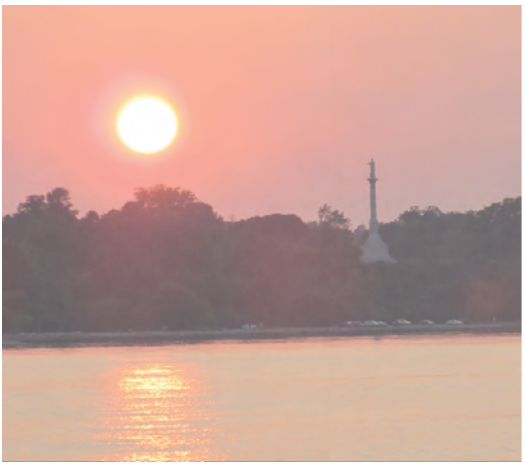
JOINT BASE LANGLEY EUSTIS (FORT EUSTIS)

JOINT LAND USE STUDY

Newport News, James City County, and York County, Virginia

Growing Forward Together

MARCH 2018



FORT EUSTIS JOINT LAND USE STUDY

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March 2018

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Two steering committees guided the JLUS process and developed the final report – the Policy Committee and Technical Working Group. The committees are made up of the following members:

Policy Committee Members

Representative	Organization
Cindy Rohlf	City of Newport News
COL Ralph L. Clayton	Joint Base Langley-Eustis
Marcellus Harris	City of Newport News
Bryan Hill	James City County
John McGlennon	James City County
Mark J. Sciacchitano	Joint Base Langley-Eustis
Tom Shepperd	York County
David L. Stenglein	Joint Base Langley-Eustis

Technical Working Group Members

Representative	Organization
Britta Ayers	City of Newport News
Sam Belfield	Hampton Roads Transportation Planning Organization
Melvin Carter	Joint Base Langley-Eustis
Mike Coleman	Commonwealth of Virginia
Ellen Cook	James City County
Claudia Cotton	City of Newport News
Tim Cross	York County
Rick Dwyer	Hampton Roads Military and Federal Facilities Alliance
Paul Holt	James City County
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Table of Contents

1 Introduction to the JLUS 1
1.1 JLUS Overview 2
1.2 Fort Eustis JLUS Overview 3
2 Public Involvement 5
2.1 Committee Collaboration 6
2.2 Public Outreach 8
2.3 Stakeholder Outreach 10
2.4 Public Information Tools 11
2.5 Survey Results 11
3 Community Profile 15
3.1 Community Overview 15
3.2 Infrastructure 19
3.3 Environmental Features 22
3.4 Regional Growth and Development 26
3.5 Regional Demographics 28
4 Military Profile 30
4.1 Regional Influence 30
4.2 Fort Eustis 30
4.3 History 30
4.4 Fort Eustis Land Uses and Facilities 31
4.5 Host and Tenant Units 35
4.6 Mission and Training 37
4.7 Proposed Expansions and Operational Changes 38
5 Upper Warwick Corridor Economic Analysis 39
5.1 Economic and Demographic Profile 39
5.2 Fort Eustis Economic Impact 41
5.3 Analysis of Civilian Employment 42
5.4 Findings and Comments 46

6 Compatibility Tools 48
6.1 Federal Programs and Plans 48
6.2 State Programs and Plans 50
6.3 Regional Programs, Organizations, and Plans 53
6.4 Local Programs and Plans 54
7 Development Compatibility Analysis 63
8 Compatibility and Encroachment Analysis 66
8.1 Formalized Communication (FC) 69
8.2 JLUS Implementation (JI) 70
8.3 Land Use Compatibility (LUC) 71
8.4 Main Gate (MG) 76
8.5 Policy Reinforcement (PR) 78
8.6 Sea Level Rise and Coastal Flooding (SLR) 81
8.7 Third Port Mission (TPM) 83
8.8 Traffic (T) 85
8.9 Waterway Access (WA) 91
8.10 Alternative Energy Development (AED) 93
8.11 Airspace Management (AM) 96
8.12 Dredge Disposal (DD) 99
8.13 Installation Access (IA) 101
8.14 Unmanned Aircraft Systems (UAS) 103
8.15 Vertical Obstructions (VO) 105
8.16 Wildlife and Habitat Preservation (WHP) 107
8.17 Cultural Resources (CR) 109
8.18 Light and Glare (LG) 111
8.19 Noise (N) 113
9 Recommendations 117
9.1 Formalized Communication (FC) 118
9.2 JLUS Implementation (JI) 120

9.3 Land Use Compatibility (LUC) 121
9.4 Main Gate (MG) 123
9.5 Policy Reinforcement (PR) 124
9.6 Sea Level Rise and Coastal Flooding (SLR) 127
9.7 Third Port Mission (TPM) 130
9.8 Traffic (T) 131
9.9 Waterway Access (WA) 132
9.10 Alternative Energy Development (AED) 134
9.11 Airspace Management (AM) 135
9.12 Dredge Disposal (DD) 137
9.13 Installation Access (IA) 139
9.14 Unmanned Aircraft Systems (UAS) 140
9.15 Vertical Obstructions (VO) 141
9.16 Wildlife and Habitat Preservation (WHP) 143
9.17 Cultural Resources (CR) 144
9.18 Light and Glare (LG) 145
9.19 Noise (N) 146
9.20 Recommendations Summary 149
10 Implementation Plan 164
10.1 City of Newport News 165
10.2 James City County 169
10.3 York County 173
10.4 Fort Eustis 174

Maps

Map 1 - Fort Eustis Location Map
Map 2 - Aerial Location Map
Map 3 - Study Area
Map 4 - Regional Location Map
Map 5 - Conservation Lands and Easements Map
Map 6 - Environmental Factors Map
Map 7 - Regional Military Installations
Map 8 - Aquatic Training Area
Map 9 - Training Locations
Map 10 - Development Suitability Analysis
Map 11 - Development Suitability Analysis with Areas of Concern
Map 12 - Existing Land Use
Map 13 - Zoning Map
Map 14 - Future Land Use Map
Map 15 - Main Gate
Map 16 - Third Port
Map 17 - 2040 Long Range Transportation Priority Projects
Map 18 - 2040 Long Range Transportation Projects
Map 19 - Felker Airfield and Williamsburg / Newport News International Airport Airspace
Map 20 - Fort Eustis Access Control Points
Map 21 - Night Lighting Visibility 2013
Map 22 - Noise Zones

Appendices

Appendix 1 Acronyms
Appendix 2 Survey Results
Appendix 3 Model Zoning Overlay

Introduction to the Joint Land Use Study

1 Introduction to the JLUS

The Joint Land Use Study (JLUS) is the result of a partnership consisting of hard work and coordination among a team of dedicated stakeholders, community leaders, residents, and Fort Eustis military personnel; seeking to identify opportunities for their community and the military to continue to work together to sustain the mission of Fort Eustis and growth of the region.

Fort Eustis is part of Joint Base Langley-Eustis (JBLE); however, the JLUS will focus solely on Fort Eustis and will therefore be referenced throughout the document as Fort Eustis JLUS. A JLUS was prepared for Langley Air Force Base (AFB) in 2010, prior to their merger with Fort Eustis as a joint base. Coordination will occur through the host unit (633rd Air Base Wing), which provides installation support functions for JBLE.

Figure 1 Fort Eustis, a 7,933 acre facility, located in Newport News and James City County, is home to the U.S. Army Training and Doctrine Command (TRADOC).

Fort Eustis, a 7,933 acre facility, located in Newport News and James City County, is home to the United States (U.S.) Army Training and Doctrine Command (TRADOC). Newport News and James City County are directly linked by U.S. Route 60. The installation supports a population of more than 22,000, including active duty, Army National Guard, Army Reserve, civilians, and family members. TRADOC is responsible for training and developing the U.S. Army, and operates 33 schools and centers at 16 Army installations. More than 5,000 students (on temporary assignment) train at Fort Eustis each year.

1.1 JLUS Overview

A JLUS is a collaborative planning effort among active military installations, surrounding communities, federal officials, residents, business owners, and other stakeholders. The objective is to identify compatible land uses and growth management guidelines to reduce encroachment adjacent to the military installation while continuing to foster growth within the community. Through the study process, communication and coordination is strengthened between the installation and the community. The process encourages them to act as a team to prevent or limit any encroachment issues caused by future mission expansion or local growth. The Study is funded primarily through the Department of Defense (DoD) Office of Economic Adjustment (OEA) and administered by Newport News, but is created by the community and for the community.

From the community perspective, the primary objectives of a JLUS are:

- Protect the health, safety, and welfare of residents and maintain their quality of life.
- Ensure compatible development in the vicinity of military installations that will not interfere with the continued operations of the facilities.
- Provide for sustainable growth in an economically, environmentally, and socially conscious manner.
- Maintain the economic vitality of the community.
- Enhance communication between the community and the military.

From the military perspective, the primary objectives of a JLUS are:

- Promote the health, safety, and welfare of the military and civilian personnel living and working at or near the military installation.
- Ensure the ability of the installation to achieve its mission, maintain military readiness, and support national defense objectives.
- Preserve the ability of the installation to adjust or expand its mission.

It is important to note that the JLUS is not intended to be a study that rests on the shelf, but a set of recommendations and strategies that are implemented through local jurisdictions. The recommendations from the JLUS are used to help local jurisdictions guide community development that is compatible with military training, testing, and operational missions and seeks ways to reduce operational impacts on adjacent lands and waterways while supporting continued economic development and public health, safety, and general welfare of those living and working near an active military installation.

Throughout the process, municipalities, residents, businesses, and other stakeholders provided their input and support. By accepting the report, they are stating their continued community-based support for future implementation efforts. Typically, implementation measures involve some level of revisions to local policies. The intent is to continually ensure that future public and private development around the military installation will be compatible with both the military mission and the needs of the community.

Figure 2 JBLE is located in Hampton Roads, Virginia and is comprised of two installations: Langley AFB and Fort Eustis.

1.2 Fort Eustis JLUS Overview

JBLE is located in Hampton Roads, Virginia and is comprised of two installations: Langley AFB and Fort Eustis. Supported by the 633rd Air Base Wing, JBLE is located in southeastern Virginia, approximately 3 hours south of Washington, D.C. Both installations are accessible from Interstate 64 (I-64), but are geographically separated by approximately 17 miles. Surrounding localities include the cities of Hampton, Newport News and Poquoson, and the counties of James City and York. JBLE is integral to the overall U.S. military mission and extremely important to the economy, security, and social fabric of Hampton Roads and the Commonwealth of Virginia.

1.2.1 Goals and Objectives

The goal of the JLUS is to encourage local governments, together with the Commonwealth of Virginia, to work closely with JBLE to implement measures that prevent the introduction of incompatible civilian development that may impair the continued operational utility of the installation, and to preserve and protect the public health, safety, and welfare of those living on or near Fort Eustis.

The study objectives include:

- Provide meaningful input by the public.
- Identify areas where land use conflict occurs.
- Identify strategies to reduce encroachment and promote land use compatibility including considerations for regional roadway congestion, sea level rise and recurrent flooding, waterway and access management, and safety and security for the installation.
- Create an implementation plan and narrative report with recommendations and strategies.

1.2.2 Study Area

Fort Eustis is located in Virginia's Hampton Roads region. Its 7,933 acres are bounded on the north by the city of Newport News, Skiffe's Creek and James City County and on the south by the James River. The installation is primarily located within Newport News, while approximately 24 acres are located within James City County.

