenance run-ups;
- Terrain (surface type); and
- Environmental data (temperature and humidity).

The contours generally follow the flight paths of aircraft. The DNL noise contours for NAS Oceana and NALF Fentress are as presented in the 2005 JLUS and are provided in Section 4.3, AICUZ Noise Contours.

4.3 AICUZ NOISE CONTOURS

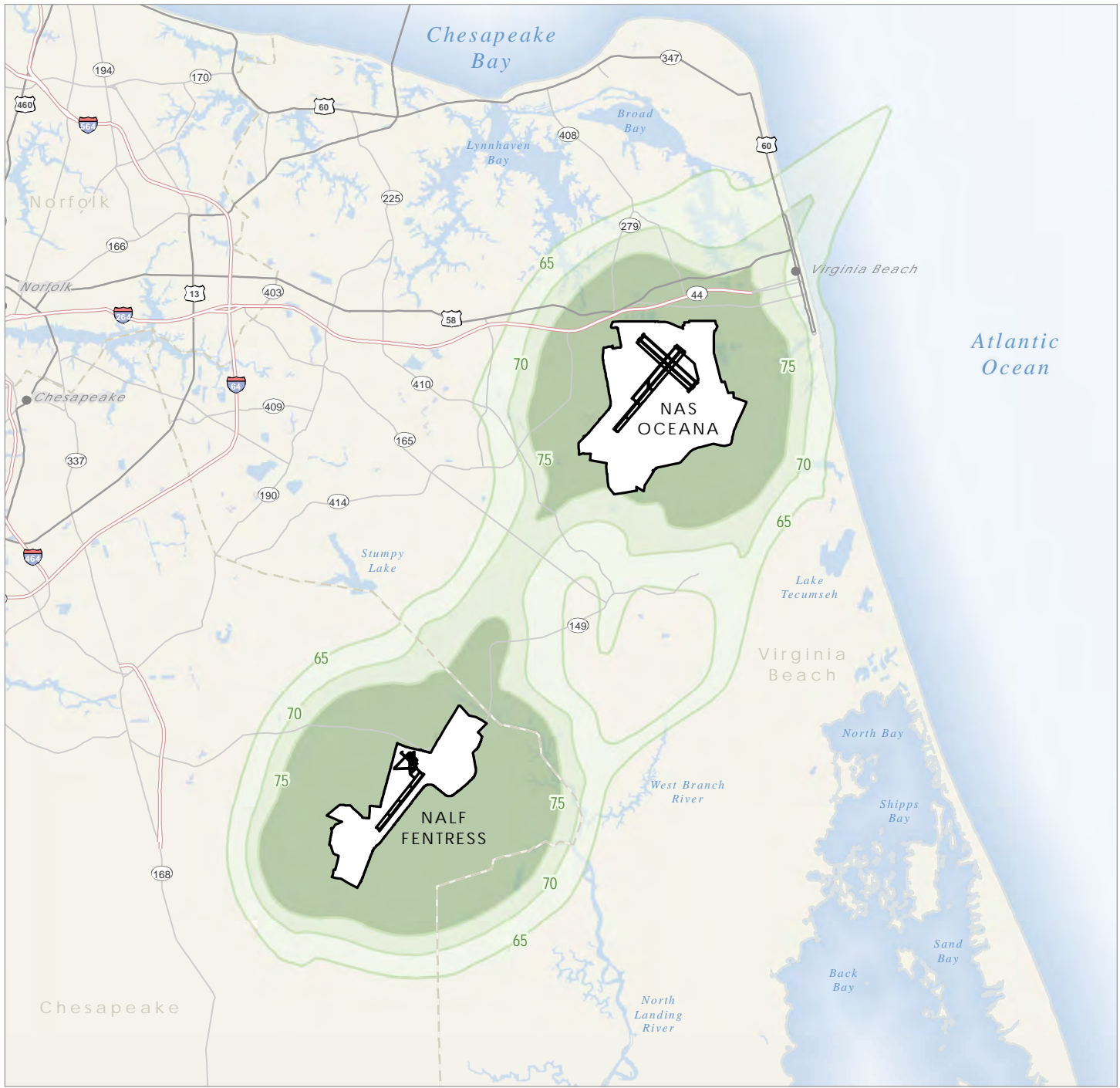
Noise contours provide NAS Oceana, local community planning organizations, and the general public with maps of the modeled noise related impacts of aircraft operations. Noise contours, when overlaid with local land uses, create a useful tool to help understand and assess any incompatible land uses and plan future development around the air station and NALF Fentress. The combined AICUZ noise contours for NAS Oceana and NALF Fentress are presented in this section, along with a description of the noise environment for each airfield.

Figure 4-1 shows the combined AICUZ noise contours for NAS Oceana and NALF Fentress. Figures 4-2 and 4-3 show closer views of the AICUZ noise contours for each air station. The noise contours follow the dominant flight tracks for arrivals, departures, and patterns at, and between, the two airfields and extend outward from those paths. The highest noise levels are concentrated on the airfields, along the runways.

Noise contours provide a military installation, local planning organizations, and the public with a graphical representation of potential noise related impacts associated with aircraft operations.

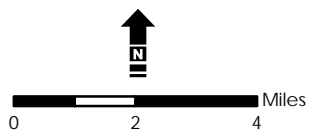
These contours can assist in locating, identifying, and addressing any incompatible land uses and assist in plans for future development.

Figure 4-1
Noise Contours
NAS Oceana and NALF Fentress
Virginia



Legend

- City
- State Boundary
- Interstate
- Highway
- Other Major Road
- ▭ Military Installation Boundary
- Waterbody
- 2005 Noise Contour
- 65 - 70 (dB)
- 70 - 75 (dB)
- > 75 (dB)



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

Naval Air Station Oceana and Naval Auxiliary Landing Field Fentress

At NAS Oceana, the contours form a point to the northeast of the airfield, which results from aircraft departures to and arrivals from offshore operating areas. At NALF Fentress, the noise contours follow the dominant “racetrack” pattern and extend outward from that pattern. The noise contours for NAS Oceana and NALF Fentress meet along the flight path used by aircraft transiting between the two installations. Because of the proximity of the two airfields, aircraft transiting between NAS Oceana and NALF Fentress fly at low altitudes, generating noise levels above 65 dB DNL on the ground beneath and near this flight path. Interfacility flights make up a significant portion of both airfields’ operations; therefore, the noise contours for each airfield cannot be entirely separated.

Table 4-1 shows the number of acres of off-station land within each of the noise contours. The table also shows the number of acres in the noise contours in Virginia Beach and Chesapeake. The northeast end of NALF Fentress’s runway is located approximately 2 miles from the Chesapeake-Virginia Beach city line. The noise contours associated with the racetrack pattern extend into the western portion of Virginia Beach. Therefore, the number of acres in the noise contours presented for Virginia Beach includes land that is in the noise contours associated with NALF Fentress.

Table 4-1. Areas within Noise Zones (DNL), NAS Oceana and NALF Fentress¹

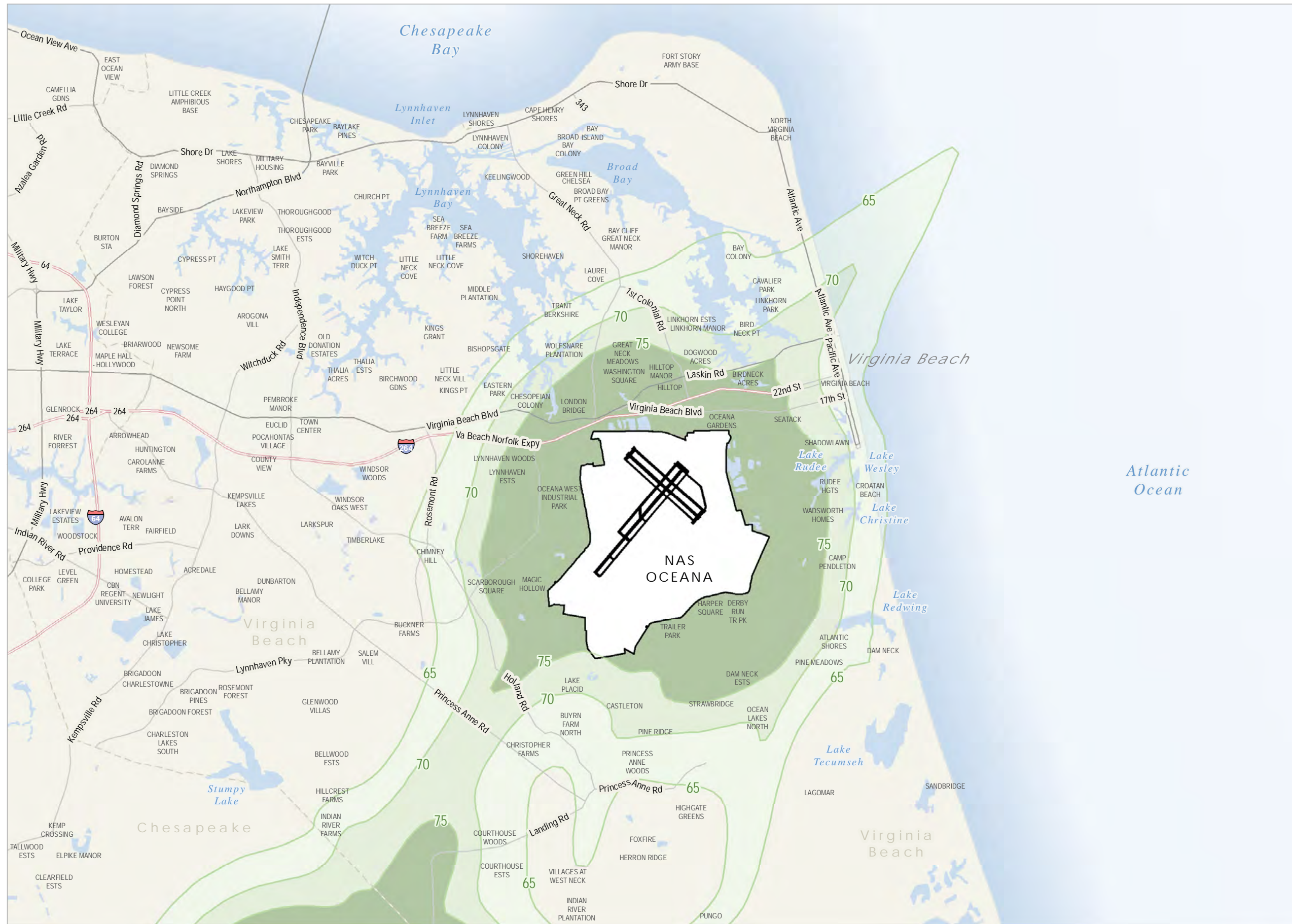
Noise Zone	Total Off Station Land Area in the AICUZ Noise Zones (acres)	Off Station Land Area in the AICUZ Noise Zones (acres), Virginia Beach	Off Station Land Area in the AICUZ Noise Zones (acres), Chesapeake
65-70 DNL	18,487	14,704	3,783
70-75 DNL	13,178	10,162	3,016
75+ DNL	26,523	13,032	13,491
TOTAL AREA	58,188	37,898	20,290

Source: Adapted from the 2005 Hampton Roads JLUS

Note:

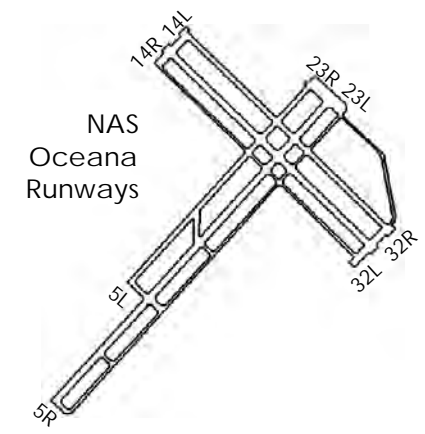
¹ Land areas do not include water or military base property.

Figure 4-2
Noise Contours
NAS Oceana
Virginia Beach, Virginia



Legend

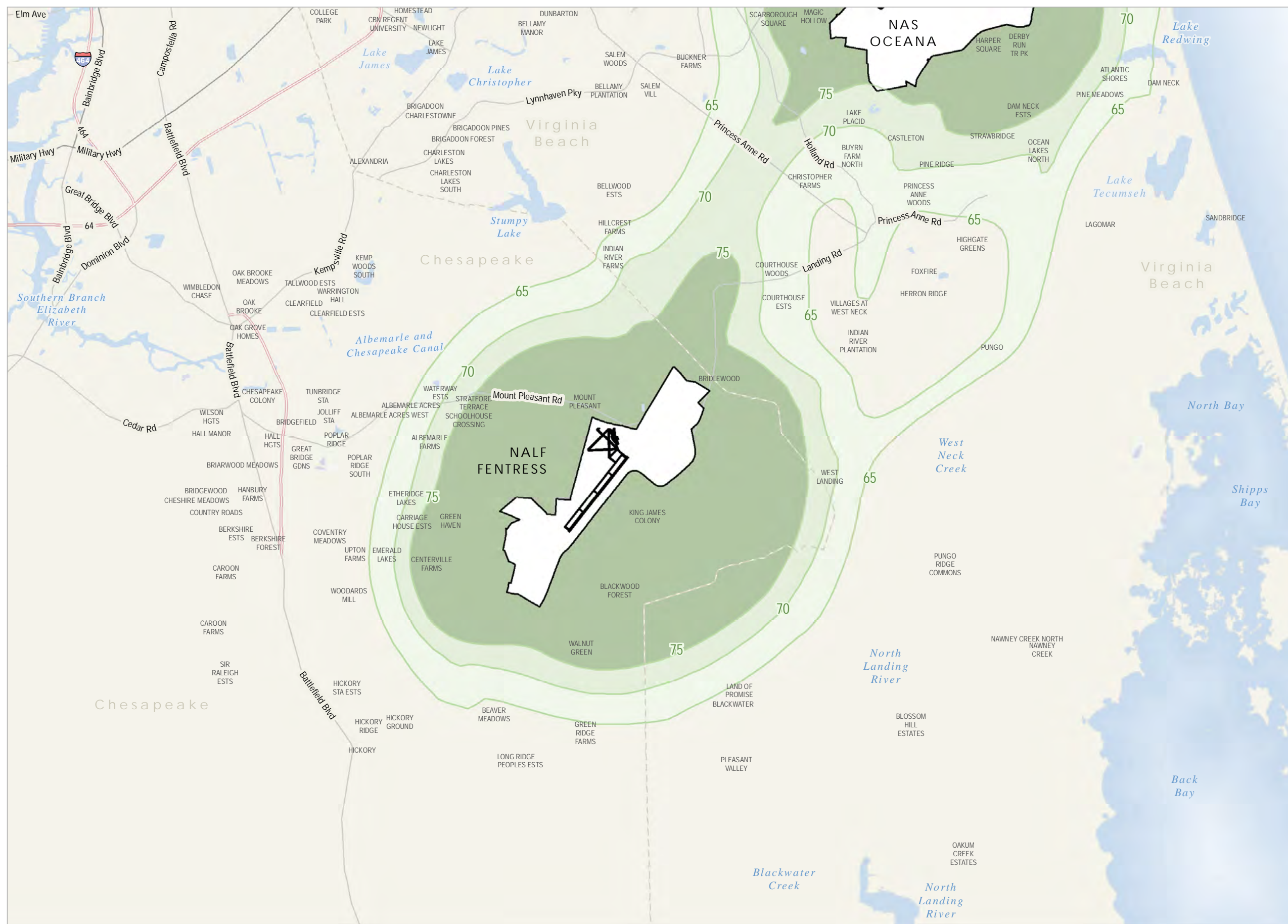
- COMMUNITY
- City
- Interstate
- Highway
- Other Major Road
- ▭ Military Installation Boundary
- ▭ Waterbody
- ▭ City Boundary
- DNL Noise Contour
- 65 - 70 (dB)
- 70 - 75 (dB)
- > 75 (dB)



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

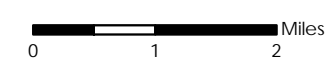
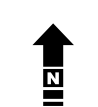
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Figure 4-3
Noise Contours
NALF Fentress
Chesapeake, Virginia



Legend

- COMMUNITY
- City
- Interstate
- Highway
- Other Major Road
- ▭ Military Installation Boundary
- ▭ Waterbody
- ▭ City Boundary
- DNL Noise Contour
 - 65 - 70 (dB)
 - 70 - 75 (dB)
 - > 75 (dB)



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

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4.4 NOISE ABATEMENT AND COMPLAINTS



Impacts from noise associated with NAS Oceana and NALF Fentress occur in areas off-station, with areas in closer proximity to aircraft operations experiencing greater impacts. NAS Oceana is aware of land uses surrounding its airfield and NALF Fentress, and the installation takes precautions to reduce noise impacts to sensitive areas. However, given the training requirements and high level of activity on the installation, noise complaints are occasionally filed with the station. Representative noise abatement procedures instituted by NAS Oceana and noise complaints are discussed below.



4.4.1 Noise Abatement

NAS Oceana tries to minimize aircraft noise in the community, also called noise abatement or avoidance. All naval aviators are required to comply with noise abatement procedures. Noise abatement procedures also apply to engine run-up and maintenance operations conducted on station and are written into the Naval Air Station Oceana Air Operations Manual (Navy 2010).

The Navy wants to be a good neighbor. To this end, the NAS Oceana leadership periodically examines ways to reduce noise concerns. Noise abatement procedures that are put into practice must be safe, maintain the Navy's flight mission, and must not reduce aircraft noise in one community by transferring it to another. Some representative noise abatement procedures at NAS Oceana and NALF Fentress are briefly discussed below:

- Flight crews (pilots and ground maintenance) are briefed on noise abatement procedures and noise sensitive areas detailed in Inflight Guides.
- Flight crews are briefed before each flight on the existing patterns, which are designed to minimize disruption to the communities, and the need to maintain the patterns.
- The southeast pattern at NALF Fentress has been widened to avoid overflight of approximately 200 homes that are located near the airfield off Blackwater Road.
- During FCLP operations, a tighter landing pattern is emphasized.
- Inbound aircraft are not normally permitted to enter the break between 10:00 p.m. and 7:00 a.m. (1:00 p.m. on Sundays). During this timeframe, aircraft are permitted to make one approach to a final landing and no practice landings or practice instrument approaches are permitted.
- When traveling at speeds in excess of 250 knots below 10,000 feet, pilots limit their speed to the minimum safe airspeed required for that particular operation.
- Pilots are required to secure afterburners no later than the field boundary. Afterburners are not authorized outside the field boundary until established in a designated working area except for safety of flight.
- When Runway 32 is active during VFR conditions, aircraft executing a right turn on departure begin the turn prior to the upwind runway numbers. During instrument flight rules (IFR) conditions, aircraft

complete right turns within 2 NM to ensure separation from Norfolk International airspace.

- Violations of noise abatement procedures are reported in writing to the squadron Commanding Officer (CO) for corrective action. Copies of these reports and the corrective actions taken are then forwarded to the appropriate Wing Commander.
- The hush house is used approximately 85 percent of the time for aircraft/engine maintenance activities. High-power turns are not allowed to occur outside between the hours of 10:00 p.m. and 7:00 a.m.
- A tactical air navigation system (TACAN) was installed at NALF Fentress to provide aircraft with the location of the center of the airfield and keep their operations closer to airfield.
- On the mid-downwind portion of the FCLP pattern at NALF Fentress, a light beacon was installed for pilots to use as a guide to stay closer to the airfield.
- Hold-down altitudes were established as noise reduction measures for both northerly and southerly departures from NAS Oceana. The Navy studied and identified altitudes for specific departures where aircraft level off their climb until they are clear of populated areas.

Those representative noise abatement procedures listed above, as with any procedures, are evaluated on a continuing basis and are subject to modification based upon evolving conditions at the installations.

4.4.2 Noise Complaints

NAS Oceana personnel are active members in the communities surrounding the airfields and are continuously reaching out to stakeholders to establish open communication and to resolve noise issues. The origin and nature of noise complaints within the geographic region is often a tangible barometer of the success or failure of noise abatement procedures. Complaints can arise outside the areas depicted by noise contours. This is frequently due to a single event that is unusual, such as when an aircraft flies over an area not commonly

overflown. In general, individual response to noise levels varies and is influenced by factors including:

- The activity an individual was engaged in at the time of the noise event;
- The individual's general sensitivity to noise;
- The time of day or night;
- The length of time an individual is exposed to a noise;
- The predictability of noise; and
- Weather conditions.

Noise contours and land use recommendations are based on average annoyance responses of a population, but some people have greater noise sensitivity than others. Generally, a small increase in noise level will not be noticeable but, as the change in noise level increases, individual perception is greater, as shown in Table 4-2.

Table 4-2. Subjective Responses to Noise

Change	Change in Perceived Loudness
1 decibel	Requires close attention to notice
3 decibels	Barely noticeable
5 decibels	Quite noticeable
10 decibels	Twice or half as loud
20 decibels	Fourfold change

If there are concerns or complaints about aircraft noise in the area, citizens are encouraged to contact the NAS Oceana noise complaints phone line to officially log their complaints. Information regarding the noise complaint phone line is provided to the community through the media and the NAS Oceana web site. The noise complaint process is outlined on Figure 4-4.

Noise Complaints

**NAS Oceana
Noise Complaint
Phone Line**

(757) 433-2162

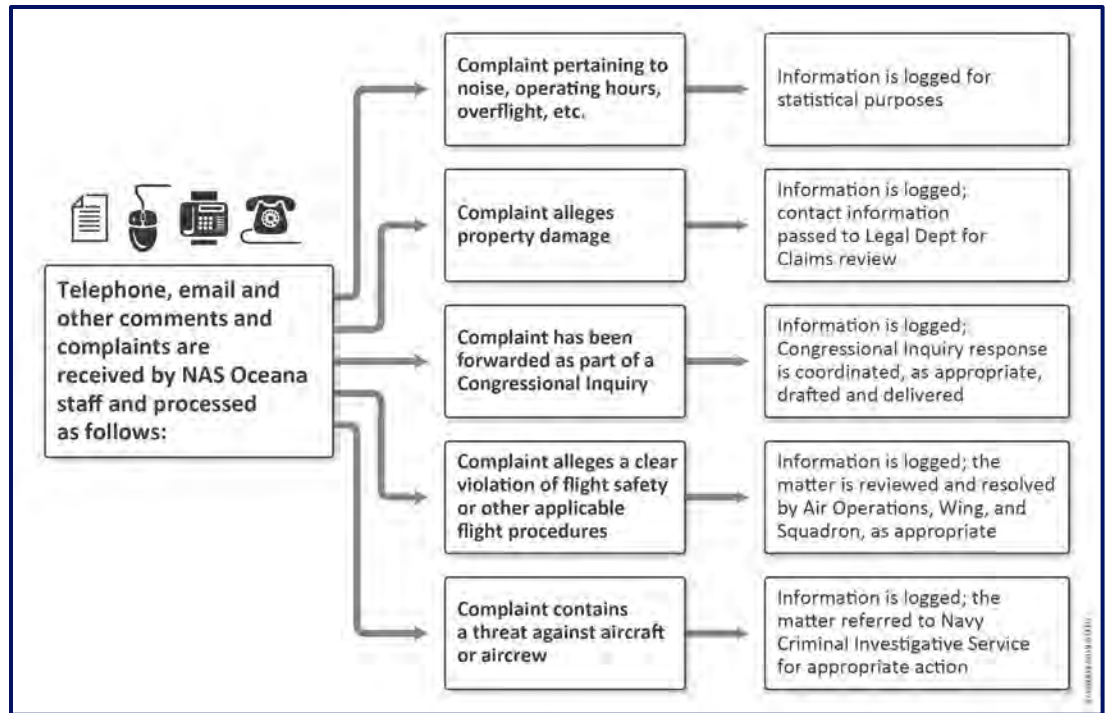


Figure 4-4. Noise Complaint Procedures

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5

AIRFIELD SAFETY

- 5.1 Flight Safety and Aircraft Mishaps
- 5.2 Accident Potential Zones

Safety is paramount to the Navy, and airfield safety is a shared responsibility between the Navy and the surrounding communities, each playing a vital role in its success. This Addendum identifies issues of flight safety concern and areas of accident potential around NAS Oceana and NALF Fentress. Cooperation between the Navy and the community results in strategic and effective land use planning and development around naval airfields.

Identifying safety concerns assists the community in developing land uses compatible with airfield operations. These issues include hazards around the airfield that obstruct or interfere with aircraft arrivals and departures, pilot vision, communications, or aircraft electronics, and areas of accident potential. While the likelihood of an aircraft mishap occurring is remote, one can occur. Aircraft safety and mishaps at NAS Oceana are discussed in detail in this section.

The Navy establishes APZs based on historical data for aircraft mishaps near military airfields. This Addendum presents the existing APZs for NAS Oceana and NALF Fentress.

APZs identify probable impact areas if an accident were to occur; however, APZs **do not** predict the probability of an accident occurring.

5.1 FLIGHT SAFETY AND AIRCRAFT MISHAPS

Flight safety programs are designed to reduce the hazards that can cause aircraft mishaps; the APZs are designed to minimize the potential harm if a mishap were to occur.

5.1.1 Flight Safety

Flight safety not only includes measures for pilot safety during aircraft operations, but also for the safety of those in the community. The FAA and the military define flight safety zones (imaginary surfaces) below aircraft arrival and departure flight tracks around the airfield. Heights of structures and trees are restricted in these imaginary surfaces. The flight safety zones are designed to reduce the hazards that can cause an aircraft mishap. This section discusses hazards to flight safety that should be avoided in the airfield vicinity and measures to avoid potential pilot interferences.

Bird/Animal Aircraft Strike Hazard

Wildlife can be a significant hazard to flight operations. Birds are drawn to the open, grassy areas around airfields and to the warm pavement of the runways. Although most bird and animal strikes do not result in crashes, they can cause structural and mechanical damage to aircraft. Most bird collisions occur when the



Windshield damage from a bird strike
[Photo Credit: Forest Aviation Tours]

aircraft is at an elevation of less than 1,000 feet. Collisions by aircraft with wildlife can happen with considerable force and can cause considerable damage and even loss of aircraft. To reduce the potential of a bird/animal aircraft strike hazard (BASH), the FAA, United States Department of Agriculture, and the military recommend locating land uses that attract birds at least 10,000 feet from airfields. Land uses that attract birds and other wildlife include transfer stations, landfills, golf courses, wetlands, stormwater ponds, dredge disposal sites, and wildlife food plots. Design modifications also can be used to reduce the attractiveness of these types of land uses to birds and other wildlife.

The United States Department of Agriculture, through the Animal and Plant Health Inspection Service, Wildlife Services program, provides federal leadership for resolving conflicts between wildlife and people. The DOD has a MOU with Wildlife Services for assistance with wildlife damage issues at DOD facilities.

Electromagnetic Interference

Military aircraft are highly dependent on complex electronic systems for navigation and critical flight and mission-related functions. Consequently, care should be taken in siting any activities that create EMI. EMI is defined as any electromagnetic disturbance that interrupts, obstructs, or otherwise degrades or limits the effective performance of electronics/electrical equipment. Wind turbines may cause EMI and, depending on height and location, pose a hazard to air navigation. EMI may be caused by atmospheric phenomena, such as lightning and precipitation static, and by non-telecommunication equipment, such as vehicles and industry machinery. EMI can also moderately interfere with consumer devices, such as cell phones, FM radios, television reception, and garage door openers.

Lighting

Bright lights, either direct or reflected, in the airfield vicinity can impair a pilot's vision, especially at night. A sudden flash from a bright light causes a spot or "halo" to remain at the center of the visual field for a few seconds or more, rendering a person virtually blind. This is particularly dangerous at night when the flash can diminish the eye's adaptation to darkness. Partial recovery takes only a few minutes, but full recovery typically requires 40 to 45 minutes. Visible lasers, including low-powered legal laser pointers, are emerging as a safety concern for pilots. Visual interference with pilot performance due to lasers can result in temporary flash blindness, glare, disruptions, and distractions. These are most hazardous during critical phases of flight—landings, take-offs, and emergency maneuvers. Both Federal and Virginia law prohibit the use of lasers to interfere with aircraft operations. In June 2012, federal investigators arrested one man for repeatedly shining a green laser at passing Navy aircraft during landing practice operations at NAS Oceana. The man pled guilty to two counts of aiming a laser pointer at an aircraft and was sentenced to 18 months in prison in October 2012 (WVEC.com 2012; Associated Press 2012).

Smoke, Dust, and Steam

Industrial or agricultural sources of smoke, dust, fog, and steam in the airfield vicinity could obstruct a pilot's vision during takeoff, landing, or other periods of low-altitude flight.

Imaginary Surfaces

The Navy and FAA identify a complex series of imaginary planes and transition surfaces that define the airspace that must remain free of obstructions around an airfield. These imaginary surfaces ensure safe flight approaches, departures, and pattern operations. Obstructions include natural terrain and man-made features, such as buildings, towers, poles, wind turbines, cell towers, and other vertical obstructions to airspace navigation. Fixed-wing runways and rotary-wing runways/helipads have different imaginary surfaces. Brief descriptions of the imaginary surfaces for fixed-wing Class B runways (NAS Oceana and NALF Fentress both operate Class B runways) are provided on Figure 5-1 and in Table 5-1. In general, no aboveground structures are permitted in the primary surface or clear zones, and height restrictions apply to transitional surfaces and approach and departure surfaces. Height restrictions are more stringent as one approaches the runway and flight path.

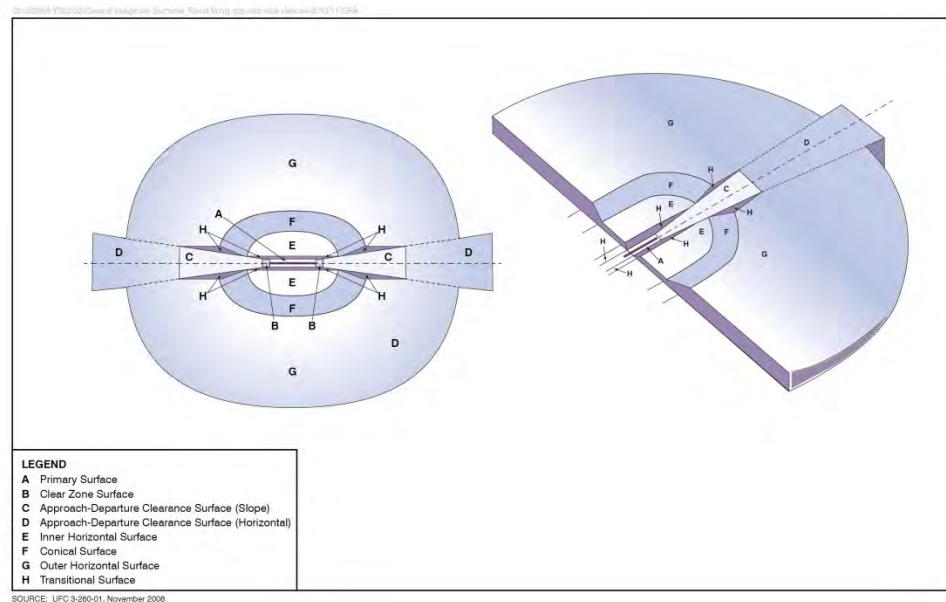


Figure 5-1. Imaginary Surfaces and Transition Planes for Class B Fixed-Wing Runways

Table 5-1. Imaginary Surfaces – Class B Fixed-Wing Runways

Planes and Surfaces	Geographical Dimensions
Primary Surface	Aligned (longitudinally) with each runway and extending 200 feet from each runway end. The width is 1,500 feet.
Clear Zone	Located immediately adjacent to the end of the runway and extending 3,000 feet beyond the end of the runway. 1,500 feet wide and flaring out to 2,284 feet wide.
Approach-Departure Clearance Surfaces	An inclined or combination inclined and horizontal plane, symmetrical about the runway centerline. The slope of the surface is 50:1 until an elevation of 500 feet and continues horizontally 50,000 feet from origination. The outer width is 16,000 feet.
Inner Horizontal Surface	An oval shaped plane 150 feet above the established airfield elevation. Constructed by scribing an arc with a radius of 7,500 feet around the centerline of the runway.
Outer Horizontal Surface	A horizontal plane located 500 feet above the established airfield elevation, extending outward from the conical surface for 30,000 feet.
Conical Surface	An inclined plane that extends from the inner horizontal surface outward and upward at a 20:1 slope and extends for 7,000 feet and to a height of 500 feet above the established airfield elevation.
Transitional Surface	An inclined plane that connects the primary surface and the approach-departure clearance surface to the inner horizontal surface, conical surface, and outer horizontal surface. These surfaces extend outward and upward at right angles to the runway centerline and the runway centerline, extended at a slope of 7:1 from the sides of the primary surface and from the sides of the approach surfaces.

Sources: NAVFAC 1982 and DOD 2008

Imaginary surfaces at NAS Oceana and NALF Fentress are depicted on Figures 5-2 and 5-3, respectively. As noted above, each runway has assigned imaginary surfaces; therefore, since NAS Oceana has four runways, imaginary surfaces are applied to each runway and the composite for all four runways is depicted on Figure 5-2. NALF Fentress has only one runway and, therefore, one set of imaginary surfaces (see Figure 5-3).

5.1.2 Aircraft Mishaps

The Navy categorizes aircraft mishaps into one of three groups—Class A, B, or C. The classification system is based on the severity of injury to individuals involved and total property damage. The most severe is a Class A mishap and the least severe is a Class C mishap. Table 5-2 summarizes the Navy mishap classifications.

Table 5-2. Naval Aircraft Mishap Classifications

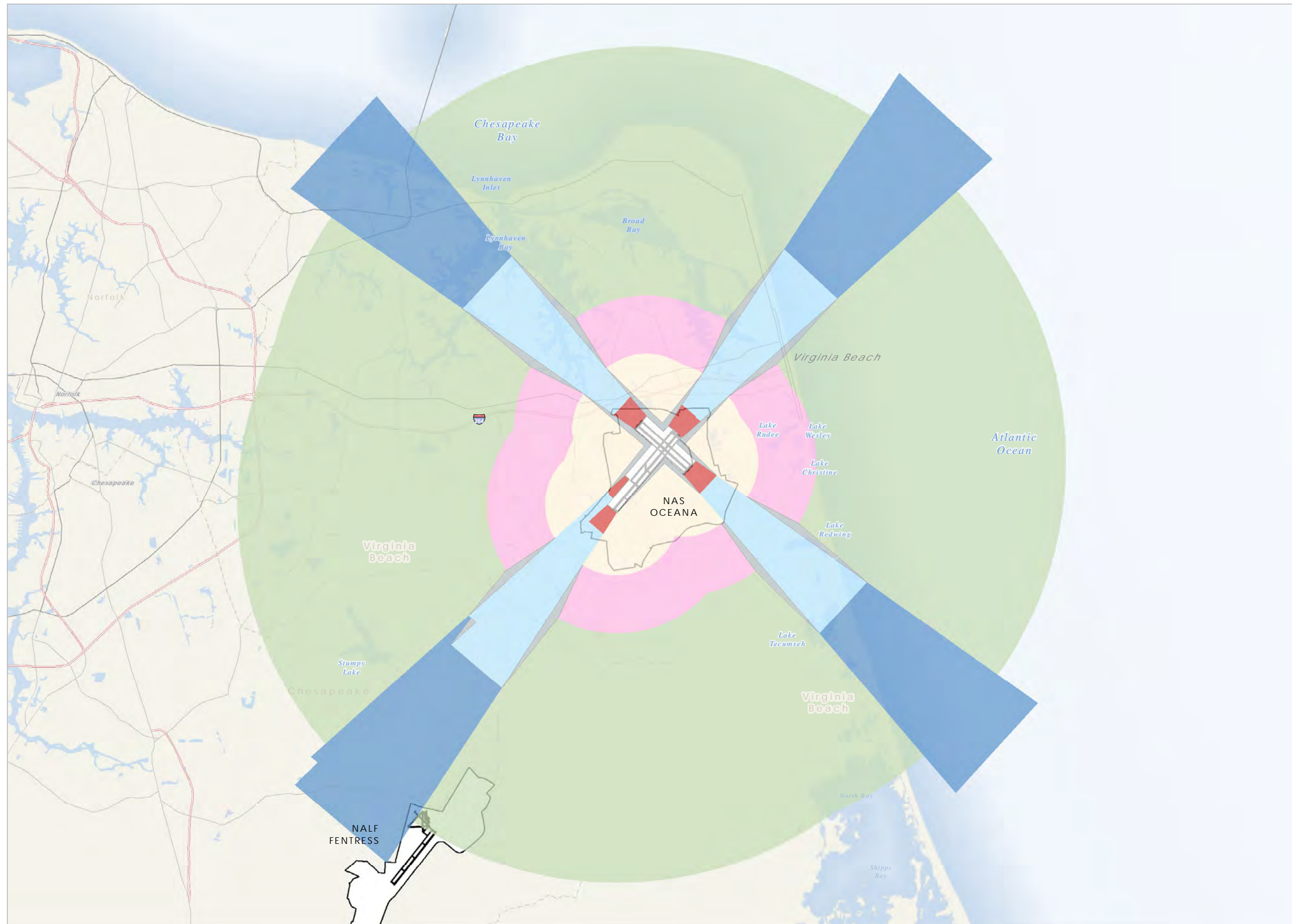
Mishap Class	Total Property Damage	Fatality/Injury
A	\$2,000,000 or more and/or aircraft destroyed	Fatality or permanent total disability
B	\$500,000 or more but less than \$2,000,000	Permanent partial disability or three or more persons hospitalized as inpatients
C	\$50,000 or more but less than \$500,000	Nonfatal injury resulting in loss of time from work beyond day/shift when injury occurred

Source: Naval Safety Center 2010

The aircraft mishap classification is met if either criteria for total property damage or fatalities/injuries are met. From 2000 to 2012, there have been two Class A mishaps at NAS Oceana and NALF Fentress. The incident at NALF Fentress was in 2001 involving an F-14 landing on the runway without landing gear deployed. In April 2012, an FA-18D Hornet taking off from NAS Oceana experienced a mechanical malfunction and crashed north of the installation in APZ II (defined in Section 5.2, Accident Potential Zones). Fortunately, there were no fatalities associated with this mishap.

The Navy partners with neighboring communities and their first responders to drill and prepare for potential emergencies related to the air station, including aircraft mishaps. The Navy and community response to the mishap in April 2012 was quick and cooperative, illustrating the effectiveness of this partnership and the preparedness measures.