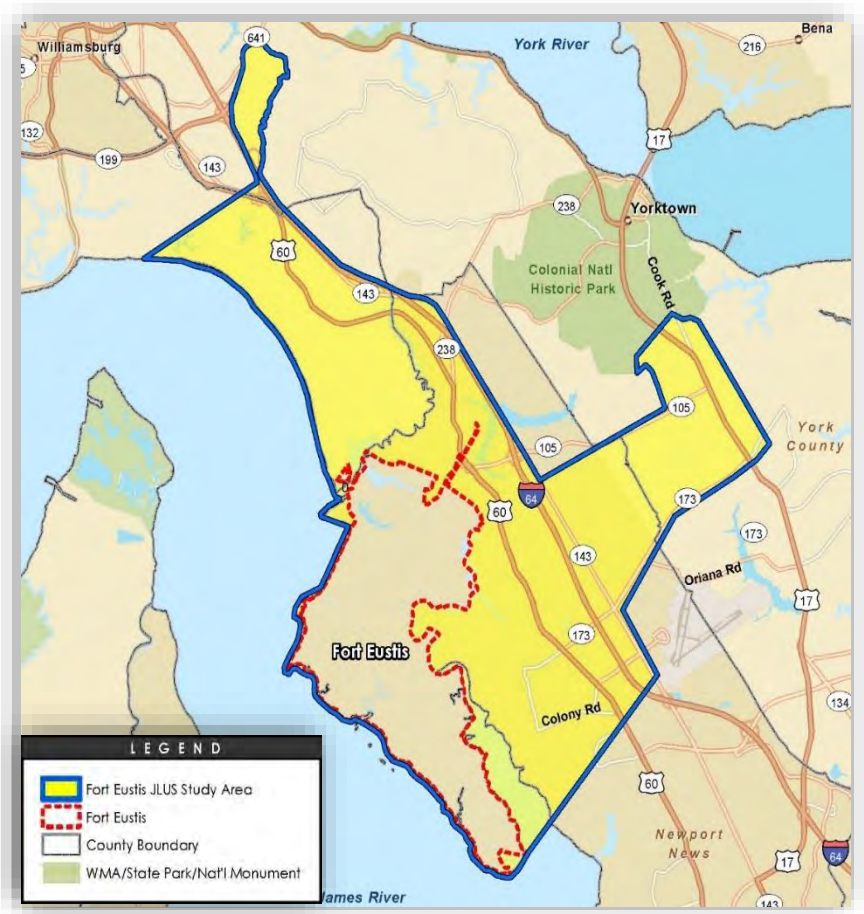


Figure 3 The study area encompasses approximately 24,288 acres surrounding Fort Eustis and reaches into James City County, York County, and Newport News.

The study area encompasses approximately 24,288 acres surrounding Fort Eustis. It reaches into James City County, York County, and Newport News. This area was created by the Technical Working Group and Policy Committee to capture the impacts from the mission of Fort Eustis and the influences from the surrounding communities. Some of the influencing factors include Felker Airfield airspace, noise from the gun range, the aquatic training areas, safety standard at the main gate, safety standard for the third port, and existing and future community development patterns.

Public Involvement

2 Public Involvement

Public involvement is the backbone of the JLUS, without which, the study would be unsuccessful. The community engagement process for the Fort Eustis JLUS focused on the following goals:

- Goal 1: Develop a strategy that will allow all individuals and groups interested in the future of Fort Eustis and the process to participate by:
  - Providing initial input on the issues and concerns of the study to be addressed.
  - Offering frequent, timely, and meaningful input throughout the study in ways that will help the analysis.
  - Staying informed about, and having multiple opportunities to provide comments on, the study and findings.
  - Disseminating current information about the study with their respective constituents.
  - Offering an easy-to-access and attractive multi-level approach tailored to the needs of the entire community, ranging from the military and local officials to area residents and other stakeholders.
- Goal 2: Provide a variety of engagement venues that range from hands-on meetings and workshops to interactive on-line tools to provide options for learning about and having input into the study process.

Figure 4 Public involvement is the backbone of the JLUS.

2.1 Committee Collaboration

The Policy Committee (PC) and Technical Working Group (TWG) helped facilitate the JLUS planning process. Each participated directly with the project team to provide technical assistance, feedback, and decision-making throughout the planning process.

2.1.1 Policy Committee

The PC was responsible for the overall direction of the JLUS, policy recommendations, and approval of the draft and final written reports. The PC consists of decision-makers, chief administrative officers, and elected officials.

Table 2.1.1: Policy Committee Members

Representative	Organization
Cindy Rohlf	City of Newport News
COL Ralph L. Clayton	Joint Base Langley-Eustis
Marcellus Harris	City of Newport News
Bryan Hill	James City County
John McGlennon	James City County
Mark J. Sciacchitano	Joint Base Langley-Eustis
Tom Shepperd	York County
David L. Stenglein	Joint Base Langley-Eustis

The PC held a total of four meetings throughout the study process.

- February 2017: Site Tour

  Fort Eustis hosted a site tour for the PC, TWG, JLUS consultant team, elected officials, and other stakeholders. The half-day site tour included a briefing by Fort Eustis representatives and a bus tour throughout Fort Eustis to familiarize visitors with the installation.

- March 2017: PC Kick-Off Meeting

  The purpose of the meeting was to discuss the JLUS process, the role of the PC, and the public outreach plan.

- September 2017: Compatibility Workshop

  The PC was presented with the ranking of the areas of interest from the TWG and given the opportunity to discuss and modify the results. A discussion of the economic impact analysis and survey results were also included.

- January 2018: Report Workshop

  The report was presented to the PC along with the major comments and changes proposed by the TWG and how those comments were addressed. The PC voted to accept the report before it was presented to the governing bodies.

2.1.2 Technical Working Group (TWG)

The TWG provided technical expertise through identification of issues and gave feedback to the JLUS team throughout the study process. The TWG included subject experts from surrounding jurisdictions, military planners, business and development representatives, and special organizations.

Table 2.1.2: Technical Working Group Members

Representative	Organization
Britta Ayers	City of Newport News
Sam Belfield	Hampton Roads Transportation Planning Organization
Melvin Carter	Joint Base Langley-Eustis
Mike Coleman	Commonwealth of Virginia
Ellen Cook	James City County
Claudia Cotton	City of Newport News
Tim Cross	York County
Rick Dwyer	Hampton Roads Military and Federal Facilities Alliance
Paul Holt	James City County
Pandora Howell	Joint Base Langley-Eustis
Sheila McAllister	City of Newport News
Ben McFarlane	Hampton Roads Planning District Commission
Robin Mills	Joint Base Langley-Eustis
Garrett Morgan	City of Newport News
Marc Rodgers	City of Newport News
Tammy Rosario	James City County
Mark J. Sciacchitano	Joint Base Langley-Eustis
Russ Seymour	James City County
Bryan Stilley	City of Newport News
Bruce Sturk	City of Hampton
Jay Sweat	Department of Defense

The TWG held a total of four meetings throughout the study process.

- January 2017: TWG Kick-Off Meeting

  The purpose of the meeting was to discuss the JLUS process, role of the TWG, and work plan.

- February 2017: Site Tour

  Fort Eustis hosted a site tour for the PC, TWG, JLUS consultant team, elected officials, and other stakeholders. The half-day site tour included a briefing by Fort Eustis representatives and a bus tour throughout Fort Eustis to familiarize visitors with the installation.

- September 2017: Compatibility Workshop
  The TWG met to discuss the areas of interest identified by the consultant team. The TWG reviewed and discussed each item and then ranked them based on priority. A discussion of the economic impact analysis and survey results were also included.

- January 2018: Report Workshop
  The TWG met for a final review of the JLUS report to discuss any additional comments or concerns before the report was finalized.

2.2 Public Outreach

A series of public meetings were hosted to inform and obtain feedback from the community. Three rounds of public workshops and forums were held throughout the study area. The meetings were scheduled to provide the community information at important milestones along the study process, timing each event dependent upon the project highlights.

In addition to traditional means of public outreach, a unique approach was used to garner a more successful public engagement program. The JLUS team targeted specific events already scheduled within the community and brought informational materials including the project fact sheet, social media handout, and project survey. In some cases, short presentations were given and representatives were available to engage directly with citizens. The events attended included:

- Children's Festival of Friends
- Grove Block Party
- James City County Neighborhood Forum
- North District Town Hall
- One City Marathon Health and Wellness Expo
- Sister Cities French Market
- World Arts Celebration
- Warwick Business Association
- Yorktown Market days

Figure 5 The JLUS team engaged the community at different intervals throughout the planning process so that the project team received regular input from residents.

2.2.1 Kick-Off Workshops

The Fort Eustis JLUS team held two community workshops to introduce the community to the JLUS and receive feedback from them. The workshops were held in two locations on subsequent nights to reach the most participants.

- Tuesday, March 7, 2017 from 6:30 p.m. – 8:30 p.m. at James River Elementary School in James City County.
- Wednesday, March 8, 2017 from 6:30 p.m. – 8:30 p.m. at the Denbigh Community Center in Newport News.

The first workshop, at James River Elementary School, brought a broad cross-section of community members including a mix of James City County, Newport News, and York County residents; community officials; Fort Eustis representatives; and local businesses.

The second workshop, held at the Denbigh Community Center, included residents, community officials, local businesses, as well as Newport News planning staff and Fort Eustis representatives.

Figure 6 The Fort Eustis JLUS team held two community workshops to introduce the community to the JLUS and receive feedback from them.

2.2.2 Mid-Term Workshops

Two workshops were held within the community to give interested citizens an update on the status of the study. The workshops were held in two locations on subsequent nights to reach the most participants.

- Wednesday, September 27, 2017 from 6:00 p.m. – 8:00 p.m. at the Denbigh Community Center in Newport News.
- Thursday, September 28, 2017 from 6:00 p.m. – 8:00 p.m. at Abram Frink Community Center in James City County.

The first workshop included residents, community officials, local businesses, Fort Eustis representatives, and city planning staff.

Figure 7 Community workshop at the Denbigh Community Center

The workshop at Abram Frink Community Center included local business representatives, citizens of James City County, Newport News, and Fort Eustis representatives.

2.2.3 Final Workshops

Two workshops were held to introduce the report to the public and provide them an opportunity to comment. The workshops were held in two locations on subsequent nights to reach the most participants.

- Tuesday, January 16, 2018 from 6:00 p.m. – 8:00 p.m. at the Abram Frink Community Center in James City County.
- Wednesday, January 17, 2018 from 6:00 p.m. – 8:00 p.m. at the Denbigh Community Center in Newport News.

The workshop included residents, community officials, local businesses, Fort Eustis representatives, and city planning staff.

2.3 Stakeholder Outreach

Stakeholder interviews occurred throughout the data and analysis tasks of the study. Recommendations were made from the PC and TWG to ensure that as many stakeholders as possible were contacted to fully understand the public engagement opportunities available to the community and Fort Eustis. Stakeholders offered data, forecasts, and opinions to solidify the study. Stakeholders included representatives from the following:

- City of Newport News
- BASF Corporation
- Colonial Williamsburg Foundation
- Denbigh Warwick Business Association
- Fort Eustis
- Geddy Harris Franck & Hickman
- Greater Williamsburg Chamber & Tourism Alliance
- GreenMount Industrial Park Tenants
- Hampton Roads Military and Federal Facilities Alliance
- Harvey Lindsay Commercial Real Estate
- James City County
- James River Association
- Ritchie Curbow Construction Co.
- RJS & Associates
- Virginia Department of Transportation
- Virginia Peninsula Association of Realtors
- Virginia Peninsula Chamber of Commerce
- Walmart Distribution Center
- Williamsburg Area Association of Realtors
- York County

2.4 Public Information Tools

Reiterated throughout the process, the study could not be successful without the public – the individuals who are affected daily. In an effort to stay in contact with the community and provide information to those that may not have been able to attend meetings, an interactive website and Facebook page were created.