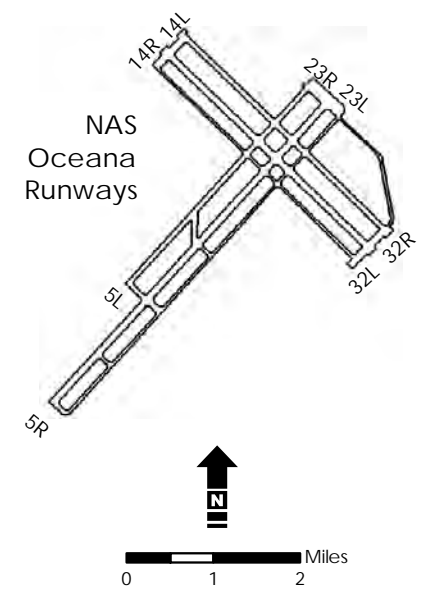
Figure 5-2
Imaginary Surfaces at
NAS Oceana
Virginia Beach, Virginia



Legend

- City
- Interstate
- Highway
- Other Major Road
- ▭ Military Installation Boundary
- ▭ Waterbody
- ▭ City Boundary
- Imaginary Surfaces**
- ▭ Clear Zone
- ▭ Primary Surface
- ▭ Zone C
- ▭ Zone D
- ▭ Zone E
- ▭ Zone F
- ▭ Zone G
- ▭ Zone H

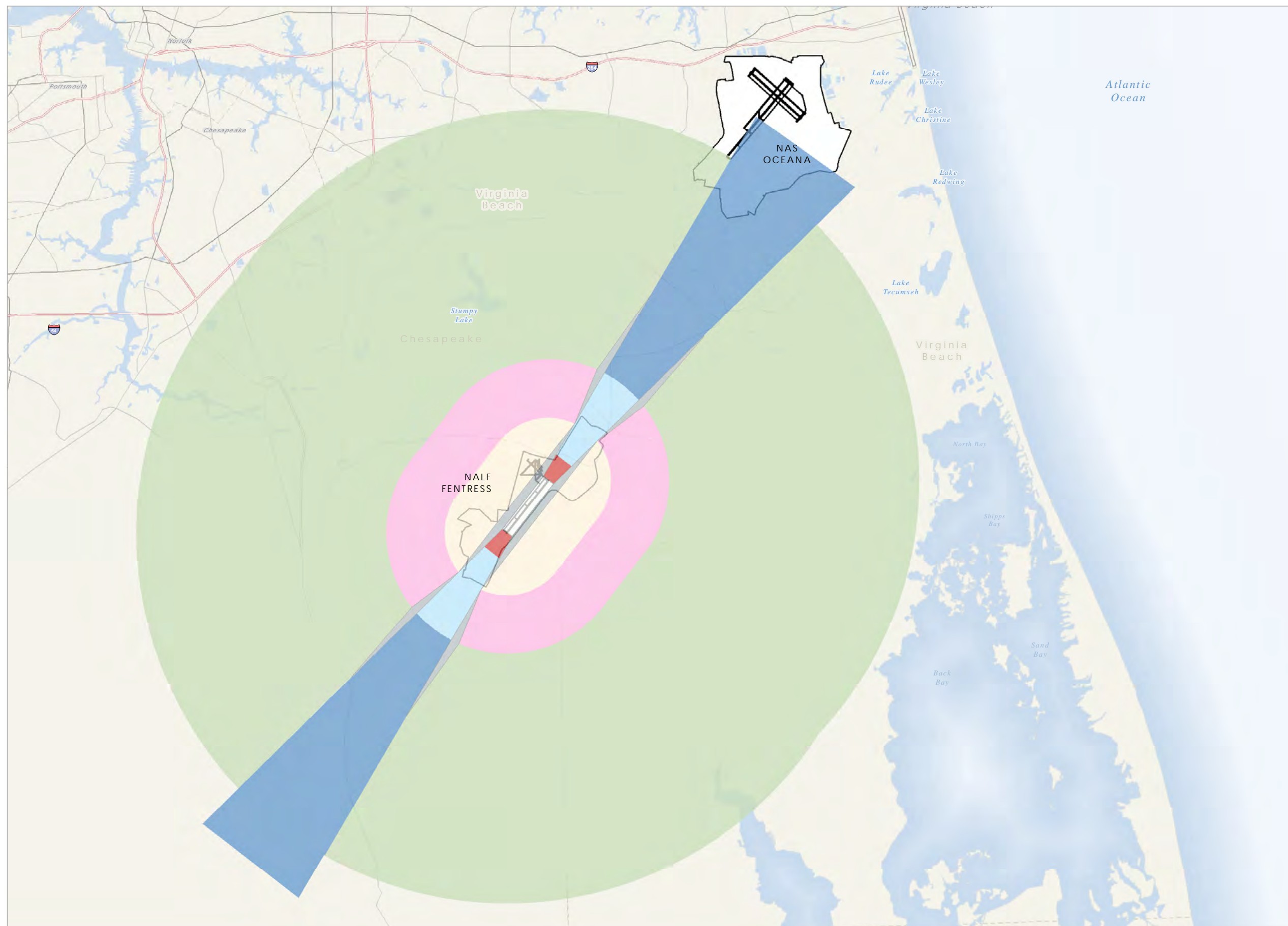
- Zones:
- A Primary Surface
 - B Clear Zone Surface
 - C Approach-Departure Clearance Surface (slope)
 - D Approach-Departure Clearance Surface (horizontal)
 - E Inner Horizontal Surface
 - F Conical Surface
 - G Outer Horizontal Surface
 - H Transitional Surface



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

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Figure 5-3
Imaginary Surfaces at
NALF Fentress
Chesapeake, Virginia



- Legend
- City
 - Interstate
 - Highway
 - Other Major Road
 - ▭ Military Installation Boundary
 - ▭ Waterbody
 - ▭ City Boundary
- Imaginary Surfaces
- ▭ Clear Zone
 - ▭ Primary Surface
 - ▭ Zone C
 - ▭ Zone D
 - ▭ Zone E
 - ▭ Zone F
 - ▭ Zone G
 - ▭ Zone H

- Zones:
- A Primary Surface
 - B Clear Zone Surface
 - C Approach-Departure Clearance Surface (slope)
 - D Approach-Departure Clearance Surface (horizontal)
 - E Inner Horizontal Surface
 - F Conical Surface
 - G Outer Horizontal Surface
 - H Transitional Surface



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

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The Virginia Beach Fire Department responding to the April 2012 FA-18D Hornet mishap

5.2 ACCIDENT POTENTIAL ZONES

In the 1970s and 1980s the military conducted studies of historic accident and operations data throughout the military. The studies showed that most aircraft mishaps occur on or near the runway, diminishing in likelihood with distance from the runway. Based on the study, the DOD has identified APZs as areas where an aircraft mishap is most likely to occur if a mishap was to take place. APZs are not predictors of accidents or accident frequency.

APZs follow departure, arrival, and pattern flight tracks. They are based upon analysis of historical data and are designed to minimize the potential harm if a mishap does occur by limiting activities in the designated APZ areas. APZs are used by the military and local planning agencies to ensure compatible development in close proximity to runway ends and slightly beyond. Although the likelihood of an accident is remote, AICUZ guidelines recommend that certain land uses that concentrate large numbers of people, such as apartments, churches, and schools, be avoided within the APZs.

The Navy recommends that land uses with a high concentration of people (apartments, churches, schools) be located outside APZs.

There are three different types of APZs—the clear zone, APZ I, and APZ II. APZs are, in part, based on the number of operations conducted at the airfield—more specifically, the number of operations conducted for specific flight tracks.

All runways at NAS Oceana and NALF Fentress are classified as Class B runways.

All runways at NAS Oceana and NALF Fentress are classified as Class B runways. The components of standard APZs for Class B runways are defined in the AICUZ Instruction as follows (see Figure 5-4):

- **Clear Zone.** The clear zone is a trapezoidal area lying immediately beyond the end of the runway and outward along the extended runway centerline for a distance of 3,000 feet. The clear zone measures 1,500 feet in width at the runway threshold and 2,284 feet in width at the outer edge. A clear zone is required for all active runways and should remain undeveloped.
- **APZ I.** APZ I is the area beyond the clear zone. APZ I is provided under flight tracks that experience 5,000 or more annual operations (departures or approaches, but not both combined). APZ I is typically 3,000 feet in width and 5,000 feet in length and may be rectangular or curved to conform to the shape of the predominant flight track.
- **APZ II.** APZ II is the area beyond APZ I. APZ II is typically 3,000 feet in width by 7,000 feet in length and, as with APZ I, may be curved to correspond with the predominant flight track.

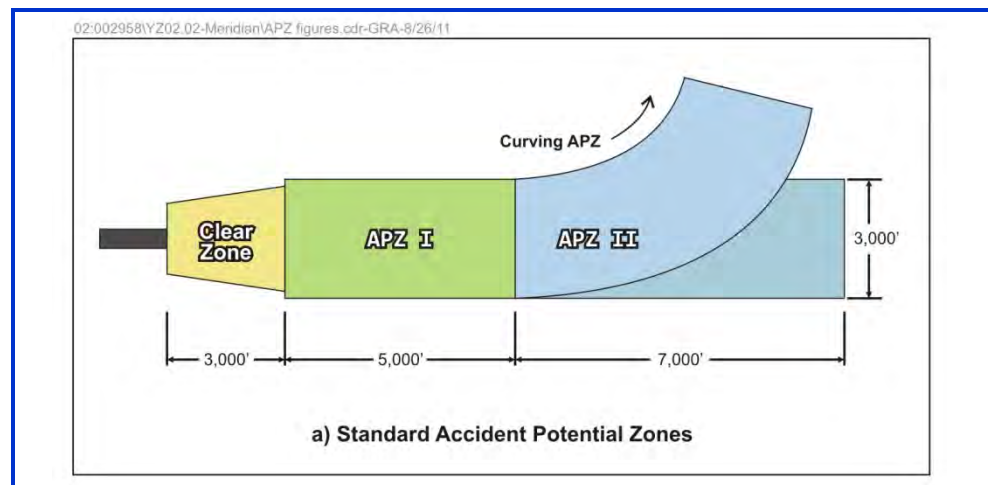


Figure 5-4. Accident Potential Zones for Class B Runways

An accident is more likely to occur in APZ I than in APZ II, and is more likely to occur in the clear zone than in APZ I or APZ II. APZs extend from the end of the runway, but apply to the predominant arrival and departure flight tracks used by the aircraft. Therefore, if an airfield has more than one predominant flight track to or from the runway, APZs can extend in the direction of each flight track, as shown on Figure 5-4.

Within the clear zone, most uses are incompatible with military aircraft operations. For this reason, the Navy's policy, where possible, is to acquire real property interests in land within the clear zone to ensure that incompatible development does not occur. Within APZ I and APZ II, a variety of land uses are compatible; however, people-intensive uses (e.g., schools, apartments, etc.) should be restricted because of the greater risk in these areas. Existing land uses, compatibility and accomplishments related to land use in the APZs for each airfield are provided and discussed in Section 6, Land Use Analysis, and Section 7, Programs and Initiatives.

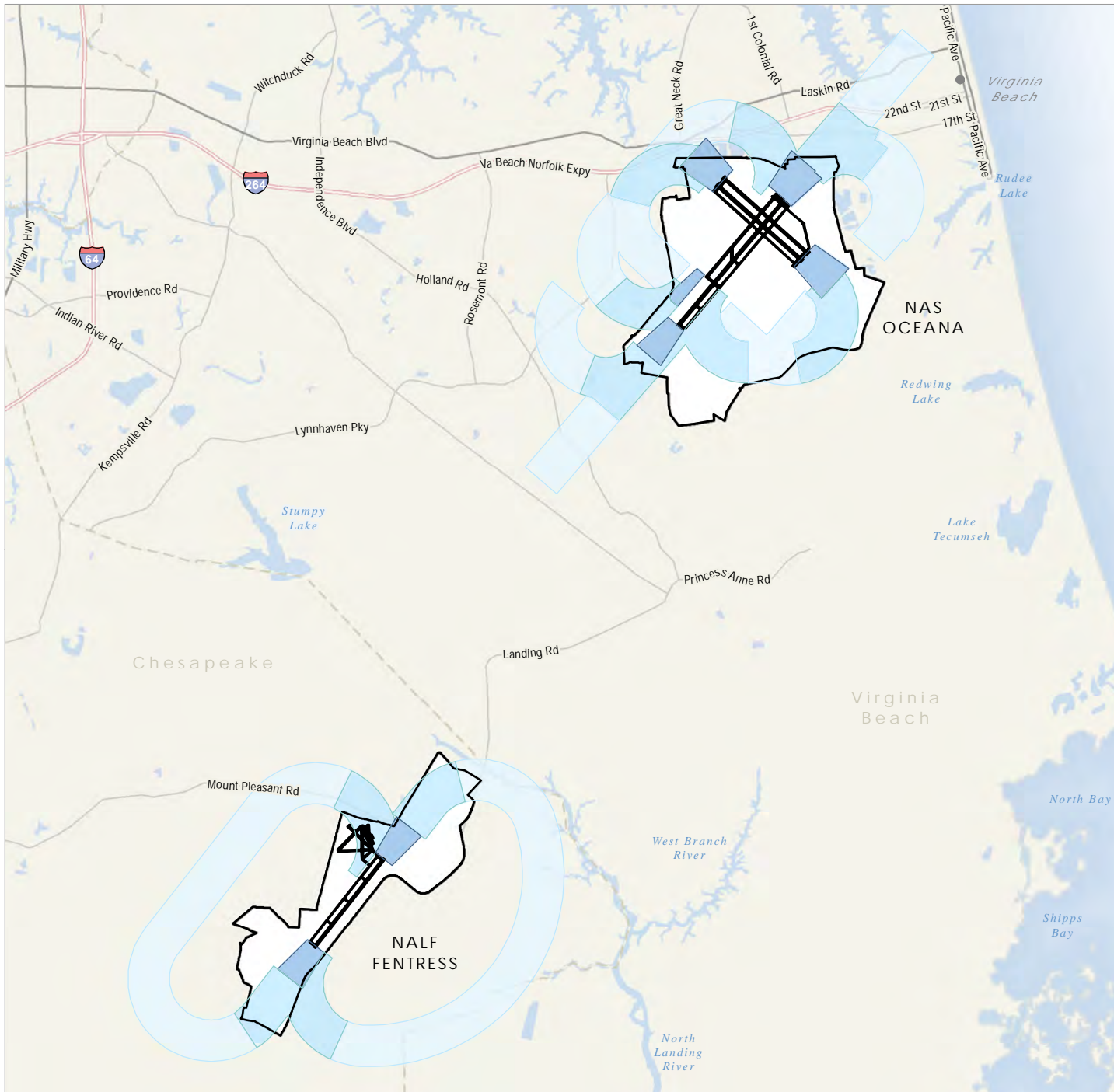
The APZs presented in this Addendum are reflective of the APZs presented in the 2005 JLUS. Figure 5-5 illustrates the AICUZ APZs for NAS Oceana and NALF Fentress. The APZs represent a reasonable reflection of each airfield's mission as well as dominant flight tracks currently flown. Straight-in and curved APZs are designated on NAS Oceana's calm-wind runways, Runways 5R/23L and 5L/23R, to follow the predominant flight tracks used during arrivals and departures. APZs I/II are also designated on Runways 14R/32L and 14L/32R, which are used for FCLP operations. Closed-loop APZs are warranted on Runway 5/23 at NALF Fentress because of the number of annual FCLP operations.

AICUZ guidelines recommend that all clear zones are located within the installation boundary. Approximately 40 acres of clear zone areas at NAS Oceana and 11 acres of clear zone areas at NALF Fentress are located off station (see Figures 5-6 and 5-7, respectively). Development in these clear zone areas is controlled by restrictive easements owned by the Navy. Table 5-3 shows the total off station land area in the cities of Virginia Beach and Chesapeake within the APZs at each airfield.

Table 5-3. Land Area within Clear Zones and Accident Potential Zones for NAS Oceana and NALF Fentress

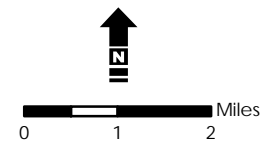
APZ Zone	Total Off Station Land Area (acres)	Off Station Land Area, Virginia Beach (acres)	Off Station Land Area, Chesapeake (acres)
NAS Oceana			
Clear Zone	40.36	40.36	-
APZ I	1,816.78	1,816.78	-
APZ II	3,193.55	3,193.55	-
NAS Oceana APZ Total Area	5,050.69	5,050.69	-
NALF Fentress			
Clear Zone	11.03	-	11.03
APZ I	663.06	-	663.06
APZ II	4,283.24	470.74	3,812.50
NALF Fentress APZ Total Area	4,957.33	470.74	4,486.59

Figure 5-5
Accident Potential Zones (APZs)
NAS Oceana and NALF Fentress
Virginia



Legend

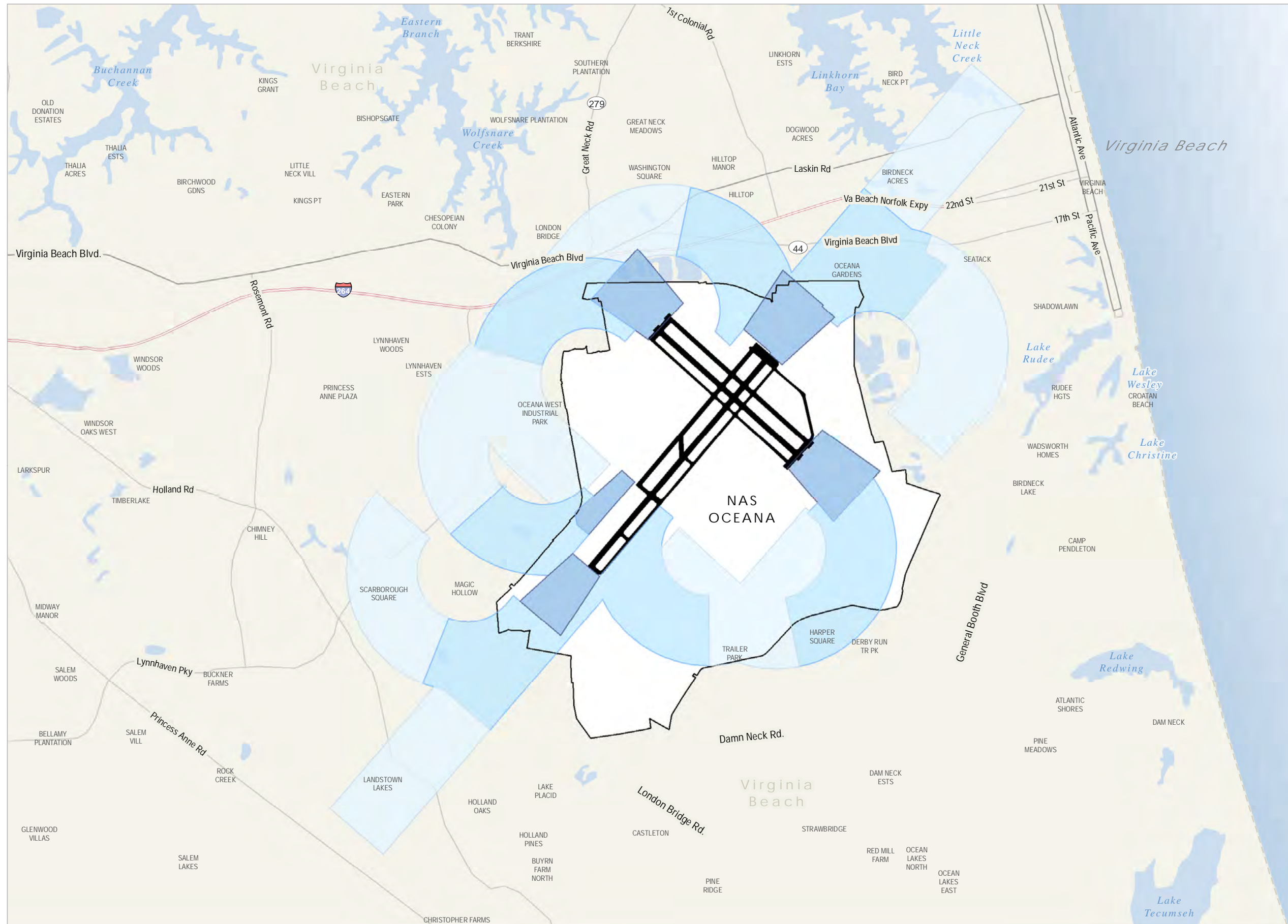
- State Boundary
- Interstate
- Highway
- Other Major Road
- Military Installation Boundary
- Waterbody
- Accident Potential Zone (APZ)
 - Clear Zone
 - APZ I
 - APZ II



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

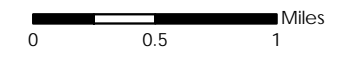
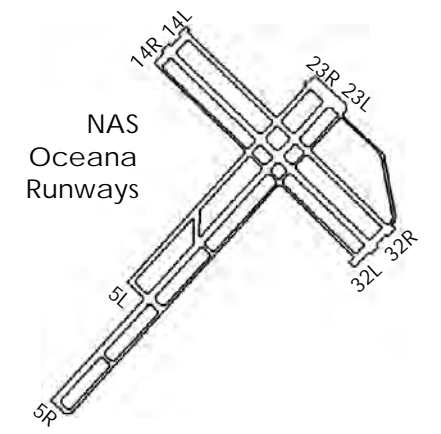
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Figure 5-6
Accidental Potential Zones (APZs)
NAS Oceana
Virginia Beach, Virginia



Legend

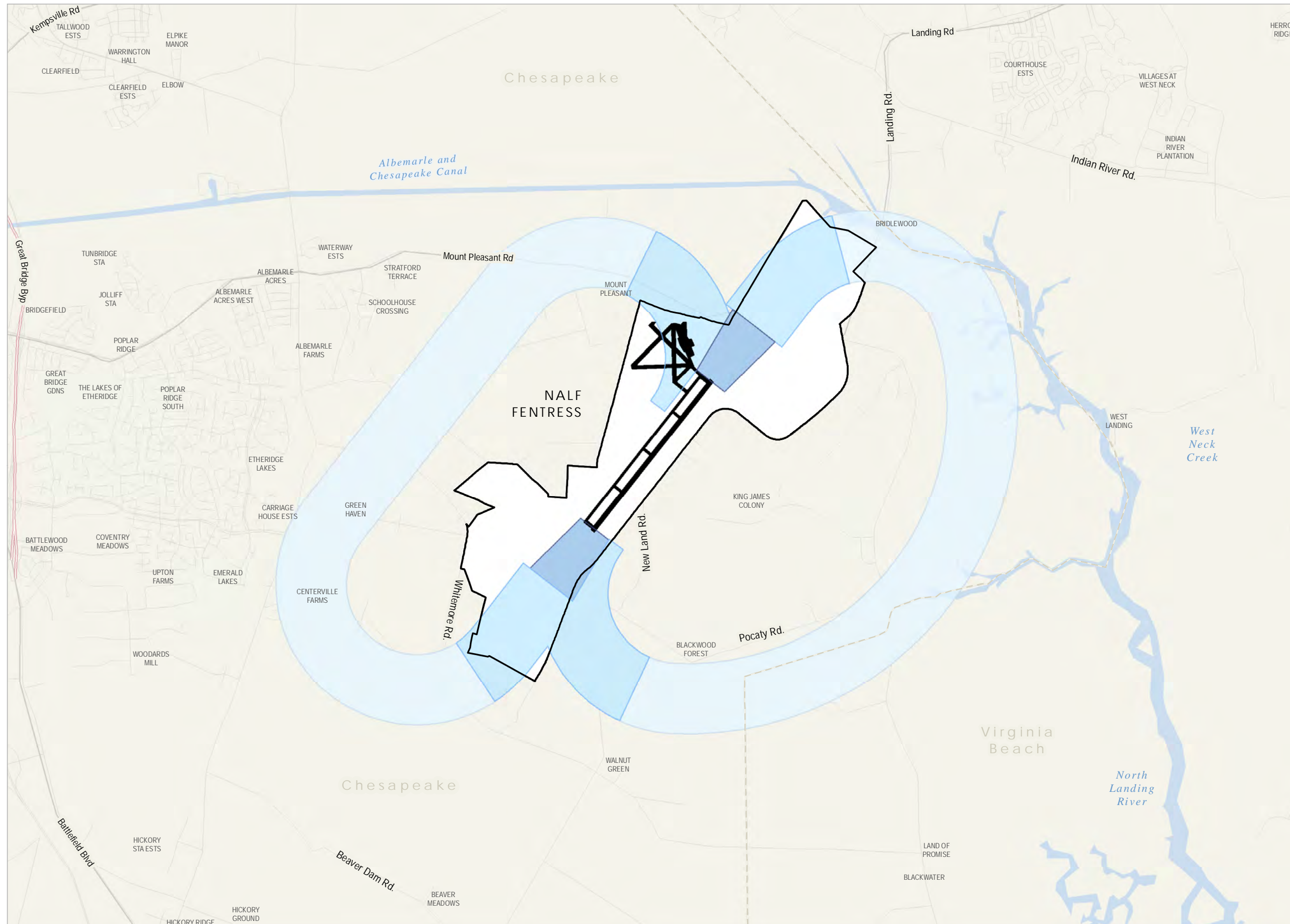
- COMMUNITY
- City
- Interstate
- Highway
- Other Major Road
- Street
- Military Installation Boundary
- Waterbody
- City Boundary
- Accident Potential Zone (APZ)
 - Clear Zone
 - APZ I
 - APZ II



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

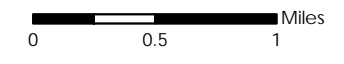
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Figure 5-7
Accidental Potential Zones (APZs)
NALF Fentress
Chesapeake, Virginia



Legend

- COMMUNITY
- Interstate
 - Highway
 - Other Major Road
 - Military Installation Boundary
 - Waterbody
 - City Boundary
- Accident Potential Zone (APZ)
- Clear Zone
 - APZ I
 - APZ II



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

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6

LAND USE ANALYSIS

- 6.1 Estimated Population within the AICUZ Footprint
- 6.2 Planning Authorities
- 6.3 Existing Land Use and Zoning
- 6.4 Land Use Compatibility
- 6.5 Future Land Use and Zoning
- 6.6 Standard Tools and Recommendations

The APZs and noise contours make up the AICUZ footprint for an air installation. The AICUZ footprint defines the minimum acceptable area within which land use controls are recommended. These recommendations are intended to protect the public health, safety, and welfare and to preserve the defense flying mission. NAS Oceana's and NALF Fentress's AICUZ footprint and related land use planning accomplishments and Navy recommendations in this Addendum are fundamental tools for continued success of compatible land use planning. The Navy and the Cities of Virginia Beach and Chesapeake have a model related to compatible planning that has been in place in the region over the last several years. The AICUZ noise zones and APZs for Oceana and Fentress have been adopted by the Cities of Virginia Beach and Chesapeake and codified in their local zoning ordinances (see Section 7.1, Initiatives Arising from the 2005 Hampton Roads Joint Land Use Study). The Virginia Beach AICUZ Overlay Zoning Ordinance and Chesapeake Fentress Airfield Overlay District are essential tools for regulating land use in the AICUZ footprint. The high priority that the Cities of Virginia Beach and Chesapeake place on managing land use compatibility in their respective AICUZ footprints is an indicator of the emphasis and importance that each municipality places on regional encroachment management.

Land use is a term that describes the management of land and the extent to which land has been modified or developed.

Control over land use and development in areas neighboring the air installation ultimately is the responsibility of local governments. The Navy, through the AICUZ Program, encourages local governments to plan for compatible development. Recognizing the need to balance community growth with the Navy's mission, the Cities of Virginia Beach and Chesapeake have partnered with the Navy to develop various initiatives to guide and control growth in the AICUZ footprint (see Section 7, Programs and Initiatives). These

initiatives have already had a positive impact through lessening the Navy's operational impacts on adjacent communities while simultaneously easing pressure on the Navy to modify necessary training requirements. This section includes an update to the estimated population within the AICUZ footprint (Section 6.1). In addition, the section provides descriptions of the local planning authorities (Section 6.2), as well as existing land uses and zoning in portions of each municipality that fall within the AICUZ footprint (Section 6.3). A discussion of land use compatibility in specific areas within the AICUZ footprint (Section 6.4) is also included as is an analysis of future land use and zoning (Section 6.5). Finally, a discussion of standard tools and recommendations for managing land uses within the AICUZ footprint is provided (Section 6.6).

The purpose of this section is to present updated land use and zoning data to highlight the results of the cooperative land use planning efforts that have occurred between the Navy and the local communities. It will also identify any future land use and development issues that could benefit from application of the successful model currently in place and ensure long-term land use compatibility with the Navy's operational mission.

6.1 ESTIMATED POPULATION WITHIN THE AICUZ FOOTPRINT

The Hampton Roads region, specifically areas within the cities of Virginia Beach and Chesapeake, experienced significant increases in residential development over the past several decades (see Section 2.4.2, Population Growth). Using existing AICUZ noise zones and APZs, along with 2010 U.S. Census Bureau data, the population within the AICUZ footprint for NAS Oceana and NALF Fentress was estimated.

The AICUZ footprint considered for this population estimate is the greater than 65 dB DNL noise zone, which contains all other noise zones and the APZs associated with NAS Oceana and NALF Fentress. The 65 dB DNL noise contour was overlaid on the 2010 U.S. Census block-level data set. If the census block was wholly contained within the 65 dB DNL noise contour, then the entire 2010 population associated with that block was considered within the AICUZ

footprint. If the census block was partially contained within the 65 dB DNL noise contour, then the percent of the land area within the noise contour was applied to the 2010 population associated with that block. The sum of these individual block-level populations resulted in an overall estimate of 153,320 individuals living within the AICUZ footprint (see Table 6-1). Compared to the populations of the cities of Virginia Beach and Chesapeake, this number represents approximately 23 percent of the total population.

Table 6-1. Population Estimate and Area Impact for AICUZ Noise Contours at NAS Oceana and NALF Fentress (2010)

DNL Noise Zone	Virginia Beach		Chesapeake		Total	
	Acres	Population	Acres	Population	Acres	Population
65 to 70 dB DNL	14,704	53,006	3,783	4,779	18,487	57,785
70 to 75 dB DNL	10,162	42,329	3,016	1,441	13,178	43,770
Greater than 75 dB DNL	13,032	48,642	13,491	3,122	26,523	51,764
Total	37,898	143,978	20,290	9,342	58,188	153,320

Notes: Figures may not sum exactly due to rounding. The acreages presented by municipality are derived from those presented in the 2005 Hampton Roads JLUS, with the removal of water and military lands.

6.2 PLANNING AUTHORITIES

Development of lands outside of NAS Oceana and NALF Fentress is guided by local and regional land use planning and dictated by local ordinances and regulations. The land use ordinances regulating use of off-installation property within the AICUZ footprint are under the jurisdiction of the Cities of Virginia Beach and Chesapeake. However, the regional land use recommendations of the Hampton Roads Planning District Commission (HRPDC) also can influence development around the airfields. The land use planning programs, policies, and regulations of the Cities of Virginia Beach and Chesapeake and the HRPDC are broadly examined in this section. Discussion of specific land use policies and regulations affecting off-installation properties within the AICUZ footprint is provided in Section 7, Programs and Initiatives.

6.2.1 City of Virginia Beach

Land use planning for the City of Virginia Beach is the responsibility of the City Council, City Planning Commission, and Department of Planning and Community Development. The Virginia Beach City Council has authority to make final determinations on zoning and land use matters (City of Virginia Beach 2011a). The Planning Commission is an advisory commission responsible for reviewing land use and zoning matters, such as applications for changes to zoning districts, conditional use permits, and zoning ordinance or plan amendments. The Planning Commission reviews these items during its regular informal briefings and formal hearings and makes a recommendation on each item to the City Council.

The City's Planning Director and Department of Planning and Community Development support the Planning Commission by reviewing submitted applications and advising the Planning Commission if the application is consistent with the City's land use policies, plans, and ordinances (City of Virginia Beach 2011a). The City's Department of Planning and Community Development has six divisions: Comprehensive Planning, Current Planning, Development Services Center, Permits and Inspections, Environment and Sustainability Office, and Transportation Planning. The responsibilities of each division are listed in the margin.

The City of Virginia Beach's planning framework is made up of several traditional planning tools, including the City's comprehensive plan, zoning, and specific area plans and ordinances. The Comprehensive Planning Division prepares the City's comprehensive plan and special area planning studies, which lay out the City's long-term policies for guiding and managing physical growth (City of Virginia Beach 2011b). The most recent version of the plan was adopted by the City Council on December 8, 2009, and was last amended on August 28, 2012. The comprehensive plan is reviewed at least every five years (City of Virginia Beach 2011c). The policies put forward in the comprehensive plan are divided into City-wide policies and special area policies for the City's urban area, suburban area, Princess Anne Commons and Transition Area, and rural area

Comprehensive Planning:
Prepares, maintains, and administers the city's comprehensive plan and special area plans.

Current Planning:
Supports the city's planning commission and board of zoning appeals and assists members of the public in applying for changes in zoning, conditional use permits, or other variances.

Development Services Center: Coordinates, reviews, and approves all site plans and permit application materials required for development projects.

Permits and Inspections:
Enforces the Uniform Statewide Building Code and associated laws and ordinances.

Environment and Sustainability Office:
Develops community environmental programs and assists city staff in meeting environmental mandates.

Transportation Planning:
Coordinates and implements transportation projects and plans in partnership with Hampton Roads Transit and other state and local agencies.

Sources: City of Virginia Beach 2011b, 2011c, 2011d, and 2011e

(City of Virginia Beach 2011c).¹ In addition, the City has identified eight strategic growth areas, eight suburban focus areas, and three Special Economic Growth Areas (SEGAs) for focused planning efforts (see Figure 6-1). Of these, three of the strategic growth areas, three of the suburban focus areas, and all three of the SEGAs lie wholly or partially within the combined AICUZ footprint for NAS Oceana and NALF Fentress (see Figure 6-1). The comprehensive plan recognizes that limiting growth around NAS Oceana is necessary and recommends that land uses in these areas that are targeted for growth conform with the city's AICUZ ordinance (see Section 7.1, Initiatives Arising from the 2005 Hampton Roads Joint Land Use Study), Navy AICUZ provisions, and the Oceana Land Use Conformity Program, where applicable. The City has developed master plans for each of the strategic growth areas (the resort area, Lynnhaven, and Hilltop) which take into account NAS Oceana's AICUZ footprint (Sasaki et al. 2008; Urban Design Associates 2012a and 2012b).

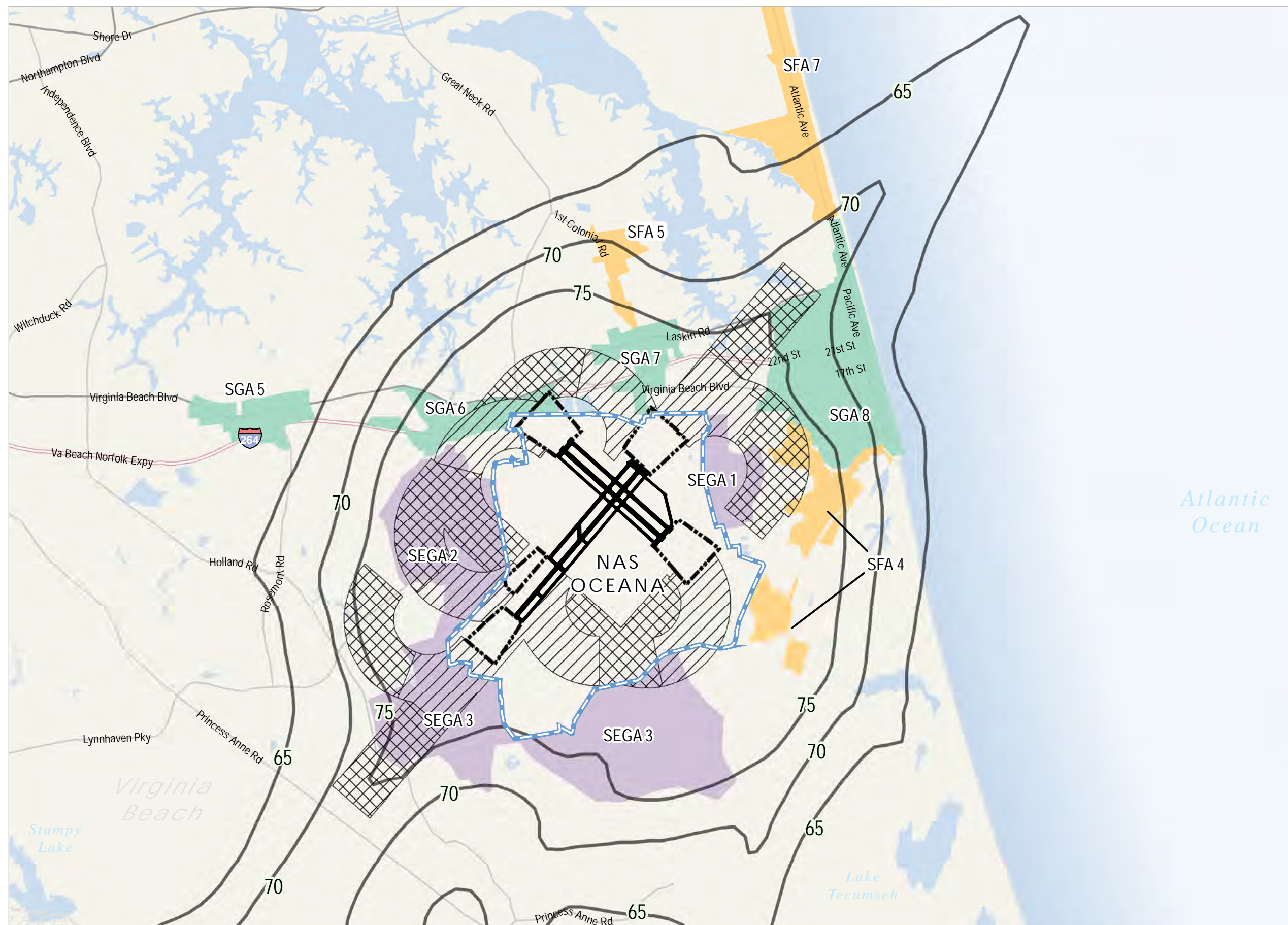
The City of Virginia Beach's zoning ordinance regulates the use and development of land in the city. As a federally-owned property, NAS Oceana is exempt from the City's zoning regulations; however, zoning regulations determine the type and density of development allowable in the airfield's AICUZ footprint and are critical tools for development that is compatible with the airfield's operations and mission. The zoning ordinance establishes overlay districts in certain neighborhoods and geographic areas to manage development in order to protect an existing resource or attribute of the area. One of these is the AICUZ overlay district, which encompasses NAS Oceana's AICUZ footprint. The AICUZ overlay district is defined in Table 6-2, along with the City's complementary APZ-1 ordinance.

¹ The Princess Anne Commons and Transition Area are located between the urban, northern part of the city and the rural, southern part of the city. The "Green Line," which is the City Council's designated boundary between the urban and rural parts of the city, forms the northern boundary of the Princess Anne Commons and Transition Area. The City Council and Department of Planning and Community Development envision these areas as developed with a mix of residential, commercial/office, educational, entertainment, recreational, and public/government land uses at lower densities than those found in the urban portion of the city.