The website and Facebook page were utilized for sharing information with the general public, as well as receiving important feedback on the findings and results of the overall plan recommendations. The webpage included maps, surveys, draft reports, handout materials, photos, and contact information. The webpage was created at the inception of the project and will be utilized through implementation.

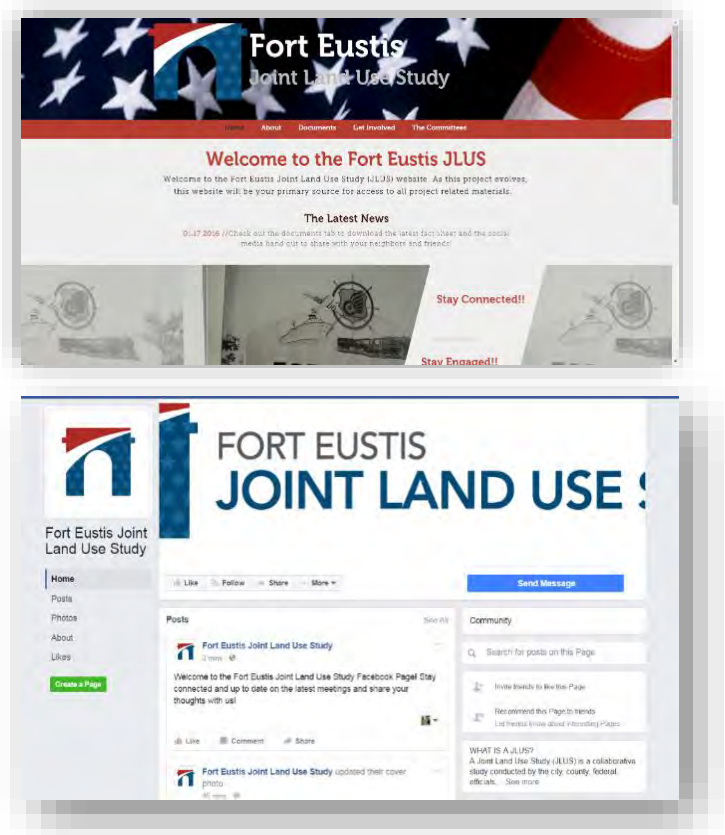


Figure 8 The JLUS website and Facebook page provided opportunities to share information with the public. The web address is www.forteustisjlus.com and the Facebook page is www.facebook.com/forteustisjlus.

2.5 Survey Results

As part of the public outreach effort for the Fort Eustis JLUS, an eleven-question survey was distributed to the community. The intent

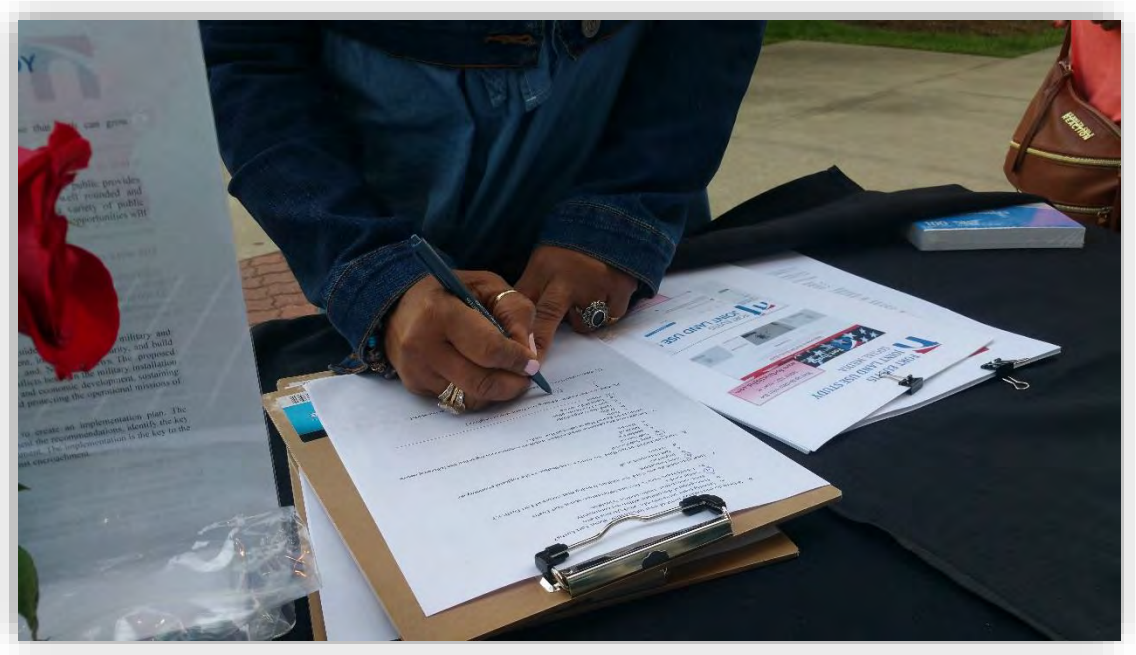


Figure 9 As part of the public outreach effort for the Fort Eustis JLUS, an eleven-question survey was distributed to the community.

of the survey was to provide information to the PC, TWG, and project team regarding general demographics and a sense of the public's perceptions and interactions with Fort Eustis.

The survey was made available for a four-month period (April 2017 – August 2017) using the project website and through attendance at community events. A total of 348 surveys were completed. The survey questions were divided into the following categories:

- General Demographics
- Familiarity with Fort Eustis
- Communication with Fort Eustis
- Perception of Fort Eustis in the Community
- Impacts of Fort Eustis in the Community

A complete summary of the survey results, including graphics and tables are in Appendix 2.

2.5.1 General Survey Demographics

The respondents varied in age from 18 to 55+. The majority of the respondents were between 26 and 45 years old (47%), followed by residents aged 55 and up (30%). The majority of survey respondents were from Newport News (55%) and Williamsburg / James City County (23%). Most of the respondents live within the region and have for more than 20 years (50%).

2.5.2 Familiarity with Fort Eustis

Overall, respondents appeared to be familiar with the types of training that takes place at Fort Eustis and have had a reason to visit the installation. In total, over 65% of the respondents were "very familiar" or "somewhat familiar" with the types of training that takes place at Fort Eustis. Less than 30% of the respondents were "somewhat unfamiliar" or "very unfamiliar" with the training operations. Respondents have visited Fort Eustis for a variety of reasons, but primarily for recreation (32%) or as a guest (29%). Approximately 19% have never been on Post. This leaves the impression that the community is fairly knowledgeable of the role that Fort Eustis plays in the military community, but there are some gaps where additional education may be necessary.

2.5.3 Communication with Fort Eustis

Respondents were asked how they received information regarding Fort Eustis. The results found that information was distributed to civilians primarily through people who work or train there, approximately 30%. Other sources include newspaper, radio, and or television (26%). Approximately 18% of the respondents were not sure how to find out information about Fort Eustis.

2.5.4 Perception of Fort Eustis in the Community

The community recognizes the importance of Fort Eustis – evident by the more than 85% of respondents that found military training at Fort Eustis to be "very important" or "important." Additionally, 83% found the Army's contribution to the regional economy to be "very substantial" or "substantial." Only 1% of respondents didn't believe military training at Fort Eustis was important or that the Army didn't make a substantial contribution to the regional economy.

Respondents were given the opportunity to write in the benefits of having Fort Eustis as their neighbor. Respondents found many benefits with the highest ranking including economic impact (21%), safety and security (19%), and jobs (17%). Other benefits included military/Army pride, on Post amenities, recreation activities, and the community.

2.5.5 Impacts of Fort Eustis in the Community

The last subject area of the survey was the impacts of Fort Eustis on the community. Respondents were asked to identify if any of the following were a concern to them: noise, traffic, land use compatibility, lack of communication, none of the above, or other. Of the respondents, 42% didn't have a concern with military operations. Of the concerns listed, the ones of most significance were traffic (25%) and lack of communication (11%).

At the end of the survey, respondents were given the opportunity to provide information regarding the critical issues or concerns that should be reviewed for the study. Of the 348 respondents, 113 provided a response. The most common concerns identified were transportation, no issues, and environmental impacts. Other concerns identified included:

- Allow Fishing
- Closure of Fort Eustis
- Community and Military Integration
- Compatible Land Uses
- Economic and Job Growth
- Expansion of Fort Eustis
- More Communication and Military Awareness
- Noise
- Redevelopment of Buildings and Land at Fort Eustis
- Safety

Community Profile

3 Community Profile

The study area is comprised of portions of two counties and one city – James City County, York County, and Newport News. Military personnel and their families and civilians join together to become integral parts of the community – neighbors working together.

3.1 Community Overview

3.1.1 Hampton Roads Region

Hampton Roads is a Mid-Atlantic Region located in Southeastern Virginia. The region consists of two areas, separated by bodies of water, the Peninsula and South Hampton Roads. Fort Eustis, Newport News, James City County, and York County are located on the peninsula.

While the borders of what locals call "Hampton Roads" may not perfectly align with the definition of the Metropolitan Statistical Area (MSA), Hampton Roads is most often the name used for the MSA. The U.S. Census Bureau defines the "Virginia Beach–Norfolk–Newport News, VA–NC MSA" as 16 county-level jurisdictions—five counties and nine independent cities in Virginia, and two counties in North Carolina. They include Gloucester County, Isle of Wight County, James City County, Mathews County, York County, City of Chesapeake, City of Hampton, City of Newport News, City of Norfolk, City of Poquoson, City of Portsmouth, City of Suffolk, City of Virginia Beach, and City of Williamsburg in Virginia. Municipalities in North Carolina include Currituck County and Gates County. The total estimated population in 2016 was 1,726,907, according to the U.S. Census.

Since 1983, the U.S. Office of Management and Budget (OMB) recognized Hampton Roads as a group of communities exhibiting economic and social integration. Hampton Roads is the 37th largest metropolitan area in the U.S. and the largest on the Eastern Seaboard between New York and Miami.

The region boasts the following significant features and facts:

- First permanent English settlement and representative government in America.
- One of the world's biggest and deepest natural harbors.
- Home to the world's largest naval base at Norfolk.
- Home to the world's largest shipyard in Newport News and one of the busiest and fastest growing ports on the Eastern Seaboard, the Port of Virginia.
- Access to the Chesapeake Bay, the nation's largest estuary connects to all or part of six states and Washington, District of Columbia.
- Home to nearly one-fourth of the U.S. active-duty military personnel.
- Home to two federal research labs: NASA Langley Research Center and the Thomas Jefferson Lab National Accelerator Facility.

Additionally, Hampton Roads was designated as a "Great American Defense Community" by the Association of Defense Communities in 2017. The Great American Defense Communities program, developed in conjunction with the House and Senate Defense Communities Caucuses, was designed to highlight the unique contributions of cities, counties, and regions that host installations to improve the quality of life for service members, veterans, and their families. Hampton Roads was specifically recognized for the tremendous support it provides to military-connected children.

3.1.2 James City County

James City County is located on the Virginia Peninsula approximately 50 miles southeast of Richmond and 40 miles northwest of Norfolk. The County is bounded by three rivers: the James to the south, the York to the northeast, and the Chickahominy to the west. Total land area, including inland water, is about 144 square miles or approximately 92,400 acres. There are 152 miles of shoreline along the three rivers, containing approximately 138 miles of marshlands and 14 miles of beach. As of the 2012-2016 U.S. Census American Community Survey, the population was 71,900.

First settled by the English colonists in 1607 at Jamestown in the Virginia Colony, the County was formally created in 1634 as James City Shire by order of King Charles I. James City County is one of only five original

Figure 10 Williamsburg-James City County Courthouse

shires of Virginia still in existence in essentially the same political form. The Jamestown 2007 celebration marked the 400th anniversary of the founding of Jamestown.

Today, James City County remains an important site of growth and economic development. With an increasing population and a skilled labor pool, the County attracts new businesses and entrepreneurs as well as retirees seeking the mild seasonal climate and the abundance of cultural events, economic opportunities, and historic activities. The County is home to the Busch Gardens Williamsburg theme park, Kingsmill Resort, and Williamsburg Pottery Factory. The Historic Jamestowne and Jamestown Settlement attractions combined with Colonial Williamsburg are linked to Yorktown by the Colonial Parkway, attracting tourism to the Historic Triangle, a major economic activity for the County.

3.1.3 Newport News

Newport News is an independent city in the Commonwealth of Virginia. It is at the southeastern end of the Virginia Peninsula, on the northern shore of the James River extending southeast from Skiffe's Creek along many miles of waterfront to the river's mouth at Hampton Roads harbor. As of the 2012-2016 U.S. Census American Community Survey, the population was 181,606.

Figure 11 Historic Warwick County Court House.

In 1881, 15 years of explosive development began in what became Newport News, under the leadership of Collis P. Huntington, whose extension of the Chesapeake and Ohio Railway from Richmond opened up transportation along the Peninsula and provided a new pathway for the railroad to bring West Virginia bituminous coal to port for coastal shipping and worldwide export. With the new railroad came a terminal and coal piers. Within a few years, Huntington and his associates also built a large shipyard. In 1896, the newly incorporated town of Newport News, which had briefly replaced Denbigh as the county seat of Warwick County, had a population of 9,000. In 1958, Newport News was consolidated with the former Warwick County (itself an independent city

Figure 12 York-Poquoson Courthouse

from 1952 to 1958), rejoining the two localities to approximately their pre-1896 geographic size. The more widely known name of Newport News was selected as they formed an independent city.

With many residents employed by Newport News Shipbuilding, Joint Base Langley–Eustis, and other military bases and suppliers, the city's economy is strongly linked to the military. Its location on the harbor and along the James River facilitates a large boating industry. Newport News also serves as a junction between the rails and the sea with the Newport News Marine Terminals located at the eastern end of the city. Served by a major east-west Interstate (I-64), it is linked to the rest of Hampton Roads by the circumferential Hampton Roads Beltway, which crosses the harbor on two bridge-tunnels.

3.1.4 York County

York County (formerly Charles River County) is a county in the eastern part of the Commonwealth of Virginia, located in Hampton Roads on the north side of the Virginia Peninsula, with the York River as its northern border. As of the 2012-2016 U.S. Census American Community Survey, the population was 66,919. The county seat is the unincorporated town of Yorktown.

York County contains many tributaries of the York River. It shares land borders with the independent cities of Williamsburg, Newport News, Hampton, and Poquoson, as well as James City County, and shares a border along the York River with Gloucester County.

Formed in 1634 as one of the eight original shires (counties) of the Virginia Colony, York County is one of the oldest counties in the U.S. Yorktown is one of the three points of the Historic Triangle of Colonial Virginia. It is the site of the last battle and surrender of British forces in 1781 at the conclusion of the American Revolutionary War, when the patriots gained independence from Great Britain.

It is home to several important U.S. military installations including Naval Weapons Station Yorktown and Cheatham Annex. It also has miles of waterfront residential and recreational areas. York County adjoins Busch Gardens Williamsburg and includes within its borders the affiliated Water Country U.S.A., Yorktown Riverwalk area, Yorktown Battlefield and Visitor Center, and Yorktown Victory Center. Yorktown is linked via the Colonial Parkway with Colonial Williamsburg and historic attractions at Jamestown. Heritage tourism to the Historic Triangle draws international visitors and is a major economic activity for the county.

3.2 Infrastructure

3.2.1 Roads

Hampton Roads is within one day's drive of approximately 128 million individuals, about 40% of U.S. consumers. Roadways within the region move cars through a modern interstate and state highway system. Additionally, the Chesapeake Bay Bridge-Tunnel gives coastal highway traffic direct access to Hampton Roads and saves 90 miles to the New York / New Jersey corridor. The average commute time for 2015 was estimated at 28.2 minutes according to Virginia.gov.

Figure 13 The average commute time for 2015 was estimated at 28.2 minutes according to Virginia.gov

There are a multitude of challenges related to efficiently moving 1.7 million residents and thousands of visitors each day on the existing transportation infrastructure, particularly due to the geographic features that make Hampton Roads a unique place. Roadway congestion, like in many other large metropolitan areas, is prevalent throughout Hampton Roads. This roadway congestion is a primary concern facing the users of the Hampton Roads transportation system as it adversely impacts quality of life and regional commerce, particularly in those critical sectors in the region that depend heavily on the transportation network: military, freight movement, and tourism.

Strategic Highway Network (STRAHNET) routes and STRAHNET Connectors link over 200 important military installations and ports in the U.S. STRAHNET is designated by the Federal Highway Administration (FHWA) in coordination with the DoD as the minimum network of highways that are important to the U.S. strategic

defense policy, providing access, continuity and emergency capabilities to over 200 important military installations and ports. Currently, there are 14 STRAHNET sites located within Hampton Roads – one of which is Fort Eustis. The STRAHNET system that serves those locations consists of all Interstate highways (I-64, I-264, I-464, I-564, I-664), several non-Interstate STRAHNET routes (13, 58, 460), and STRAHNET Connectors. There are also non-STRAHNET roadways that serve STRAHNET sites, other military sites, and other intermodal facilities. Adjacent to Fort Eustis those roadways include Fort Eustis Boulevard, Shellabarger Drive, and Warwick Boulevard.

3.2.2 Railroads

The region's ports create an entry location for railway cargo distribution throughout the East Coast and Midwest. Hampton Roads is served primarily by CSX and Norfolk Southern. Efficient connections with other rail systems and motor carriers provide easy and affordable access to the rest of the U.S.

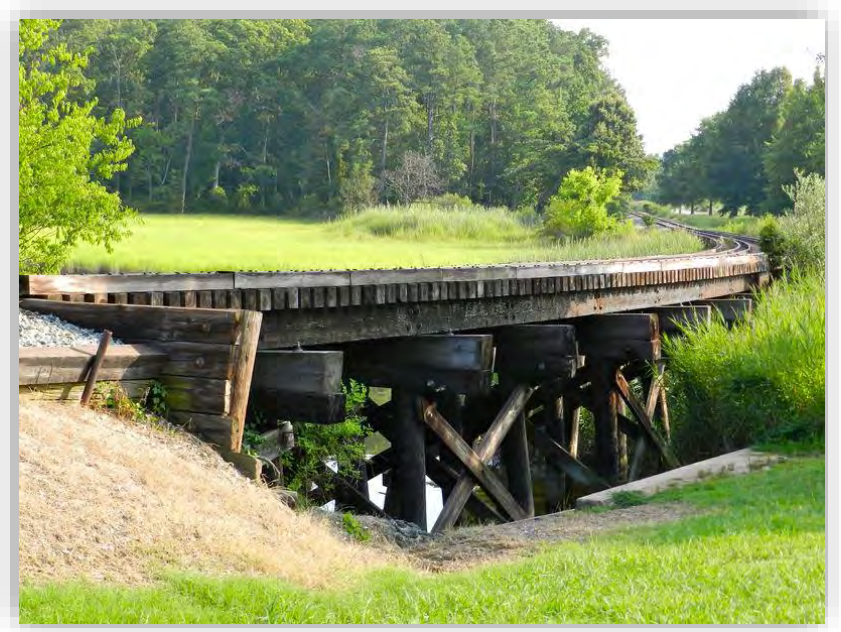


Figure 14 The Hampton Roads region is served primarily by CSX and Norfolk Southern.

Norfolk Southern operates more than 21,200 miles of track, including 263 short line railroads in 22 states. Operations are focused in the Southeast and Midwestern U.S., as well as Ontario, Canada. Of particular importance to many port users is the availability of Norfolk Southern's Heartland Corridor connecting Hampton Roads with the Chicago area.

CSX offers a variety of rail, container-shipping, intermodal, trucking, barge, and contract logistics management services. With over 22,000 miles of track, CSX operates 240 short line railroads in 23 states, including the District of Columbia and two Canadian provinces. With operations along the I-95 Corridor, CSX ensures that Hampton Roads remains well connected.

Additionally, Amtrak is an intercity passenger rail system which provides an alternative option to driving to and from Hampton Roads. Currently departing from Newport News, Williamsburg and Norfolk, Amtrak connects 46 states, the District of Columbia and three Canadian provinces.

Located within the installation boundaries, the Military Railroad is a Class II U.S. Army rail transportation system existing entirely within the boundaries of Fort Eustis. The Army system consists of three subdivisions covering 23 miles of track including sidings and spurs, as well as other related facilities used to train soldiers for rail

loading, movements, and unloading material. Although there is a rail line on the installation, private rail does not enter Fort Eustis.

3.2.3 Port of Virginia

The Port of Virginia is located in Foreign Trade Zone #20 and has an area of 1,864 acres on the East Coast of Virginia. With its unobstructed, ice-free harbor, 50 feet deep channels, and a location 18 miles from the open ocean, the Port is the most highly accommodating natural deep water harbor on the East Coast. These characteristics enable the Port of Virginia to host nearly 30 international shipping lines, offering connections to more than 200 countries around the world.

Figure 15 The Port of Virginia includes an unobstructed, ice-free harbor, 50 feet deep channels, and a location 18 miles from the open ocean.

With its four marine terminals, the Port of Virginia is the third-largest volume port on the East Coast in terms of general cargo (breakbulk and containerized cargo). In 2015, The Port of Virginia handled 2,510,099 twenty-foot equivalent units (TEU); this is up 8.9% from 2014. The Port is home to the largest and fastest container cranes in the world. With a 26-container outreach, the cranes can handle any ship in existence today in addition to those on the drawing board for the future.

The Port includes:

- Newport News Marine Terminal (NNMT)
- Virginia International Gateway (VIG)
- Norfolk International Terminals (NIT)
- Portsmouth Marine Terminal (PMT)

3.2.4 Airports

Located within a 30-minute commute of most business and residential areas in the region, Norfolk International (ORF) and Newport News / Williamsburg (PHF) airports provide air service for approximately four million passengers annually. Nine major airlines provide over 250 flights per day to 26 airports, of which 17 are major hubs and international gateways.

3.2.5 Dominion Energy Transmission Line

The U.S. Army Corps of Engineers has granted final approval for Dominion Energy to build a high-voltage transmission line across the James River, from Surry County to Skiffe's Creek in James City County, as shown on Figure 16. The line will require more than 40 transmission towers in the area, some nearly 300 feet tall. The new power line is anticipated to supply needed capacity to serve the local area and critical military facilities, support local growth and economic development in central and eastern Virginia, comply with mandatory North American Electric Reliability Corporation (NERC) Reliability Standards, and lead to fewer service interruptions and shorter outage durations.