Table 6-2. City of Virginia Beach Zoning Ordinance AICUZ Regulations

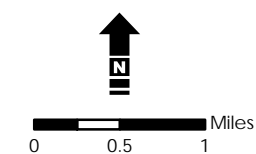
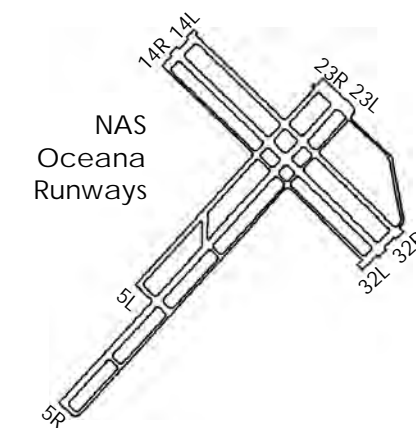
Ordinance Number and Title	Description	Date Adopted (Date Last Revised)
<p>Article 18 Special Regulations in Air Installations Compatible Use Zones (AICUZ), Sections 1800 - 1807, AICUZ Overlay Ordinance</p>	<p>The AICUZ Overlay Ordinance regulates development of land uses and structures within the AICUZ Overlay that are incompatible with military flight operations at NAS Oceana.</p> <p>The city's AICUZ Overlay corresponds with the area in the greater-than-65 dB DNL noise zone.</p> <p>The AICUZ Overlay Ordinance establishes that the policy of the City Council will be to approve development applications (e.g., for rezonings, conditional zonings, conditional use permits, converting or enlarging non-conforming uses, and street closures) only if the land uses or structures proposed in the application have been determined compatible.</p> <p>Compatible uses are defined in the ordinance (Section 1804).</p> <p>The City Council may approve an incompatible use or structure only if it finds that no reasonable use can be made of the property that is compatible with the AICUZ Overlay Ordinance.</p> <p>The ordinance requires that sound attenuation measures be incorporated in any use or structure in the AICUZ Overlay in accordance with the Virginia Uniform Statewide Building Code (Section 1805).</p> <p>The ordinance also sets the density of residential development in the Interfacility Traffic Area at one single-family dwelling per 15 acres of developable land (Section 1806).</p>	<p>Sec. 1800 and 1801 - August 22, 1988 (December 20, 2005)</p> <p>Sec. 1802 and 1803 - August 22, 1988 (January 8, 2008)</p> <p>Sec. 1804 - August 22, 1988 (July 10, 2012)</p> <p>Sec. 1805 - August 22, 1988 (January 8, 2008)</p> <p>Sections 1806 and 1807: August 29, 1988 (January 8, 2008)</p>
<p>Article 18 Special Regulations in Air Installations Compatible Use Zones (AICUZ), Sections 1808 - 1810, Accident Potential Zone 1 (APZ-1)</p>	<p>The APZ-1 ordinance defines compatible land uses that will be allowed as principal uses on property in APZ-1.</p> <p>These uses must meet certain physical and design requirements that are included in the ordinance.</p>	<p>Section 1808: August 29, 1988 (March 28, 2006)</p> <p>Section 1809: September 6, 1988 (July 11, 2006)</p> <p>Section 1810: September 6, 1988 (April 24, 2012)</p>

Figure 6-1
Virginia Beach Strategic
Growth Areas
Virginia Beach, Virginia



Legend

- Interstate
- Suburban Focus Area
- Special Economic Growth Area
- Strategic Growth Area
- Military Installation Boundary
- City Boundary
- DNL Noise Contour
- Accident Potential Zone (APZ)**
- Clear Zone
- APZ I
- APZ II



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010; © Harris Corp, Earthstar Geographics LLC © 2012 Microsoft Corporation

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As this table indicates, local land development regulations in the city of Virginia Beach consider and are closely aligned with the Navy’s AICUZ land use compatibility guidelines as Virginia Beach integrated these guidelines into its local planning and development process.

6.2.2 City of Chesapeake

Land use planning for the City of Chesapeake is the responsibility of the City Council, Planning Commission, and Planning Department. Similar to the City of Virginia Beach, the Chesapeake City Council has authority to make final determinations on zoning and land use matters. The Chesapeake Planning Commission reviews changes to the City’s comprehensive plan and zoning ordinance, rezoning and conditional use permit applications, among other land use applications, and provides recommendations to the City Council on these matters (City of Chesapeake 2012a). The Planning Commission holds a regular monthly meeting.

Chesapeake’s Planning Department includes four divisions—Comprehensive Planning, Current Planning, Administrative, and Planning Management Support—which manage the City’s current and long-range land use planning and advise the City’s Planning Commission and City Council (City of Chesapeake 2012b).

Land use planning in Chesapeake is accomplished through policy documents and ordinances. The City Council adopted the *Forward Chesapeake 2026 Comprehensive Plan*, its latest comprehensive plan, on March 9, 2005.² The *Forward Chesapeake 2026 Comprehensive Plan* outlines the City’s larger goals for land use and development and strategies for achieving those goals. The plan organizes the City’s land base into urban, suburban, and rural overlays; separate recommendations are included for established villages and “major activity centers,” in some cases (City of Chesapeake Planning Department 2005).

² The City of Chesapeake is in the process of updating the *Forward Chesapeake 2026 Comprehensive Plan*. The City released a draft version of the update, *Moving Forward – Chesapeake 2035*, for public review in late 2012. The updated comprehensive plan will be presented to the City Council for adoption in fall 2013.

City of Chesapeake Planning Department

Comprehensive Planning: Develops and maintains the city’s long-range comprehensive plan, conducts special studies, and monitors population change in the city, administers the City’s Open Space and Agricultural Preservation Program, and staffs several Boards and Commissions.

Current Planning: Reviews administrative subdivision and site plans and applications for rezonings, conditional use permits, street closures, and the Chesapeake Bay Preservation Area.

Administrative: Develops the department’s policies, operating procedures, and budget.

Planning Management Support: Provides data and GIS maps, tracks development, manages records, and coordinates street names and building addresses.

Source: City of Chesapeake 2012b

Naval Air Station Oceana and Naval Auxiliary Landing Field Fentress

Land use in the City of Chesapeake is regulated through the zoning ordinance, subdivision ordinance, and the City Code. For discretionary land use applications, primarily residential rezonings, the staff recommendation for approval or denial is based upon level of service standards for schools, roads, and sewer capacity. The City staff's recommendations to the City Council are nonbinding. Chesapeake's Fentress Airfield Overlay District was developed to maintain the rural character of the land in NALF Fentress's AICUZ footprint. The Fentress Airfield Overlay District is defined in Table 6-3 along with the related Airport Safety Zone ordinance, which sets height restrictions for structures near airports.

Table 6-3. City of Chesapeake Zoning Ordinance AICUZ Regulations

Ordinance Number and Title	Description	Date Adopted (Date Last Revised)
Fentress Airfield Overlay District Ordinance	<p>The intent of the Fentress Airfield Overlay District ordinance is to permit limited development around the airfield, focusing on agricultural, commercial, and industrial uses and discouraging residential, institutional, and educational uses.</p> <p>The Fentress Airfield Overlay District includes land partially or wholly located within the 65 dB DNL and greater noise zones around NALF Fentress.</p> <p>The ordinance specifies land uses permitted by right or by a conditional use permit for properties in the 65 dB DNL and greater noise zones.</p> <p>For discretionary development applications for property within an APZ or clear zone, and/or within the noise zones 65-70 dB DNL, 70-75 dB DNL, or greater than 75 dB DNL, the ordinance provides a land use compatibility recommendation for consideration by the Planning Commission and City Council.</p> <p>Residential development and uses which concentrate large numbers of people, such as schools, childcare centers, and churches, are considered incompatible land uses in the 65 dB DNL and greater noise zones, unless allowed by the current zoning of the property.</p> <p>Limited commercial and industrial development is allowed in the Fentress Airfield Overlay District; proposals for commercial and industrial development are required to have conditional use permits and are subject to case-by-case review by the Planning Commission and City Council.</p> <p>Non-residential buildings and structures requiring a conditional use permit shall not exceed the U.S. Navy's recommended height restrictions under its AICUZ program.</p>	1990 (2013)

Table 6-3. City of Chesapeake Zoning Ordinance AICUZ Regulations

Ordinance Number and Title	Description	Date Adopted (Date Last Revised)
	<p>The ordinance specifies noise attenuation standards for occupied residential and non-residential buildings in the 65 dB DNL and greater noise zones.</p> <p>All residential and non-residential site plans, subdivision plats, and sales contracts and leases within all noise zones of the overlay district must include a written statement that such property is located 'partially or wholly within an aircraft noise and/or accident zone and may be subject to above-average noise levels.</p> <p>All lighting of conditional non-residential uses in the 65 dB DNL and greater noise zones should be directed downward and should not interfere with airfield operations.</p> <p>The extent of light interference is to be determined by the U.S. Navy.</p>	
<p>Airport Safety Zone Ordinance</p>	<p>The Airport Safety Zone ordinance sets height restrictions for structures near NALF Fentress and the other, private airports in Chesapeake.</p> <p>The ordinance references CFR Part 77.28 for the airport zones, approach zones, and conical zones for NALF Fentress.</p>	<p>1999 (2009)</p>

6.2.3 Hampton Roads Planning District Commission

The HRPDC, located in Chesapeake, Virginia, is one of 21 planning district commissions in Virginia. The Commonwealth’s planning district commissions were created in 1969, pursuant to the Virginia Area Development Act and a regionally executed Charter Agreement. The HRPDC was formed later, in 1990, by the merger of the Southeastern Virginia Planning District Commission and the Peninsula Planning District Commission. The HRPDC serves six counties and 10 independent cities, including the cities of Virginia Beach and Chesapeake. The HRPDC provides planning, research, and analysis support on regional issues and concerns for local governments and serves as a regional forum for local elected officials and chief administrators to debate and decide issues of regional importance (HRPDC 2010).

The HRPDC produces reports on subjects of regional importance, rather than comprehensive plan-type documents. Many of these reports are informational and do not necessarily provide policy recommendations. As a

regional planning and development organization, however, the HRPDC can influence development in the communities near NAS Oceana and NALF Fentress by developing draft ordinances for consideration by local governments and aiding and persuading local governments to adopt policies based on recommendations developed out of various research initiatives for the physical and economic growth of their communities.

In addition, the HRPDC played a major role in the development of the 2005 Hampton Roads JLUS. The study was prepared under contract with the HRPDC and several members from the HRPDC participated on the technical committee.

6.3 EXISTING LAND USE AND ZONING

Historical development patterns and local land use and zoning policies have influenced land use in the combined NAS Oceana and NALF Fentress AICUZ footprint. The following sections discuss existing land use, and local policies that have guided land use, in the portions of the AICUZ footprint in the cities of Virginia Beach and Chesapeake.

6.3.1 Virginia Beach Land Use and Zoning

NAS Oceana is located in the suburban area of Virginia Beach. Virginia Beach grew significantly beginning in 1963 when what was then the city of Virginia Beach (today the resort area and surrounding residential neighborhoods) and Princess Anne County were annexed into the city's current boundaries. Since 1963, Virginia Beach has grown from a collection of rural communities to the largest city in the commonwealth of Virginia. This growth was fueled by an abundant supply of developable land and the City's ability to supply infrastructure and services at a rate that kept up with that demand. Growth in Virginia Beach began to slow in the 1990s, and today the northern, urban/suburban part of the city largely is built-out (City of Virginia Beach 2011c). Reflecting this, the City's land use and zoning policies have begun to emphasize infill development in certain parts of the city (i.e., the strategic growth areas, suburban focus areas, and SEGAs identified in Section 6.2.1, City of Virginia Beach), which are targeted for additional urban growth.



Urban development in Virginia Beach is concentrated north of the “green line,” which was established by the City in 1985. The green line divides the urban northern portion of the city, including NAS Oceana, from the rural southern portion of the city and runs from the city’s boundary with the City of Chesapeake north of North Landing Road to the Atlantic coastline south of the Sandbridge community. The green line lies approximately 2 miles south of NAS Oceana.

Figure 6-2 illustrates the existing land uses in NAS Oceana’s AICUZ footprint. The full diversity of land use in Virginia Beach is present within NAS Oceana’s AICUZ footprint, from the densely developed resort area on the city’s Atlantic coast to rural areas south of the green line. Urban land uses in the AICUZ footprint, consisting of a mixture of business, commercial, and residential land uses, occur primarily along the major east-west thoroughfares of Interstate 264, Virginia Beach Boulevard, and Laskin Road. Each of these roads passes within one mile north of NAS Oceana. The concentration of urban land uses along these roads has resulted in various incompatible land uses being sited within the clear zones and APZs associated with NAS Oceana’s runways, as well as the larger AICUZ footprint. These urban areas, therefore, have been a focus of the Navy’s and the City’s land use compatibility efforts.

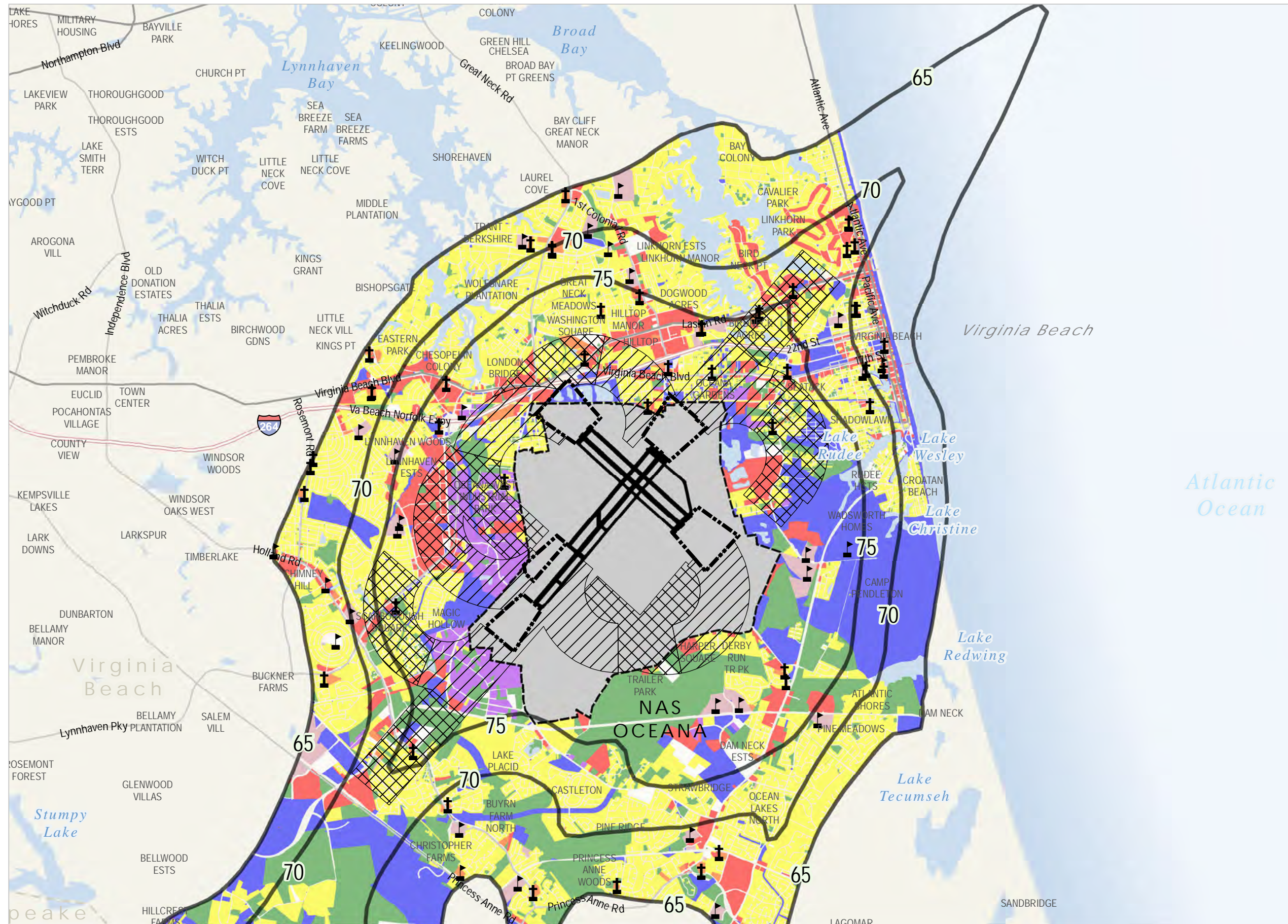
The resort area is located at the eastern end of Interstate 264 and occupies the area between Rudee Inlet to the south and 42nd Street to the north. The entire resort area is within NAS Oceana's AICUZ footprint (see Section 6.4, Land Use Compatibility, for additional detail).

Lower-density, suburban land uses, including residential, commercial, business, recreational, and some light industrial, occupy most of the remainder of the AICUZ footprint. These areas were developed over several decades as the city's population grew. City land use and zoning policies allowed developers to subdivide and develop large tracts of undeveloped or under-developed land. Today, as noted above, most of the city north of the green line is built-out. Recently, "greenfield" development³ has occurred mainly in the portions of the city known as the Princess Anne Commons and Transition Area, located south of the green line.

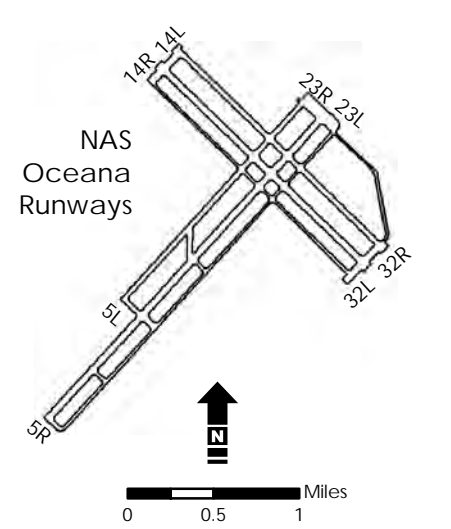
Portions of the Princess Anne Commons and Transition Area lie between NAS Oceana and NALF Fentress under heavily transited airspace and, because of this location, the area has been designated by the Navy and the City as the Interfacility Traffic Area (ITA). The ITA occupies 3,000 acres in west-central Virginia Beach on the city's border with the City of Chesapeake (see Figure 6-3). Prior to 2002, this area of the city was one of the last areas around NAS Oceana which was not encumbered by incompatible urban development. In 2002, the City of Virginia Beach developed plans to rezone the area for residential construction at a density of one dwelling unit per developable acre; however, the City opted to maintain the current zoning at one dwelling per 15 acres (as stated previously in Table 6-2).

³ Greenfield development refers to development of land that was previously undeveloped (i.e., development that does not require demolishing existing buildings or structures).

Figure 6-2
 City of Virginia Beach Existing
 Land Uses in the AICUZ Footprint
 NAS Oceana
 Virginia Beach, Virginia



- Legend
- Church
 - School
 - City
 - Interstate
 - Highway
 - Other Major Road
 - Waterbody
 - City Boundary
 - Military Installation Boundary
 - DNL Noise Contour
 - Accident Potential Zone (APZ)
 - Clear Zone
 - APZ I
 - APZ II
 - Existing Land Use
 - Residential
 - Commercial
 - Government
 - Industrial
 - Parks/Open Space
 - Church
 - School
 - Other



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

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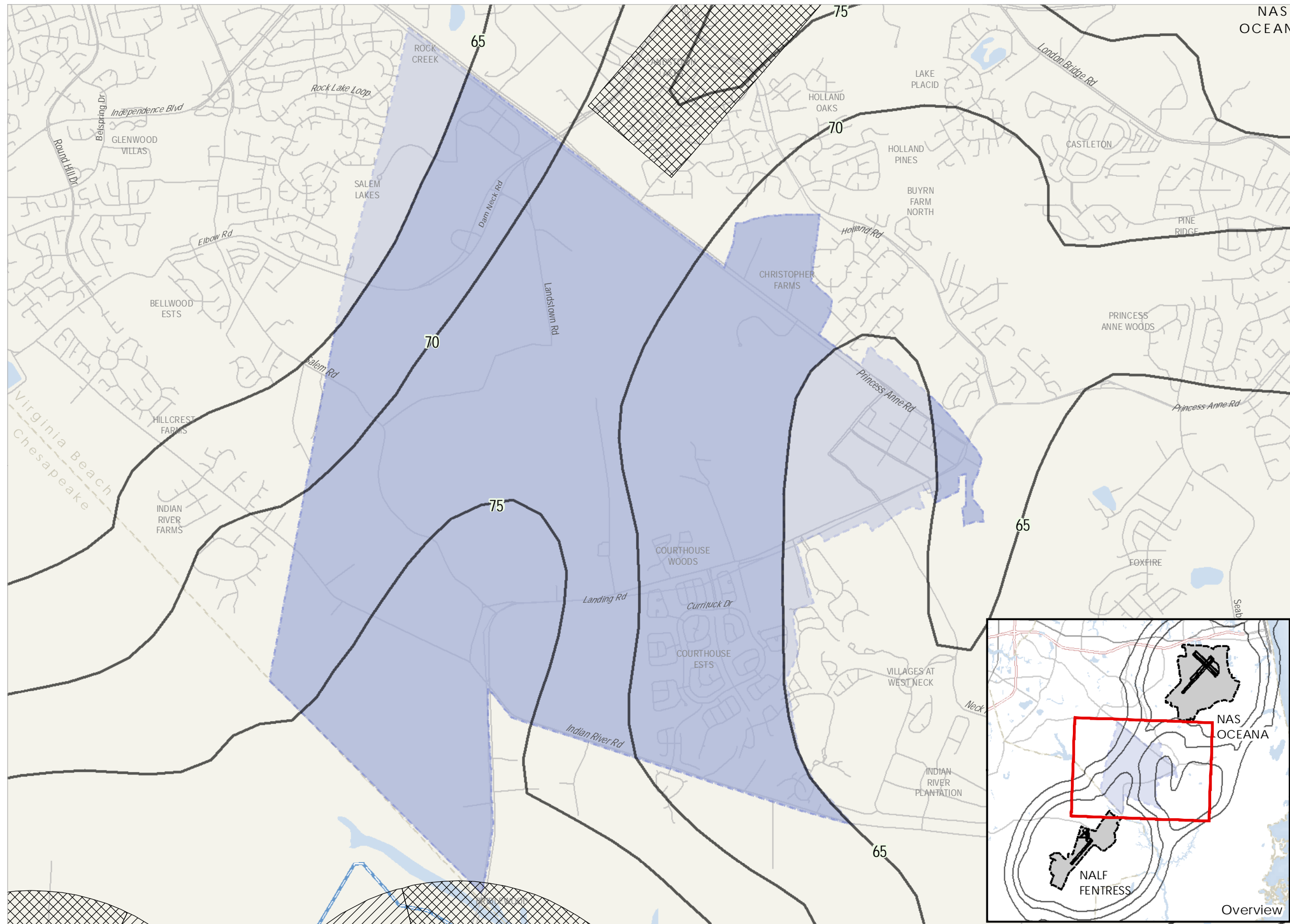
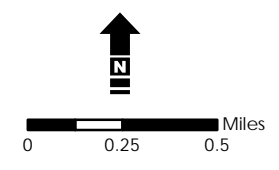


Figure 6-3
Interfacility Traffic Area and
the AICUZ Footprint

Legend

- Interstate
- Highway
- Other Major Road
- Interfacility Traffic Area (ITA)
- City Boundary
- Military Installation Boundary
- DNL Noise Contour
- Accident Potential Zone (APZ)**
- Clear Zone
- APZ I
- APZ II



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010; Image courtesy of USGS © 2012 Microsoft Corporation

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In December 2005, the City adopted the ITA into its zoning ordinance. This was in response to the August 24, 2005, decision by the Base Closure and Realignment (BRAC) Commission to maintain the Navy's East Coast Master Jet Base contingent on efforts by the Cities of Virginia Beach and Chesapeake to prevent further encroachment and to establish a program to condemn and purchase all incompatible use property in APZ I.at NAS Oceana.

The ITA, as adopted by the City, is bordered on the north by Princess Anne Road, on the south by Indian River Road and the Virginia Beach-Chesapeake border, on the west by South Independence Boulevard between Salem Road and Princess Anne Road, and on the east by the City's Historic Princess Anne Center.

The area within the ITA is subject to significant noise levels from transiting aircraft. Efforts taken by the City of Virginia Beach and the Navy to prevent and reduce incompatible urban development in the ITA since 2005 are discussed in Section 7.1, Initiatives Arising from the 2005 Hampton Roads Joint Land Use Study (City of Virginia Beach 2011c).

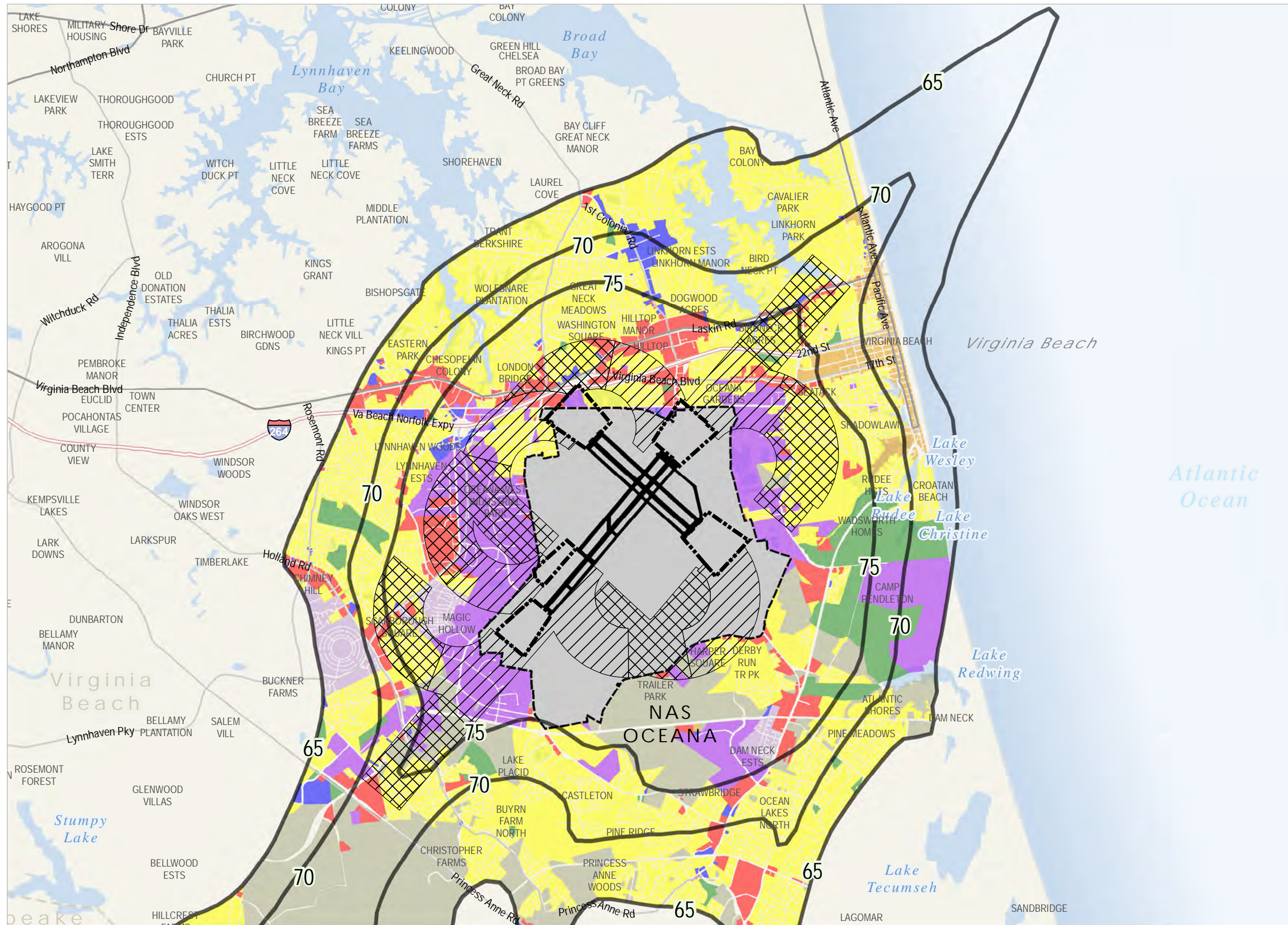
The City implements its land use policies through its zoning ordinance, which defines zoning districts, permitted uses for land in each zoning district, and allowable development densities in the different areas of the city. The zoning ordinance defines 12 large zoning districts, which are broken down into more specific districts by development density or type of use. The zoning districts which occur in NAS Oceana's AICUZ footprint are indicated on Figure 6-4. The City's AICUZ Overlay Ordinance and APZ-1 Ordinance are the primary mechanisms for regulating land use in NAS Oceana's AICUZ footprint (see Table 6-2). Other City programs and policies that direct or regulate land use in the AICUZ footprint are described in Section 7.1, Initiatives Arising from the 2005 Hampton Roads Joint Land Use Study, and Section 7.2, Initiatives Arising from the 2005 Defense Base Closure and Realignment (BRAC) Process.

6.3.2 Chesapeake Land Use and Zoning

The present-day boundaries of the City of Chesapeake were formed in 1963, when South Norfolk and Norfolk County were combined into the newly-created City of Chesapeake. Throughout most of the 20th century, Chesapeake remained largely rural. Urban growth primarily occurred in the northern portion of the city, near the established urban areas in the City of Norfolk. In the 1980s and 1990s, while growth in neighboring Virginia Beach was slowing, Chesapeake grew at a relatively high growth rate of approximately 30 percent each decade (Weldon Cooper Center for Public Service, n.d., 2003). Following the same trend seen in Virginia Beach, population growth in the city of Chesapeake began to slow between 2000 and 2010 as the city became more built-out and the city government implemented policies to manage growth. However, population projections for the city show that growth in Chesapeake will occur at a faster rate than both the Hampton Roads region and the commonwealth of Virginia through 2020 (see Table 2-3).

In response to this growth, Chesapeake's zoning ordinance and comprehensive plan provide direction and guidance for the orderly development and envisioned build-out of the city. All parcels within the city include a specific zoning district classifications for residential, business, office, industrial, agricultural uses, etc. In addition, Chesapeake has divided all of its land into three overlay zoning districts—urban, suburban, and rural—to ensure an orderly progression from the urban northern part of the city to the rural southern part and to allow for the grouping of land uses that are of compatible density and intensity (EDAW, Inc. et al. 2005). The City Council adopted these overlay districts in the City's zoning ordinance in 1993, and their boundaries were revised in 2005.

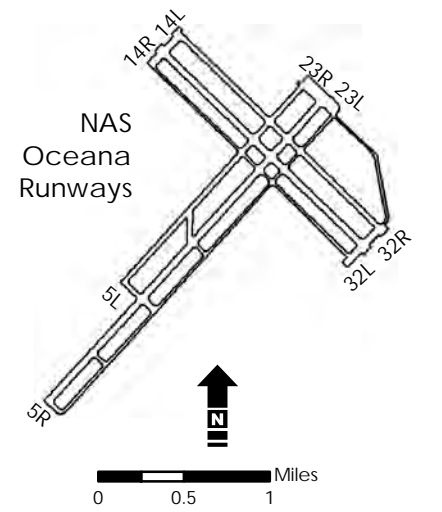
Figure 6-4
Virginia Beach Zoning Districts
in the AICUZ Footprint
NAS Oceana
Virginia Beach, Virginia



Legend

- City
- Interstate
- Highway
- Other Major Road
- Waterbody
- City Boundary
- Military Installation Boundary
- DNL Noise Contour
- Accident Potential Zone (APZ)
 - Clear Zone
 - APZ I
 - APZ II
- Zoning
 - Agriculture
 - Business
 - Office and Institutional
 - Conservation/Recreation
 - Open Space
 - Residential
 - Industrial
 - Hotel/Resort Tourist District
 - Planned Development District*

* Includes business and residential development



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

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The urban portion of the City of Chesapeake is primarily north of the Albemarle and Chesapeake Canal. NALF Fentress is located south of the canal and 1.5 miles west of Chesapeake's boundary with Virginia Beach in the rural portion of the city. Figure 6-5 illustrates the existing land uses in NALF Fentress's AICUZ footprint. The most widespread land uses in the AICUZ footprint are agricultural, rural residential, forest, and conservation (park) land. Property immediately adjacent to the Albemarle and Chesapeake Canal corridor is federally owned and is considered a government land use. These rural and government land uses surround the airfield. Residential uses typically consist of single-family detached homes on large parcels (over 3 acres). Denser development occurs in the western portion of the AICUZ footprint, which includes neighborhoods near Centerville Turnpike. In addition to low density residential, this area also includes limited business, religious institutions, and recreation land uses. Gathering places such as churches, other worship facilities, and schools are important in the analysis because they are public assembly locations that can concentrate large numbers of people (Figure 6-5).

Although most of NALF Fentress's AICUZ footprint is contained within the rural overlay district, a portion of the AICUZ footprint encompasses land north of the canal that is in the suburban overlay district. The suburban overlay district is characterized by residential neighborhoods and various scales of commercial development, from neighborhood-oriented retail and services to regional business centers and corridors. The suburban overlay district is connected to major employment and industry centers by the city's major highways. Residential development in this district may consist of single-family, townhouse, or multifamily development.

Chesapeake's 2026 Comprehensive Plan includes both a policy document and accompanying maps: a Land Use Plan and a Master Transportation Plan. The 2026 Land Use Plan identifies the recommended future land uses for all city parcels. The Land Use Plan is one of several tools that is used for granting discretionary land use applications by the Planning Commission and City Council. The majority of the property in the areas around NALF Fentress is designated for agricultural use in the future.

Zoning districts in NALF Fentress's AICUZ footprint are shown on Figure 6-6.

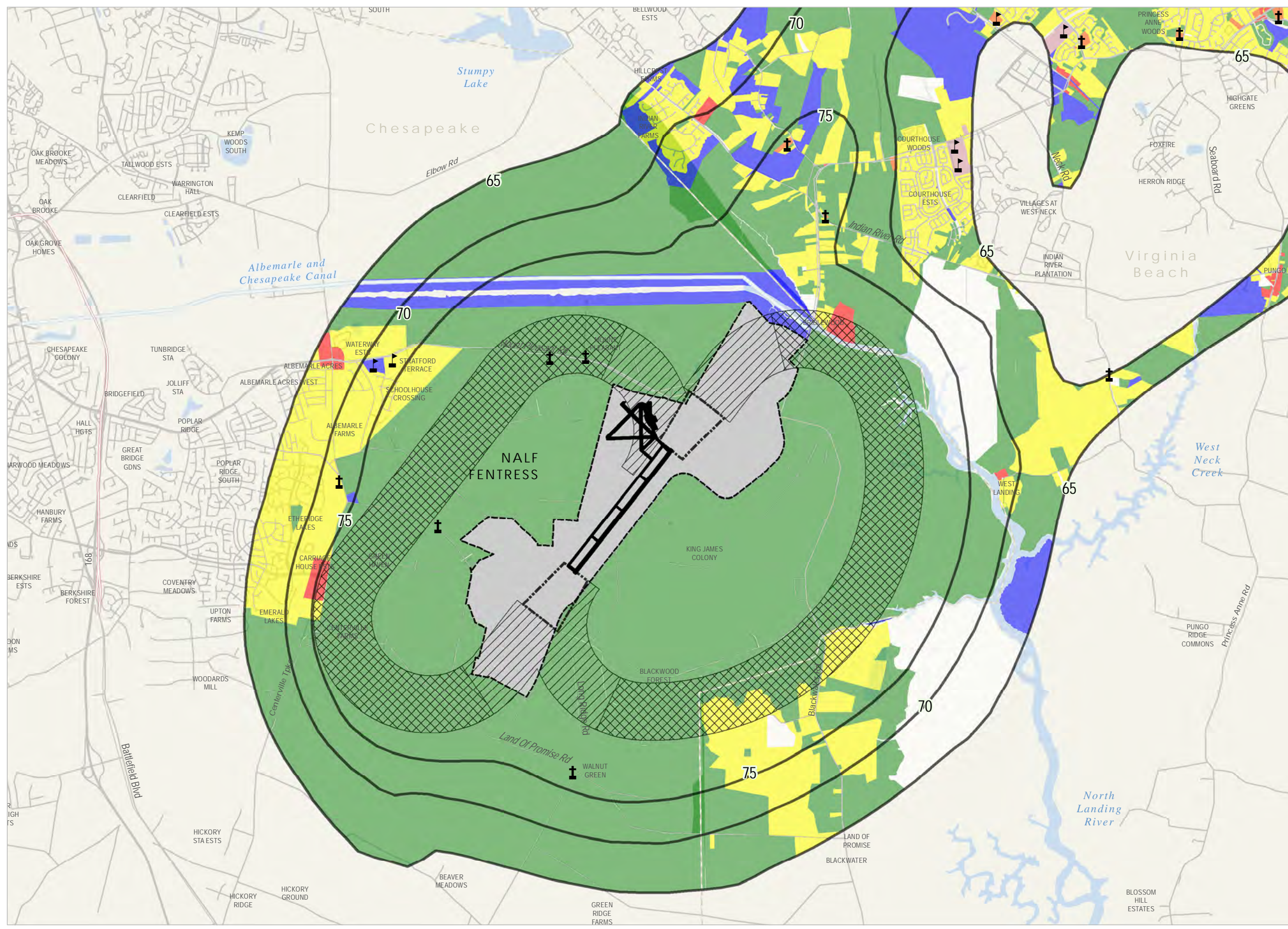
6.4 LAND USE COMPATIBILITY

The Cities of Virginia Beach and Chesapeake have made substantial progress and have realized major successes with respect to managing the encroachment in the region. The initiatives that have been developed in partnership with the cities and other public and private entities to manage existing and prevent additional incompatible urban growth in NAS Oceana and NALF Fentress's combined AICUZ footprint are described in Section 7, Programs and Initiatives.

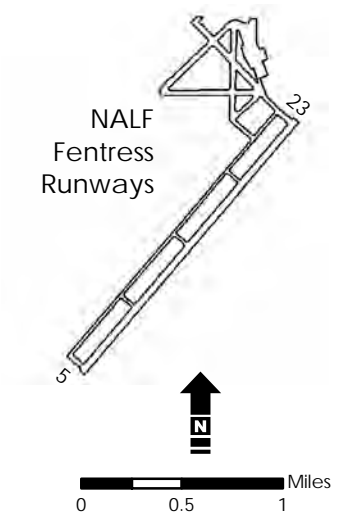
This section identifies areas in which this framework has been applied successfully and areas in which various measures could be applied to further benefit the Navy and its neighbors:

- Resort Area and Strategic Growth Areas;
- Clear Zone/APZ-1 Master Plan areas;
- ITA;
- SEGAs; and
- Rural residential areas around NALF Fentress.