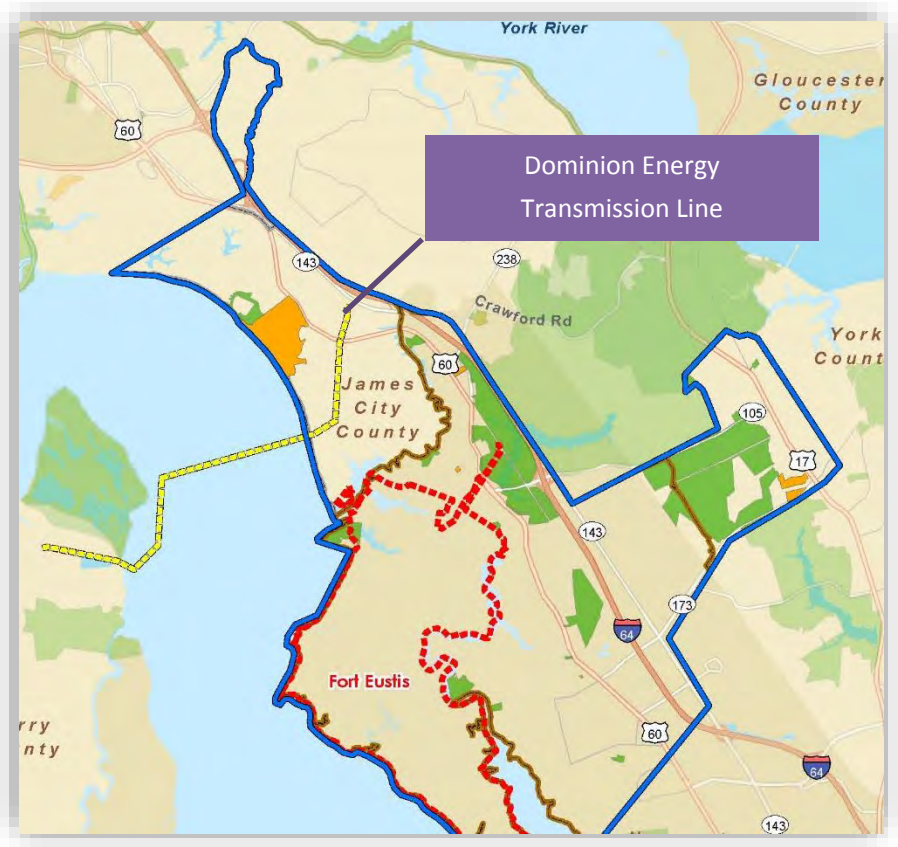


Figure 16 The U.S. Army Corps of Engineers has granted final approval for Dominion Energy to build a high-voltage transmission line across the James River, from Surry County to Skiffe's Creek in James City County.

3.3 Environmental Features

3.3.1 Climate

The area's climate is generally mild with an average temperature around 40 degrees in January and 78 degrees in July. The area is vulnerable to a variety of weather-related natural hazards. These include hurricanes and nor'easters (and the associated coastal flooding), snow and ice storms (which are usually associated with nor'easters), tornadoes, and wildfires.

3.3.2 Air Quality

Air pollution is generally divided into three sources: air pollution created by mobile sources, area sources or point sources. Criteria air pollutants are common throughout the U.S. These pollutants can damage health,

Figure 17 With the northern portion in Maryland and the southern part in Virginia, the Chesapeake Bay is a very important feature for the ecology and economy of those two states, as well as others.

harm the environment and cause property damage. The U.S. Environmental Protection Agency (USEPA) has identified the following six criteria pollutants: carbon monoxide, lead, nitrogen oxides, ozone, particulate matter, and sulfur dioxide.

For each criteria pollutant, the USEPA established National Ambient Air Quality Standards (NAAQS), which define the maximum allowed concentration. If the NAAQS for a pollutant is exceeded, it may adversely affect human health. The USEPA and state agencies monitor air quality to assess compliance.

After several years of being designated as a marginal non-attainment area for ozone, Hampton Roads meets air quality standards and continues to experience a steady decline in the number of annual high-ozone days. Virginia Department of Environmental Quality (DEQ) monitors air quality for Virginia and ensures compliance with the Virginia Air Pollution Control Law and the Federal Clean Air Act. While Hampton Roads remains in compliance with air quality standards (2013), it has been designated an 8-hour Ozone Maintenance Area since 2007 and continues to be monitored by the USEPA. Ozone compliance can be a challenge in the region because of the summer's weather pattern—hot and humid— which is conducive to ozone formation. The Ozone Advance Action Plan for Hampton Roads (2013) details the region's clean air programs and how implementation will continue to improve air quality through 2020. Air quality has improved through further reductions in particulate emissions resulting from implementation of federal, state, and local control programs. Efforts to further improve air quality around the Commonwealth may place an even greater emphasis on complying with standards in the coming years.

3.3.3 Water Features

The three major Mid-Atlantic Coastal Plain river drainage systems in the region are the York and James basins. To the east, the Atlantic Ocean and the Chesapeake Bay form an undulating natural boundary for the region. Natural features include coastal shorelines, vast expanses of open water and marshlands. The James and York

rivers are predominantly estuarine (partially enclosed coastal bays of brackish water). Freshwater systems include the Nottoway, Blackwater, Meherrin, North Landing and Northwest Rivers, Back Bay and the Dismal Swamp.

3.3.4 Chesapeake Bay

The Chesapeake Bay and its perennial tributaries constitute one of the most important and productive estuarine systems in the world. With its northern portion in Maryland and the southern part in Virginia, the Chesapeake Bay is a very important feature for the ecology and economy of those two states, as well as others. More than 150 major rivers and streams flow into the Bay's 64,299 square mile drainage basin, which covers parts of six states (New York, Pennsylvania, Delaware, Maryland, Virginia, and West Virginia) and all of Washington, District of Columbia.

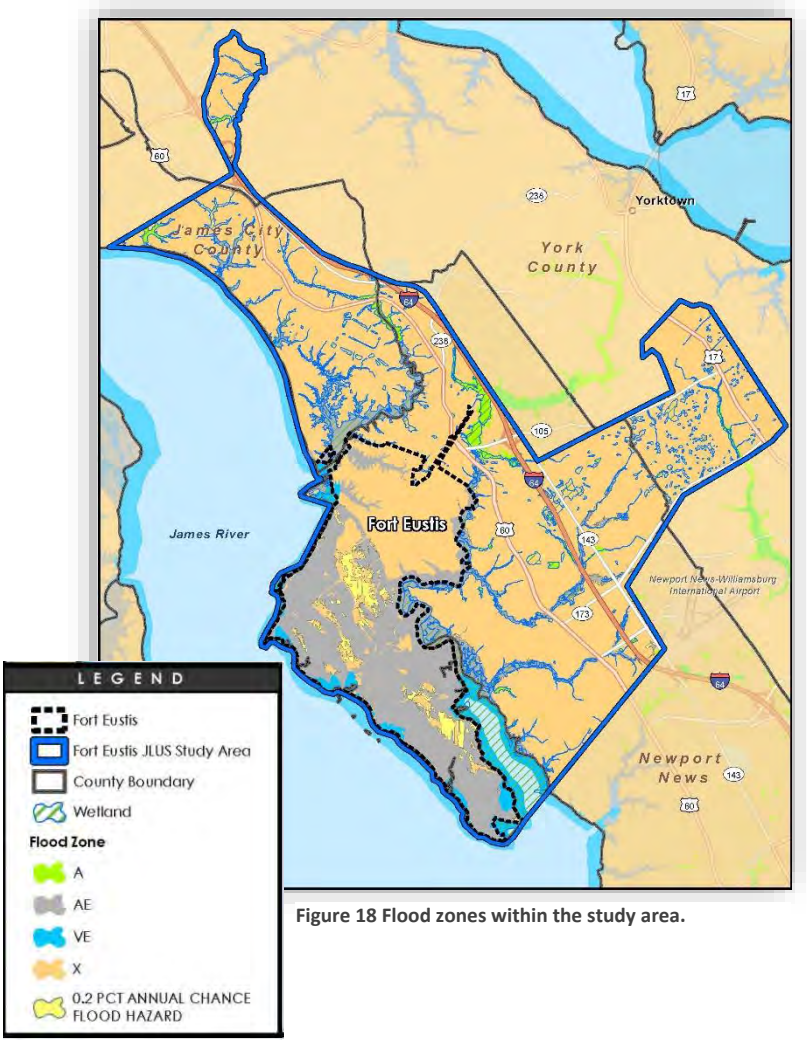


Figure 18 Flood zones within the study area.

Known for both its beauty and bounty, the Bay has become "emptier", with fewer crabs, oysters, and watermen in past years. Restoration efforts begun in the 1990s and show potential for growth of the native oyster population. As part of that effort and required by state and federal law, the City of Newport News, James City County, and York County adopted individualized Chesapeake Bay Preservation Ordinances. The purpose of the ordinances is to protect community and state waters from further degradation and improve water quality in the Chesapeake Bay and other state waters through effective land use planning and management. The health of the Chesapeake Bay improved in 2015, marking three years of gains over the past four years, according to a report by the University of Maryland.

3.3.5 Wetlands

Wetlands are commonly associated with swamps and marshes. Although most often considered to be located in tidal areas, they are also found along the floodplain, in waterways of various types, and in sheltered areas

along inter-tidal coasts. Non-tidal wetlands can occur wherever there is, for at least a portion of the growing season, sufficient water to support hydrophytic (water loving) plants and hydric (wet) soils.

The management of tidal and non-tidal wetlands within the study area involves federal, state and local regulatory entities. A Joint Permit Application (JPA) must be submitted for any work occurring in a wetland area. The application is submitted to the Virginia Marine Resources Commission (VMRC) for distribution to the local Wetlands Board, the DEQ and U.S. Army Corps of Engineers.

3.3.6 Flood Zones

Hampton Roads is highly vulnerable to damages from storm surge and potential sea level rise. Much of the region is relatively flat and low-lying, which allows storms to push ashore and flood large areas. Storms can have significant impacts on the natural environment resulting in beach erosion, downed trees, and loss of other vegetation. These events may also result in impacts to structures and infrastructure.

3.3.7 Climate Change and Sea Level Rise

Global sea level rise (SLR) has been taking place over the last several years and has direct impacts on the coastal environment. Multiple SLR mapping efforts compiled by JBLE, VIMS, Hampton Roads Planning District Commission (HRPDC), National Oceanic and Atmospheric Administration (NOAA), and others have identified large areas of the U.S. that are predicted to be inundated under current and projected SLR trends. SLR effects extend even farther than the areas directly inundated. Upland areas that are above the projected SLR rate can still be affected by coastal flooding during recurring storm events that will reach increasing flood elevations as the sea level is increased.

Since 1900, evidence suggests that sea level has been rising at a rate of 1 to 2.5 mm (0.04 to 0.1 in) per year, on a global average. Furthermore, studies have predicted that future SLR will occur at a greater rate than in the past. Historical tide gauge records previously demonstrated that sea level change was not globally uniform. In Hampton Roads, SLR is projected to be greater than the average due to unique local geologic conditions and land subsidence.