Figure 6-5
 City of Chesapeake Existing
 Land Uses in the AICUZ Footprint
 NALF Fentress
 Chesapeake, Virginia



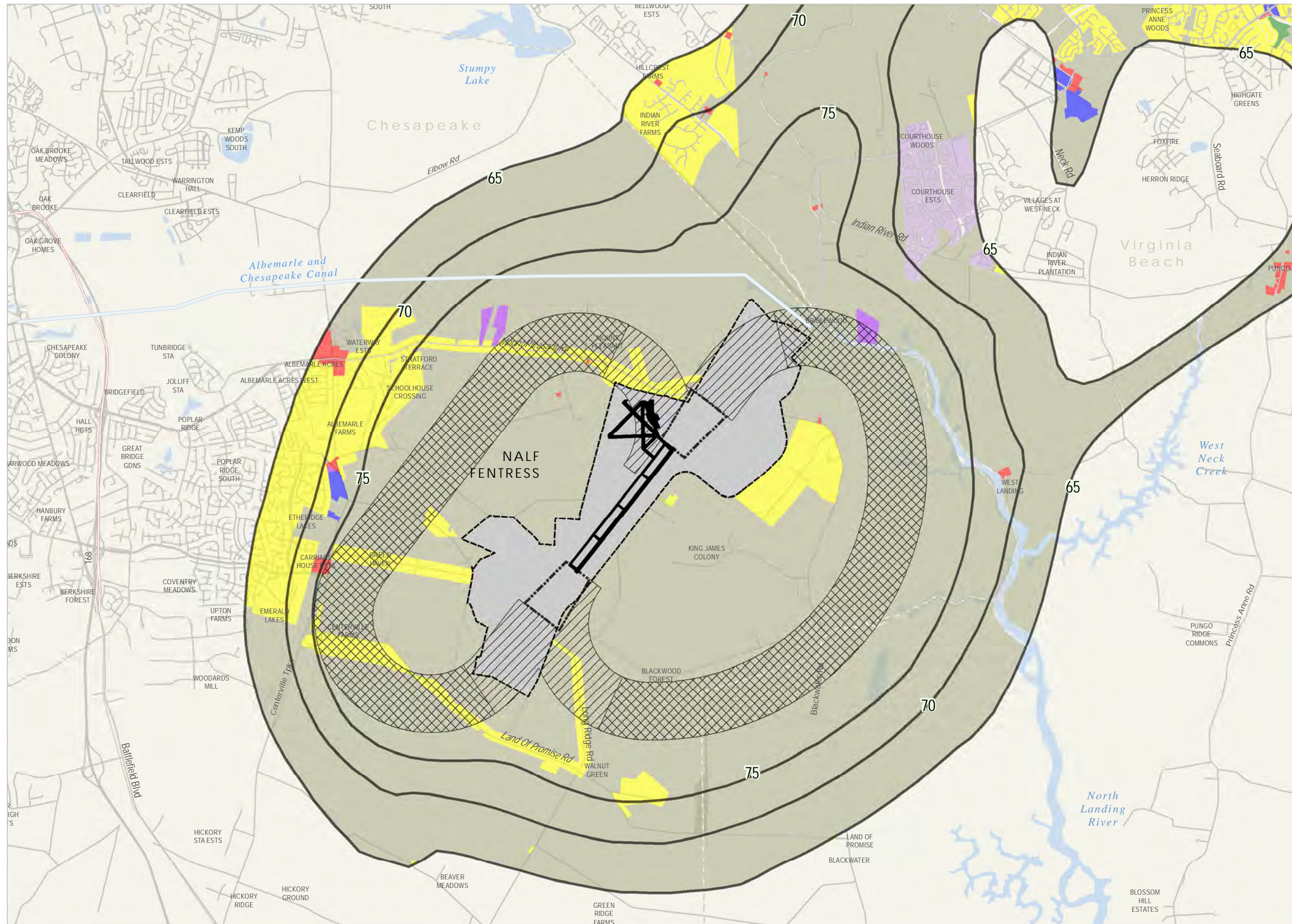
- Legend
- Church
 - School
 - City
 - Interstate
 - Highway
 - Other Major Road
 - Military Installation Boundary
 - City Boundary
 - Waterbody
 - DNL Noise Contour
 - Accident Potential Zone (APZ)
 - Clear Zone
 - APZ I
 - APZ II
 - Existing Land Use**
 - Residential
 - Commercial
 - Government
 - Industrial
 - Parks/Open Space
 - Church
 - School
 - Other



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

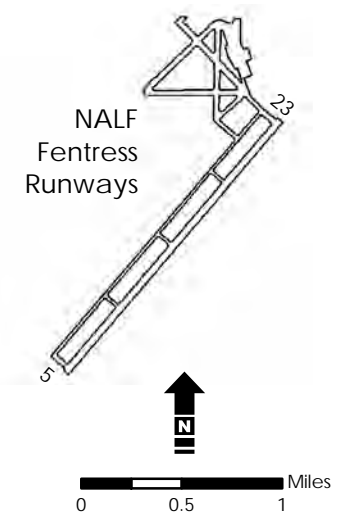
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Figure 6-6
Chesapeake Zoning Districts
in the AICUZ Footprint
NALF Fentress
Chesapeake, Virginia



Legend

- City
 - Interstate
 - Highway
 - Other Major Road
 - ▭ Military Installation Boundary
 - ▭ City Boundary
 - ▭ Waterbody
 - ▭ DNL Noise Contour
 - Accident Potential Zone (APZ)
 - ▭ Clear Zone
 - ▨ APZ I
 - ▩ APZ II
 - Zoning
 - ▭ Agriculture
 - ▭ Business
 - ▭ Office and Institutional
 - ▭ Conservation/Recreation
 - ▭ Open Space
 - ▭ Residential
 - ▭ Industrial
 - ▭ Hotel/Resort Tourist District
 - ▭ Planned Development District*
- *Includes business and residential development



Source: ESRI 2012; City of Virginia Beach, 2011; Dept. of Defense - Navy 2011; VGIN 2010

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As outlined in Section 6.3.1, Virginia Beach Land Use and Zoning, a variety of existing land uses and development surrounding NAS Oceana and NALF Fentress are within the AICUZ footprint. Figure 6-7 offers a high-level view of some representative development that exists within the AICUZ footprint. Some of these, and other developments, are considered compatible with the aircraft operations conducted at these facilities (i.e., agricultural, etc.). However, there remain certain areas of interest in which pre-existing, non-conforming conditions were present prior to formal adoption of the AICUZ into the respective city zoning ordinances. Figures 6-8, 6-9, and 6-10 provide an overview of areas of interest within the AICUZ footprint within both the city of Virginia Beach and the city of Chesapeake. The following sections discuss some of the specific areas of interest within each city.

6.4.1 City of Virginia Beach

To determine areas within the AICUZ footprint where pre-existing, non-conforming conditions are present, the Navy examined existing land use patterns near NAS Oceana and in the ITA. To analyze whether existing land use conforms to the City's AICUZ Overlay Zoning Ordinance, the AICUZ noise zones, APZs, and clear zones were overlaid on city parcel and land use classification data. The evaluation was done at the neighborhood and planning area level using the AICUZ Overlay Zoning Ordinance land use compatibility guidelines. Appendix B.1 provides the AICUZ Overlay Zoning Ordinance and the associated land use compatibility guidelines for the 65-70 dB DNL, 70-75 dB DNL, and greater than 75 dB DNL noise zones.

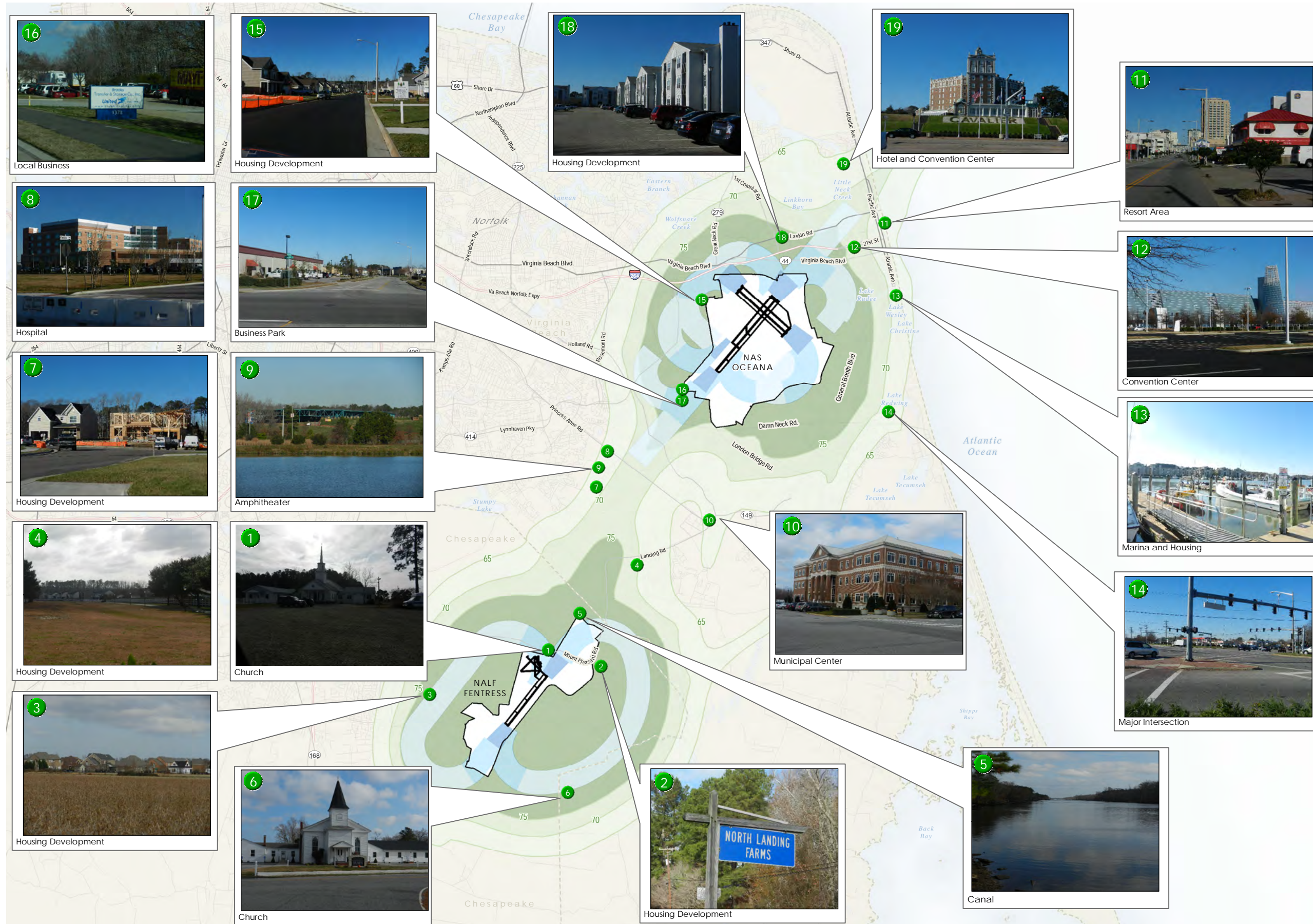
Strategic Growth Areas

The City of Virginia Beach has designated eight strategic growth areas, eight suburban focus areas, and three SEGAs for focused planning efforts. Of these, three of the strategic growth areas, three of the suburban focus areas, and all three of the SEGAs are located wholly or partially in the NAS Oceana's AICUZ footprint (see Figure 6-1).

Strategic Growth Area 6: Lynnhaven. The Lynnhaven strategic growth area includes land north and south of Interstate 264 between Potters Road and NAS Oceana in the south to Laskin Road in the north. Lynnhaven Parkway runs north-south through the area. The Lynnhaven strategic growth area lies within the greater than 70 dB DNL noise zone, and eastern parts of the strategic growth area lie within APZ 1 or APZ 2. This strategic growth area is primarily developed with commercial land uses, as well as some government buildings, churches, and parks. In 2012, the City completed construction of a new exit ramp from Interstate 264 to London Bridge Road, increasing access to the area. Many of the existing land uses in the strategic growth area conform to the City's AICUZ Overlay Zoning Ordinance, but some existing retail land uses, particularly large grocery and home improvement stores and businesses offering professional services, are considered pre-existing, non-conforming uses. Two churches and Centura College's Virginia Beach campus are located within this strategic growth area in the greater than 75 dB DNL noise zone; these existing uses also do not conform to the City's AICUZ Overlay Zoning Ordinance.

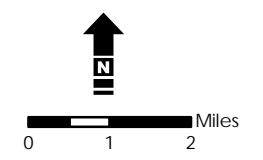
The City does not recommend residential land uses in this area, consistent with the AICUZ Overlay Zoning Ordinance. Based on the recommendations included in the City's amended 2011 comprehensive plan, development intensity in the Lynnhaven strategic growth area is expected to increase. This would be exacerbated if the Hampton Roads Transit light rail service (the Tide) is extended into Virginia Beach, which would make Lynnhaven a hub for transit-oriented development. The City recommends development of compact, mixed office, institutional, and limited retail in the Lynnhaven strategic growth area. Future land uses in this area will be required to conform to the AICUZ Overlay Zoning Ordinance through the development review process established with the City of Virginia Beach (City of Virginia Beach 2011c).

Figure 6-7
 Representative Development
 in the AICUZ Footprint
 NAS Oceana and NALF Fentress
 Virginia



Legend

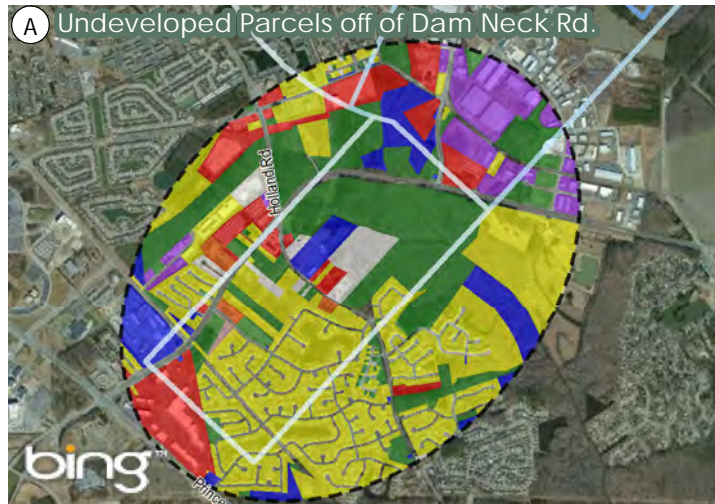
- Interstate
- Highway
- Other Major Road
- Street
- Military Installation Boundary
- Waterbody
- County Boundary
- Accident Potential Zone (APZ)**
 - Clear Zone
 - APZ I
 - APZ II
- DNL Noise Contour**
 - 65 - 70 (dB)
 - 70 - 75 (dB)
 - > 75 (dB)



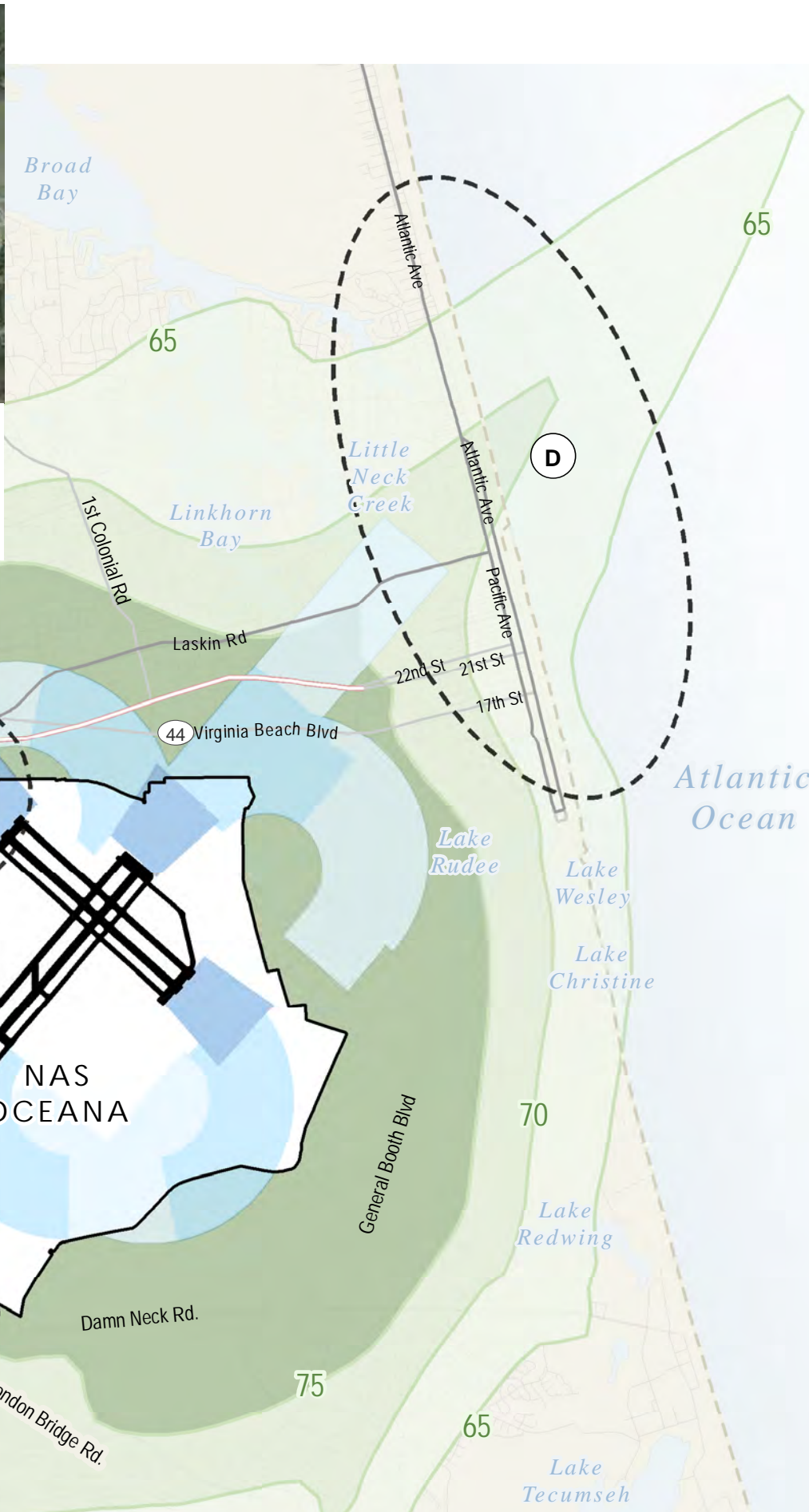
Source: ESRI 2012; City of Virginia Beach, 2011; City of Chesapeake 2012; Dept. of Defense - Navy 2011; VGIN 2010

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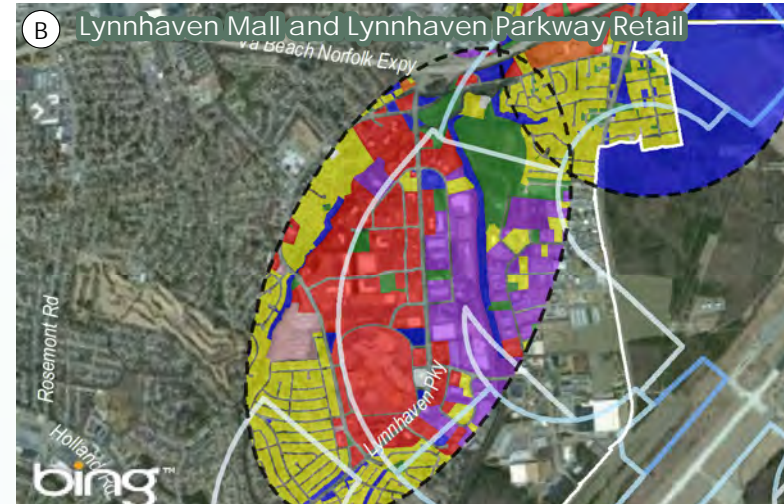
A Undeveloped Parcels off of Dam Neck Rd.



Large undeveloped parcels of land lie off of Dam Neck Rd. in APZs 1 and 2. The City of Virginia Beach has designated this area as a special economic growth area and encourages development of these parcels with light-industrial, low-rise office, and limited retail land uses that are consistent with the AOZO. The proposed Southeastern Parkway could increase access to this area for development. The City and the Navy have acquired development easements on properties in this area to ensure compatible use.



B Lynnhaven Mall and Lynnhaven Parkway Retail



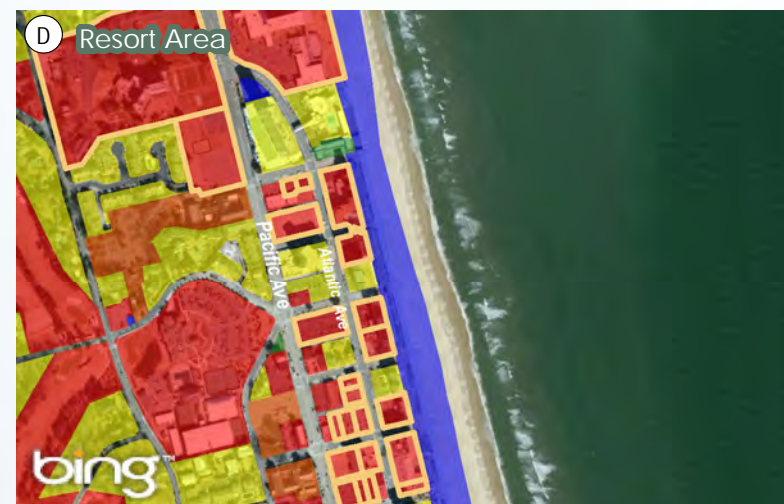
This densely-developed retail and office district lies within APZ 2 and partially within APZ 1. The area is designated by the City of Virginia Beach as a special economic growth area. The City's AOZO ensures compatible future development of this area. The City and the Navy have partnered here to acquire development easements on parcels in APZ 1 to ensure compatible future use.

C Lynnhaven Strategic Growth Area



The Navy and the City of Virginia Beach have taken direct action to combat encroachment in the Lynnhaven Strategic Growth Area through purchasing incompatible land and ensuring future uses comply with the AOZO. Part of the strategic growth area at the intersection of London Bridge Rd. and Virginia Beach Blvd. lies within APZ 2.

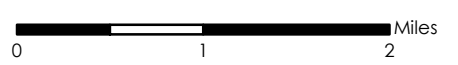
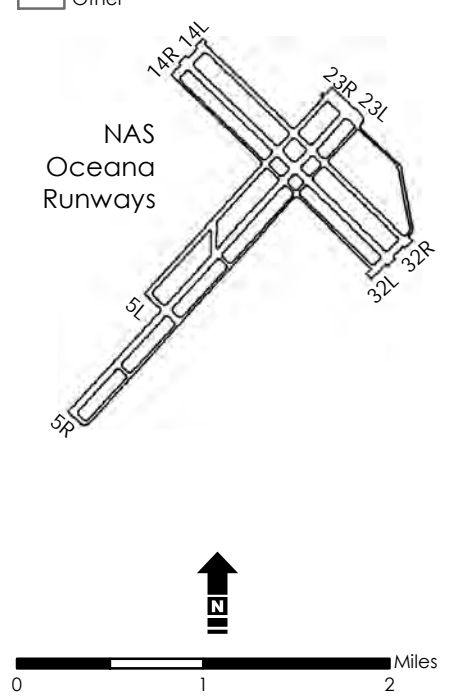
D Resort Area



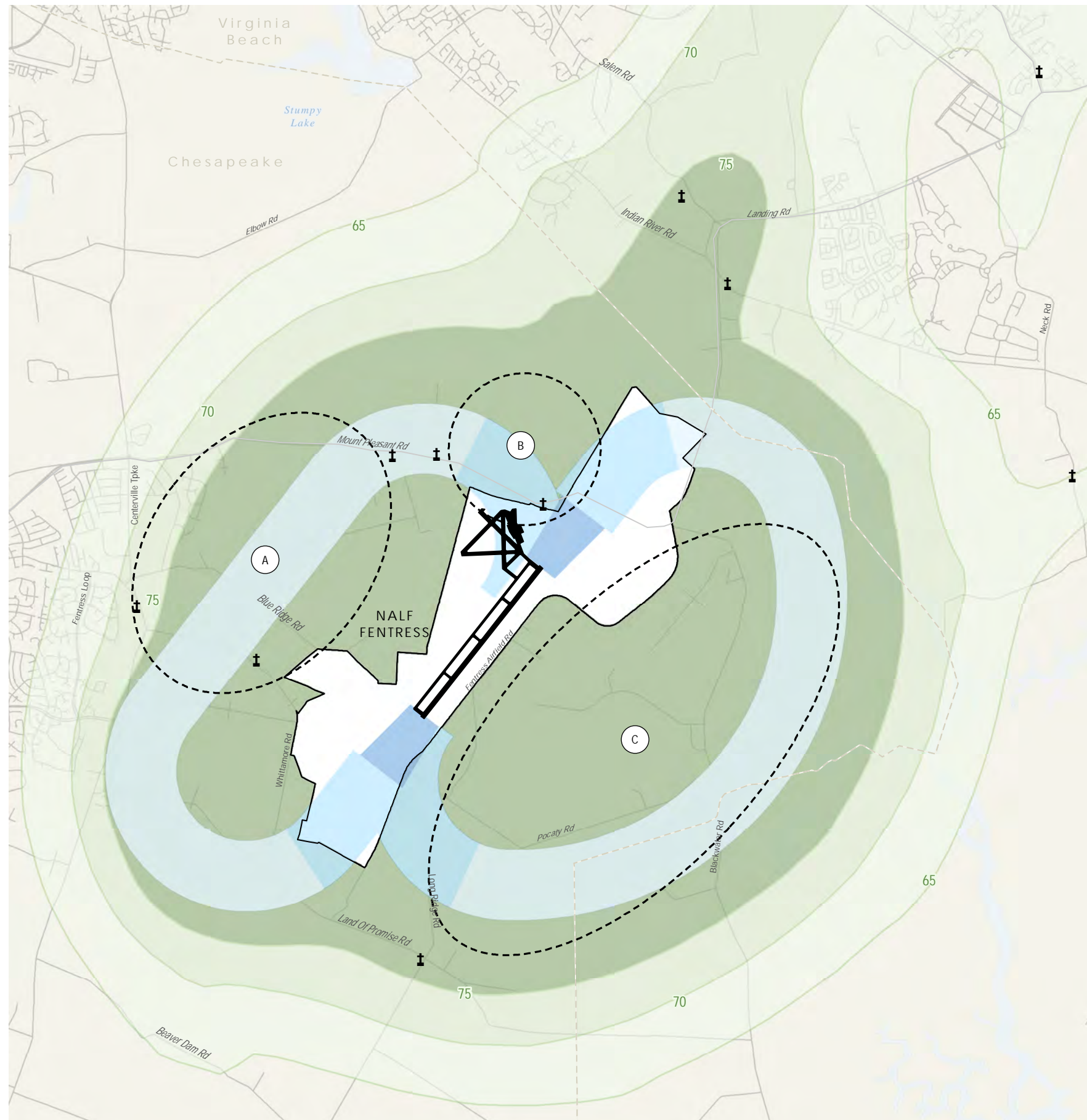
The resort area has been identified by the City of Virginia Beach as a strategic growth area. The people-intensive resort area includes areas of frequent aircraft over flight, resulting in high noise (greater than 65 dB DNL noise contour). The City of Virginia Beach and the Navy have worked cooperatively in this area to limit the potential incompatible residential density, limit structure height, and require noise attenuation. The City's Oceanfront Resort District Form Based Code, adopted in 2009, is the primary mechanism for ensuring compatible residential densities are maintained in the resort area.

Figure 6-8
Compatibility Analysis
NAS Oceana
Virginia Beach, Virginia

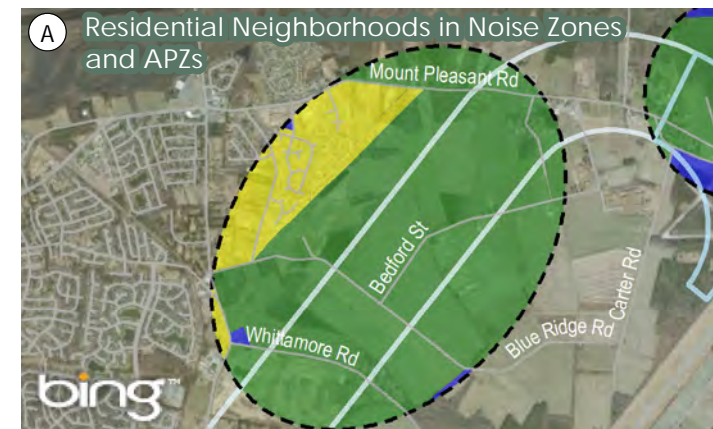
- Legend**
- Interstate
 - Highway
 - Other Major Road
 - Street
 - ▭ Military Installation Boundary
 - ▭ Waterbody
 - ▭ City Boundary
 - ▭ Hotel/Motel Land Use
 - ▭ Accident Potential Zone (APZ)
 - ▭ Clear Zone
 - ▭ APZ I
 - ▭ APZ II
 - DNL Noise Contour
 - 65 - 70 (dB)
 - 70 - 75 (dB)
 - > 75 (dB)
 - Existing Land Use
 - Residential
 - Commercial
 - Government
 - Industrial
 - Parks/Open Space
 - Church
 - School
 - Other



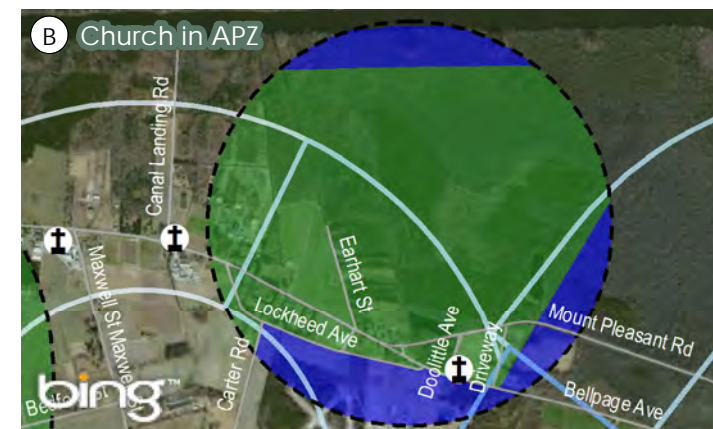
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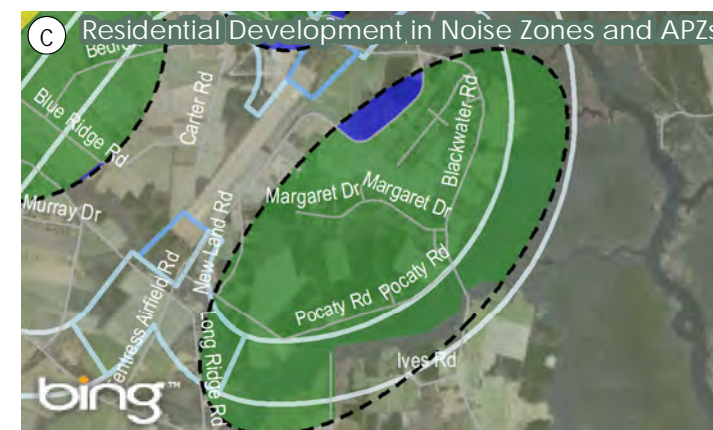
Path: M:\VA_Beach\NAS_Oceana_Refresh\Maps\MXD\AICUZ\NALFFentress_CompatibilityConcern.mxd



Low-density residential neighborhoods in the City of Chesapeake's suburban overlay district lie west of NALF Fentress in the greater than 65 dB DNL noise zone. This residential area is built out almost to Centerville Turnpike, which marks the boundary between the suburban and rural overlay districts. Residences here experience high noise levels during FCLP operations. Residences in the greater than 65 dB DNL noise contour are incompatible with the City's AOD.



Incompatible land uses, including Mt. Pleasant United Methodist Church, and multiple residences are located off of Mt. Pleasant Rd. in APZs 1 and 2. Future development in this area will be required to comply with the City of Chesapeake's AOD. The Navy has acquired development easements on parcels in this area as an additional measure to ensure compatible development and protect the safety of the public.

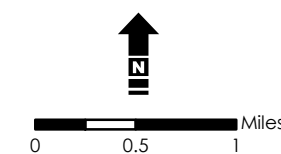


The Walnut Green, Blackwood Forest, and King James Colony residential neighborhoods lie beneath the FCLP flight pattern at NALF Fentress. These rural neighborhoods predate the City's AOD, which prohibits residential development in the > 70 dB DNL noise contour.

Figure 6-9
Compatibility Analysis
NALF Fentress
Chesapeake, Virginia

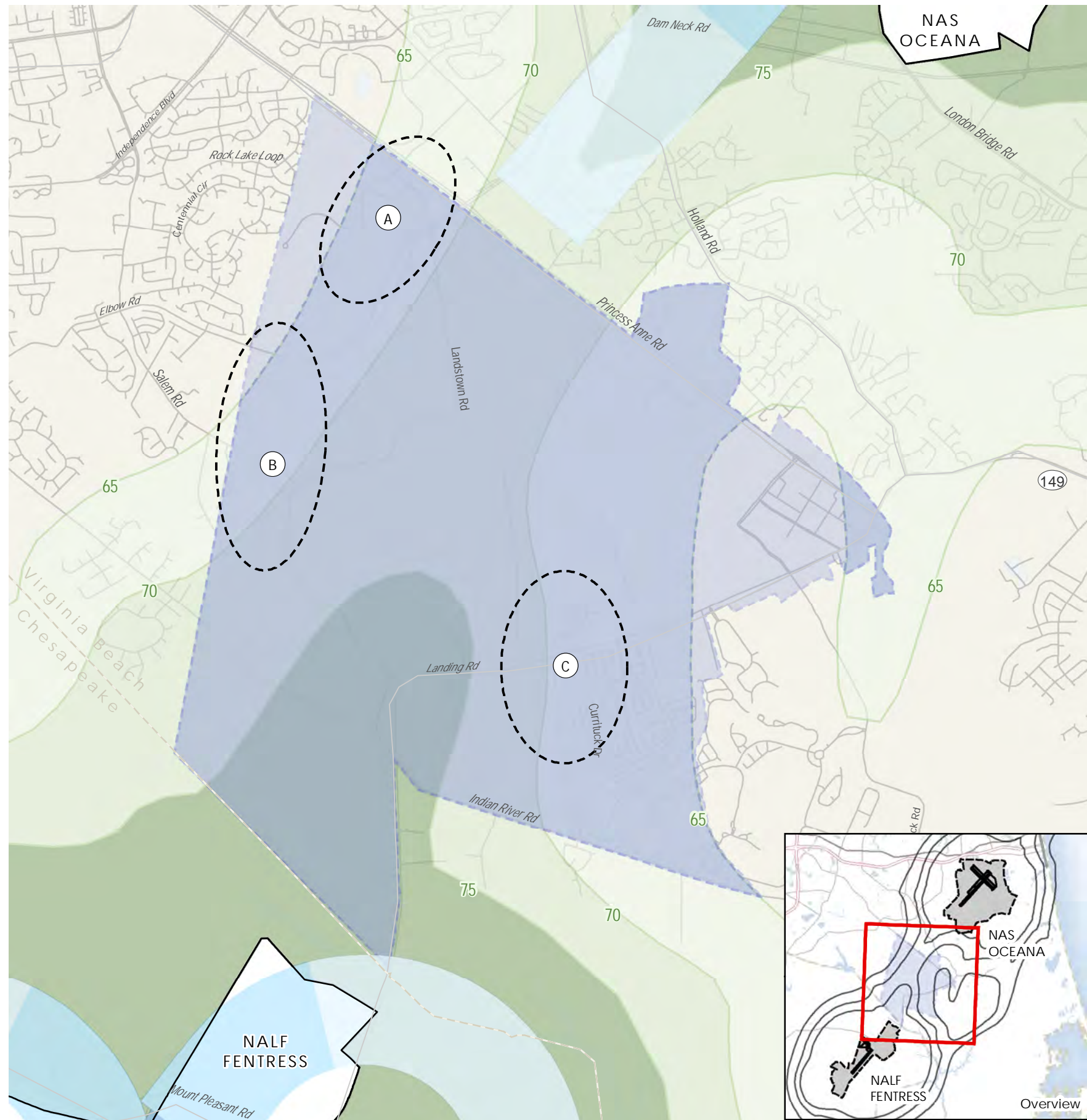
Legend

- Church
- Interstate
- Highway
- Other Major Road
- Military Installation Boundary
- AOI
- City Boundary
- Accident Potential Zone (APZ)
 - Clear Zone
 - APZ I
 - APZ II
- DNL Noise Contour
 - 65 - 70 (dB)
 - 70 - 75 (dB)
 - > 75 dB symbol"/> > 75 (dB)
- Existing Land Use
 - Commercial
 - Government
 - Parks/Open Space
 - Residential



Source: ESRI 2012; City of Virginia Beach, 2011; City of Chesapeake 2012; Dept. of Defense -Navy 2011; VGIN 2010

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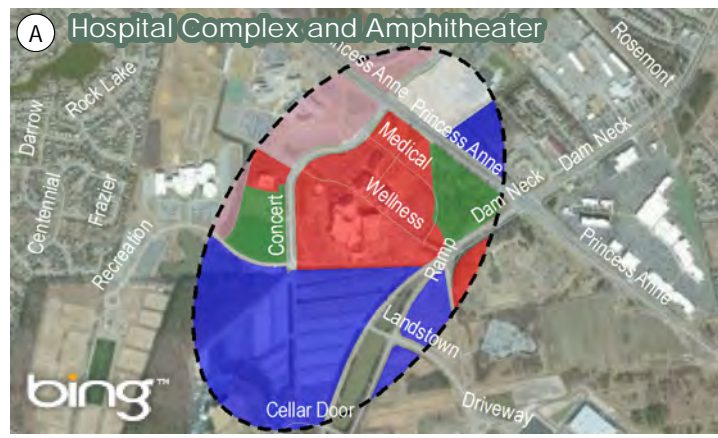


Path: M:\VA_Beach\NAS_Oceana_Refresh\Maps\MXD\AICUZ\ITA_CompatibilityConcern_.mxd

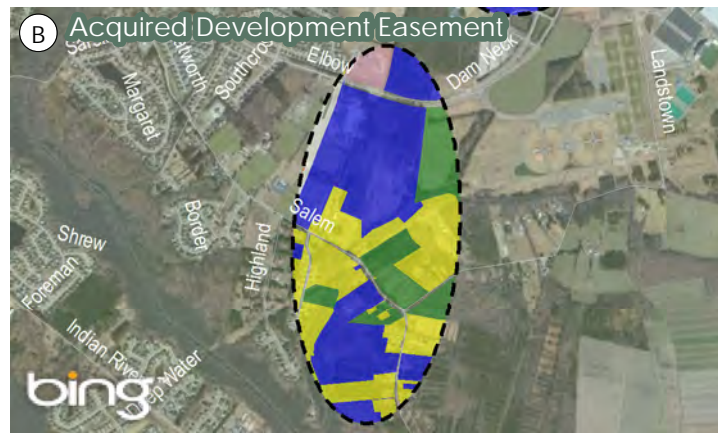
Figure 6-10
Compatibility Analysis
Interfacility Traffic Area
Virginia Beach and
Chesapeake, Virginia

Legend

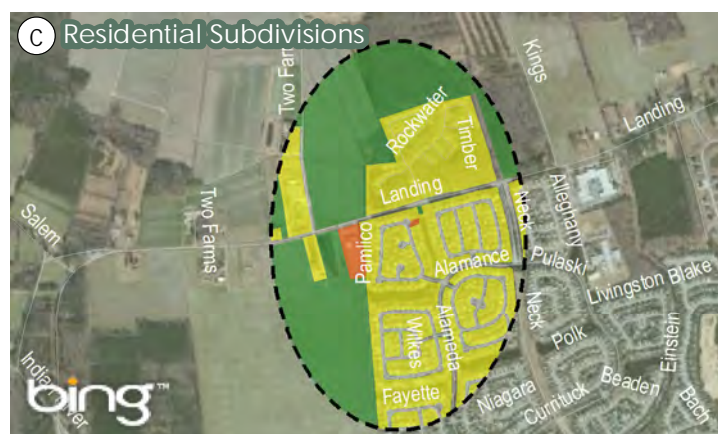
- Interstate
- Highway
- Other Major Road
- Street
- Military Installation Boundary
- Interfacility Traffic Area (ITA)
- City Boundary
- Accident Potential Zone (APZ)
 - Clear Zone
 - APZ I
 - APZ II
- DNL Noise Contour
 - 65 - 70 (dB)
 - 70 - 75 (dB)
 - > 75 (dB)
- Existing Land Use
 - Residential
 - Commercial
 - Government
 - Parks/Open Space
 - Church
 - School
 - Other



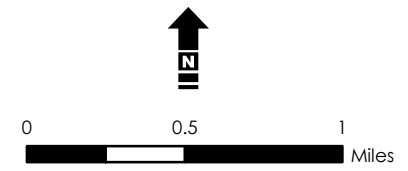
The Virginia Beach amphitheater, an outdoor music amphitheater with the capacity to seat 20,000 people, is located near the northwest boundary of the ITA off of Dam Neck Rd. The amphitheater predates the City's AOZO and does not conform to the compatible land use regulations in the ordinance. Adjacent to the amphitheater, the Sentara Princess Anne Hospital, constructed in 2011, is an example of successful development in areas encumbered by high noise levels. The hospital conforms to the City's AOZO and incorporates noise attenuation as required in the ordinance.



Between 2008 and 2010, the Navy conveyed the 82-acre Marshview property near NAS Oceana in Virginia Beach in exchange for conveyance by the City of a restrictive easement on approximately 47 acres off of Salem Rd. in the ITA. Compatible use of these areas is considered as part of the City of Virginia Beach's Interfacility Traffic Area and Vicinity Master Plan.