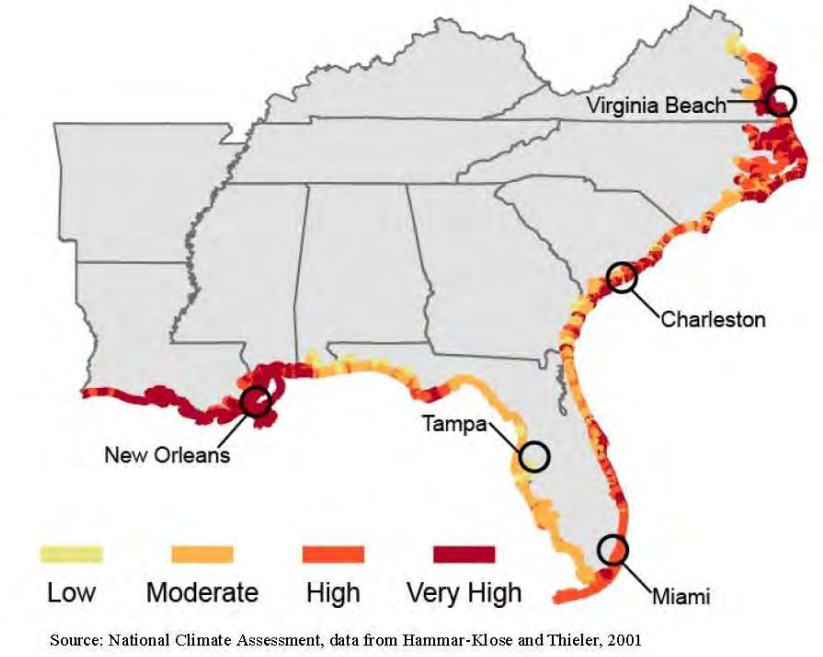


Figure 19 Vulnerability to Sea Level Rise

3.4 Regional Growth and Development

The HRPDC is a regional organization representing 17 local governments including the cities of Chesapeake, Franklin, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, Williamsburg, the Town of Smithfield, and the counties of Gloucester, Isle of Wight, James City, Southampton, Surry, and York. The HRPDC developed the Hampton Roads Regional Economic Development Strategy (REDS), an extension of the region's Comprehensive Economic Development Strategy, in September 2015. A summary of the analysis is included within this section, Section 3.4, and Section 3.5.

3.4.1 Regional Growth

The regional real estate market remains impaired from the housing correction of the Great Recession. However, it should be noted that the demand in James City County is lower than pre-recession, but higher when compared to the rest of the region. This impacts family mobility throughout the region, local real estate tax collections, and housing's role in personal saving. Almost 2,000 fewer homes are being permitted in Hampton Roads than during an average year, and that decline results primarily from lower demand for new single family homes.

3.4.2 Regional Economic Growth

Hampton Roads is a region that depends on its maritime-rich geography and all the benefits that come with it, such as commerce derived at its ports, tourism and real estate drawn to its beaches, and the waters that allow it to be one of the most concentrated naval strongholds on the planet.

In 2013, the region generated $88.5 billion in economic activity, making it the 39th largest metropolitan economy. The region's economic structure is characterized by the strong presence of the military, followed by real estate and rental leasing, manufacturing and shipbuilding, construction, tourism, recreation, and retail.

Hampton Roads has experienced a period of slow economic growth since the start of the national recovery, only growing 0.75% on annualized basis since 2010, while the average MSA has grown by 1.95% annualized (inflation-adjusted). This followed an exceptionally strong period of growth for this region, which concluded in 2007. While the region did not experience the nations deep recession, neither has it participated in its strong recovery. Employment in Hampton Roads fell by almost 50,000 jobs between 2007 and 2010, and while employment has been growing, it still remains below previous levels.

Federal Assets

The defense industry is a major sector industry in this region, bringing in outside dollars that allow for investment and economic growth. Figure 20 identifies the military installations in the vicinity: Camp Peary, Naval Supply Center Cheatham Annex, Naval Weapons Station Yorktown, Fort Eustis, and Langley Air Force Base. Military employment pays incomes that exceed the regional average when benefits are included, and brings many skilled individuals into the region's labor market as either dependents or civilians when they exit

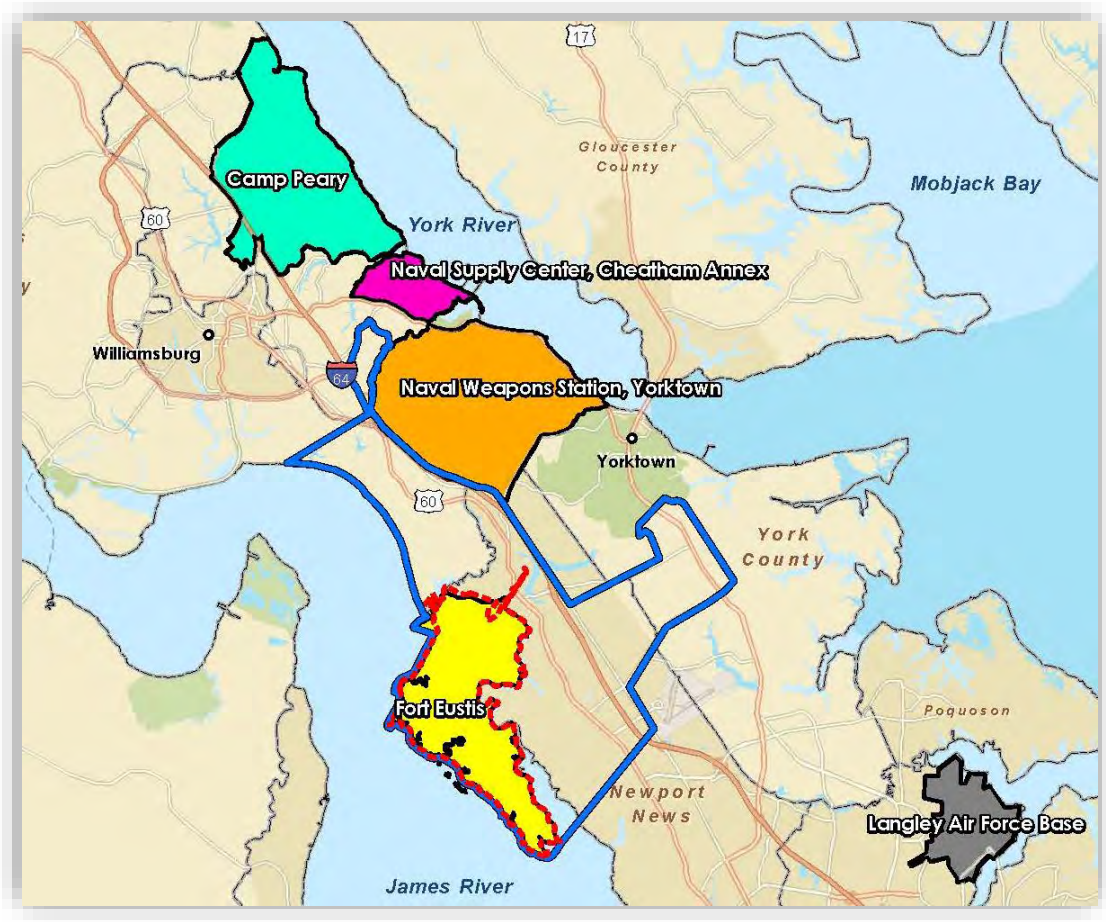


Figure 20 Military installations in the region.

the service. Hampton Roads population has the highest percentage of veterans of any large MSA other than Colorado Springs.

Additionally, military contracts play an important role in the region, and particularly support the region's shipbuilding and repair industry. Defense contracts totaling $8.9 billion were performed in the region in Fiscal Year (FY) 2014, and that alone represents more than 10% of the regional economy. Unfortunately, defense spending in the region peaked in 2011, and has been declining over the past years as a result of both a decline in the number of personnel stationed in the region, and as a result of budget cutbacks. Projected increases in DoD funding from the Trump Administration have not yet been allocated, but it is possible that the region could see a modest increase in military funding.

Port

The region's natural harbor led to the Port of Virginia being a hub of international trade. The Port and port-related activities bring money into the regional economy, allowing for long-term growth. A 2014 analysis conducted by the College of William and Mary's Mason School of Business estimates that the Port of Virginia

contributes 374,000 jobs, $17.5 billion in employee wages, $1.44 billion in taxes, and $60.3 billion in spending annually in the Commonwealth.

Tourism

Tourism serves the region as a basic sector industry, as visitors from outside the region come to visit Hampton Road's beaches, sports, culture, and history. Tourism expenditures were impacted significantly by the recession, as families cut discretionary spending when the outlook for the economy weakened. Employment in the tourism industry is above 2007 levels, as of 2016 (HRPDC). According to the Virginia Tourism Corporation, tourists spent in excess of $4.1 billion in Hampton Roads in 2013. The Leisure and Hospitality industry employed 40,683 people in Hampton Roads, growing 1.4% from the previous year. In addition to the hoteliers who depend on tourists to fill their rooms, tourism brings extensive new money to restaurants, retail establishments, and government coffers.

Figure 21 Busch Gardens is a major tourism attraction in the region.

3.5 Regional Demographics

According the U.S. Census Bureau, Hampton Roads is the 37th most populous MSA in the U.S. Over the past four years, the Hampton Roads population has grown at an annualized rate of 0.59%, below the rate of the Commonwealth (1.00%) and the Nation (0.81%).

The American Community Survey estimated that Hampton Roads contained 625,540 households in 2013, with an average of 2.62

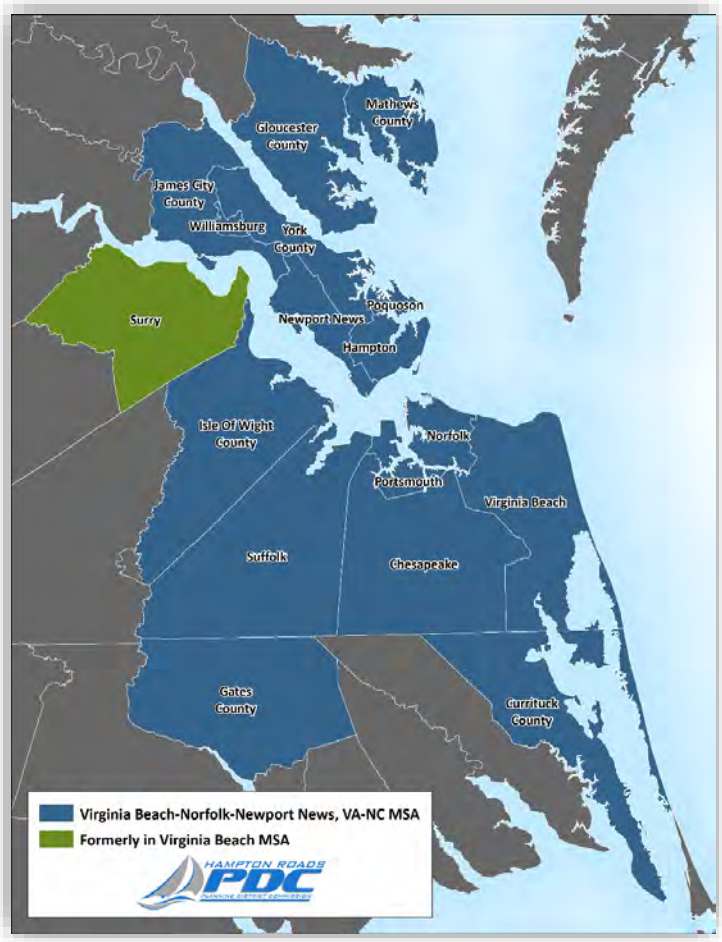


Figure 21 The Hampton Roads MSA. Source Hampton Roads PDC.

persons per household. Hampton Roads median age is 35.3, indicating that the region's population is younger than that of Virginia (37.6) and the U.S. (37.5). The population has a fairly even split between males and females (49.3%/50.7% respectively).