Prior to the City's adoption of the ITA and associated development restrictions in 2005, residential subdivisions, including Courthouse Woods and the approximately 1,100-unit Courthouse Estates, were developed in the ITA off of N. Landing Rd., Indian River Rd., and Salem Rd. These residential areas lie within the greater than 65 dB DNL noise contour and are frequently over flown by aircraft transiting between NAS Oceana and NOLF Fentress. Since 2005, the City and the Navy have cooperatively worked to prevent and reduce incompatible residential development in the ITA.



Source: ESRI 2012; City of Virginia Beach, 2011; City of Chesapeake 2012; Dept. of Defense -Navy 2011; VGIN 2010

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Strategic Growth Area 7: Hilltop. The Hilltop strategic growth area is divided into four large retail quadrants. This strategic growth area is bound to the south by the City-owned railroad right of way and to the north by the Hilltop Manor residential neighborhood. Interstate 264 and two major east-west arterial roads, Virginia Beach Boulevard and Laskin Boulevard cross the strategic growth area, while a third major arterial road, First Colonial Road, bisects the area north to south. This strategic growth area lies almost entirely within the greater than 75 dB DNL noise zone. The southernmost and easternmost parts of the strategic growth area additionally lie within APZ 1. Like the Lynnhaven strategic growth area, Hilltop does not include a substantial amount of residential land uses; most of the strategic growth area consists of commercial land uses with smaller areas of park and government land uses. Retail land uses in the greater than 75 dB DNL noise zone conform with the City's AICUZ Overlay Zoning Ordinance; therefore, most of the strategic growth area is compatible with NAS Oceana operations. One church located off of First Colonial Road south of Laskin Road and a medical facility located off of Republic Road do not conform to AICUZ Overlay Zoning Ordinance regulations for land uses in the greater than 75 dB DNL noise zone, and are considered pre-existing, non-conforming uses. A Target retail store located near the southern boundary of the strategic growth area and one retail establishment in the eastern part of the strategic growth area also are pre-existing, non-conforming uses in APZ 1.

The City recommends infill development and redevelopment of underdeveloped properties in the Hilltop strategic growth area. The City's comprehensive plan recommends a denser mixture of retail, office, entertainment, institutional, and open space land uses in this strategic growth area. Planned pedestrian improvements on Laskin Road and the proposed extension of the Tide would increase the level of access to this already-busy retail hub. Developers would be required to work with the City to obtain appropriate approvals and reasonable use exceptions if the proposed development is not consistent with the City's AICUZ Overlay Zoning Ordinance regulations.

Strategic Growth Area 8: Resort Area. Virginia Beach’s Resort Area is discussed individually below.

Suburban Focus Areas:

North General Booth Boulevard. The North General Booth Boulevard area includes six sites located between Rudee Inlet and Dam Neck Road. This area is characterized by large parcels of open space and government-owned land, including the Virginia Aquarium and Marine Science Center and two large campgrounds. Open space along Rudee Inlet and General Booth Boulevard is used for a mixture of active and passive recreation. Densely developed residential areas are located near this suburban focus area, but there currently is no residential development in the suburban focus area. The six sites in the North General Booth Boulevard area are located in the greater than 75 dB DNL noise zone, with the exception of Site 4.4 (the northwestern-most site), which is located partially in the 70 dB to 75 dB DNL noise zone. Use of these sites for outdoor recreation conforms to the City’s AICUZ Overlay Zoning Ordinance; however, parks, and campgrounds are pre-existing, non-conforming uses in the greater than 75 dB DNL noise zone.

The City recommends that future use of these sites should be low-intensity, non-residential, and should retain as much open space as possible. The City will ensure future uses comply with the AICUZ Overlay Zoning Ordinance and protect existing natural resources in this suburban focus area, such as Owl’s Creek and the Navy’s designated “Watchable Wildlife Area”.

First Colonial Medical Corridor. The First Colonial Medical Corridor is located north of NAS Oceana and includes properties along First Colonial Road from Mill Dam Road south to Republic Road. Commercial uses characterize this area. The Sentara Virginia Beach General Hospital is located in this corridor, along with various other medical offices and rehabilitation centers, neighborhood commercial businesses, and offices. The corridor also includes multi-family apartment complexes, including some for senior citizens. The largest part of the corridor is located in the 70 dB to 75 dB DNL noise zone. The northern part of the corridor is located in the 65 dB to 70 dB DNL noise zone, and the southern

part of the corridor is located in the greater than 75 dB DNL noise zone. A multi-family apartment complex and senior group homes are located in the 65 dB to 70 dB DNL noise zone and are considered pre-existing non-conforming uses. A similar non-conforming multi-family apartment complex is located in the 70 dB to 75 dB DNL noise zone. Pre-existing non-conforming uses located in the greater than 75 dB DNL noise zone include two churches and part of another multi-family apartment complex.

The City of Virginia Beach envisions infill development of additional medical and health care offices and senior citizen residential and support services along this corridor. Medical uses are considered conforming uses in the 65 dB to 70 dB DNL and 70 to 75 dB DNL noise zones; however, residential land uses, including nursing homes are considered non-conforming uses in the greater than 65 dB DNL noise zone. The City's development approval process will ensure any future residential development along this corridor is limited to properties that cannot reasonably be developed with another use, and at the lowest density reasonable.

North Beach Area. The North Beach neighborhood from 42nd Street to 56th Street is included in the City's designated Sub-area 1 and Sub-area 3 planning areas within the 65 dB to 70 dB DNL noise zone (see the Sub-area figure in Section 7.1 under Initiative 1). The extreme southern boundary of the neighborhood, around 42nd Street, is within the greater than 70 dB DNL noise zone. Existing land uses in the North Beach neighborhood include high-density single-family and duplex residential units. The AICUZ Overlay Zoning Ordinance includes specific compatibility criteria for discretionary development applications for residential uses on properties in the 65 dB to 70 dB DNL noise zone; application of these criteria during the development review process is sufficient to prevent future development of non-conforming uses in Sub-area 1. In areas where residential development is discouraged or prohibited (Sub-area 3 and areas within the greater than 70 dB DNL noise zone), the compatibility criteria in the AICUZ Overlay Zoning Ordinance will prevent development of non-conforming uses at densities greater than are currently present.

Special Economic Growth Area 1. SEGA 1 is bounded on the north by the City-owned railroad right-of-way, on the east by South Birdneck Road, on the west by Oceana Boulevard and NAS Oceana, and on the south by Bells Road (including properties on the south side and adjacent to Bells Road). This area is located entirely within the greater than 75 dB DNL noise zone. In addition, the northern part of the area is partially within APZ 1, and the eastern part of the area is partially within APZ 2. The northwestern part of the SEGA is government-owned and consists primarily of open space with limited commercial development, while the remainder is privately owned and includes a mixture of commercial, residential, open space and industrial land uses. Residential land uses in the northeastern and southern parts of the SEGA are considered pre-existing non-conforming uses. Single-family residences in the northeastern part of the area that are within APZ 1 additionally do not conform to the AICUZ Overlay Zoning Ordinance’s compatibility criteria. One church is located off of South Birdneck Road in APZ 2 and is considered a pre-existing, non-conforming use. Most commercial uses in the SEGA are related to storage, construction, or equipment and comply with the criteria in the AICUZ Overlay Zoning Ordinance. However, one apparel and equipment retail store in APZ 1 and one apparel manufacturing business in APZ 2 are considered pre-existing, non-conforming uses.

The City views SEGA 1 as an area “with significant economic value and growth potential” and recommends its use for future light industrial and limited commercial and retail development (City of Virginia Beach Planning Commission 2011c). The City’s development review process will ensure compatibility with the provisions of the AICUZ Overlay Zoning Ordinance for development in high noise areas and APZs 1 and 2.

Special Economic Growth Area 2. SEGA 2 borders the western boundary of NAS Oceana. The SEGA is generally bound by London Bridge Road, Lynnhaven Creek, South Lynnhaven Road, and Potter’s Road (City of Virginia Beach Planning Commission 2011c). This area is largely developed and includes Lynnhaven Mall and surrounding retail blocks, office complexes, Oceana West Industrial Park, and government-owned open space. No residential land uses are located in the SEGA; however, dense single-family residential

neighborhoods are located west of the area. SEGA 2 is located within the greater than 75 dB DNL noise zone, and significant portions of the SEGA additionally are located in APZ 1 or APZ 2. The commercial, industrial, and service uses in SEGA generally are compatible with AICUZ Overlay Zoning Ordinance provisions for the greater than 65 dB DNL noise zone. Two churches are located in the SEGA off of Central Drive and International Parkway and are considered a pre-existing, non-conforming use. The second church also is located in APZ 1 and does not conform to the AICUZ Overlay Zoning Ordinance criteria for this APZ. While most of the existing commercial and industrial businesses located south of Runway 5/23 in SEGA 2 are considered conforming, several service businesses are in this area, which is in APZ 1. Most service uses are considered pre-existing, non-conforming uses in APZ 1.

The City of Virginia Beach recommends infill development in this area with office, retail, and industrial uses similar to existing development. One large tract of open, developable land remains in SEGA 2. This is located southeast of the intersection of Lynnhaven Parkway and Potters Road. The City recommends acquisition of this land for open space or development of the tract with low intensity retail and/or office uses. This tract is located with APZs 1 and 2; any future development would be required to conform to the AICUZ Overlay Zoning Ordinance provisions for the APZs.

Special Economic Growth Area 3. SEGA 3 straddles Dam Neck Road between Holland Road and Corporate Landing Parkway. The SEGA contains the Corporate Landing Business Park. Most of the remaining land in the SEGA is undeveloped or in agricultural use. The western part of the SEGA lies mostly within the 70 dB to 75 dB DNL noise zone; however, portions of the western part are constrained by APZs 1 and 2 and the greater than 75 dB DNL noise zone. The eastern part of the SEGA lies almost entirely within the greater than 75 dB DNL noise zone. Several pre-existing, non-conforming uses are located in the western part of the SEGA in APZ 1, including two home furnishing businesses. Existing land uses in the western part of the SEGA generally are considered conforming uses; however, one church and one school are located in this area and considered pre-existing, non-conforming uses in the greater than 75 dB DNL noise zone.

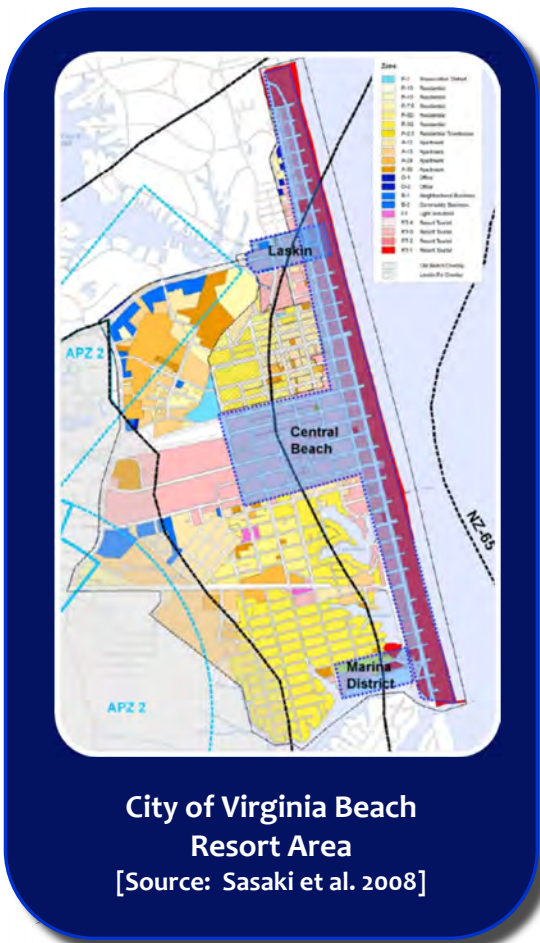
The City recommends development of a mix of light industrial, low-rise office, and limited retail in the western part of SEGA 3 and corporate and light industrial parks in the eastern part of SEGA 3. The City requires proposed developments in this area to comply with the AICUZ Overlay Zoning Ordinance and the Oceana Land Use Conformity program (described in Section 7.2, Initiatives Arising from the 2005 Defense Base Closure and Realignment [BRAC] Process).

Resort Area

The City of Virginia Beach’s resort area is one of the City’s designated strategic growth areas and has been a central focus of compatible planning efforts by the City and the Navy. The resort area extends from 42nd Street south to Rudee Inlet and inland to North Birdneck Road and Marshview Park. It contains a wide variety of land uses, including dense, high-rise hotel development along the Atlantic oceanfront; the boardwalk and main tourist beach and convention

center; retail, restaurants, and businesses; medium- and high-density residential neighborhoods; and parks and other recreational facilities. Inland parts of the resort area and the oceanfront between 33rd Street and 42nd Street lie within the greater than 70 dB DNL noise zone, and parts of the resort area from Interstate 264 north to Laskin Road lie within APZ 2.

AICUZ Overlay Zoning Ordinance compatibility criteria do not apply in the oceanfront Resort Tourist [RT]-1, RT-2, RT-3, Old Beach, and Laskin Road Gateway districts (see Resort Area figure in margin). Most of these areas were subsumed by the 2012 adoption of the City’s Oceanfront Resort District (ORD) zoning ordinance, which applies “form-based” zoning principles. Section 7.1, Initiative 1 describes the height and density requirements cooperatively developed by the City and the Navy for the oceanfront zoning districts. Pre-existing, non-conforming uses outside of the oceanfront zoning districts include multi-family apartment buildings, attached and semi-detached houses, a Head Start center, and restaurants in APZ 2.



Churches in the greater than 75 dB DNL noise zone and all residential uses in the 70 dB to 75 dB DNL noise zone and greater than 75 dB DNL noise zone are also pre-existing, non-conforming uses in the resort area.

The City's Virginia Beach Resort Area Strategic Action Plan (Sasaki et al. 2008) outlines the City's goals for infill development and redevelopment of the resort area. Generally, the City encourages additional high-rise hotel, commercial, residential, and entertainment venue development in the resort area. The City and the Navy have worked together to determine the form future development in the resort area should take to allow the City to realize the economic potential of this asset while protecting the flying mission at NAS Oceana.

Interfacility Traffic Area (ITA)

Increasing residential development in the ITA provided the impetus for coordinated planning efforts to address the future development and use of land between NAS Oceana and NALF Fentress as part of the JLUS efforts in 2004 and 2005. The City of Virginia Beach adopted the Interfacility Traffic Area Property Acquisition Plan in 2005 as an initiative arising from the JLUS. The plan guides the acquisition of property in the ITA in order to limit development density, preserve natural areas, and provide open space and recreation areas. The acquisition plan and the City's Interfacility Traffic Area and Vicinity Master Plan (Urban Design Associates 2010) guide future development and compatible use of the ITA in conjunction with the compatibility criteria of the AICUZ Overlay Zoning Ordinance. Section 7.1, Initiative 5, provides an overview of the City's property acquisition plan for the ITA.

APZ-1/Clear Zone Master Plan Areas

The City adopted the APZ-1/Clear Zone Master Plan in 2008 as a component of the comprehensive plan (City of Virginia Beach 2008). The plan and resulting land acquisition and conformity program (see Section 7.2, Initiative 1) includes five sub-areas corresponding to the portions of the clear zone and APZ 1 that extend off of Navy-owned property at the ends of the runways. The APZ-1/Clear Zone Master Plan details the types of non-conforming uses found in these areas and guidelines for development of future compatible uses. Section

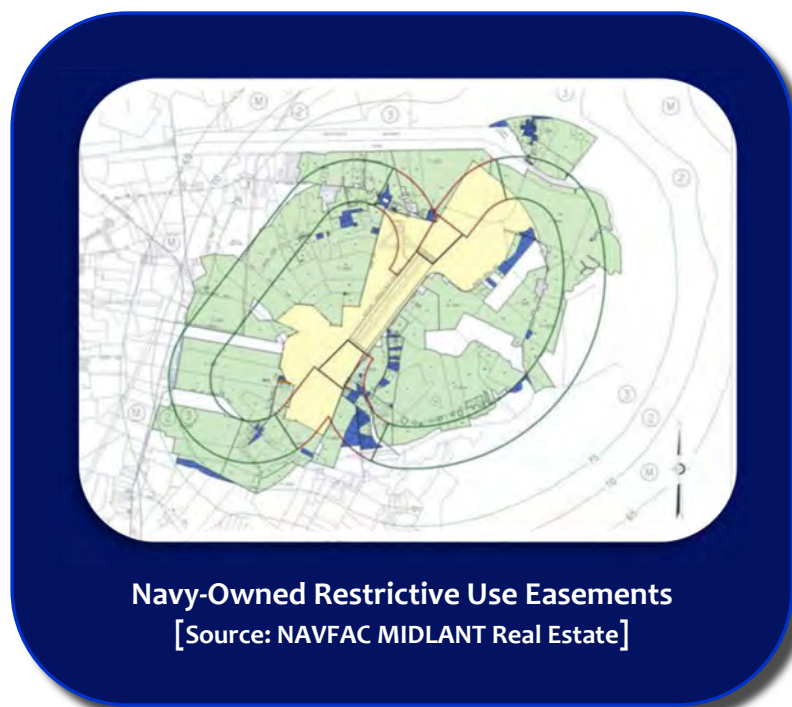
7.2, Initiative 1, provides information on the City’s Clear Zone Acquisition and Conformity Program (ACP).

6.4.2 City of Chesapeake

To identify areas where pre-existing, non-conforming conditions are present near NALF Fentress, the Navy reviewed the City of Chesapeake’s existing zoning and land use classification data. AICUZ noise zones, APZs, and clear zones were overlaid on city parcel and land use classification data. Existing conditions were reviewed at the planning area and parcel level based on land use compatibility guidelines. Appendix B.2 provides the associated land use compatibility guidelines for the 65-70 dB DNL, 70-75 dB DNL, and greater than 75 dB DNL noise zones.

Residential Areas

In an effort to provide a buffer between Navy air operations and the growing communities of Chesapeake, the Navy has acquired restrictive easements on parcels in the vicinity of NALF Fentress as an additional measure to ensure compatible development. The Navy-owned restrictive use easement areas have been established for the areas immediately surrounding the installation (approximately one mile in all directions [see inset figure]).



Land within the Fentress Airfield Overlay District not currently classified as residential is either conservation or agricultural/open space. These classifications only allow for rural land use patterns that support farming and livestock operations, rural residential development (one unit per three acres), and agricultural preservation (City of Chesapeake 2012a). While there are some low-density residential and recreational structures located in the restricted development zone that have been categorized as pre-existing, non-conforming uses, continued enforcement of the restricted zone will ensure that additional development does not occur in this area.

The “Forward Chesapeake 2026 Comprehensive Plan” update identifies focused development areas in the north and west of the city, away from NALF Fentress. The plan concentrates mixed use and higher-density development in an urban overlay district that lies outside of the City’s Fentress Airfield Overlay District. The Fentress Airfield Overlay District, including the installation airfield area and the parcels with Navy-owned restrictive easements, are primarily located in the City’s rural overlay district. Based on compatibility guidance identified in the comprehensive plan, this overlay district permits only low-density development no greater than one unit per three acres. The suburban overlay district west of NALF Fentress contains low-density residential development (four units per acre) that abuts the boundary of the rural overlay district. However, the establishment and effective implementation of the overlay district guidance prevents this development from expanding by containing it within the suburban overlay district.

6.5 FUTURE LAND USE AND ZONING

6.5.1 Virginia Beach Future Land Use and Zoning

Planned future growth in the city of Virginia Beach will occur primarily as redevelopment infill in the developed urban and suburban areas of the city or as new development in the Princess Anne Corridor. In addition, in its 2009 comprehensive plan, the city has identified eight strategic growth areas, eight suburban focus areas, and three SEGAs for focused planning efforts (see Figure 6-1). Of these, three of the strategic growth areas, three of the suburban focus areas, and all three of the SEGAs lie wholly or partially in the NAS Oceana’s

AICUZ footprint (City of Virginia Beach Planning Commission 2011c). Future changes to the zoning ordinance likely will originate out of recommendations in the special area plans developed for the above focus areas and future iterations of the city's comprehensive plan. The processes of comprehensive planning and special area planning, which involve public and other stakeholder input in local government planning decisions, are useful to indicate broadly where changes to the city's zoning ordinance will be necessary to promote the community's vision for its growth. The Navy, as a member of the community, has worked with the city to ensure that this future growth is accomplished in a manner that allows the preservation of the mission at NAS Oceana.

6.5.2 Chesapeake Future Land Use and Zoning

Much of the future growth projected for the City of Chesapeake is planned to occur northwest of NALF Fentress, in the urban and suburban areas of the city with existing networks of infrastructure and public services (City of Chesapeake Planning Department 2005). Land surrounding the airfield is zoned for agricultural or conservation uses and is within the City's rural overlay district, which has been established to preserve and protect the rural character of the southern part of the city (City of Chesapeake Planning Department 2005). According to the Weldon Cooper Center for Public Service population projections, Chesapeake has been and will continue to have a very high rate of population growth, compared to the Hampton Roads region as a whole, until at least 2020. This population growth will be accompanied by increased development pressures that will require management to prevent incompatible growth around NALF Fentress.

6.6 STANDARD TOOLS AND RECOMMENDATIONS

The Commonwealth of Virginia, the City of Virginia Beach, the City of Chesapeake, and the Navy have initiated legislation, programs, zoning ordinances, and comprehensive plan changes (see Section 7, Programs and Initiatives). These have helped manage existing and future development within and around the AICUZ footprint associated with NAS Oceana and NALF

Naval Air Station Oceana and Naval Auxiliary Landing Field Fentress

Fentress. In addition, the Navy has identified a variety of tools and land use strategies oriented toward the Navy, federal, state, and local levels that are recommended for encouraging compatible land use in the AICUZ footprint. At the various levels of implementation these tools and strategies include review of government programs and actions, community outreach and partnership, land use planning and growth management regulations, and targeted property acquisition. The standard tools and recommendations identified as part of the Navy's AICUZ Program are presented in Appendix C.

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7

PROGRAMS AND INITIATIVES

- 7.1 Initiatives Arising from the 2005 Hampton Roads Joint Land Use Study
- 7.2 Initiatives Arising from the 2005 Defense Base Closure and Realignment Process
- 7.3 Other Initiatives

This section discusses the methods employed by NAS Oceana to implement the AICUZ Program, as well as recommended approaches to manage future development within and around the AICUZ footprint. This section also discusses encroachment accomplishments for NAS Oceana and NALF Fentress, the majority of which stem from the release of the 2005 Hampton Roads JLUS and the 2005 BRAC Process.

7.1 INITIATIVES ARISING FROM THE 2005 HAMPTON ROADS JOINT LAND USE STUDY

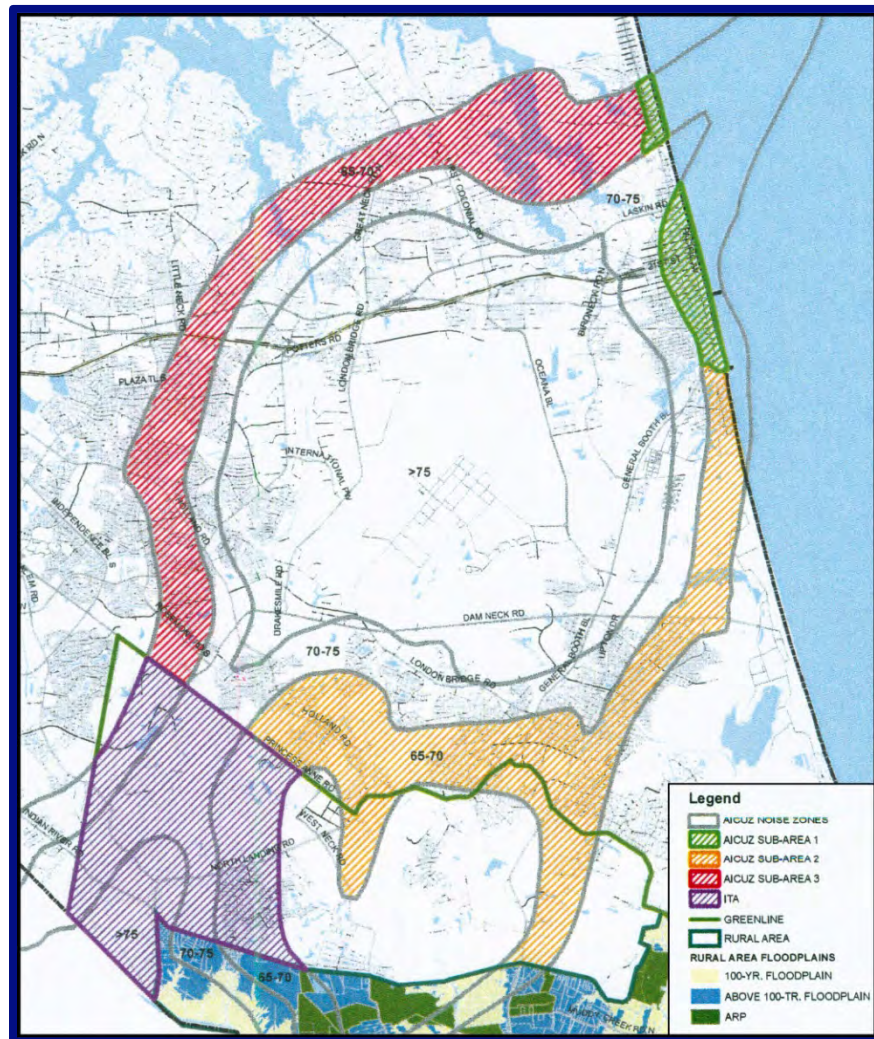
The 2005 Hampton Roads JLUS, initiated in 2004 as part of the nationwide DOD JLUS Program, provides recommendations regarding land use development and policy based upon the activities and needs of the Navy's air mission in the region, specifically the air operations of NAS Oceana, NALF Fentress, and NS Norfolk Chambers Field. The study identified impacts from noise exposure and APZs resulting from aircraft operations, land uses in each jurisdiction that are adversely impacted by air operations, limitations to tall structures interfering with flight operations, and local government approaches to reduce the impacts associated with air operations. Study sponsors included the City of Virginia Beach, City of Chesapeake, City of Norfolk, the Office of Economic Adjustment within the DOD, and the HRPDC. The 2005 Hampton Roads JLUS was endorsed by the Navy and adopted by the City Councils of Chesapeake, Norfolk, and Virginia Beach. The following key initiatives derive from the 2005 Hampton Roads JLUS:

Initiative 1: Virginia Beach AICUZ Overlay Zoning Ordinance

Zoning is one of the key tools a community may employ to promote or control development in certain areas. In December 2005, the City of Virginia Beach enacted the AICUZ Overlay Zoning Ordinance utilizing compatibility criteria taken from the Navy's AICUZ Instruction. The first version of this ordinance applied to discretionary development/redevelopment within the 70 dB DNL noise contour and greater. In 2007, the City expanded the AICUZ Overlay Zoning Ordinance to include all areas within NAS Oceana noise contours (i.e., 65 dB DNL and greater), with tailored compatibility criteria for three distinct sub-areas within the 65-70 dB DNL.

Initiatives from the 2005 Hampton Roads Joint Land Use Study

1. Virginia Beach AICUZ Overlay Zoning Ordinance
2. NAS Oceana/Virginia Beach Land Use Memorandum of Understanding
3. Oceanfront Resort District Form Based Code
4. DOD Encroachment Partnering Program
5. Interfacility Traffic Area Property Acquisition Plan and Rural AICUZ Area
6. Noise Zone and APZ Disclosure Requirements for Residential Real Estate Sales and Leases
7. Sound Attenuation Requirements
8. City of Chesapeake Fentress Airfield Overlay District
9. NAS Oceana Outreach Initiatives
10. Hampton Roads JLUS Policy and Technical Committees



AICUZ Overlay Zoning Ordinance Sub Areas
within the 65-70 dB DNL

AICUZ Overlay Zoning Ordinance compatibility criteria prohibit residential development within the 70 dB DNL and greater unless no other reasonable use for the land exists, as defined by Virginia law. In cases where no other reasonable land use exists, residential development may proceed, but this development is limited to the lowest reasonable density. When enacted, the AICUZ Overlay Zoning Ordinance compatibility criteria did not apply in certain oceanfront zoning areas (e.g., RT-1, RT-2, RT-3, Old Beach District, and Laskin Road Gateway). Most of these areas were subsumed by the 2012 adoption of the City's Oceanfront Resort District (ORD) zoning ordinance, which applied "form based" zoning principles; however, the AICUZ Overlay Zoning Ordinance continues to be applied in the same manner.

As part of the agreement by which AICUZ criteria would not be applied to oceanfront zoning areas, the City of Virginia Beach reduced the potential incompatible residential density in these zoning districts by a factor of approximately 7,000 units. Height limitations for oceanfront area structures were also established for each zoning district (i.e., 75 feet in RT-3). In addition, §202 of the city zoning ordinance provides that "...no artificial structure or tree or other natural growth which on the basis of its height would constitute an obstruction to air navigation pursuant to Part 77 of FAA Regulations, 14 CFR §77.21 et seq. shall be allowed in any district."

The most significant change to the land use planning and zoning processes in Virginia Beach is the shift of responsibility to developers / landowners to clearly demonstrate that an incompatible use is the only reasonable use for the land. As part of the rezoning / conditional use permit process, a *Reasonable Use Exception Form* must be completed by the applicant to demonstrate why other compatible land uses are not possible. Before the City Council may approve an application for an incompatible zoning change or conditional use permit, the members must make a finding on the record of Council's proceedings that no other land use exists except for the incompatible land use that has been applied for (see Appendices D.1, D.2, and D.3 for more details and forms). The City's AICUZ Overlay Ordinance states that the City Council may approve an application for an incompatible zoning change or conditional use permit only at the lowest density that is reasonable.

Initiative 2: NAS Oceana / Virginia Beach Land Use Memorandum of Understanding

Once Virginia Beach enacted the AICUZ Overlay Zoning Ordinance in December 2005, it became necessary to determine how future interactions between Oceana and City staffs would be conducted, particularly with respect to applicable rezoning and CUP applications. The resulting NAS Oceana / Virginia Beach Land Use Memorandum of Understanding (MOU) was signed in 2006. The MOU established the process by which AICUZ Overlay Zoning Ordinance applications are evaluated by Virginia Beach and NAS Oceana staff before being presented to the Planning Commission and City Council for vote.⁴ Monthly meetings were established for the review of applications by this MOU group. After the monthly meetings, the MOU group drafts a statement for incorporation into the City Planning Department's report, indicating whether the application does, or does not, meet AICUZ Overlay Zoning Ordinance requirements. The MOU group also meets to review conceptual plans for AICUZ Overlay Zoning Ordinance compliance; however, these plans do not require a staff report.

The 2006 MOU also includes an escalation clause, which states that unresolved staff disagreements regarding AICUZ Overlay Zoning Ordinance interpretation or applications are to be elevated to the NAS Oceana CO and Virginia Beach City Manager for joint resolution. Another provision of the MOU calls for the NAS Oceana CO to address the Virginia Beach City Council to provide the annual "State of NAS Oceana" address. The MOU is amended as circumstance requires.

Initiative 3: Oceanfront Resort District Form Based Code

The ORD Form Based Code (FBC), adopted in 2012, is a modification of zoning requirements and design guidelines at the Virginia Beach oceanfront. The ORD is an area virtually identical to the present RT-1, RT-2, RT-3, Old Beach, and Laskin Road Gateway Districts. As previously mentioned, oceanfront residential density was a factor in the original 2005 Virginia Beach/Navy

⁴ The MOU also addressed the concerns of City officials which arose at the end of the 2005 JLUS process because there was no "formal signing" of the JLUS document. The MOU, which is signed by NAS Oceana's CO and the City of Virginia Beach City Manager upon each revision, completely satisfied this concern.

agreement (2005 AICUZ Overlay Zoning Ordinance). As such, Virginia Beach and NAS Oceana ensured the 2009 ORD FBC's potential residential density would not exceed the original density established in 2005. A process is being established for tracking the number of residential and hotel units from each district, which will be incorporated into the next MOU revision.

Under FBC, zoning height limitations are principally tied to structures, as opposed to particular areas, within the ORD. By incorporating height limits for structures into the zoning code, NAS Oceana staff can focus their evaluations of proposals based on the allowable number of residential and hotel units remaining in the district.

Whether a structure satisfies the NAS Oceana minimal and established terminal approach procedures will continue to be determined by the FAA obstruction evaluation and airport airspace analysis process, based on analysis by the Naval Flight Information Group. Any structure that is determined to require an alteration to NAS Oceana's minimal or terminal approach procedures, even if presented to the City of Virginia Beach Planning Commission and City Council for approval, will result in a formal Navy objection, MOU and density agreements notwithstanding. The obstruction evaluation must be submitted by the applicant as part of the formal application for site plan review for development proposals. The City Council amended Section 202, Height Regulations in the City Zoning Ordinance, to require any person proposing to construct or alter any building or structure where a notice or supplemental notice must be given to the FAA, pursuant to CFR Title 14, Part 77, Subpart B, to provide a copy of the notice with the site plan review application. The federal regulations explaining when the FAA must be notified can be found at the following links: <http://tinyurl.com/78cgk7r> or <https://oeaaa.faa.gov/oeaaa/external/portal.jsp>.

Initiative 4: DOD Encroachment Partnering Program

10 U.S.C. §2684a authorizes the Secretary of Defense or the Secretary of a military department to enter into agreements with an eligible entity or entities to address the use or development of real property in the vicinity of, or ecologically related to, a military installation or military airspace, to limit

incompatible development or use of the property that would be incompatible with the mission of the installation or place other constraints on military training, testing and operations. Eligible entities include a state, a political subdivision of a state, and a private entity that has, as its principal organizational purpose or goal, the conservation, restoration, or preservation of land and natural resources, or a similar purpose or goal.

Encroachment partnering agreements provide for an eligible entity to acquire fee title, or a lesser interest, in land for the purpose of limiting encroachment on the mission of a military installation and/or to preserve habitat off the installation to relieve current or anticipated environmental restrictions that might interfere with military operations or training on the installation. The DOD can share the real estate acquisition costs for projects that support the purchase of fee, or conservation, or other restrictive easements for such property. The eligible entity negotiates and acquires the real estate interest for encroachment partnering projects with a voluntary seller. The eligible entity must transfer the agreed upon restrictive easement interest to the United States of America upon the request of the Secretary.

In 2006, NAS Oceana began applying for DOD Readiness and Environmental Protection Initiative (REPI) funds in accordance with 10 U.S.C. §2684a. Since that time, NAS Oceana has entered into multi-year agreements with the Cities of Virginia Beach and Chesapeake, and has been awarded several grants totaling approximately \$15 million.

Initiative 5: Interfacility Traffic Area Property Acquisition Plan and Rural AICUZ Area

As part of the 2005 Hampton Roads JLUS, the City of Virginia Beach agreed to pursue land acquisition within the ITA. The ITA is defined as “that portion of the Transition Area west of West Neck Creek located within Noise Zone 65 dB DNL or greater” (EDAW, Inc. et al 2005). In 2008, the City of Chesapeake agreed to pursue property on their side of the ITA. In August 2011, the Navy and Virginia Beach expanded the area of interest and amended the multi-year agreement to include the “Rural AICUZ Area.” This area includes AICUZ contours south of the ITA most impacted by NALF Fentress operations.

As of September 27, 2012, The City of Virginia Beach has spent approximately \$16.9 million for 1,692 acres in the ITA/RAA. The City of Chesapeake has spent \$1.0 million for 641 acres in the ITA. The Navy's contribution, to date, amounts to \$11.6 million.

Initiative 6: Noise Zone and APZ Disclosure Requirements for Residential Real Estate Sales and Leases

Virginia Code §55-519.1 requires disclosure to potential homebuyers for properties within a municipality that has a military air facility. Further, Virginia Code §55-248.12:1 requires disclosure for rental properties within a municipality that has a military air facility. Both laws require that a municipality's official zoning map publish noise zones and/or APZs (see Appendix D.4).

Initiative 7: Sound Attenuation Requirements

Virginia Code §15.2-2295 authorizes municipalities to require sound attenuation for structures within certain noise zones. In Virginia Beach, this requirement is contained within Appendix I of their city code. In Chesapeake, the requirement is contained within §12-400 of their city code. The city codes require residential structures within the 65 dB DNL and greater noise zones be constructed in accordance with the Virginia Uniform Statewide Building Code.

Initiative 8: City of Chesapeake Fentress Airfield Overlay District

The City of Chesapeake Fentress Airfield Overlay District, established in 1998, rendered residential development as incompatible in noise zones 70 dB DNL and greater. In 2005, the City of Chesapeake expanded the Fentress Airfield Overlay District to include the 65-70 dB DNL noise zone. The Fentress Airfield Overlay District affects few parcels presently, as most lands within noise zones around NALF Fentress are encumbered by U.S. Navy-owned restrictive use easements (e.g., development rights).

Like Virginia Beach, the City of Chesapeake has developed an MOU process by which Fentress Airfield Overlay District applications are evaluated by the Chesapeake Planning Department and NAS Oceana staff before being presented to the Planning Commission and City Council for vote. The City of Chesapeake has also initiated the NALF Fentress Encroachment Protection Acquisition Program. Similar to the ACP in Virginia Beach, both city and state

funding will be used to acquire property interests for properties located partially or wholly within the AICUZ for NALF Fentress.

Initiative 9: NAS Oceana Outreach Initiatives

NAS Oceana staff regularly provides informational briefs to residential and commercial real estate firms, community organizations, business groups, and private citizens. These briefs explain NAS Oceana's role in Navy air operations, the nature and the importance of flight operations that occur at both NAS Oceana and NALF Fentress, an overview of the Navy's AICUZ Program, and the objectives and achievements of the AICUZ Program. Detailed information is presented concerning the specific actions the Navy and the cities have taken to manage encroachment in Hampton Roads, as well as the requirements for state-mandated residential sale/lease noise disclosures and sound attenuation. The NAS Oceana staff will frequently augment these briefs with the Interactive Sound Information System (ISIS), a presentation tool which demonstrates various principles associated with measuring jet noise and the benefits of sound attenuation. Video flight track modeling is also a regular component of NAS Oceana's informational briefs.

In addition to regular outreach (i.e., MOU process), the City of Virginia Beach frequently invites NAS Oceana staff to participate in comprehensive and other planning initiatives. Examples of such collaborations include the ITA Master Plan, the Virginia Beach Transit Extension Study (light rail initiative), and the Sustainability Master Plan.

Initiative 10: Hampton Roads JLUS Policy and Technical Committees

Hampton Roads JLUS Policy and Technical Committees, established during the 2005 JLUS process, continue to meet periodically to discuss matters arising from JLUS recommendations and initiatives established at the conclusion of the study. An example includes a meeting concerning modifications to AICUZ APZ and noise zones for NS Norfolk Chambers Field.

The committee addresses changing issues and accomplishments since the establishment of the 2005 JLUS process, and provides the HRPDC with recommendations for updates to the study.