Relative to the nation, a significant number of the citizens in this region are African American, constituting 30.7% of the population (versus 12.6% of the national population). As a result, a smaller portion of the regional population is Caucasian, Asian, or Native American. Furthermore, the Hispanic population in Hampton Roads is smaller than that of the nation overall, with 6.1% of the region's population identifying with Hispanic ethnicity, versus 17.1% nationally.

Military Profile

4 Military Profile

4.1 Regional Influence

JBLE is part of an extensive network of military facilities in Hampton Roads. Other regional military facilities include Naval Weapons Station Yorktown, Camp Peary, Naval Station Norfolk, Naval Air Station Oceana, and Joint Expeditionary Base Little Creek-Fort Story.

4.2 Fort Eustis

JBLE is located on the Virginia Peninsula, which is bordered by the James and York Rivers. As part of the 2005 Base Realignment and Closure (BRAC) process, Langley AFB and Fort Eustis Army Installation were combined to create JBLE as 1 of 12 joint bases in the DoD. The two installations are geographically separated by 17 miles, and each is surrounded by water on three sides. JBLE became fully operational on October 1, 2010.

Fort Eustis is a relatively small installation that supports a population of almost 23,000 people. There are an estimated 6,000 active duty and 1,500 students in addition to 800 guard and reserve, 3,200 DoD Civilians, and 11,500 family members.

4.3 History

The land now occupied by Fort Eustis has been developed since the mid-1600s, when early settlers cultivated the area for tobacco. Industrial and commercial development followed in the 1800s, and the construction of a railroad line in 1880 caused the population to surge.

Figure 22 Historic Fort Eustis sign for the Transportation Center

Camp Abraham Eustis was established in 1918 as a training center for Coast Artillery Corps units from Fort Monroe and to establish an Army Balloonist's School. The installation was renamed Fort Eustis in 1923 when it received permanent military installation status. Since the beginning of World War II, activities have been limited to transportation training, research and development, engineering and operations, and aviation and marine shipping.

Figure 23 Training and Doctrine Command (TRADOC) Headquarters

In 1946, Fort Eustis was transferred to the Chief of Transportation as the Transportation Corps Training Center for consolidation of rail, marine, and amphibious operations and other modes of transportation. Felker Army Airfield (FAAF) was established in 1954 as the world's first military heliport, serving as home to over 120 aircraft and 700 aviators. In 1966, the installation was reorganized as the U.S. Army Transportation Center and Fort Eustis (USATCFE).

The 2005 BRAC Act resulted in the greatest change in the look of Fort Eustis. In an effort to combine like-minded schools, the Army Transportation School relocated its headquarters to Fort Lee in 2010 taking only leaders and movement control instruction. Because of the need for a military port, it left its cargo handling and maritime training, along with rail training, the museum and regimental chapel at Fort Eustis. The Training and Doctrine Command (TRADOC) Headquarters replaced it in 2011. By then nearly all the World War II structures had been replaced and massive new structures gave the installation the appearance of the home of a major four-star command. This decision also resulted in the consolidation of the Deployment Support Command with its parent Surface Deployment Distribution Command at Scott Air Force Base, Illinois. Just as significant, the BRAC decision consolidated adjoining installations of different services, referred to as joint basing. As a result, Fort Eustis and Langley AFB were consolidated under the responsibility of the Air Force 633rd Air Base Wing as Joint Base Langley-Eustis in 2010.

4.4 Fort Eustis Land Uses and Facilities

Fort Eustis is located in the city of Newport News and comprises 7,993 acres on a peninsula within the Chesapeake Bay watershed. It is bordered by the Warwick River on the east, Skiffe's Creek to the north, and the James River on the west. Fort Eustis has approximately 21 miles of open tidal shoreline, but miles of small tidal creek shoreline exist within the boundaries of the installation, including several surface bodies of water. Fort Eustis is composed mostly of low, flat terrain, and much of its training area is situated at only five feet above mean sea level. Farther inland is the cantonment area, which is at 30 feet above mean sea level.

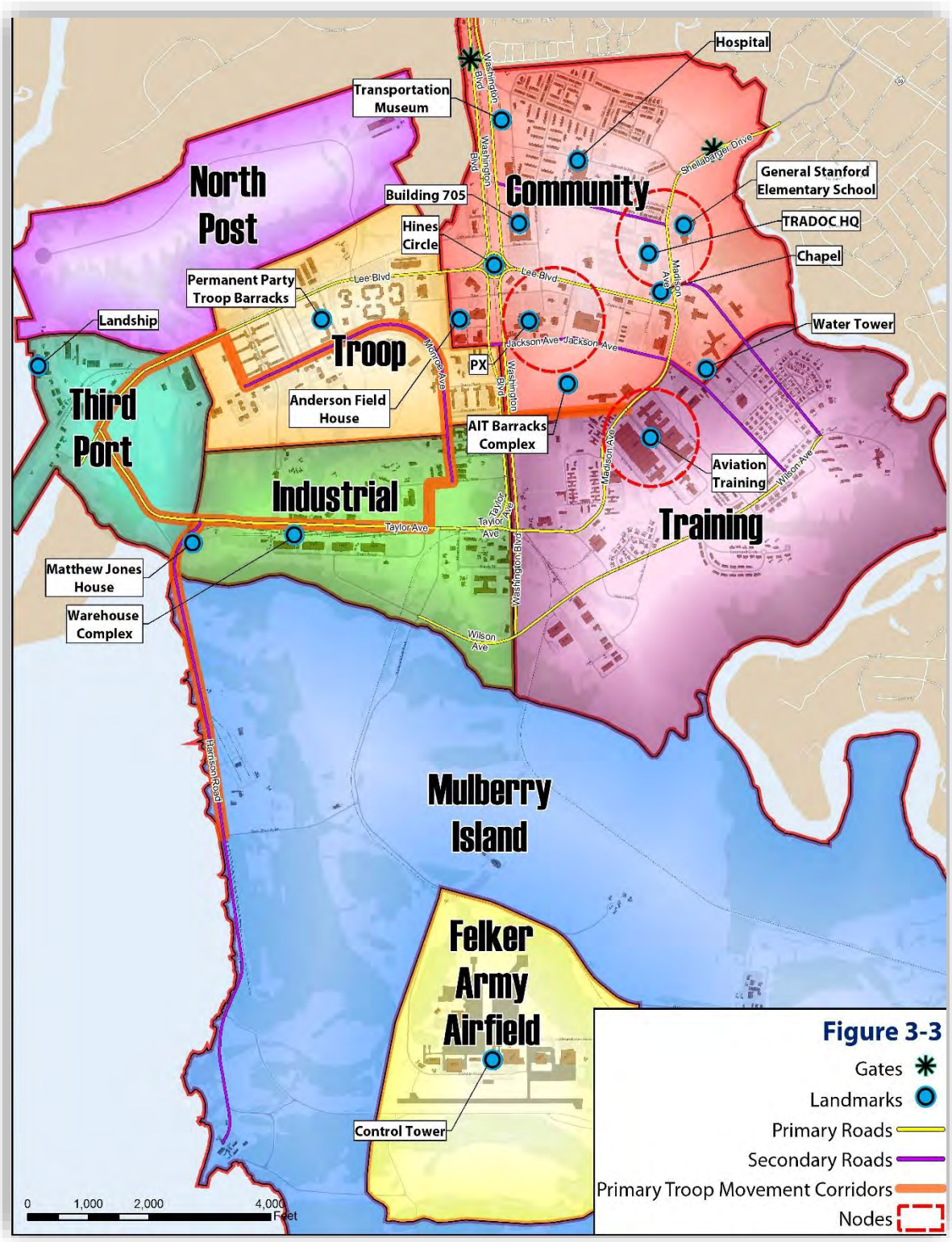


Figure 24 Eight unique districts have been identified within the Area Development Plan to create a framework for the Post.

Fort Eustis consists of two main areas: the cantonment area and Mulberry Island. The approximately 2,000 acre cantonment area includes a variety of operational, administrative, housing, and supporting facilities. Of particular note is the third port, a deep-water port that provides safe harbor for the Army's watercraft fleet, and is used to train personnel in cargo logistics and vessel operations. This port has also been utilized as a joint service training facility for watercraft operations and cargo handlers.

Mulberry Island includes property west of the cantonment area that contains the training and maneuver areas, firing ranges, impact areas, Pines Golf Course, and FAAF. The airfield is primarily used for rotary-wing aircraft operations and training (including a helicopter maintenance training school). Due to the runway's short (3,000-foot) length, the few fixed-wing aircraft based at FAAF operate under multiple safety restrictions and require a special waiver for facility use.

Eight unique districts have been identified to create a framework for the Installation, as identified in Figure 25. Districts at Fort Eustis are characterized by certain functions, materials, and scale, and are defined as: Community, Troop, Third Port, North Post, Industrial, Training, Mulberry Island (Ranges), and FAAF.

District	Description
Community District	The Community District is located in the northeast portion of the installation and consists of a diverse number of uses including family residential, the medical group complex, higher headquarters facilities, commercial retail, community service functions, and the Mission Support Squadron.
Troop District	The Troop District is located in the northwest portion of the installation. It is a pedestrian oriented area where permanent party barracks are in proximity to company operations facilities, troop-oriented support facilities, several community services, and recreation facilities.
Third Port District	The Third Port District is in the northwest corner of the cantonment area and is approximately 192 acres. Third Port is on the James River and is used for student training and 7th Sustainment Brigade port operations. The only other function in this area is a research and development activity associated with rotary operations, not port operations.
North Post District	The North Post District is located at the north end of the installation and is a peninsula that is primarily forest.
Industrial District	The Industrial District is approximately 476 acres of land that consists primarily of industrial functions associated with the Civil Engineering Division (CED), Fort Eustis warehouse row, the Army Reserves, and the training area. A portion of the Advanced Individual Training (AIT) barracks is included in this district.
Training District	The Training District is located in the southeast portion of the cantonment area. This district is approximately 732 acres of land that is mostly associated with the AIT student training. Although AIT student training is the dominant function in this district, there is also a large percentage of the installation's family housing, including housing for senior leadership, in close proximity to these training facilities.
Felker Army Airfield District	FAAF is located on Mulberry Island and is remote from the cantonment area. This airfield has a slightly different orientation than a typical airfield layout. The aircraft hangars are oriented to the parking aprons to the north, requiring a long taxi to the

District	Description
	runway, located south of the flightline. The current runway (14/32) is 3,020 feet long and 75 feet wide, although there is a requirement for a 5,300-foot runway.

Fort Eustis has a total of 27 training areas, including fire ranges, that are available for use throughout the year. The training areas are identified on Figure 26. The unimproved training areas include forests, wetlands, and open plains fields that provide a wide variety of realistic terrain for units and personnel.

The installation also contains 31 miles of railroad track that is used for the training of railroad transportation personnel.

In addition to the specific districts identified above, Fort Eustis includes the James River Training Area (identified in Figure 27) and the Maintenance Test Flight Area.