7.2 INITIATIVES ARISING FROM THE 2005 DEFENSE BASE CLOSURE AND REALIGNMENT PROCESS

In September 2005, the BRAC Commission recommended “to realign Naval Air Station Oceana, Virginia by relocating the East Coast Master Jet Base to Cecil Field” in Jacksonville, Florida should the Commonwealth of Virginia fail to meet the Commission’s detailed mandate. The Commission issued six directives to the Cities of Virginia Beach and Chesapeake requiring legislation to prevent further encroachment upon NAS Oceana by the end of March 2006:

Initiatives from the 2005 Defense Base Closure and Realignment (BRAC) Process

1. Virginia Beach Accident Potential Zone-1 / Clear Zone Acquisition and Conformity Program
2. YESOCEANA.com and Economic Development Initiatives
3. City of Virginia Beach Annual Reports
4. NAS Oceana / NALF Fentress Military Advisory Council

1. Enact state-mandated zoning controls requiring the Cities of Virginia Beach and Chesapeake to adopt zoning ordinances that require the governing body to follow AICUZ guidelines in deciding discretionary development applications for property in noise zones 70 dB DNL or greater;
2. Enact state and local legislation and ordinances to establish a program to condemn and purchase all the incompatible use property located within APZ 1 areas for NAS Oceana, as depicted in the 1999 AICUZ pamphlet published by the Navy, and to fund and expend no less than \$15 million annually in furtherance of the aforementioned program;
3. Codify the 2005 final Hampton Roads JLUS recommendations;
4. Legislate requirements for the Cities of Virginia Beach and Chesapeake to evaluate undeveloped properties in noise zones 70 dB DNL or greater for rezoning classification that would not allow uses incompatible under AICUZ guidelines;
5. Establish programs for purchase of development rights of the ITA between NAS Oceana and NALF Fentress; and
6. Enact legislation creating the Oceana-Fentress Military Advisory Council.

The following initiatives respond primarily to the BRAC Commission recommendation number 2 (above). The balance of the BRAC Commission recommendations was accomplished through state law or other legislative avenues.

Initiative 1: Virginia Beach Accident Potential Zone -1 / Clear Zone Acquisition and Conformity Program

The second of the BRAC directives required the City of Virginia Beach “to establish a program to condemn and purchase all the incompatible use property located within the Accidental Potential Zone 1 areas for Naval Air Station Oceana...and to fund and expend no less than \$15 million annually in furtherance of the aforementioned program.” In response, the City established the Accident Potential Zone 1/Clear Zone ACP to purchase properties from willing sellers in both APZ-1 and clear zone areas.

The ACP is funded in equal \$7.5 million amounts by the Commonwealth of Virginia and the City of Virginia Beach each year, and is administered by a City-created committee comprised of City officials and representatives of the affected business and residential communities. NAS Oceana’s CO sits on the Committee as a non-voting technical advisor. Known as the Oceana Land Use Conformity Committee (OLUCC), the Committee meets monthly or bi-monthly to evaluate potential acquisitions and to direct the ACP’s acquisition objectives. In 2007, the OLUCC expanded the ACP eligibility criteria to include land located in the ITA between NAS Oceana and NALF Fentress. In 2011, the OLUCC again expanded the ACP to include land east of the ITA, still located within the noise zones, designating this area as the Rural AICUZ Area (RAA).

Since its inception, the ACP has made considerable progress in reducing encroachment near NAS Oceana. From Fiscal Year (FY) 2007 to FY 2013, the ACP has expended approximately \$73 million to acquire 650 incompatible residential units and 62 incompatible commercial units in APZ-1/Clear Zone areas from over 250 property owners. During this time, the City of Virginia Beach acquired approximately 1,692 acres in the ITA/RAA at a cost of approximately \$24.3 million. Those interested should contact the Virginia Beach City Attorney’s Office to obtain current ACP figures, which change monthly.

Initiative 2: YESOCEANA.com and Economic Development Initiatives

In response to the BRAC order and in concert with the APZ-1/Clear Zone master plan, the OLUCC was established to direct the actions of the APZ-1/Clear Zone ACP. The OLUCC is chaired by the Mayor of Virginia Beach and comprised of City Council members, the City Attorney, City Manager and staff, and members of the Virginia Beach Department of Economic Development. The OLUCC is responsible for developing an incentives program to guide incompatible businesses out of the APZ-1 and bring compatible development to these areas. As of 2008, the OLUCC has authority (as amended through the state code) to spend funds to counter encroachment within areas of concern to the military.

To facilitate public outreach and disseminate information on the OLUCC's activities, a website was created to publish information related to the program. YESOCEANA.com provides guidance on land use policy regarding future use of property located within the APZ-1/Clear Zone areas around NAS Oceana. Targeted site users include citizens of the City of Virginia Beach, especially property owners within APZ-1 and clear zone areas, the business community, and elected and other officials at the local, state, and federal levels.

This program comprises zoning ordinances and economic incentives to encourage the conversion or relocation of nonconforming businesses within APZ-1. This program of business incentives was created to encourage the development of compatible uses within APZ-1, provide financial encouragement to relocate nonconforming businesses out of APZ-1, and promote the highest and best use of property in the city of Virginia Beach.

Initiative 3: City of Virginia Beach Annual Reports

The Office of the Virginia Beach City Attorney prepares a progress report detailing the ongoing efforts and accomplishments by the City of Virginia Beach and Commonwealth of Virginia to manage encroachment around NAS Oceana. The reports provide updates to the community on success stories of incompatible development reductions around NAS Oceana under the APZ-1/Clear Zone and ITA ordinances. The reports are an outreach tool useful in

explaining how the military continues their efforts to improve encroachment around their air installations.

Initiative 4: NAS Oceana / NALF Fentress Military Advisory Council

Pursuant to the 2005 BRAC Process, the NAS Oceana/NALF Fentress Military Advisory Council was established as a sub-committee of the Virginia Military Advisory Committee, administered by the Virginia Department of Veterans' Affairs and Homeland Security. The Council meets one or more times per year.

Per Virginia Code §2.2-2666.3, membership includes two members of the Chesapeake City Council, two members of the Virginia Beach City Council, members of the Virginia General Assembly whose districts encompass NAS Oceana and NALF Fentress, the Commander, Navy Mid-Atlantic Region, the CO of NAS Oceana, and the Executive Director of the Virginia National Defense Industrial Authority. The Council's statutory mandate is to identify issues related to NAS Oceana and NALF Fentress of mutual concern to the Commonwealth of Virginia and provide advice on these issues to the Virginia Military Advisory Council. Further, the council addresses such issues as the Governor of Virginia or the Virginia Military Advisory Council may deem appropriate.

7.3 OTHER INITIATIVES

Noise Complaint Monitoring and Response Program

NAS Oceana implements a noise monitoring program for the continuous assessment of noise generated from aircraft operations and prompt responses from complaints. If there are concerns or complaints about aircraft noise in the area, citizens are encouraged to contact the NAS Oceana noise complaints phone line to officially log their complaints. Information regarding the noise complaint phone line is provided to the community through the media and the NAS Oceana web site.

NAS Oceana's program evaluates alternative flight procedures for noise control; investigates noise complaints; validates noise modeling associated with

AICUZ documentations; and emphasizes NAS Oceana's commitment to the public that the control of noise is an important issue to the installation. Further, comprehensive records of noise complaints are maintained to ensure proper response. Analysis of complaints helps abate future noise complaints, identifies noise sensitive areas, and determines which operational activities are responsible for the noise complaints. The installation's response to noise complaints is further explained in Section 4.4.2, Noise Complaints.

Restrictive Land Use Easement Program

From the late 1970s to the mid-1980s, the Navy purchased restrictive use easements on 425 parcels of land around NAS Oceana and NALF Fentress at a cost of \$57 million. Parcels totaling 3,681 acres surrounding NAS Oceana have been purchased, with an additional 8,777 acres purchased around NALF Fentress, for a total of 12,458 acres under this easement program.

Most importantly, this program succeeded in preventing any further residential development around NAS Oceana and NALF Fentress on the properties acquired. Certain land uses are allowed on all parcels; however, those permitted and those prohibited can vary greatly, depending on location.

Considerable commercial and industrial development has occurred around NAS Oceana, including many multi-unit "flex facilities." Over time, these buildings have come to be occupied by a variety of businesses, many of which engage in activities prohibited by restrictive use easements. In 2005, in conjunction with the Hampton Roads JLUS, the Navy began to revitalize enforcement of these Navy property rights. In 2011, a Real Estate Specialist from Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic was assigned to NAS Oceana to take responsibility for managing the restrictive use easements. Oceana and NAVFAC staff now work together to monitor easement properties, identify and inspect potential violations, and recommend corrective actions. To date, several incompatible land uses have been identified, some of which have been resolved through negotiation. Some cases, however, have been referred to NAVFAC Legal for judicial enforcement actions in conjunction with the U.S. Department of Justice.

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A

DISCUSSION OF NOISE SCIENCE

A.1 Basics of Sound

A.2 Noise Metrics

A.3 References

Adapted from:

Wyle Laboratories.
Discussion of Noise and
Its Effects on the
Environment.
March 2012.

A.1 Basics of Sound

Noise is unwanted sound. Sound is all around us; sound becomes noise when it interferes with normal activities, such as sleep or conversation.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air, and are sensed by the human ear. Whether that sound is interpreted as pleasant (e.g., music) or unpleasant (e.g., jackhammers) depends largely on the listener's current activity, past experience, and attitude toward the source of that sound.

The measurement and human perception of sound involves three basic physical characteristics: intensity, frequency, and duration. First, intensity is a measure of the acoustic energy of the sound vibrations and is expressed in terms of sound pressure. The greater the sound pressure, the more energy carried by the sound and the louder the perception of that sound. The second important physical characteristic of sound is frequency, which is the number of times per second the air vibrates or oscillates. Low-frequency sounds are characterized as rumbles or roars, while high-frequency sounds are typified by sirens or screeches. The third important characteristic of sound is duration or the length of time the sound can be detected.

The loudest sounds that can be detected comfortably by the human ear have intensities that are a trillion times higher than those of sounds that can barely be detected. Because of this vast range, using a linear scale to represent the intensity of sound becomes very unwieldy. As a result, a logarithmic unit known as the decibel (abbreviated dB) is used to represent the intensity of a sound. Such a representation is called a sound level. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB; sound levels above 120 dB begin to be felt inside the human ear as discomfort. Sound levels between 130 to 140 dB are felt as pain (Berglund and Lindvall 1995).

Because of the logarithmic nature of the decibel unit, sound levels cannot be arithmetically added or subtracted and are somewhat cumbersome to handle mathematically. However, some simple rules are useful in dealing with sound levels. First, if a sound's intensity is doubled, the sound level increases by 3 dB, regardless of the initial sound level. For example:

$$60 \text{ dB} + 60 \text{ dB} = 63 \text{ dB, and}$$

$$80 \text{ dB} + 80 \text{ dB} = 83 \text{ dB.}$$

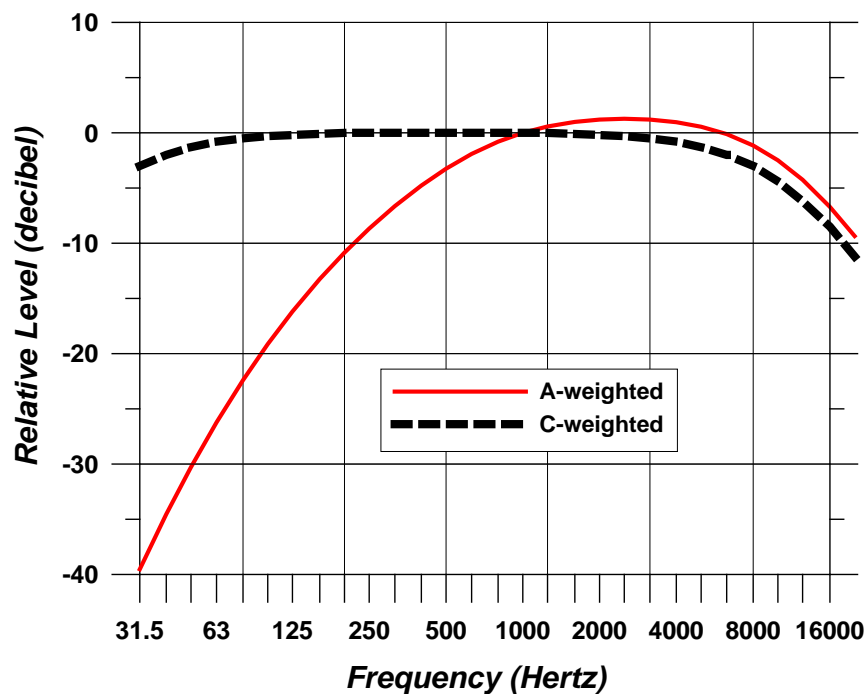
Second, the total sound level produced by two sounds of different levels is usually only slightly more than the higher of the two. For example:

$$60.0 \text{ dB} + 70.0 \text{ dB} = 70.4 \text{ dB.}$$

Because the addition of sound levels is different than that of ordinary numbers, such addition is often referred to as "decibel addition" or "energy addition." The latter term arises from the fact that what we are really doing when we add decibel values is first converting each decibel value to its corresponding acoustic energy, then adding the energies using the normal rules of addition, and finally converting the total energy back to its decibel equivalent.

The minimum change in the sound level of individual events that an average human ear can detect is about 3 dB. On average, a person perceives a change in sound level of about 10 dB as a doubling (or halving) of the sound's loudness, and this relation holds true for loud and quiet sounds. A decrease in sound level of 10 dB actually represents a 90 percent decrease in sound intensity but only a 50 percent decrease in perceived loudness because of the nonlinear response of the human ear (similar to most human senses).

Sound frequency is measured in terms of cycles per second (cps), or hertz (Hz), which is the standard unit for cps. The normal human ear can detect sounds that range in frequency from about 20 Hz to about 15,000 Hz. All sounds in this wide range of frequencies, however, are not heard equally by the human ear, which is most sensitive to frequencies in the 1,000 to 4,000 Hz range. Weighting curves have been developed to correspond to the sensitivity and perception of different types of sound. A-weighting and C-weighting are the two most common weightings. A-weighting accounts for frequency dependence by adjusting the very high and very low frequencies (below approximately 500 Hz and above approximately 10,000 Hz) to approximate the human ear's lower sensitivities to those frequencies. C-weighting is nearly flat throughout the range of audible frequencies, hardly de-emphasizing the low frequency sound while approximating the human ear's sensitivity to higher intensity sounds. The two curves shown in Figure A-1 are also the most adequate to quantify environmental noises.



Source: ANSI S1.4A -1985 "Specification of Sound Level Meters"

Figure A-1. Frequency Response Characteristics of A- and C-Weighting Networks

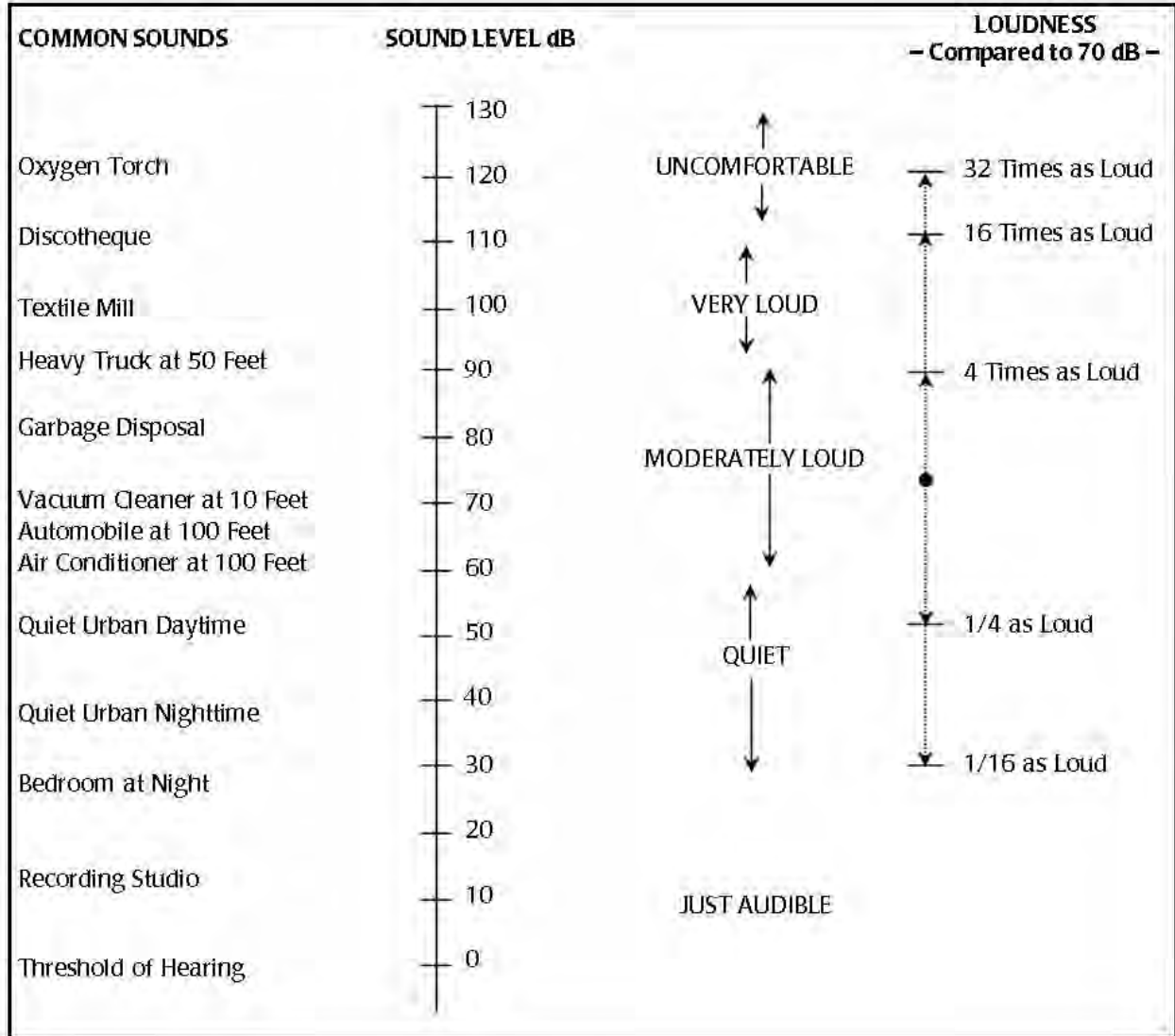
A.1.1 A-weighted Sound Level

Sound levels that are measured using A-weighting, called A-weighted sound levels, are often denoted by the unit dBA or dB(A) rather than dB. When the use of A-weighting is understood, the adjective "A-weighted" is often omitted and the measurements are expressed as dB. In this report (as in most environmental impact documents), dB units refer to A-weighted sound levels.

Noise potentially becomes an issue when its intensity exceeds the ambient or background sound pressures. Ambient background noise in metropolitan, urbanized areas typically varies from 60 to 70 dB and can be as high as 80 dB or greater; quiet suburban neighborhoods experience ambient noise levels of approximately 45-50 dB (U.S. Environmental Protection Agency (EPA) 1978).

Figure A-2 is a chart of A-weighted sound levels from typical sounds. Some noise sources (air conditioner, vacuum cleaner) are continuous sounds which levels are constant for some time. Some (automobile, heavy truck) are the maximum sound during a vehicle pass-by. Some (urban daytime, urban nighttime) are averages over extended periods. A variety of noise metrics have been developed to describe noise over different time periods, as discussed below.

Aircraft noise consists of two major types of sound events: aircraft takeoffs and landings, and engine maintenance operations. The former can be described as intermittent sounds and the latter as continuous. Noise levels from flight operations exceeding background noise typically occur beneath main approach and departure corridors, in local air traffic patterns around the airfield, and in areas immediately adjacent to parking ramps and aircraft staging areas. As aircraft in flight gain altitude, their noise contribution drops to lower levels, often becoming indistinguishable from the background.



Source: Handbook of Noise Control, C.M. Harris, Editor McGraw-Hill Book Co., 1979, and FICAN 1997

Figure A-2. Typical A-weighted Sound Levels of Common Sounds

A.1.2 C-weighted Sound Level

Sound levels measured using a C-weighting are most appropriately called C-weighted sound levels (and denoted dBC). C-weighting is nearly flat throughout the audible frequency range, hardly de-emphasizing the low frequency. This weighting scale is generally used to describe impulsive sounds. Sounds that are characterized as impulsive generally contain low frequencies. Impulsive sounds may induce secondary effects, such as shaking of a structure, rattling of windows, inducing vibrations. These secondary effects can cause additional annoyance and complaints.

The following definitions in the American National Standard Institute (ANSI) Report S12.9, Part 4 provide general concepts helpful in understanding impulsive sounds (ANSI 1996).

Impulsive Sound: Sound characterized by brief excursions of sound pressure (acoustic impulses) that significantly exceeds the ambient environmental sound pressure. The duration of a single impulsive sound is usually less than one second (ANSI 1996).

Highly Impulsive Sound: Sound from one of the following enumerated categories of sound sources: small-arms gunfire, metal hammering, wood hammering, drop hammering, pile driving, drop forging, pneumatic hammering, pavement breaking, metal impacts during rail-yard shunting operation, and riveting.

High-energy Impulsive Sound: Sound from one of the following enumerated categories of sound sources: quarry and mining explosions, sonic booms, demolition and industrial processes that use high explosives, military ordnance (e.g., armor, artillery and mortar fire, and bombs), explosive ignition of rockets and missiles, explosive industrial circuit breakers, and any other explosive source where the equivalent mass of dynamite exceeds 25 grams.

A.2 Noise Metrics

In general, a metric is a statistic for measuring or quantifying. A noise metric quantifies the noise environment. There are three families of noise metrics described herein – one for single noise events such as an aircraft flyby, one for cumulative noise events such as a day’s worth of aircraft activity and one which quantifies the events or time relative to single noise events.

Within the single noise event family, metrics described below include Peak Sound Pressure Level, Maximum Sound Level and Sound Exposure Level. Within the cumulative noise events family,

metrics described below include Equivalent Sound Level, Day-Night Average Sound Level and several others. Within the events/time family, metrics described below include Number of Events Above a Threshold Level and Time Above a Specified Level.

A.2.1 Maximum Sound Level (L_{max})

The highest A-weighted integrated sound level measured during a single event in which the sound level changes value with time (e.g., an aircraft overflight) is called the maximum A-weighted sound level or Maximum Sound Level.

During an aircraft overflight, the noise level starts at the ambient or background noise level, rises to the maximum level as the aircraft flies closest to the observer, and returns to the background level as the aircraft recedes into the distance. The L_{max} indicates the maximum sound level occurring for a fraction of a second. For aircraft noise, the “fraction of a second” over which the maximum level is defined is generally one-eighth of a second, and is denoted as “fast” response (ANSI 1988). Slowly varying or steady sounds are generally measured over a period of one second, denoted “slow” response. The L_{max} is important in judging the interference caused by a noise event with conversation, TV or radio listening, sleep, or other common activities. Although it provides some measure of the intrusiveness of the event, it does not completely describe the total event, because it does not include the period of time that the sound is heard.

A.2.2 Peak Sound Pressure Level (L_{pk})

The Peak Sound Pressure Level, is the highest instantaneous level obtained by a sound level measurement device. The L_{pk} is typically measured using a 20 microseconds or faster sampling rate, and is typically based on unweighted or linear response of the meter.

A.2.3 Sound Exposure Level (SEL)

Sound Exposure Level is a composite metric that represents both the intensity of a sound and its duration. Individual time-varying noise events (e.g., aircraft overflights) have two main characteristics: a sound level that changes throughout the event and a period of time during which the event is heard. SEL provides a measure of the net impact of the entire acoustic event, but it does not directly represent the sound level heard at any given time. During an aircraft flyover, SEL would include both the L_{max} and the lower noise levels produced during onset and recess periods of the overflight.

SEL is a logarithmic measure of the total acoustic energy transmitted to the listener during the event. Mathematically, it represents the sound level of a constant sound that would, in one second, generate the same acoustic energy as the actual time-varying noise event. For sound from aircraft overflights, which typically lasts more than one second, the SEL is usually greater than the L_{\max} because an individual overflight takes seconds and the L_{\max} occurs instantaneously. SEL represents the best metric to compare noise levels from overflights.

A.2.4 Equivalent Sound Level (L_{eq})

A cumulative noise metric useful in describing noise is the Equivalent Sound Level. L_{eq} is the continuous sound level that would be present if all of the variations in sound level occurring over a specified time period were smoothed out as to contain the same total sound energy.

Just as SEL has proven to be a good measure of the noise impact of a single event, L_{eq} has been established to be a good measure of the impact of a series of events during a given time period. Also, while L_{eq} is defined as an average, it is effectively a sum over that time period and is, thus, a measure of the cumulative impact of noise. For example, the sum of all noise-generating events during the period of 7 a.m. to 4 p.m. could provide the relative impact of noise generating events for a school day.

A.2.5 Day-Night Average Sound Level (DNL or L_{dn}) and Community Noise Equivalent Level (CNEL)

Day-Night Average Sound Level and Community Noise Equivalent Level are composite metrics that account for all noise events in a 24-hour period. In order to account for increased human sensitivity to noise at night, a 10 dB penalty is applied to nighttime events (10:00 p.m. to 7:00 a.m. time period). A variant of the DNL, the CNEL includes a 5 dB penalty on noise during the 7:00 a.m. to 10:00 p.m. time period, and a 10 dB penalty on noise during the 10:00 p.m. to 7:00 a.m. time period. The notations DNL and L_{dn} are both used for Day-Night Average Sound Level and are equivalent.

Like L_{eq} , DNL and CNEL without their penalties are average quantities, mathematically representing the continuous A-weighted or C-weighted sound level that would be present if all of the variations in sound level that occur over a 24-hour period were smoothed out so as to contain the same total sound energy. These composite single-measure time-average metrics account for the SELs, L_{\max} , the duration of the events (sorties or operations), and the number of events that occur over a 24-hour period but do not provide specific information on the number of noise events or the individual sound levels that occur during the 24-hour day. Like SEL, neither DNL nor CNEL represent the sound level heard at any

particular time, but quantifies the total sound energy received. While it is normalized as an average, it represents all of the sound energy, and is therefore a cumulative measure.

The nighttime penalties in both DNL and CNEL account for the added intrusiveness of sounds that occur during normal sleeping hours, both because of the increased sensitivity to noise during those hours and because ambient sound levels during nighttime are typically about 10 dB lower than during daytime hours. The evening penalty in CNEL accounts for the added intrusiveness of sounds during that period.

The inclusion of daytime, evening and nighttime periods in the computation of the DNL and CNEL reflects their basic 24-hour definition. They can, however, be applied over periods of multiple days. For application to civil airports, where operations are consistent from day to day, DNL and CNEL are usually applied as an annual average.

The logarithmic nature of the decibel unit causes the noise levels of the loudest events to control the 24-hour average. A DNL of 65 dB could result from a very few noisy events or a large number of quieter events.

As a simple example of this characteristic, consider a case in which only one aircraft overflight occurs during the daytime over a 24-hour period, creating a sound level of 100 dB for 30 seconds. During the remaining 23 hours, 59 minutes, and 30 seconds of the day, the ambient sound level is 50 dB. The DNL for this 24-hour period is 65.9 dB. Assume, as a second example that 10 such 30-second overflights occur during daytime hours during the next 24-hour period, with the same ambient sound level of 50 dB during the remaining 23 hours and 55 minutes of the day. The DNL for this 24-hour period is 75.5 dB. Clearly, the averaging of noise over a 24-hour period does not ignore the louder single events and tends to emphasize both the sound levels and number of those events.

Daily average sound levels are typically used for the evaluation of community noise effects (i.e., long-term annoyance), and particularly aircraft noise effects. In general, scientific studies and social surveys have found a high correlation between the percentages of groups of people highly annoyed and the level of average noise exposure measured in DNL (EPA 1978 and Schultz 1978).

A.2.6 Onset-Rate Adjusted Monthly Day-Night Average Sound Level (L_{dnmr}) and Onset-Rate Adjusted Monthly Community Noise Equivalent Level ($CNEL_{mr}$)

Military aircraft utilizing Special Use Airspace (SUA) such as Military Training Routes (MTRs), Military Operating Areas (MOAs) and Restricted Areas/Ranges generate a noise environment that is somewhat different from that associated with airfield operations. As opposed to patterned or continuous noise environments associated with airfields, flight activity in SUAs is highly sporadic and often seasonal ranging from ten per hour to less than one per week. Individual military overflight events also differ from typical community noise events in that noise from a low-altitude, high-air-speed flyover can have a rather sudden onset, exhibiting a rate of increase in sound level (onset rate) of up to 150 dB per second.

To represent these differences, the conventional SEL metric is adjusted to account for the “surprise” effect of the sudden onset of aircraft noise events on humans with an adjustment ranging up to 11 dB above the normal SEL (Stusnick, et al. 1992). Onset rates between 15 to 150 dB per second require an adjustment of 0 to 11 dB, while onset rates below 15 dB per second require no adjustment. The adjusted SEL is designated as the onset-rate adjusted sound exposure level (SEL_r).

Because of the sporadic characteristic of SUA activity and so as not to dilute the resultant noise exposure, the month with the most operations or sorties from a yearly tabulation for the given SUA is examined -- the so-called busiest month. The cumulative exposure to noise in these areas is computed by DNL over the busy month, but using SEL_r instead of SEL. This monthly average is denoted L_{dnmr} . If onset rate adjusted DNL is computed over a period other than a month, it would be designated L_{dnr} and the period must be specified. In the state of California, a variant of the L_{dnmr} includes a penalty for evening operations (7 p.m. to 10 p.m) and is denoted $CNEL_{mr}$.

A.2.7 Number-of-Events Above (NA) a Threshold Level (L)

The Number-of-events Above metric (NA) provides the total number of noise events that exceed the selected noise level threshold during a specified period of time. Combined with the selected threshold level (L), the NA metric is symbolized as NAL. The threshold L can be defined in terms of either the SEL or L_{max} metric, and it is important that this selection is reflected in the nomenclature. When labeling a contour line or point of interest (POI) on a map the NAL will be followed by the number of events in parentheses for that line or POI. For example, the noise environment at a location where 10 events exceed an SEL of 90 dB, over a given period of time, would be represented by the nomenclature NA90SEL(10). Similarly, for L_{max} it would be NA90 L_{max} (10). The period of time can be an average 24-

hour day, daytime, nighttime, school day, or any other time period appropriate to the nature and application of the analysis.

NA can be portrayed for single or multiple locations, or by means of noise contours on a map similar to the common DNL contours. A threshold level is selected that best meets the need for that situation. An L_{\max} threshold is normally selected to analyze speech interference, whereas an SEL threshold is normally selected for analysis of sleep disturbance.

The NA metric is the only supplemental metric that has been developed that combines single-event noise levels with the number of aircraft operations. In essence, it answers the question of how many aircraft (or range of aircraft) fly over a given location or area at or above a selected threshold noise level.

A.2.8 Time Above (TA) a Specified Level (L)

The Time Above (TA) metric is a measure of the total time that the A-weighted aircraft noise level is at or above a defined sound level threshold. Combined with the selected threshold level (L), the TA metric is symbolized as TAL. TA is not a sound level, but rather a time expressed in minutes. TA values can be calculated over a full 24-hour annual average day, the 15-hour daytime and 9-hour nighttime periods, a school day, or any other time period of interest, provided there is operational data to define the time period of interest.

TA has application for describing the noise environment in schools, particularly when comparing the classroom or other noise sensitive environments for different operational scenarios. TA can be portrayed by means of noise contours on a map similar to the common DNL contours.

The TA metric is a useful descriptor of the noise impact of an individual event or for many events occurring over a certain time period. When computed for a full day, the TA can be compared alongside the DNL in order to determine the sound levels and total duration of events that contribute to the DNL. TA analysis is usually conducted along with NA analysis so the results show not only how many events occur above the selected threshold(s), but also the total duration of those events above those levels for the selected time period.

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B

COMPATIBILITY GUIDANCE

**B.1 City of Virginia Beach
Overlay District
Regulations**

**B.2 City of Chesapeake
Fentress Airfield
Overlay District
Ordinance**

**B.3 Land Use Compatibility
Recommendations**

Appendix B presents the overlay district ordinances adopted by the Cities of Virginia Beach (Appendix B.1) and Chesapeake (Appendix B.2) to regulate development in the AICUZ footprint of NAS Oceana and NALF Fentress.

Appendix B also includes, for reference purposes, the comprehensive Navy Land Use Recommendations tables within noise zones and APZs as provided in OPNAVINST 11010.36C, “Air Installations Compatible Use Zones Program” (Appendix B.3).

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CITY OF VIRGINIA BEACH OVERLAY DISTRICT REGULATIONS

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APPENDIX A - ZONING ORDINANCE

ARTICLE 18. - SPECIAL REGULATIONS IN AIR INSTALLATIONS COMPATIBLE USE ZONES (AICUZ)

A. - OVERLAY DISTRICT REGULATIONS

A. - *OVERLAY DISTRICT REGULATIONS*

Sec. 1800. - Title.

This article shall be known as the Air Installations Compatible Use Zones (AICUZ) Overlay Ordinance of the City of Virginia Beach.

(Ord. No. 2905, 12-20-05)

Sec. 1801. - Purpose and intent.

The purpose of this article is to regulate, in a manner consistent with the rights of individual property owners and the requirements of military operations at Naval Air Station (NAS) Oceana, development of uses and structures that are incompatible with military operations; to sustain the economic health of the city and Hampton Roads Region; to protect and preserve the public health, safety and welfare from the adverse impacts associated with high levels of noise from flight operations at NAS Oceana and the potential for aircraft accidents associated with proximity to airport operations; and to maintain the overall quality of life of those who live, work and recreate in the City of Virginia Beach.

(Ord. No. 2905, 12-20-05)

Sec. 1802. - Findings.

The city council hereby finds that:

- (a) Naval Air Station (NAS) Oceana was first established as an auxiliary airfield in 1943 and was designated as a major Navy jet air base in the 1950s. It is now one of the largest Navy air bases in the country and is the Master Jet Base for the Navy's Atlantic Fleet. NAS Oceana is a vital component in the architecture of the Defense Department's joint service method of operational planning and execution and in the newly-emerging inter-agency approach to meeting homeland defense requirements;
- (b) NAS Oceana is the single largest employer in the City of Virginia Beach. In 2003, it had a gross annual payroll of over seven hundred fifty million dollars (\$750,000,000.00) and spent another four hundred million dollars (\$400,000,000.00) for goods and services. In that year, over twelve thousand (12,000) personnel, comprised of nearly nine thousand eight hundred (9,800) military and over two thousand five hundred (2,500) civilian employees, were employed there. Most of those employees live within the community, infusing additional benefits into the local economy, primarily through spending and spousal employment salaries. When considering the personal impact of the military in the community, the economic benefit exceeds one billion dollars (\$1,000,000,000.00) annually;
- (c) There are more than thirty thousand (30,000) acres of land in areas within the 70-75 dB DNL or >75 dB DNL Noise Zones and approximately 16,500 acres of land within the 65-70 dB DNL Noise Zone. Approximately four thousand, three hundred (4,300) acres of this land is encumbered by easements or restrictive covenants that limit the uses of the land to those that are not incompatible with flight operations arising out of NAS Oceana;
- (d) Since the installation's inception, development of a type deemed incompatible under the Navy's AICUZ Program has occurred, such that the Navy has voluntarily modified flight arrival and

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departure procedures, thereby resulting in flight procedures and training that do not replicate actual aircraft carrier operating procedures.

- (e) In August 2005, the Base Realignment and Closure (BRAC) Commission added to the list of installations to be closed or realigned the recommendation to realign NAS Oceana by relocating the Atlantic Fleet's East Coast Master Jet Base to Cecil Field in Jacksonville, Florida if, among other things, the cities of Virginia Beach and Chesapeake fail to enact and enforce legislation to prevent further encroachment of NAS Oceana by the end of March 2006 by adopting zoning ordinances that require the governing bodies to follow Air Installations Compatibility Use Zone (AICUZ) guidelines in deciding discretionary development applications for property in noise level 70 dB day night average noise level (DNL) or greater;
- (f) The closure or realignment of NAS Oceana would have serious adverse economic consequences to the city and the region; and
- (g) In 2004 and 2005, the City of Virginia Beach, along with the cities of Norfolk and Chesapeake, joined with the Navy and the Hampton Roads Planning District Commission to craft a regional joint land use study (JLUS). Among the recommendations of the JLUS was that the city adopt an ordinance applicable in all noise zones greater than 65 dB DNL to help prevent encroachment at NAS Oceana. The JLUS was accepted by resolution of the city council in May of 2005 and the city council directed that appropriate ordinances implementing the recommendations of the JLUS be brought forward for its consideration.

(Ord. No. 2905, 12-20-05; Ord. No. 3006, 1-8-08)

Sec. 1803. - Applicability.

- (a) *Area of applicability.* The provisions of this Article shall apply to discretionary development applications for any property located within an Accident Potential Zone (APZ) or 65-70 dB DNL, 70—75 dB DNL or >75 dB DNL Noise Zone, as shown on the official zoning map, that have not been approved or denied by the city council as of the date of adoption of this Article. For purposes of this Article, discretionary development applications shall include applications for:
 - (1) Rezoning, including conditional zonings;
 - (2) Conditional use permits for new uses or structures, or for alterations or enlargements of existing conditional uses where the occupant load would increase;
 - (3) Conversions or enlargements of nonconforming uses or structures, except where the application contemplates the construction of a new building or structure or expansion of an existing use or structure where the total occupant load would not increase; and
 - (4) Street closures where the application contemplates the construction of a new building or structure or the expansion of a use or structure where the total occupant load is increased.

(Ord. No. 2905, 12-20-05; Ord. No. 2934, 3-28-06; Ord. No. 3006, 1-8-08)

Sec. 1804. - Discretionary development applications; city council policy.

- (a) *City council policy.* Except as otherwise provided in this Article, it shall be the policy of the city council that no application included within the provisions of [section 1803](#) shall be approved unless the uses and structures it contemplates are designated as compatible under Table 1 below and, if applicable, Table 2, unless the city council finds that no reasonable use designated as compatible under the applicable table or tables can be made of the property. In such cases, the city council shall

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approve the proposed use of property at the lowest density or intensity of development that is reasonable.

- (b) *Tables.* The following tables show the uses designated as compatible (Y) and those designated as not compatible (N) in each listed Noise Zone (Table 1) or Accident Potential Zone (Table 2). The designation of any use as compatible shall not be construed to allow such use in any zoning district in which it is not permitted as either a principal or conditional use.

TABLE 1 - AIR INSTALLATIONS COMPATIBLE USE ZONES LAND USE COMPATIBILITY IN NOISE ZONES		
Land Use	Land Use Compatibility	
Land Use Name	70-75 dB DNL	>75 dB DNL
<i>Residential and Related</i>		
Single-family dwellings	N	N
Semidetached dwellings	N	N
Attached dwellings/townhouses	N	N
Duplexes	N	N
Multiple-family dwellings	N	N
Dormitories and other group quarters	N	N
Mobile home parks	N	N
Hotels and motels	N	N
Other residential uses	N	N
<i>Manufacturing</i>		

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Food & kindred products; manufacturing	Y	Y
Textile mill products; manufacturing	Y	Y
Apparel and other finished products; products made from fabrics, leather and similar materials; manufacturing	Y	Y
Lumber and wood products (except furniture); manufacturing	Y	Y
Furniture and fixtures; manufacturing	Y	Y
Paper and allied products; manufacturing	Y	Y
Printing, publishing, and allied industries	Y	Y
Chemicals and allied products; manufacturing	Y	Y
Petroleum refining and related industries	Y	Y
Rubber and misc. plastic products; manufacturing	Y	Y
Stone, clay and glass products; manufacturing	Y	Y
Primary metal products; manufacturing	Y	Y
Fabricated metal products; manufacturing	Y	Y
Professional scientific, and controlling instruments; photographic and optical goods; watches and clocks	Y	Y
Miscellaneous manufacturing	Y	Y
<i>Transportation, communication and utilities</i>		
Railroad, rapid rail transit, and street railway transportation	Y	Y

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Motor vehicle transportation	Y	Y
Aircraft transportation	Y	Y
Marine craft transportation	Y	Y
Highway and street right-of-way	Y	Y
Automobile parking	Y	Y
Communication	Y	Y
Utilities	Y	Y
Other transportation, communication and utilities	Y	Y
<i>Trade</i>		
Wholesale trade	Y	Y
Retail trade - building materials, hardware and farm equipment	Y	Y
Retail trade - general merchandise	Y	Y
Retail trade - food	Y	Y
Retail trade - automotive, marine craft, aircraft and accessories	Y	Y
Retail trade - apparel and accessories	Y	Y
<i>Services</i>		
Retail trade - furniture, home, furnishings and equipment	Y	Y
Retail trade - eating and drinking establishments	Y	Y

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Other retail trade	Y	Y
Finance, insurance and real estate services	Y	Y
Personal services	Y	Y
Cemeteries	Y	Y
Business services	Y	Y
Warehousing and storage	Y	Y
Repair services	Y	Y
Professional services	Y	Y
Hospitals, other medical facilities	Y	N
Nursing homes	N	N
Contract construction services	Y	Y
Government services	Y	Y
Educational services	Y	N
Miscellaneous	Y	Y
<i>Cultural, entertainment and recreational</i>		
Cultural activities	Y	N
Religious uses	Y	N
Nature exhibits	N	N

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Public assembly halls	N	N
Auditoriums, concert halls	Y	N

TABLE 1 - AIR INSTALLATIONS COMPATIBLE USE ZONES
LAND USE COMPATIBILITY IN NOISE ZONES

Land Use	Land Use Compatibility	
	70-75 dB DNL	>75 dB DNL
Outdoor music shells, amphitheaters	N	N
Outdoor sports arenas, spectator sports	Y	N
Other outdoor recreational facilities	Y	Y
Indoor recreational facilities	Y	Y
Campgrounds	Y	N
Parks	Y	N
Other cultural, entertainment and recreation	Y	N
<i>Resource Production and Extraction</i>		
Agriculture (except live stock)	Y	Y
Livestock farming	Y	N
Animal breeding	Y	N

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Agriculture related activities	Y	Y
Forestry activities	Y	Y
Fishing activities	Y	Y
Mining activities	Y	Y
Other resource production or extraction	Y	Y

TABLE 2 - AIR INSTALLATIONS COMPATIBLE USE ZONES LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES			
Land Use Name	Clear Zone	APZ-I	APZ-II
<i>Residential</i>			
Single-family dwellings	N	N	Y
Semidetached dwellings	N	N	N
Attached dwellings/townhouses	N	N	N
Multiple-family dwellings	N	N	N
Dormitories and other group quarters	N	N	N
Hotels and motels	N	N	N
Mobile home parks	N	N	N
Other residential	N	N	N

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<i>Manufacturing</i>			
Food & kindred products; manufacturing	N	Y	Y
Textile mill products; manufacturing	N	Y	Y
Apparel and other finished products; products made from fabrics, leather and similar materials; manufacturing	N	Y	Y
Lumber and wood products (except furniture); manufacturing	N	Y	Y
Furniture and fixtures; manufacturing	N	Y	Y
Paper and allied products; manufacturing	N	Y	Y
Printing, publishing, and allied industries	N	Y	Y
Chemicals and allied products; manufacturing	N	N	N
Petroleum refining and related industries	N	N	N
Rubber and misc. plastic products; manufacturing	N	N	N
Stone, clay and glass products; manufacturing	N	Y	Y
Primary metal products; manufacturing	N	Y	Y
Fabricated metal products; manufacturing	N	Y	Y
Professional scientific, & controlling instrument; photographic and optical goods; watches & clocks	N	Y	Y
Miscellaneous manufacturing	N	Y	Y
<i>Transportation, communication and utilities</i>			

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Railroad, rapid rail transit, and street railway transportation	N	Y	Y
Motor vehicle transportation	N	Y	Y
Aircraft transportation	N	Y	Y
Marine craft transportation	N	Y	Y
Auto parking	N	Y	Y
Communication	N	Y	Y
Utilities	N	Y	Y
Solid waste disposal (landfills, incineration, etc.)	N	N	N
Other transport, comm. and utilities	N	Y	Y
<i>Trade</i>			
Wholesale trade	N	Y	Y
Retail trade - building materials, hardware and farm equipment	N	Y	Y
Retail trade - general merchandise	N	N	Y
Retail trade - food	N	N	Y
Retail trade - automotive, marine craft, aircraft and accessories	N	Y	Y
Retail trade - apparel and accessories	N	N	Y
Retail trade - furniture, home, furnishings and equipment	N	N	Y
Retail trade - eating and drinking establishments	N	N	N

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Other retail trade	N	N	Y
<i>Services</i>			
Finance, insurance and real estate services	N	N	Y
Personal services	N	N	Y
Cemeteries	N	Y	Y
Business services (credit reporting; mail, stenographic, reproduction; advertising)	N	N	Y
Warehousing and storage services	N	Y	Y
Repair services	N	Y	Y
Professional services	N	N	Y
Hospitals, nursing homes	N	N	N
Other medical facilities	N	N	N
Contract construction services	N	Y	Y
Government services	N	N	Y
Educational services	N	N	N
Miscellaneous	N	N	Y
<i>Cultural, entertainment and recreational</i>			
Cultural activities	N	N	N
Religious uses	N	N	Y

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Nature exhibits	N	Y	Y
Public assembly	N	N	N
Auditoriums, concert halls	N	N	N
Outdoor music shells, amphitheaters	N	N	N
Outdoor sports arenas, spectator sports	N	N	N
Indoor recreational facilities	N	Y	Y
Indoor play centers	N	N	Y
Campgrounds	N	N	N
Parks	N	Y	Y
Other cultural, entertainment and recreation	N	Y	Y
Agriculture (except livestock)	Y	Y	Y
<i>Resource production and extraction</i>			
Livestock farming and breeding	N	Y	Y
Agriculture related activities	N	Y	Y
Forestry activities	N	Y	Y
Fishing activities	N	Y	Y
Mining activities	N	Y	Y
Other resource production or extraction	N	Y	

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<i>Other</i>			
Undeveloped land	Y	Y	Y
Water areas	N	N	N

(c) *Special regulations in the 65—70 dB DNL Noise Zone.* The following regulations shall apply to discretionary development applications for residential uses on property within the 65—70 dB DNL Noise Zone. Residential uses shall include all of the uses listed under the heading of "Residential and Related" in Table 1 of this section.

- (1) For property within Sub-area 1 of the 65—70 dB DNL Noise Zone, discretionary development applications for residential uses may be granted only if the city council finds that the proposed development:
 - (i) Conforms to the applicable provisions of the city zoning ordinance, including all requirements of the zoning district; and
 - (ii) Conforms to the applicable provisions of the Comprehensive Plan, including, without limitation, the Resort Area Strategic Action Plan, Old Beach Design Guidelines or Special Area Design Guidelines (Urban Areas) set forth in the Reference Handbook of the Comprehensive Plan.
- (2) For property within Sub-area 2 of the 65—70 dB DNL Noise Zone, discretionary development applications for residential uses may be approved only if the city council finds that the proposed development:
 - (i) Is at a density similar to or lower than that of surrounding properties having a similar use and no greater than recommended by the Comprehensive Plan; and
 - (ii) Conforms to the applicable provisions of the Comprehensive Plan, including, without limitation, the Princess Anne Corridor Study, Princess Anne Commons Design Guidelines, or Mixed Use Development Guidelines.
- (3) For property within Sub-area 3 of the 65—70 dB DNL Noise Zone, it shall be the policy of the city council that no application for a residential use shall be approved unless the city council finds that no reasonable non-residential use can be made of the property, in which event the city council may allow the proposed residential use of such property at the lowest density that is reasonable.

(d) *Redevelopment.* The provisions of this section shall not apply to discretionary development applications for the redevelopment of property where the proposed dwelling unit density is the same as or lower than the actual dwelling unit density existing at the time the application is submitted.

(Ord. No. 2905, 12-20-05; Ord. No. 3006, 1-8-08; Ord. No. 3227, 4-24-12; Ord. No. 3247, 7-10-12)

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Sec. 1805. - Sound attenuation.

Sound attenuation measures shall be incorporated in any use or structure located in the 65—70 dB DNL, 70—75 dB DNL or >75 dB DNL Noise Zones in accordance with the requirements of the Virginia Uniform Statewide Building Code.

(Ord. No. 2905, 12-20-05; Ord. No. 3006, 1-8-08)

Sec. 1806. - Allowable residential density in Interfacility Traffic Area.

- (a) Notwithstanding the provisions of [Section 402](#)(b) and [405](#) (Alternative Residential Development in Agricultural Districts), residential development on property within the Interfacility Traffic Area shall be limited to single-family dwellings at a density no greater than one (1) dwelling per fifteen (15) acres of developable land.

(Ord. No. 2905, 12-20-05; Ord. No. 3006, 1-8-08)

Sec. 1807. - Reservation of powers; severability.

- (a) Nothing in this Article shall be construed to require the city council to approve any application solely because it meets the requirements of this Article, it being the intention of this Article that the city council shall be entitled to exercise its authority in such applications to the fullest extent allowed by law.
- (b) The provisions of this Article shall be severable, it being the intention of the city council that in the event one (1) or more of the provisions of this Article shall be adjudged to be invalid or unenforceable, the validity and enforceability of the remaining provisions of this Article shall be unaffected by such adjudication.

(Ord. No. 2905, 12-20-05; Ord. No. 2934, 3-28-06; Ord. No. 3006, 1-8-08)

CITY OF CHESAPEAKE FENTRESS AIRFIELD OVERLAY DISTRICT ORDINANCE

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AMENDING SECTION 12-400 OF THE CHESAPEAKE ZONING ORDINANCE, SECTIONS 12-404, 12-405, 12-406, AND 12-408 THEREOF, TO PROVIDE LAND USE COMPATIBILITY TABLES AND CORRESPONDING REGULATIONS FOR AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ) 65-70 Db DAY NIGHT AVERAGE NOISE LEVELS (DNL)

AMENDED LANGUAGE ADOPTED BY THE CHESAPEAKE CITY COUNCIL ON March 19, 2013:

ARTICLE 12. - SPECIAL OVERLAY DISTRICTS

§ 12-400. - Fentress Airfield overlay district.

§ 12-401. Creation of Fentress Airfield overlay district.

There is hereby created the "Fentress Airfield Overlay District" of the city of Chesapeake. All properties, lots, subdivisions and developments located partially or wholly within this district shall be subject to the provisions set out below. This enactment is based on the authority granted by sections 15.2-2280, 15.2-2283, 15.2-2286 and 15.2-2295 of the Virginia Code. (Ord. No. 98-O-158, 10-20-98; Ord. No. 04-O-057, 4-20-04; Ord. No. 05-O-149, 11-22-05)

§ 12-402. Findings of fact.

Fentress Airfield is an auxiliary landing strip, located in the southern portion of the city, which is utilized by the U.S. Navy as part of its NAS Oceana operation. The airfield is used primarily for simulated aircraft carrier landings and has been used in that capacity since World War II. In response to residential growth in southern Chesapeake in the area near the airfield, the Department of Defense established the Air Installation Compatible Use Zone (AICUZ) program in 1973, which analyzed the impact of the noise from aircraft operations at the field on existing and potential development in the area.

The current AICUZ program delineates the following three noise contours around the airfield: 1) noise levels between 65 and 70 DNL, 2) noise levels between 70 and 75 DNL, and 3) noise levels greater than 75 DNL. The AICUZ program also delineates a clear zone and two accident potential zones (APZs): APZ-I, described as an area beyond the airport clear zone and APZ-II, described as an area beyond APZ-I, both of which have measurable potential for aircraft accidents. Due to concerns over possible conflict between Fentress operations and continued residential growth, the U.S. Navy purchased development rights on over eight thousand (8,000) acres of land within the Fentress area to prevent residential development. The U.S. Navy also published recommendations for various nonresidential uses which would be more compatible with the airfield operations. The Navy amended its AICUZ program in 1998 to reflect the proposed expansion of airfield operations, said amendments being depicted on that certain document entitled the 1999 "Composite AICUZ - NALF Fentress".

The city of Chesapeake first adopted the Fentress Airfield Overlay District on October 16, 1990, as a means of protecting against incompatible land uses and encouraging certain agricultural, light industrial and commercial uses that would be more compatible with aircraft noise levels experienced in the overlay district. This ordinance has been amended from time to time since 1990 to expand the overlay and increase the protections offered land uses through sound attenuation measures and disclosure requirements.

In August 2005, the Base Realignment and Closure (BRAC) Commission recommended the realignment of NAS Oceana by relocating the Atlantic Fleet's East Coast Master Jet Base to Cecil Field in Jacksonville, Florida if, among other things, the Cities of Virginia Beach and Chesapeake fail to enact and enforce legislation to prevent further

encroachment of NAS Oceana and Fentress Airfield by the end of March 2006. Such legislation includes adopting zoning ordinances that require the city council to follow AICUZ guidelines in deciding discretionary development applications for property in noise contours 70 dB Day Night Average Noise Level (DNL) or greater. The cities must also adopt the recommendations in the 2005 regional Joint Land Use Study (JLUS). The JLUS was accepted by resolution of the City Council on May 24, 2005, at which time, Chesapeake had already implemented most of the recommendations contained in the report. However, expansion of the noise attenuation standards and adoption of an aviation easement program remained to be accomplished.

Based on this history, city council finds that residential development within noise contours 65 DNL or greater are not compatible with the existing Fentress operation. Most properties within this area are best suited for agricultural operations and city council intends to continue agricultural operations as the predominant use in this area. Accordingly, some limited commercial and industrial development which does not place significant demands on existing infrastructure and which can be constructed, landscaped and operated in a manner which does not detract from the rural character of the area would, in certain limited circumstances, be compatible with the community located within the noise contours. In addition, city council finds that sound attenuation measures should be expanded and notice requirements implemented to alert the public that property, buildings and structures are situated partially or wholly within the noise contours. (Ord. No. 98-O-158, 10-20-98; Ord. No. 04-O-057, 4-20-04; Ord. No. 05-O-149, 11-22-05)

§ 12-403. Purpose and intent.

This ordinance is enacted to regulate development within the Fentress Airfield Overlay District, subject to case by case review by the planning commission and city council through rezonings and the conditional use permit process, to facilitate compatibility of uses with the Fentress Airfield operations and the surrounding rural area and to ensure that such development does not improperly burden existing city infrastructure and services. This ordinance is also enacted to require additional sound attenuation measures and development standards for noise contours 65 DNL or greater and notice requirements for residential and nonresidential development in all the contours. (Ord. No. 98-O-158, 10-20-98; Ord. No. 04-O-057, 4-20-04; Ord. No. 05-O-149, 11-22-05)

§ 12-404. - District boundaries.

- A. The Fentress Airfield overlay district shall include all lots, properties, subdivisions and developments located partially or wholly within the AICUZ noise contours 65-70 DNL, 70-75 DNL and greater than 75 DNL on that certain map entitled the 2010 "Composite AICUZ - NALF Fentress," including all future amendments.
- B. All lots, properties, subdivisions and developments located partially or wholly within the Fentress Airfield Overlay District shall be subject to the provisions of this section 12-400 et seq.
- C. Within thirty (30) days of any amendment to the 2010 "Composite AICUZ-NALF Fentress," the planning director, or designee, shall provide written notice to the last known address of all affected property owners, advising them of the amendment and whether the property has been included in or deleted from the Fentress Airfield Overlay District. Amendments other than changes to the boundaries of the AICUZ noise contour

maps shall be subject to the applicable notice provisions for zoning text amendments set out in section 15.2-2204 of the Code of Virginia.

§ 12-405. - Permitted and conditional uses for properties located within the Fentress Airfield overlay district.

- A. The inclusion of property within the Fentress Airfield overlay district shall not limit or prohibit any development of such property which is allowed under the zoning classification of that property subject to the conditions set forth herein.
- B. In addition to the permitted and conditional uses allowed for any lot located partially or wholly within the Fentress Airfield overlay district under that property's zoning classification, any of the following uses may be authorized, provided that a conditional use permit is granted in accordance with the standards set out below and in article 17 of the zoning ordinance.

SIC	TITLE AND CONDITIONS WHERE APPLICABLE	STATUS
0241	Dairy Farms	C
14	Excavation, in accordance with section 13-1200 et seq. of this ordinance and chapter 26, article VII (section 26-221 et seq.), of the city Code	C
154	General Building Contractors	C
171	Plumbing, Heating and Air Conditioning	C
204	Grain Mill Products	C
205	Bakery Products	C
2086	Bottled and Canned Drinks and Carbonated Waters	C

209	Miscellaneous Food Preparations and Kindred Products, Not Including Processing of Meat, Seafood, Poultry, Vinegar or Yeast	C
242	Sawmills and Planing Mills	C
243	Millwork, Veneer, Plywood and Structural Wood Members	C
2621	Paper Mills, Limited to Bag Manufacturing Only	C
27	Printing, Publishing and Allied Products	C
3273	Ready-Mix Concrete	C
328	Cut Stone and Stone Products	C
329	Abrasive, Asbestos and Miscellaneous Nonmetallic Mineral Products	C
3444	Sheet Metal Work	C
3732	Boat Building and Repairing, provided that all operations are carried out in a completely enclosed building	C
3827	Optical Instruments and Lenses	C
3873	Watches, Clocks, Clockwork-Operated Devices and Parts	C
3915	Jeweler's Findings and Materials, Lapidary Work	C
3931	Musical Instruments	C
399	Miscellaneous Manufacturing Industries, limited to assembly of previously prepared parts into finished products, not otherwise named herein, provided no operations are carried on which will create smoke, fumes, noise, odor or dust and specifically approved by the zoning administrator	C
3993	Signs and Advertising Specialties	C
4011	Railroads, Line-Haul Operating	C

4222	Refrigerated Warehousing and Storage	C
4225	General Warehousing and Storage	C
495	Private Sewer Disposal Systems Other than Individual Septic Tank [and] Drainfield	C
5031	Lumber, Plywood, Millwork and Wood Panels—Wholesale Trade	C
5083	Farm and Garden Machinery and Equipment—Wholesale Trade, provided that all display areas meet the minimum development standards set forth in section 12-406 below	C
5112	Wholesale Stationery and Office Supplies, Including Wholesale Office Equipment, Sales and Service	<u>C</u>
518	Beer, Wine and Distilled Alcoholic Beverages—Wholesale Trade	C
5191	Farm Supplies—Wholesale Trade	C
5199	Nondurable Goods Not Elsewhere Classified, Wholesale Distribution Only	C
5211	Lumber and Other Building Materials Dealers	C
5261	Retail Nurseries, Lawn and Garden Supply Stores	C
6553	Cemeteries and Cemetery Subdividers and Developers	C
7216	Dry Cleaning Plants, Except Rug Cleaning	C
7217	Carpet and Upholstery Cleaning	C
7219	Laundry and Garment Services, Not Elsewhere Classified, Limited to Fur Storage Only	C
7532	Automotive Top, Body and Upholstery Repair Shops and Paint Shops, provided that all operations and storage are carried out in a completely enclosed building	C

7538	General Automotive Repair, provided that all operations and storage are carried out in a completely enclosed building	C
7692	Welding Repair, provided that all operations and storage are carried out in a completely enclosed building	C
7699	Repair Shops Not Elsewhere Classified and Limited to Repair and Servicing of Office, Household and Industrial Equipment, Agricultural Equipment Repair and Blacksmith Shop, provided that all operations and storage are carried out in a completely enclosed building	C
7699	Agricultural Equipment Sales	C
7992	Public Golf Courses, Not Including Clubhouses	C
7997	Membership Sports and Recreation Clubs, Not Including Flying Fields, Aviation Clubs or Clubhouses	C
7999	Amusement and Recreation Services, Not Elsewhere Classified and Limited to Boat Landings and Docks and Incidental Refreshment Facilities	C
807	Medical and Dental Laboratories not considered a medical care facility	C
873	Research, Development and Testing Services	C
922	Public Order and Safety, Not Including Correctional Institutions	C

C. In determining whether to grant a conditional use permit application, city council shall consider the compatibility tables (tables 1 and 2) set out in section 12-406 below. No conditional use permit application shall be granted unless, and in addition to meeting the criteria for granting conditional use permits set out in article 17 of this zoning ordinance, the property and proposed buildings and structures meet the following minimum standards (the Chesapeake Health Department may require larger lots, widths and setbacks necessary for adequate sewage disposal):

1. Minimum lot size for properties in noise contours 65-70 DNL and 70-75 DNL shall be one acre or the minimum lot size prescribed by the underlying zoning district, whichever is greater. The minimum lot size for properties in noise contour 75 DNL or greater shall be prescribed by the underlying zoning district.
2. Minimum building setback from a public street shall be one hundred fifty (150) feet. This setback distance may be reduced, up to a minimum setback of fifty (50) feet, if landscaping approved by city council is provided which screens the building from public view from the street.
3. If parking is proposed between the building and any street bordering the property, there shall be a buffer and landscaping arranged so that the parking lot is effectively screened from public view from the street.
4. Side and rear yards shall be a minimum of thirty (30) feet.
5. A four-foot high landscaped berm with a 3:1 slope and a two-foot wide top shall be installed between any proposed use and any existing residential unit located within five hundred (500) feet of any building on the lot on which the use is located. Such berm at a minimum shall be equal in length to the side of the building facing the residential unit. This berm requirement may be waived if existing or proposed trees or other vegetation are determined to provide comparable screening.
6. All lighting shall be directed downward toward the interior of the development. No lighting shall be used that interferes with airfield operations. The extent of light interference, if any, will be determined by the U.S. Navy.
7. Height Regulations. No building or structure shall exceed the U.S. Navy's recommended height restrictions under its AICUZ program. This provision shall not

be construed to permit any building or structure to exceed the maximum height permitted by the zoning ordinance.

8. For non-residential conditional uses in noise contours 65 DNL or greater, noise level reduction shall be required as follows:
 - a. Buildings and structures supporting uses identified as A (Assembly), B (Business), E (Educational), I (Institutional), and M (Mercantile) as identified in the Virginia Uniform Statewide Building Code (USBC) shall conform with the applicable sound attenuation measures set out in the USBC.
 - b. All other occupied buildings and structures located in noise contours 65 DNL or greater must achieve an outdoor to indoor noise level reduction of 35 dB.
- D. The applicant for a conditional use permit in the Fentress Airfield Overlay District is encouraged to provide an aviation easement to the U.S. Government, which shall include a covenant not to bring a claim or suit based upon military aircraft noise. The aviation easement shall be in a form recommended by the director of planning.
- E. In addition to the standards set out above, any conditional use approved for property located within the Fentress Airfield overlay district shall comply with the requirements of the zoning classification in which such use is permitted under the zoning ordinance.
- F. The planning commission may recommend and the city council may impose such additional conditions and requirements for approval of a use permit application as may be deemed necessary and appropriate to ensure the compatibility of the proposed use with the surrounding neighborhood, as provided for in article 17 of this zoning ordinance.
- G. A site plan and landscape plan shall be submitted to the planning commission for approval for any conditional use approved for property located within the Fentress

Airfield overlay district. All final sale plans shall contain disclosure provisions as required by section 12-408 below.

- H. The following certifications must be acquired to obtain a building permit and a certificate of occupancy for any nonresidential occupied building or structure requiring a conditional use permit under this section:
 - 1. In order to obtain a building permit, an acoustical engineer must certify on the building plan that the building plan complies with the noise reduction schedule required by subsection 12-405.C.
 - 2. In order to obtain a certificate of occupancy, an acoustical engineer must certify that the buildings and structures comply with the noise reduction schedule required by subsection 12-405.C.

§ 12-406. - Compatibility tables.

- A. This section shall apply to discretionary development applications for any property located within an accident potential zone (APZ) or within noise contours 65-70 DNL, 70-75 DNL or 75 DNL or greater that have not been approved or denied by the city council as of the date of adoption of this amendment to section 12-406. For purposes of this section, discretionary development applications shall include applications for:
 - 1. Rezoning, including conditional zonings and planned unit development zonings and;
 - 2. Conditional use permits for new uses or structures, or for alterations or enlargements of existing conditional uses where the occupancy load would increase.
- B. Except as provided in this section, it shall be the policy of the city council that no discretionary land use application shall be approved unless the uses and structures are

designated as "compatible" under table 1 below and, if applicable, table 2. If the City Council makes a finding that the proposed use is incompatible and no reasonable use of the property is designated compatible, city council may approve the proposed use of property at the least density or intensity of development that is reasonable.

- C. The following tables show the uses designated as Compatible (Y) and those designated as Not Compatible (N) in each listed noise zone which correspond with the noise contours adopted herein (Table 1) or Accident Potential Zone (Table 2). The designation of any use as "compatible" shall not be construed to allow such use in any zoning district in which it is not permitted as either a principal or conditional use. All other criteria for rezonings and conditional use permits shall continue to comply.

TABLE 1—AIR INSTALLATION COMPATIBLE USE ZONES LAND USE COMPATIBILITY IN NOISE ZONES

Land Use	Land Use Compatibility		
	65-70 DNL	70 - 75 DNL	>75 dB DNL
Residential and Related			
Single-family dwellings	N	N	N
Semidetached dwellings	N	N	N
Attached dwellings/townhouses	N	N	N
Duplexes	N	N	N
Multiple-family dwellings	N	N	N
Dormitories and other group quarters	N	N	N

Mobile home parks	N	N	N
Hotels and motels	N	N	N
Other residential uses	N	N	N
Manufacturing			
Food and kindred products; manufacturing	Y	Y	Y
Textile mill products; manufacturing	Y	Y	Y
Apparel and other finished products; products made from fabrics, leather and similar materials; manufacturing	Y	Y	Y
Lumber and wood products (except furniture); manufacturing	Y	Y	Y
Furniture and fixtures; manufacturing	Y	Y	Y
Paper and allied products; manufacturing	Y	Y	Y
Printing, publishing, and allied industries	Y	Y	Y
Chemicals and allied products; manufacturing	Y	Y	Y
Petroleum refining and related industries	Y	Y	Y
Rubber and misc. plastic products; manufacturing	Y	Y	Y
Stone, clay and glass products; manufacturing	Y	Y	Y
Primary metal products; manufacturing	Y	Y	Y
Fabricated metal products; manufacturing	Y	Y	Y

Professional scientific, and controlling instruments; photographic and optical goods; watches and clocks	Y	Y	Y
Miscellaneous manufacturing	Y	Y	Y
Transportation, communication and utilities			
Railroad, rapid rail transit, and street railway transportation	Y	Y	Y
Motor vehicle transportation	Y	Y	Y
Aircraft transportation	Y	Y	Y
Marine craft transportation	Y	Y	Y
Highway and street right-of-way	Y	Y	Y
Automobile parking	Y	Y	Y
Communication	Y	Y	Y
Utilities	Y	Y	Y
Other transportation, communication and utilities	Y	Y	Y
Trade			
Wholesale trade	Y	Y	Y
Retail trade — building materials, hardware and farm equipment	Y	Y	Y
Retail trade — general merchandise	Y	Y	Y
Retail trade — food	Y	Y	Y

Retail trade — automotive, marine craft, aircraft and accessories	Y	Y	Y
Retail trade — apparel and accessories	Y	Y	Y
Retail trade — furniture, home, furnishings and equipment	Y	Y	Y
Retail trade — eating and drinking establishments	Y	Y	Y
Other retail trade	Y	Y	Y
Services			
Finance, insurance and real estate services	Y	Y	Y
Personal services	Y	Y	Y
Cemeteries	Y	Y	Y
Business services	Y	Y	Y
Warehousing and storage	Y	Y	Y
Repair Services	Y	Y	Y
Professional services	Y	Y	Y
Hospitals, other medical fac.	Y	Y	N
Nursing Homes	N	N	N
Contract construction services	Y	Y	Y
Government Services	Y	Y	Y
Educational services	Y	Y	N

Miscellaneous	Y	Y	Y
Cultural, entertainment and recreational			
Cultural activities (& churches)	Y	Y	N
Nature exhibits	Y	N	N
Public assembly	Y	N	N
Auditoriums, concert halls	Y	Y	N
Outdoor music shells, amphitheaters	N	N	N
Outdoor sports arenas, spectator sports	Y	Y	N
Other outdoor recreational facilities	Y	Y	Y
Indoor recreational facilities	Y	Y	Y
Campgrounds	Y	Y	N
Parks	Y	Y	N
Other cultural, entertainment and recreation	Y	Y	N
Resource Production and Extraction			
Agriculture (except livestock)	Y	Y	Y
Livestock farming	Y	Y	N
Animal breeding	Y	Y	N
Agriculture related activities	Y	Y	Y
Forestry Activities (includes timbering)	Y	Y	Y

Fishing Activities	Y	Y	Y
Mining Activities (includes borrow pits)	Y	Y	Y
Other resource production or extraction	Y	Y	Y

TABLE 2—AIR INSTALLATIONS COMPATIBLE USE ZONES LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES

LAND USE NAME	CLEAR ZONE	APZ-I	APZ-II
Residential			
Single-family dwellings	N	N	Y
Semidetached dwellings	N	N	N
Attached dwellings/townhouses	N	N	N
Multiple-family dwellings	N	N	N
Dormitories and other group quarters	N	N	N
Hotels and motels	N	N	N
Mobile home parks	N	N	N
Other residential	N	N	N
Manufacturing			
Food and kindred products; manufacturing	N	N	Y
Textile mill products; manufacturing	N	N	Y
Apparel and other finished products; products made from fabrics,	N	N	N

leather and similar materials; manufacturing			
Lumber and wood products (except furniture); manufacturing	N	Y	Y
Furniture and fixtures; manufacturing	N	Y	Y
Paper and allied products; manufacturing	N	Y	Y
Printing, publishing, and allied industries	N	Y	Y
Chemicals and allied products; manufacturing	N	N	N
Petroleum refining and related industries	N	N	N
Rubber and misc. plastic products; manufacturing	N	N	N
Stone, clay and glass products; manufacturing	N	N	Y
Primary metal products; manufacturing	N	N	Y
Fabricated metal products; manufacturing	N	N	Y
Professional scientific, and controlling instrument; photographic and optical goods; watches and clocks	N	N	N
Miscellaneous manufacturing	N	Y	Y
Transportation, communication and utilities			
Railroad, rapid rail transit, and street railway transportation	N	Y	Y
Motor vehicle transportation	N	Y	Y
Aircraft transportation	N	Y	Y

Marine craft transportation	N	Y	Y
Transportation, communication and utilities			
Auto parking	N	Y	Y
Communication	N	Y	Y
Utilities	N	Y	Y
Solid waste disposal (Landfills, incineration, etc.)	N	N	N
Other transport, comm. and utilities	N	Y	Y
Trade			
Wholesale trade	N	Y	Y
Retail trade — building materials, hardware and farm equipment	N	Y	Y
Retail trade — general merchandise	N	N	Y
Retail trade — food	N	N	Y
Retail trade — automotive, marine craft, aircraft and accessories	N	Y	Y
Retail trade — apparel and accessories	N	N	Y
Retail trade — furniture, home, furnishings and equipment	N	N	Y
Retail trade — eating and drinking establishments	N	N	N
Other retail trade	N	N	Y
Services			
Finance, insurance and real estate services	N	N	Y

Trade			
Personal services	N	N	Y
Warehousing and storage services	N	Y	<u>Y</u>
Repair Services	N	Y	Y
Professional services	N	N	Y
Hospitals, nursing homes	N	N	N
Other medical facilities	N	N	N
Contract construction services	N	Y	Y
Government Services	N	N	Y
Educational services	N	N	N
Miscellaneous	N	N	Y
Cultural, entertainment and recreational			
Cultural activities	N	N	N
Nature exhibits	N	Y	Y
Public assembly	N	N	N
Auditoriums, concert halls	N	N	N
Outdoor music shells, amphitheaters	N	N	N
Outdoor sports arenas, spectator sports	N	N	N
Indoor recreational facilities	N	Y	Y
Campgrounds	N	N	N

Parks	N	Y	Y
Other cultural, entertainment and recreation	N	Y	Y
Agriculture (except livestock)	Y	Y	Y
Resource production and extraction			
Livestock farming and breeding	N	Y	Y
Agriculture related activities	N	Y	Y
Forestry Activities Including Timbering	N	Y	Y
Fishing Activities	N	Y	Y
Mining Activities (Borrow Pits)	N	Y	Y
Other resource production or extraction	N	Y	<u>Y</u>
Other			
Undeveloped Land	Y	Y	Y
Water Areas	N	N	N

§ 12-407. Disclosure provisions on nonresidential final site plans, recorded surveys and subdivision plats.

In accordance with section 15.2-2295 of the Code of Virginia, 1950, as amended, all approved final site plans, recorded surveys and subdivision plats depicting properties, lots, subdivisions and developments located partially or wholly within the Fentress Airfield overlay district shall contain a statement as follows: "This development is located partially or wholly within an aircraft noise and/or accident zone and may be subject to above average noise levels or to aircraft accidents."

(Ord. No. 04-O-057, 4-20-04) Editor's note: Ord. No. 04-O-057, adopted April 20, 2004, amended § 12-407 to read as herein set out. Formerly, § 12-407 pertained to disclosure provisions on nonresidential final site plans and derived from Ord. No. 98-O-158, adopted October 20, 1998.

Sec. 12-408. - Special building, lighting and disclosure requirements for development in the Fentress Airfield Overlay.

- A. Pursuant to the authority granted in section 15.2-2295 of the Code of Virginia, 1950, as amended, all residential dwellings located in or on lots, subdivisions or developments located partially or wholly within the Fentress Airfield overlay district (65 DNL or greater) shall be constructed in conformance with sound transmission control regulations and airport noise attenuation standards set out in the Virginia Uniform Statewide Building Code, as amended. Such building code regulations shall also apply to additions and structural alterations to residential dwellings; except that additions and structural alterations to residential dwellings existing on the effective date of this ordinance (October 20, 1998) shall be exempt from conformance with the Virginia Uniform Statewide Buildings Code. A residential dwelling shall be considered existing on the effective date of this ordinance if a certificate of occupancy has been issued for the dwelling or the dwelling is occupied for residential purposes.
- B. Buildings and structures supporting nonresidential uses identified in the Virginia Uniform Statewide Building Code (USBC) as Uses A (Assembly), B (Business), E (Educational), I (Institutional) and M (Mercantile), and located wholly or partially within noise contours 65-70 DNL, 70-75 DNL or 75 or greater DNL, shall conform with the applicable sound attenuation measures in the USBC.

- C. Any owner of property located wholly or partially in a noise contour of 65 DNL or greater is encouraged to provide the U.S. Government with an aviation easement prior to development of the property. Such aviation easement shall include a covenant not to bring a claim or suit based upon military aircraft noise. The aviation easement shall be in a form recommended by the director of planning.
- D. In accordance with section 15.2-2295 of the Code of Virginia, 1950, as amended, all approved final site plans, recorded surveys and subdivision plats for residential developments and subdivisions located partially or wholly within the Fentress Airfield overlay district shall contain a statement as follows: "This development or subdivision is located partially or wholly within an aircraft noise and/or accident zone and may be subject to above average noise levels or to aircraft accidents."
- E. In addition to all other disclosures required by this section any person marketing for sale, lease or any form of conveyance of interest in property partially or wholly within the Fentress Airfield overlay district shall provide written disclosure to all prospective purchasers, renters or transferees that such property is located within the Fentress Airfield overlay district. Such written notification shall also be placed in all sales contracts, leases and contracts for all other forms of conveyance. This requirement shall not apply to property sold, leased or otherwise transferred solely for agricultural purposes.
- F. All lighting shall be directed downward toward the interior of the development. No lighting shall be used that interferes with airfield operations. The extent of light interference, if any, will be determined by the U.S. Navy.

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LAND USE COMPATIBILITY RECOMMENDATIONS

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Land Use Compatibility Recommendations								
Land Use		Accident Potential Areas ¹			Noise Levels			
SLUCM No.	Name	Clear Zone	APZ I	APZ II	65 to 70 DNL	70 to 75 DNL	75 to 80 DNL	80 to 85 DNL
10	Residential							
11	Household units	NA	NA	NA	N ²⁶	N ²⁶	N	N
11.11	Single units; detached	N	N	Y ²	N ²⁶	N ²⁶	N	N
11.12	Single units; semidetached	N	N	N	N ²⁶	N ²⁶	N	N
11.13	Single units; attached row	N	N	N	N ²⁶	N ²⁶	N	N
11.21	Two units; side-by-side	N	N	N	N ²⁶	N ²⁶	N	N
11.22	Two units; one above the other	N	N	N	N ²⁶	N ²⁶	N	N
11.31	Apartments; walk up	N	N	N	N ²⁶	N ²⁶	N	N
11.32	Apartments; elevator	N	N	N	N ²⁶	N ²⁶	N	N
12	Group quarters	N	N	N	N ²⁶	N ²⁶	N	N
13	Residential hotels	N	N	N	N ²⁶	N ²⁶	N	N
14	Mobile home parks or courts	N	N	N	N	N	N	N
15	Transient lodgings	N	N	N	N ²⁶	N ²⁶	N ²⁶	N
16	Other residential	N	N	N	N ²⁶	N ²⁶	N	N
20	Manufacturing ³							
21	Food and kindred products; manufacturing	N	N	Y ⁴	Y	Y ²⁷	Y ²²	Y ²⁹
22	Textile mill products; manufacturing	N	N	Y ⁴	Y	Y ²⁷	Y ²⁸	Y ²⁹
23	Apparel and other finished products made from fabrics, leather, and similar materials; manufacturing	N	N	N	Y	Y ²⁷	Y ²⁸	Y ²⁹

Land Use Compatibility Recommendations								
Land Use		Accident Potential Areas ¹			Noise Levels			
SLUCM No.	Name	Clear Zone	APZ I	APZ II	65 to 70 DNL	70 to 75 DNL	75 to 80 DNL	80 to 85 DNL
24	Lumber and wood products (except furniture); manufacturing	N	Y ⁵	Y ⁵	Y	Y ²⁷	Y ²⁸	Y ²⁹
25	Furniture and fixtures; manufacturing	N	Y ⁵	Y ⁵	Y	Y ²⁷	Y ²⁸	Y ²⁹
26	Paper and allied products; manufacturing	N	Y ⁵	Y ⁵	Y	Y ²⁷	Y ²⁸	Y ²⁹
27	Printing, publishing, and allied industries	N	Y ⁵	Y ⁵	Y	Y ²⁷	Y ²⁸	Y ²⁹
28	Chemicals and allied products; manufacturing	N	N	N	Y	Y ²⁷	Y ²⁸	Y ²⁹
29	Petroleum refining and related industries	N	N	N	Y	Y ²⁷	Y ²⁸	Y ²⁹
30	Manufacturing (cont'd) ³							Y ²⁹
31	Rubber and misc. plastic products; manufacturing	N	N	N	Y	Y ²⁷	Y ²⁸	Y ²⁹
32	Stone, clay, and glass products; manufacturing	N	N	Y ⁵	Y	Y ²⁷	Y ²⁸	Y ²⁹
33	Primary metal products; manufacturing	N	N	Y ⁵	Y	Y ²⁷	Y ²⁸	Y ²⁹
34	Fabricated metal products; manufacturing	N	N	Y ⁵	Y	Y ²⁷	Y ²⁸	Y ²⁹
35	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks; manufacturing	N	N	N	Y	25	30	N
39	Miscellaneous manufacturing	N	Y ⁶	Y ⁶	Y	Y ²⁷	Y ²⁸	Y ²⁹
40	Transportation, communication and utilities ^{3,6}					Y ²⁷		
41	Railroad, rapid rail transit, and street railway transportation	N	Y ^{3,7}	Y ³	Y	Y ²⁷	Y ²⁸	Y ²⁹
42	Motor vehicle transportation	N	Y ^{3,7}	Y ³	Y	Y ²⁷	Y ²⁸	Y ²⁹
43	Aircraft transportation	N	Y ^{3,7}	Y ³	Y	Y ²⁷	Y ²⁸	Y ²⁹

Land Use Compatibility Recommendations								
Land Use		Accident Potential Areas ¹			Noise Levels			
SLUCM No.	Name	Clear Zone	APZ I	APZ II	65 to 70 DNL	70 to 75 DNL	75 to 80 DNL	80 to 85 DNL
44	Marine craft transportation	N	Y ^{3,7}	Y ³	Y	Y ²⁷	Y ²⁸	Y ²⁹
45	Highway and street right-of-way	N	Y ^{3,7}	Y ³	Y	Y ²⁷	Y ²⁸	Y ²⁹
46	Automobile parking	N	Y ^{3,7}	Y ³	Y	Y ²⁷	Y ²⁸	Y ²⁹
47	Communication	N	Y ^{3,7}	Y ³	Y	25,30	30,30	N
48	Utilities	N	Y ^{3,7}	Y ³	Y	Y ²⁷	Y ²⁸	Y ²⁹
485	Solid waste disposal (landfills, incineration, etc.)	N	N	N	NA	NA	NA	NA
49	Other transportation, communication, and utilities	N	Y ^{3,7}	Y ³	Y	25,30	30,30	N
50	Trade							
51	Wholesale trade	N	Y ⁵	Y ⁵	Y	Y ²⁷	Y ²⁸	Y ²⁹
52	Retail trade - building materials, hardware, and farm equipment	N	Y ⁸	Y ⁸	Y	Y ²⁷	Y ²⁸	Y ²⁹
53	Retail trade - shopping centers	N	N ⁹	Y ⁹	Y	25	30	N
54	Retail trade - food	N	N	Y ¹⁰	Y	25	30	N
55	Retail trade - automotive, marine craft, aircraft, and accessories	N	Y ⁸	Y ⁸	Y	25	30	N
56	Retail trade - apparel and accessories	N	N	Y ¹¹	Y	25	30	N
57	Retail trade - furniture, home furnishings, and equipment	N	N	Y ¹¹	Y	25	30	N
58	Retail trade - eating and drinking establishments	N	N	N	Y	25	30	N
59	Other retail trade	N	N	Y ⁹	Y	25	30	N

Land Use Compatibility Recommendations								
Land Use		Accident Potential Areas ¹			Noise Levels			
SLUCM No.	Name	Clear Zone	APZ I	APZ II	65 to 70 DNL	70 to 75 DNL	75 to 80 DNL	80 to 85 DNL
60	Services ¹²							
61	Finance, insurance, and real estate services	N	N	Y ¹³	Y	25	30	N
62	Personal services	N	N	Y ¹⁴	Y	25	30	N
62.4	Cemeteries	N	Y ¹⁵	Y ¹⁵	Y	Y ²⁷	Y ²⁸	Y ^{29,24}
63	Business services	N	N	Y ¹⁶	Y	25	30	N
63.7	Warehousing and storage	N	Y ¹⁷	Y ¹⁷	Y	Y ²⁷	Y ²⁸	Y ²⁹
64	Repair services	N	Y ¹⁸	Y ¹⁸	Y	Y ²⁷	Y ²⁸	Y ²⁹
65	Professional services	N	N	Y ⁹	Y	25	30	N
65.1	Hospitals, other medical facilities	N	N	N	25	30	N	N
65.16	Nursing homes	N	N	N	N ²⁶	N ²⁶	N	N
66	Contract construction services	N	Y ¹⁸	Y ¹⁸	Y	25	30	N
67	Governmental services	N	N	Y ¹⁰	Y ²⁶	25	30	N
68	Educational services	N	N	N	25	30	N	N
69	Miscellaneous services	N	N	Y ⁹	Y	25	30	N
70	Cultural, entertainment and recreational							
71	Cultural activities (including churches)	N	N	N	25	30	N	N
71.2	Nature exhibits	N	Y ¹⁹	Y ¹⁹	Y ²⁶	N	N	N
72	Public assembly	N	N	N	Y	N	N	N
72.1	Auditoriums, concert halls	N	N	N	25	30	N	N

Land Use Compatibility Recommendations								
Land Use		Accident Potential Areas ¹			Noise Levels			
SLUCM No.	Name	Clear Zone	APZ I	APZ II	65 to 70 DNL	70 to 75 DNL	75 to 80 DNL	80 to 85 DNL
72.11	Outdoor music shells, amphitheaters	N	N	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	N	N	N	Y ³¹	Y ³¹	N	N
73	Amusements (including fairgrounds, miniature golf, driving ranges, amusement parks)	N	N	Y	Y	Y	N	N
74	Recreational activities (including golf courses, riding stables, water recreation)	N	Y ^{18,19}	Y ^{18,19}	Y ²⁶	25	30	N
75	Resorts and group camps	N	N	N	Y ²⁶	Y ²⁶	N	N
76	Parks	N	Y ^{18,19}	Y ^{18,19}	Y ²⁶	Y ²⁶	N	N
79	Other cultural, entertainment and recreation	N	Y ^{18,19}	Y ^{18,19}	Y ²⁶	Y ²⁶	N	N
80	Resource production and extraction							
81	Agriculture (except livestock)	Y ⁶	Y ²⁰	Y ²⁰	Y ³²	Y ³³	Y ³⁴	Y ^{34,35}
81.5, 81.7	Livestock farming and animal breeding	N	Y ^{20,21}	Y ^{20,21}	Y ³²	Y ³³	N	N
82	Agricultural related activities	N	Y ^{20,22}	Y ^{20,22}	Y ³²	Y ³³	Y ³⁴	Y ^{34,35}
83	Forestry activities and related services ²³	N	Y ²²	Y ²²	Y ³²	Y ³³	Y ³⁴	Y ^{34,35}
84	Fishing activities and related services ²⁴	N ²⁴	Y ²²	Y ²²	Y	Y	Y	Y
85	Mining activities and related services	N	Y ²²	Y ²²	Y	Y	Y	Y
89	Other resource production and extraction	N	Y ²²	Y ²²	Y	Y	Y	Y
90	Other							
91	Undeveloped land	Y	Y	Y	NA	NA	NA	NA
93	Water areas	N ²⁵	N ²⁵	N ²⁵	NA	NA	NA	NA

Naval Air Station Oceana and Naval Auxiliary Landing Field Fentress

Source: U.S. Department of the Navy 2008.

Notes:

1. A "Yes" or a "No" designation for compatible land use is to be used only for general comparison. Within each, uses exist where further evaluation may be needed in each category as to whether it is clearly compatible, normally compatible, or not compatible due to the variation of densities of people and structures. In order to assist installations and local governments, general suggestions as to floor/area ratios (FAR) are provided in OPNAVINST 11010.36C as a guide to density in some categories. In general, land use restrictions that limit commercial, services, or industrial buildings or structure occupants to 25 per acre in APZ I and 50 per acre in APZ II are the range of occupancy levels considered to be low density. Outside events should normally be limited to assemblies of not more than 25 people per acre in APZ I, and maximum assemblies of 50 people per acre in APZ II.
2. The suggested maximum density for detached single-family housing is 1 to 2 dwelling units per acre (Du/Ac). In a Planned Unit Development (PUD) of single-family detached units where clustered housing development results in large open areas, this density could possibly be increased, provided the amount of surface area covered by structures does not exceed 20% of the PUD total area. PUD encourages clustered development that leaves large open areas.
3. Other factors to be considered: Labor intensity, structural coverage, explosive characteristics, air pollution, electronic interference with aircraft, height of structures, and potential glare.
4. Maximum FAR of 0.56.
5. Maximum FAR of 0.28 in APZ I and 0.56 in APZ II.
6. No structures (except airfield lighting), buildings or aboveground utility/communications lines should normally be located in clear zone areas on or off the installation. The clear zone is subject to severe restrictions. See NAVFAC P-80.3 or Tri-Service Manual AFM 32-1123(I); TM 5-803-7, NAVFAC P-971 "Airfield and Heliport Planning & Design" dated 17 November 2008 for specific design details.
7. No passenger terminals and no major aboveground transmission lines in APZ I.
8. Maximum FAR of 0.14 in APZ I and 0.28 in APZ II.
9. Maximum FAR of 0.22.
10. Maximum FAR of 0.24.
11. Maximum FAR of 0.28.
12. Low intensity office uses only. Accessory uses such as meeting places, auditoriums, etc., are not recommended.
13. Maximum FAR of 0.22 for "General Office/Office Park."
14. Office uses only. Maximum FAR of 0.22.
15. No chapels are allowed within APZ I or APZ II.
16. Maximum FAR of 0.22 in APZ II.
17. Maximum FAR of 1.0 in APZ I and 2.0 in APZ II.
18. Maximum FAR of 0.11 in APZ I and 0.22 in APZ II.
19. Facilities must be low intensity and provide no tot lots, etc. Facilities such as clubhouses, meeting places, auditoriums, large classes, etc., are not recommended.
20. Includes livestock grazing but excludes feedlots and intensive animal husbandry. Activities that attract concentrations of birds creating a hazard to aircraft operations should be excluded.
21. Includes feedlots and intensive animal husbandry.

Naval Air Station Oceana and Naval Auxiliary Landing Field Fentress

22. Maximum FAR of 0.28 in APZ I and 0.56 in APZ II. No activity that produces smoke or glare or involves explosives.
23. Lumber and timber products removed due to establishment, expansion, or maintenance of clear zones will be disposed of in accordance with appropriate DoD Natural Resources Instructions.
24. Controlled hunting and fishing may be permitted for the purpose of wildlife management.
25. Naturally occurring water features (e.g., rivers, lakes, streams, wetlands) are compatible.
26. a. Although local conditions regarding the need for housing may require residential use in these zones, residential use is discouraged in DNL 65-69 and strongly discouraged in DNL 70-74. The absence of viable alternative development options should be determined and an evaluation should be conducted prior to approvals indicating that a demonstrated community need for the residential use would not be met if development were prohibited in these zones.
 - b. Where the community determines that residential uses must be allowed, measures to achieve outdoor to indoor noise level reduction (NLR) of at least 25 dB (DNL 65-69) and 30 dB (DNL 70-74) should be incorporated into building codes and be considered in individual approvals; for transient housing a NLR of at least 35 dB should be incorporated in DNL 75-79.
 - c. Normal permanent construction can be expected to provide an NLR of 20 dB; thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation, upgraded Sound Transmission Class (STC) ratings in windows and doors and closed windows year round. Additional consideration should be given to modifying NLR levels based on peak noise levels or vibrations.
 - d. NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, design, and use of berms and barriers can help mitigate outdoor exposure, particularly from ground level sources. Measures that reduce noise at a site should be used wherever practical in preference to measures which only protect interior spaces.
27. Measures to achieve an NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
28. Measures to achieve an NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
29. Measures to achieve an NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
30. If the project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.
31. Land use compatible, provided special sound reinforcement systems are installed.
32. Residential buildings require an NLR of 25.
33. Residential buildings require an NLR of 30.
34. Residential buildings not permitted.
35. Land use not recommended, but if the community decides use is necessary, hearing protection devices should be worn by personnel.

Key:

Y (Yes) = Land use and related structures compatible without restrictions.

N (No) = Land use and related structures are not compatible and should be prohibited.

Y^x (Yes with restrictions) = The land use and related structures are generally compatible. However, see notes indicated by superscript.

N^x (No with restrictions) = The land use and related structures are generally incompatible. However, see notes indicated by superscript.

SLUCM = Standard Land Use Coding Manual.

Naval Air Station Oceana and Naval Auxiliary Landing Field Fentress

NLR (Noise Level Reduction) = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

DNL = Day-night average sound level.

NA = Not Applicable (no data available for that category).

25, 30, or 35 = Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 must be incorporated into design and construction of structure.

C

STANDARD TOOLS AND RECOMMENDATIONS

- C.1 Federal/Navy, Tools and Recommendations
- C.2 State/Regional, Tools and Recommendations
- C.3 Local Government, Tools and Recommendations
- C.4 Business Development and Construction Loans to Private Contractors
- C.5 Private Citizens

A wide variety of land use strategies oriented toward the Navy, federal, state, and local levels are available for encouraging compatible land use within the established AICUZ footprints. They are organized in this appendix by stakeholder and their roles and responsibilities as they relate to successful AICUZ implementation. The federal, state, and local land use planning tools are described along with recommendations for implementation.

The Commonwealth of Virginia, the city of Virginia Beach, the city of Chesapeake, and the Navy have already initiated programs, zoning ordinances, and comprehensive plan changes that manage existing and future development within and around the AICUZ footprint at NAS Oceana and NALF Fentress. Continued implementation of these programs will advance the Navy and community partnership to achieve their shared goal, “to protect the health, safety, and welfare of those living near military airfields, while preserving the defense flying mission.”

C.1 FEDERAL/NAVY, TOOLS AND RECOMMENDATIONS

Although ultimate control over land use and development near NAS Oceana and NALF Fentress is the responsibility of the local governments, the Navy has the ability and responsibility to conduct actions and implement programs in support of the local effort. At the installation level, the Installation Commander is responsible for ensuring a successful AICUZ Program. Pursuant to OPNAVINST 11010.36C, the Air Installation Commander at NAS Oceana is committed to and shall:

Naval Air Station Oceana and Naval Auxiliary Landing Field Fentress

- Implement an AICUZ Program for the Air Installation and associated NALF;
- Work with state and local planning officials to implement the objectives of the AICUZ Study;
- Continue to use the CPLO and AICUZ Program manager to assist in the execution of the AICUZ Study by the installation and to act as spokesperson for the Command regarding AICUZ matters;
- Provide assistance in developing AICUZ information, including operational data needed to update the AICUZ Study;
- Work with local decision makers in the surrounding communities to evaluate and justify the retention of land or interest of land required for operational performance; and
- Notify the Chain-of-Command in the AICUZ Program office whenever local conditions merit update or review of the AICUZ Study.

The following are federal- and/or Navy-level regulations, programs, and recommendations that can be used or considered to control development within the AICUZ footprint.

C.1.1 Federal/Navy Level Tools

Environmental Review

Federal agencies, including the Navy, are required to consider the environmental impacts of any federal project that could significantly impact the environment by conducting a comprehensive environmental review. The National Environmental Policy Act (NEPA) mandates complete disclosure of the environmental effects resulting from proposed federal actions, approvals, or funding. Impacts of the action are generally documented in an Environmental Impact Statement (EIS) or an EA. The environmental review process represents an excellent means for incorporating the fundamentals of the AICUZ Study in the planning review process of a project.

Housing and Urban Development (HUD) - 24 CFR Part 51 Subparts B and D

The approval of all mortgage loans from the Federal Housing Administration or the Veterans Administration is subject to the requirements of Housing and Urban Development (HUD), CFR Part 51 Subparts B and D. The regulation sets forth a discretionary policy to withhold funds for housing projects when noise exposure is in excess of prescribed levels. Residential construction may be permitted inside the 65 dB DNL noise zone, provided sound attenuation is accomplished, though the added construction expense of noise attenuation may make siting in these noise exposure areas financially less attractive. Due to the discretionary makeup of the HUD policy, variances may also be permitted, depending on regional interpretation and local conditions. HUD also has a policy that prohibits funding for projects in Clear Zones and APZs, unless the project is compatible with the AICUZ.

Executive Order 12372, Intergovernmental Review of Federal Programs (July 1982)

As a result of the Intergovernmental Cooperation Act of 1968, the United States Office of Management and Budget requires all federal aid development projects to be coordinated with and reinforce state, regional, and local planning. Executive Order 12372 allows state governments to set up review periods and processes for federal projects and provides an early entry point into the process to introduce AICUZ concepts and to discuss AICUZ issues.

Public Land Acquisition

In accordance with OPNAVINST 11010.C36C, the Navy is permitted to acquire interest in properties (acquisition) to protect the operational integrity of its air installations. When threats to operational integrity from incompatible development are identified, and when local communities are unwilling or unable to take the initiative to address the threat using their own authority, consideration can be given to land acquisition. The first priority for acquisition, whether in fee or by restrictive easement, is the Clear Zone. The second priority is other APZs. Noise zones, outside the Clear Zone and APZs, may be considered for acquisition only when all avenues of achieving compatible use zoning or similar protection

have been explored and the operational integrity of the installation is clearly threatened. Land can be purchased through negotiation and voluntary agreement of the land or it can be through condemnation procedures, using the power of eminent domain.

Adjustment of Operational Procedures

The Navy can adjust operational procedures and initiate facility improvements to reduce the extent of exposure to noise (noise abatement) and mishaps. The options available to military authorities vary between installations due to specific local conditions, local air operations, and local mission requirements. Only after careful consideration of all options should changes in operational procedures be made. No changes that compromise the mission of the installation should be instituted. Noise abatement procedures implemented at NAS Oceana and NALF Fentress are noted in Section 4.4.

C.1.2 Federal/Navy Level Recommendations

Community Outreach Activities

Public relations and education programs involve the use of information and provision knowledge to the citizenry regarding managing and understanding noise and land development problems. The Navy should continue community outreach efforts that have begun at NAS Oceana. Initiatives aimed at further protecting Navy assets should continue and/or be expanded. NAS Oceana representatives have participated in a compatible land use meeting with the local cities to identify areas where potential incompatible land uses exist. These meetings can also be used to address current and future aircraft related activity at the NAS Oceana and/or NALF Fentress, and other relevant topics related to the interaction between the Navy and its neighbors. Navy representatives working with the community serve to enhance the lines of communication and all parties' ability to address potential concerns that arise.

The installation CO, CPLO, and AICUZ Manager participate in local meetings and events to further their community outreach efforts. The Navy recommends that participation and attendance at the following events continue in

order to further foster community partnership and the implementation of this AICUZ Study:

- Navy League Meetings;
- Rotary Club Meetings;
- Hampton Roads Economic Development Alliance Meetings;
- Hampton Roads Partnership; and
- Informal forums and Civic Meetings.

These, and similar initiatives where Navy representatives are working with the community, serve to enhance the lines of communication and the ability of all parties to address potential concerns that arise.

Presentation of the AICUZ Program

The AICUZ Program can be a complex subject and process that requires discussion and elaboration for clear community understanding. Presentations should be made on the program to individuals or collectively to community decision makers, including regional and local planning councils/commissions, city councils, Council of Governments, and other interested agencies. Presentation on the AICUZ Program's elements would provide an opportunity to inform and educate individuals or groups who make land use decisions (e.g., infrastructure siting, schools, zoning changes) and to answer any questions about the program.

As part of the presentation, a new website should be developed (or an existing one augmented) to include AICUZ-specific related topics. Various materials for presentation and distribution should be developed or updated, including poster boards, an electronic or slide presentation, and fact sheets. This presentation information could be used as part of the community outreach activities to inform the general public on AICUZ issues on how the installation contributes to the local economy and the need for responsible land use planning.

Encroachment Partnering (10 USC 2684a)

Multi-Year agreements between The United States of America and the Cities of Virginia Beach and Chesapeake are in place. Multiple parcels of land have been identified and purchased as this highly successful program is nearing completion. Further information is discussed in Section 7.

Engage in the Local Planning Process

Navy representatives should remain engaged in attending public hearings and provide comments on actions that affect AICUZ planning, including comprehensive plan issues, updates to local general plans, capital improvement plans, zoning, building code changes, and other land development regulation updates/amendments impacting the states, counties, cities, and the installations.

C.2 STATE/REGIONAL, TOOLS AND RECOMMENDATIONS

State regulations and programs for the Commonwealth of Virginia that impact land use controls and growth around the NAS Oceana can be used to control development within the AICUZ footprint. In addition, regional planning agencies and development organizations can control development by aiding and influencing the local governments in the development of policies, plans, and regulations necessary for the physical and economic growth of the region. The following sections are state/regional level tools and recommendations that can be used to control development within the AICUZ footprint.

C.2.1 State/Regional Level Tools

Growth Management Regulations

The Commonwealth of Virginia has mandated that all local governments plan for the future. Section 15.2-2223 of the Code of Virginia mandates that every local government in Virginia prepare and adopt a comprehensive plan, while Section 15.2-2224 identifies the primary tools communities can use to implement these plans. The purpose of comprehensive plans is to bring about coordinated physical development in accordance with present and future needs. The comprehensive planning and land development controls granted in Section

15.2-22 of the Code of Virginia are implemented by official maps, zoning ordinances, subdivision regulations, building codes, and capital improvements programs.

Regional Planning and Development District

The key regional organization that supports the local governments in the vicinity of NAS Oceana and NALF Fentress is the Hampton Roads Planning District Commission (HRPDC). They provide technical and planning assistance to their member governments in the preparation of comprehensive plans, master plans, zoning ordinances, subdivision regulations, capital improvement plans, economic development plans, and grant applications. The planning district can coordinate with their member governments to provide local leaders with a view of the region, as a whole, and how local needs and issues interrelate with Navy operations. Through regional plans (e.g., Comprehensive Economic Development Strategy [CEDs]), the councils/commissions can aid in the community outreach efforts to inform local decision makers about the AICUZ Program and to identify areas where potential incompatible land uses may occur.

C.2.2 State/Regional Level Recommendations

Regional Planning Agencies

HRPDC should continue to play an important encroachment management role in coordinating with local government entities to ensure future plans and updated ordinances and any other applicable land use regulations to reflect the recommendations of the 2005 Hampton Roads JLUS and enforce subsequent measures adopted by the cities.

C.3 LOCAL GOVERNMENT, TOOLS AND RECOMMENDATIONS

While it is the responsibility of NAS Oceana to inform and educate community decision makers about the AICUZ Program, it is local land use decisions that will ultimately ensure the health, safety and welfare of the community and the operational integrity of the installation. Local governments have the authority to implement regulations and programs for controlling

development and managing and directing growth to ensure land use activity compatible within the AICUZ footprint. Local governments should recognize their responsibility in providing land use controls in those areas encumbered by the AICUZ footprint in order to protect the health, safety, and general welfare of the population. The following sections are local government level tools and recommendations that can be used to achieve this purpose.

C.3.1 Local Government Level Tools

Local Government Comprehensive Plans and Planning

The local planning authorities surrounding NAS Oceana and NALF Fentress are the cities of Virginia Beach and Chesapeake. Both the cities have developed and adopted a comprehensive plan, which reflect the provisions and recommendations of the 2005 Hampton Roads JLUS. These plans should continue to reflect ongoing coordination efforts with NAS Oceana, including specific language concerning the 2012 AICUZ Study.

Zoning

Zoning regulates the use of land and the placement and design of structures on the land. Zoning can restrict the height of structures and prohibit the creation of other hazards, including smoke, radio interference, and glare. As discussed in Section 7.1, the cities of Virginia Beach and Chesapeake have both adopted zoning ordinances that promote compatible development around NAS Oceana and NALF Fentress and can be used to address/prevent future non-conforming uses.

Purchase of Development Rights

Local governments may consider the purchase of development rights within the AICUZ footprint. As a result of purchasing the rights for property development, incompatible land use may be prevented from occurring near the installation. This program is most effective where development rights of agricultural land are purchased. The land is kept productive and no incompatible land use activities can be developed.

As discussed in Section 7.1, the cities of Virginia Beach and Chesapeake pursue property rights acquisition through their participation in the DOD Encroachment Partnering Program. In addition, the Navy is a participant in the evaluation of proposed new development within the AICUZ footprint.

Transfer of Development Rights (TDR)

The concept of transfer of development rights (TDR) is a land use planning tool that involves purchasing property development rights from one property (e.g., an area proposed for incompatible residential development near an air station) and transferring those rights to another piece of property (e.g., to an area well outside of noise contours and APZs that is more conducive to residential development). As a result, development of the original property with incompatible land uses is prevented near the installation. Another part of the TDR concept is the potential for developers to receive approvals for increased densities in the receiving areas as an inducement to the developer for agreeing to a TDR. TDRs also require local governments to adopt a TDR ordinance identifying sending and receiving areas in the jurisdiction.

Public Land Acquisition Programs

Public land acquisition programs can be used for acquisition of land to support the AICUZ Program. Land acquisitions are designed to eliminate land use incompatibilities through voluntary transactions in the real estate market and local development process. Acquisition strategies are particularly effective tools because they advance the complementary goals of shaping future growth away from the airfields, while protecting the environment, maintaining agriculture, and conserving open spaces and rural character. A vital part in implementing acquisition tools is to identify areas of conservation interest. Laying out protection priorities around airfields is important when exploring possible partnerships with non-profit conservation groups and in requesting future acquisition funds.

The City of Virginia Beach has acquired and continues to acquire property through the Virginia Beach APZ -1 / CZ Acquisition and Conformity Program (ACP).

Special Planning Districts

Special Planning Districts are established to implement tailor-made policies, development standards, design guidelines, and land uses that overlay the existing zoning for designated areas within jurisdictional boundaries. The districts regulations supersede the underlying zoning and may be either more or less restrictive. Local governments and commissions have the power to create Special Planning Districts, such as “military influence areas” or “airport overlay zones/districts” where local governments can either enact restrictions on land development or require notification for proposed development within the special planning area. Special Planning Districts can help mitigate the negative effects of certain projects or land use activities.

C.3.2 Local Government Level Recommendations

Communication

Local government representatives and the Navy have an established working relationship, and there is a Memorandum of Understanding in place for the city of Virginia Beach that outlines coordination and regular meetings to discuss encroachment and land use compatibility.

Land Use Plans and Regulations

It is vital that local governments currently within the AICUZ footprint recognize their responsibility in providing land use controls to protect the health, safety, and general welfare of the population. The cities of Virginia Beach and Chesapeake have aligned ordinances, future plans, and land use regulations to reflect OPNAVINST 11010.36C.

Capital Improvement

All capital improvement projects in proximity to the installation should be evaluated and reviewed for potential direct and indirect impacts that such improvements may have on the ability to implement a successful AICUZ Program.

Transfer of Development Rights (TDR) Program

Local governments should explore the TDR concept when forming comprehensive/master plans as an appropriate alternative to across-the-board restrictions of private property rights. The Navy should encourage the surrounding city officials to further pursue the necessary ordinances and record-keeping capabilities that are required to enact the TDR concept.

C.4 BUSINESS DEVELOPMENT AND CONSTRUCTION LOANS TO PRIVATE CONTRACTORS

Lending institutions should consider whether to limit lending for real estate purchases or construction incompatible with the AICUZ Program. This approach encourages evaluation of noise and APZ impacts as part of a lender's investigation of potential loans to private interests for real estate acquisition and development. Diligent lending practices will promote compatible development of the area surrounding airports and protect lenders and developers alike. Local banking and financial institutions should be encouraged to incorporate a "Due Diligence Review" of all loan applications, to determine possible noise or APZ impacts on the mortgaged property. The Navy can play a role in this strategy by providing AICUZ seminars to lenders throughout the region.

C.5 PRIVATE CITIZENS

The citizens of the local communities surrounding an airport should remain informed about the AICUZ Program and continue to learn about and track the local initiatives and the Program's goals and objectives; its value in protecting the health, safety, and welfare of the population; the limits of the program; and the positive community aspects of a successful AICUZ Program.

Citizens that are potential purchasers, renters, or lessees of properties near an airport should inquire if the location is within an APZ and/or noise zone to local real estate professionals, lending institutions, and/or the airport operator.

Citizens should also provide sufficient and accurate information when registering a noise complaint with the installation. The installation needs sufficient and accurate information to assess the potential causes resulting in the complaint and to assess any practical remedies for reducing future complaints.

D

LOCAL AICUZ ZONING RESOURCES

- D.1 City of Virginia Beach Reasonable Use Exception Form For Incompatible Uses in the 65-70 AICUZ
- D.2 City of Virginia Beach AICUZ Overlay Ordinance Reasonable Use Exception Form
- D.3 AICUZ Compatible Use Advisory Notice
- D.4 Military Air Installation Disclosure Form

Appendix D provides several forms and information related to the Navy's AICUZ Program as implemented by the City of Virginia Beach. Appendix D includes the City of Virginia Beach Reasonable Use Exception Form For Incompatible Uses in the 65-70 AICUZ (Appendix D.1), the City of Virginia Beach AICUZ Overlay Ordinance Reasonable Use Exception Form (Appendix D.2), the AICUZ Compatible Use Advisory Notice (Appendix D.3), and the Military Air Installation Disclosure Form (Appendix D.4).

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CITY OF VIRGINIA BEACH
REASONABLE USE EXCEPTION FORM FOR
INCOMPATIBLE USES IN THE 65-70 AICUZ

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CITY OF VIRGINIA BEACH

REASONABLE USE EXCEPTION FOR INCOMPATIBLE USES IN THE 65-70 AICUZ

INFORMATION

This form is to be completed and returned with an application for any of the following types of City Council action, when the use the applicant is applying for is listed as Not Compatible within the 65 to 70 dB LDN AICUZ under the United States Navy's OPNAVINST 11011.36B:

1. Rezoning, including conditional zonings;
2. Conditional use permits for new uses or structures, or for alterations or enlargements of existing conditional uses where the occupancy load would increase;
3. Conversions or enlargements of nonconforming uses or structures, except where the application contemplates the construction of a new building or structure or expansion of an existing use or structure where the total occupancy load would not increase; and
4. Street closures where the application contemplates the construction of a new building or structure or the expansion of a use or structure where the total occupancy load is increased.

REASONABLE USE EXCEPTION CRITERIA

Pursuant to Section Memorandum of Understanding between Naval Air Station Oceana and City of Virginia Beach, "the City will provide the Navy with copies of the [discretionary action] application and all supporting material, including without limitation, [this] Reasonable Use Exception Application." It is the policy of the City Council that no application for any property shall be approved unless the uses and structures it contemplates are designated as "Compatible" for the 65 to 70 dB DNL AICUZ under the United States Navy's OPNAVINST 11011.36B UNLESS the City Council finds that no reasonable use designated as compatible under the applicable table or tables can be made of the property. In such cases, the City Council shall approve the proposed use of property at the least density or intensity of development that is reasonable.

APPLICATION REQUIREMENTS

APPLICATION PROCEDURE

To satisfactorily demonstrate that the reasonable use exception criteria have been examined, the applicant must provide all the information and materials contained in the application checklist, below. This information must be provided to the Planning Department in order for the rezoning, conditional use permit or other application to be considered complete.



CITY OF VIRGINIA BEACH

REASONABLE USE EXCEPTION FOR INCOMPATIBLE USES IN THE 65-70 AICUZ

Application Checklist

1. A legal description of all properties to be incorporated in the project.
2. A list of those uses designated as Compatible under the AICUZ Overlay Ordinance considered for the property and a detailed explanation why development of those uses would:
 - not be physically possible given the property's topography, location or geographic or environmental characteristics;
 - not be economically feasible; or
 - not be a reasonable use of the property for other reasons
3. A list of those uses designated as incompatible under the United States Navy's OPNAVINST 11011.36B, but that would result in use at a lower density and/or intensity, considered for the property and a detailed explanation why development of those uses would:
 - not be physically possible given the property's topography, location or geographic or environmental characteristics;
 - not be economically feasible; or
 - not be a reasonable use of the property for other reasons
4. An explanation why the proposal is not capable of development at a lower density and/or intensity of use.

Additional Requirements:

Prior to the filing of an application with the Planning Department, the applicant must meet with the Community Planning Liaison Officer at NAS Oceana in order to discuss the proposed development and allow the Navy an opportunity to make a preliminary assessment of the potential effects the development may have on aircraft and other military operations at NAS Oceana. For information pertaining to the Navy AICUZ program and compatible use criteria, contact:

Mr. Ray Firenze
Community Planning Liaison Officer
1750 Tomcat Boulevard
Virginia Beach, VA 23460-2191

Telephone: (757) 433-3158

CITY OF VIRGINIA BEACH
AICUZ OVERLAY ORDINANCE
REASONABLE USE EXCEPTION FORM

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CITY OF VIRGINIA BEACH

AICUZ OVERLAY ORDINANCE REASONABLE USE EXCEPTION

INFORMATION

This form is to be completed and returned with an application for any of the following types of City Council action, when the use the applicant is applying for is listed as Not Compatible in either Table 1 ("AIR INSTALLATIONS COMPATIBLE USE ZONES LAND USE COMPATIBILITY IN NOISE ZONES") or Table 2 ("AIR INSTALLATIONS COMPATIBLE USE ZONES LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES") of Section 1804 of the City Zoning Ordinance:

1. Rezoning, including conditional zonings;
2. Conditional use permits for new uses or structures, or for alterations or enlargements of existing conditional uses where the occupancy load would increase;
3. Conversions or enlargements of nonconforming uses or structures, except where the application contemplates the construction of a new building or structure or expansion of an existing use or structure where the total occupancy load would not increase; and
4. Street closures where the application contemplates the construction of a new building or structure or the expansion of a use or structure where the total occupancy load is increased.

REASONABLE USE EXCEPTION CRITERIA

Pursuant to Section 1804(a) of the City Zoning Ordinance, it is the policy of the City Council that no application for any property located in either an Accident Potential Zone (APZ) or Noise Zone of 70 dB DNL or higher shall be approved unless the uses and structures it contemplates are designated as "Compatible" under Table 1 and Table 2 in Section 1804 of the City Zoning Ordinance UNLESS the City Council finds that no reasonable use designated as compatible under the applicable table or tables can be made of the property. In such cases, the City Council shall approve the proposed use of property at the least density or intensity of development that is reasonable.

APPLICATION REQUIREMENTS

APPLICATION PROCEDURE

To satisfactorily demonstrate that the reasonable use exception criteria have been examined, the applicant must provide all the information and materials contained in the application checklist, below. This information must be provided to the Planning Department in order for the rezoning, conditional use permit or other application to be considered complete.



CITY OF VIRGINIA BEACH

AICUZ OVERLAY ORDINANCE REASONABLE USE EXCEPTION

Application Checklist

1. A legal description of all properties to be incorporated in the project.
2. A list of those uses designated as Compatible under the AICUZ Overlay Ordinance considered for the property and a detailed explanation why development of those uses would:
 - not be physically possible given the property's topography, location or geographic or environmental characteristics;
 - not be economically feasible; or
 - not be a reasonable use of the property for other reasons
3. A list of those uses designated as incompatible under the AICUZ Overlay Ordinance, but that would result in use at a lower density and/or intensity, considered for the property and a detailed explanation why development of those uses would:
 - not be physically possible given the property's topography, location or geographic or environmental characteristics;
 - not be economically feasible; or
 - not be a reasonable use of the property for other reasons
4. An explanation why the proposal is not capable of development at a lower density and/or intensity of use.

Additional Requirements:

Prior to the filing of an application with the Planning Department, the applicant must meet with the Community Planning Liaison Officer at NAS Oceana in order to discuss the proposed development and allow the Navy an opportunity to make a preliminary assessment of the potential effects the development may have on aircraft and other military operations at NAS Oceana.

For information pertaining to the Navy AICUZ program and compatible use criteria, contact:

Mr. Ray Firenze
Community Planning Liaison Officer
1750 Tomcat Boulevard
Virginia Beach, VA 23460-2191

Telephone: (757) 433-3158

AICUZ COMPATIBLE USE ADVISORY NOTICE

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CITY OF VIRGINIA BEACH

AICUZ COMPATIBLE USE ADVISORY NOTICE

INFORMATION

This Notice is to be acknowledged and returned with an application for any of the following types of City Council action, when the use applied for lies on land within the 65 to 69 dB DNL Noise Zone as designated on the 2005 Joint Land Use Study AICUZ map and when the use is listed as Not Compatible in Table 2 of Enclosure 1 in the U.S. Navy's *Air Installations Compatible Use Zones (AICUZ) Program*, Chief of Naval Operations Instruction 11010.36B, December 19 2002:

1. Rezoning, including conditional rezonings;
2. Conditional use permits for new uses or structures, or for alterations or enlargements of existing conditional uses where the occupancy load would increase;
3. Conversions or enlargements of nonconforming uses or structures, except where the application contemplates the construction of a new building or structure or expansion of an existing use or structure where the total occupancy load would not increase; and
4. Street closures where the application contemplates the construction of a new building or structure or the expansion of a use or structure where the total occupancy load is increased.

AICUZ PROGRAM ADVISORY

Pursuant to the *Memorandum of Understanding between Naval Air Station Oceana and the City of Virginia Beach* dated February 13, 2007, the City has agreed to encourage compatible development in the 65 to 69 dB DNL Noise Zone to the greatest extent practicable. This is in furtherance of, and in keeping with, the City's recognition of the Navy's position that residential and other incompatible development in these areas violates the Navy AICUZ program and may constitute a threat to the operational viability of NAS Oceana.

Applicants who nonetheless wish to pursue residential or other incompatible development in the 65 to 69 dB DNL Noise Zone should know that Navy representatives will likely object to the proposal in some fashion, to the Virginia Beach Planning Department staff, the Planning Commission or to City Council.

Applicants should also know that all applications for incompatible development in the 65 to 69 dB DNL Noise Zone are discussed between the Navy and City staffs before the applications are heard by the Planning Commission. Applicants may participate in this meeting.

For information pertaining to the Navy AICUZ program and compatible use criteria, contact:

Mr. Ray Firenze
Community Planning Liaison Officer
1750 Tomcat Boulevard
Virginia Beach, VA 23460-2191

Telephone: (757) 433-3158

ACKNOWLEDGEMENT

I have read and understand the contents of this Notice: _____

Applicant

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MILITARY AIR INSTALLATION DISCLOSURE FORM

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**REAL ESTATE TRANSFER DISCLOSURE FOR PROPERTIES LOCATED IN A LOCALITY
IN WHICH A MILITARY AIR INSTALLATION IS LOCATED**

**[If the real property is not located in a Noise Zone and/or Accident Potential Zone (APZ),
the use of this form is not required.]**

1. As of the date of this Disclosure, the undersigned property owner(s) represent that the real property described below is located in a Noise Zone and/or Accident Potential Zone (APZ), as shown or referenced on the Official Zoning Map designated by the locality in which the property is located.
2. The following are representations made by the property owner(s), as required by Section 55-519.1 of the Code of Virginia:

A. As of the date of this Disclosure the real property located at (Street Address, Locality and Zip Code) _____, _____, Virginia is located within the following Noise Zone and/or Accident Potential Zone (APZ), as shown or referenced on the Official Zoning Map of (Name of Locality) _____:

Noise Zone – (Initial One)

____/____ <65 dB DNL ____/____ 65-70 dB DNL ____/____ 70-75 dB DNL ____/____ >75 dB DNL

Accident Potential Zone (APZ) – (Initial One)

____/____ None (outside APZs) ____/____ APZ-2 ____/____ APZ-1 ____/____ Clear Zone

B. The abbreviation “DNL” refers to a day-night average sound level. The frequency of actual single noise events may vary over time depending on the operational needs of the military. **Single noise events may result in significantly higher noise levels than the average level(s) in any of the Noise Zones listed above.**

C. Noise Zones and Accident Potential Zones are subject to change. For this reason, it should not be assumed that the property will remain in the same Noise Zone and/or Accident Potential Zone.

Additional information may be obtained from the locality.

In the event the owner fails to provide the disclosure required by § 55-519.1, or the owner misrepresents, willfully or otherwise, the information required in such disclosure, except as result of information provided by an officer or employee of the locality in which the property is located, the purchaser may maintain an action to recover his actual damages suffered as the result of such violation. Notwithstanding the provisions of this disclosure, no purchaser of residential real property located in a noise zone designated on the official zoning map of the locality as having a day-night average sound level of less than 65 decibels shall have a right to maintain an action for damages pursuant to this section.

The owner(s) state that they reasonably believe the information contained herein is true and accurate and further acknowledge that they have been informed of their rights and obligations under the Virginia Residential Property Disclosure Act.

Owner _____ Date _____

Owner _____ Date _____

Purchaser(s) acknowledge receipt of a copy of this disclosure statement and further acknowledge that they have been informed of their rights and obligations under the Virginia Residential Property Disclosure Act.

Purchaser _____ Date _____

Purchaser _____ Date _____