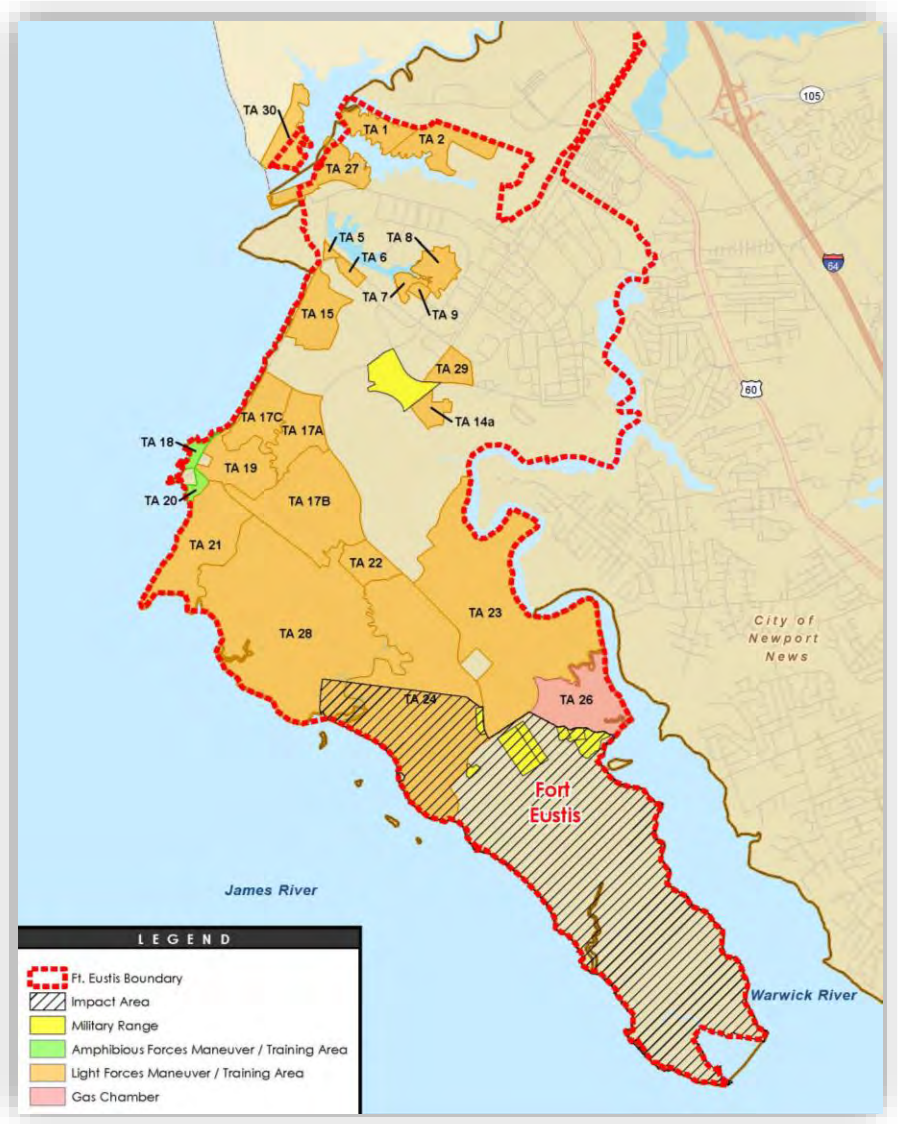


Figure 25 There are a total of 27 Training Areas, which provide and support a variety of training activities.

The James River Training Area covers the area of the James River between Jamestown on the north and the James River Bridge on the south. This area is used by the 10th and 24th Battalions of the 7th Sustainment Brigade to provide maritime training. The James River Reserve Fleet is also maintained in this area and is used by the Navy and other agencies for training purposes.

The Fort Eustis Maintenance Test Flight Area (MTFA) is an installation-designated "local flying area" and is located outside of the JLUS study area. Fort Eustis once housed the Army's Helicopter Maintenance Test Pilot School and pilots used the MTFA to train. The MTFA is currently used by the helicopter units stationed at Felker Field for training and operational testing.

Figure 26 The James River Training Area covers the area of the James River between Jamestown on the north and the James River Bridge on the south. This area is used by the 10th and 24th Battalions of the 7th Sustainment Brigade to provide maritime training.

4.5 Host and Tenant Units

The 733rd Mission Support Group (733 MSG) is a subordinate group to the 633rd Air Base Wing (633 ABW), which oversees both the Langley and Eustis components of JBLE. The 733 MSG provides Fort Eustis the installation capabilities and services to support expeditionary operations in a time of persistent conflict, optimizes resources and sustains the environment, and provides a quality of life for soldiers and families commensurate with their service. It is commanded by a U.S. Army Colonel that oversees the 733rd Security Forces Squadron, the Civil Engineering Division, the Force Support Division, the Logistics Readiness Division, and the Mission Services Division. Associate units at Fort Eustis include the following.

- 633rd Air Base Wing (633 ABW). At the direction of the BRAC Commission, the 633 ABW stood up in January 2010 as the host unit for JBLE. The 633 ABW is responsible for the majority of the support functions at JBLE—including physical assets (e.g., natural resources) management, anti-terrorism/force protection, administrative functions, information protections, public affairs, protocol, and safety for Langley AFB and Fort Eustis. The 633 ABW is divided into two mission support groups (MSGs): the 633 MSG, assigned to Langley AFB, and the 733 MSG, assigned to Fort Eustis.
- 733rd Mission Support Group (733 MSG). 733 MSG provides Fort Eustis the installation capabilities and services to support expeditionary operations in a time of persistent conflict, optimizes resources and sustains the environment, and provides a quality of life for soldiers and families commensurate with their service.

- United States Army Training and Doctrine Command (TRADOC). TRADOC is charged with overseeing training of Army forces, the development of operational doctrine, and the development and procurement of new weapons systems. TRADOC operates 33 schools and centers at 16 Army installations. TRADOC schools conduct 2,734 courses (81 directly in support of mobilization) and 373 language courses. TRADOC is the official command component that is responsible for training and developing the U.S. Army.
- 7th Sustainment Brigade (7SB). The 7th Sustainment Brigade's (7 SB) mission at Fort Eustis is to conduct multi-modal transportation operations in support of the reception, staging, and onward movement of joint and/or combined forces into a theater of operations. The 7 SB is structured with one motor transport battalion and three terminal battalions. The 7 SB is currently the most deployed unit in the Army and has supported numerous operations, including Operation Desert Shield/Desert Storm, Operation Restore Hope, Operation Provide Hope, Operation Vigilant Warrior, and Operation Iraqi Freedom. It supports all branches of the service by moving troops, equipment, and supplies needed to protect national interests.
- 128th Aviation Brigade. The 128th Aviation Brigade's mission is to produce Aviation Maintenance Soldiers that are disciplined, skilled, fit, imbued with Army Values, and able to contribute to the combat readiness of the Army, other services, and foreign allies. They annually train Army, Air Force, and international students in Advanced Individual Training (AIT) courses.
- 597th Transportation Brigade. The mission of the 597th Transportation Brigade is to provide global deployment and distribution to meet the Nation's objectives. They conduct surface deployment and distribution in the U.S. Northern Command (USNORTHCOM), meet Combat Command (COCOM) objectives, and provide surface port of debarkation (SPOD) mission command in USNORTHCOM and A/SPOD surface element for Joint Task Force Port Opening.
- Aviation Applied Technology Directorate (AATD). The AATD transitions critical technologies that enhance and sustain Army Aviation as the premiere land force aviation component in the world. As part of its mission at Fort Eustis, the AATD develops critical technologies to enhance DoD aviation systems and supports innovative efforts to improve DoD aviation systems.
- 93rd Signal Brigade. The mission of the 93rd Signal Brigade is to operate, maintain, and protect the Global Network Enterprise for the eastern region of the Continental U.S.; integrate Mission Command capabilities to ensure Mission Partners' freedom of maneuver within the cyber domain. Support other national missions or contingency operations, as directed. The Brigade staff consists of 93 DA Civilians, 21 Officers, 10 Warrant Officers, and 48 Enlisted providing technical, logistical, intelligence, human resourcing, and resource management functions for a NEC workforce.
- U.S. Army Training Support Center. The U.S. Army Training Support Center provides world-class training support to the operational and institutional Army.
- Joint Deployment Training Center. The Joint Deployment Training Center provides high quality and high impact functional training and education on joint deployment, global force management, and

situational awareness systems to combatant commands, services, and agencies in order to enhance the operational effectiveness and readiness of the current and future joint force.

- McDonald Army Health Center. The McDonald Army Health Center is the leader in multi-service, collaborative care, dedicated to the health and well-being of the entire community. They see an estimated 933 patients per day.
- Army Transportation School. The mission of the Army Transportation School is to execute resident Initial Military Training, Professional Military Education, and Functional training and education in the areas of Army watercraft operations and maintenance, cargo handling, and rail operations for soldiers and civilian members of all services.
- Dental Activity (DENTAC). The mission of DENTAC is to provide warrior focused oral health care with an exceptional team of professionals, dedicated to excellence and unified in service.

4.6 Mission and Training

Fort Eustis is a TRADOC installation; its primary function is to provide training in rail, marine, and amphibious operations and other modes of transportation. Garrison operations are under the authority of the Northeast Region (NER) of the Installation Management Command (IMCOM). Training activities are the responsibility of the 7th Sustainment Brigade, 8th Transportation Brigade, U.S. Army Transportation School (USATSCH), U.S. Army Aviation Logistics School, Army Reserve Component Support Division (ARCSD) of the Directorate of Plans, Training, Mobilization, and Security (DPTMS), and other respective tenant activities.

The 7th Sustainment Brigade is a U.S. Army Forces Command (FORSCOM) unit. The Brigade's mission is to prepare and train for fixed port operations and logistics-over-the-shore (LOTS) in support of national policy; to conduct limited highway and motor transport operations; to support domestic emergency plans as required; to support the requirements of the installation, USATSCH, and the U.S. Army Aviation Logistics School; and to support annual training of Reserve Component Units.

The 8th Transportation Brigade conducts training and exercises to ensure and maintain proficiency in common tasks and skills associated with the transportation of units, rolling stock, and cargo. These exercises concentrate on the use of equipment and techniques for loading and unloading railcars, ships, and trucks under a variety of conditions; driving trucks and other rolling stock over roads and rough terrain; and routinely maintaining equipment. The ARCSD supports training activities, schools, and annual events such as transportation logistics-over-

Figure 27 Logistics-Over-the Shore (LOTS) training exercises.

the-shore (TRANSLOTS). Although more limited in scope than the JLOTS exercise, TRANSLOTS involves the ship-to-shore discharge of cargo.

The training areas on Fort Eustis consist of about 6,081 acres, distributed throughout the installation, including 76.8 acres for small arms ranges and 1,455.7 acres of impact area. Impact areas are within designated boundaries of the installation, in which all ordnance will detonate or impact. Training areas are located on both improved and unimproved grounds. The improved grounds include the third port facility and FAAF. There is also a Fast Sealift Ship training ship located at Lambert's Point in Norfolk, Virginia. FAAF specializes in helicopter flight training. There are 77 miles of paved road and 15 miles of unpaved road that allow access to remote sections of the installation. There are 31 miles of railroad track used for rail training on the installation. The unimproved training areas include forests, wetlands, and open plains to provide the soldiers realistic terrain to train on.

4.7 Proposed Expansions and Operational Changes

Fort Eustis will continue to upgrade facilities and ranges as resources permit. Fort Eustis supports various organizations throughout the region and beyond as well as units from all of the DoD services. Mission operations include a broad range of functions with specific requirements in terms of facilities, infrastructure, and systems needed to adequately support those missions. Sustainment, Restoration and Modernization (SRM) will be the focus of construction efforts in the coming years. SRM construction will modernize unit operations and maintenance facilities to support future operations. The Installation Development Plan of which space optimization, facilities, housing, and energy use are vital components, and the proposed Installation Facilities Standards Plan will be integral in identifying and supporting these projects.

Fort Eustis is in the process of constructing new dormitories in the 2300 block and new specialized training facilities to house and train soldiers assigned to the Advanced Individual Training (AIT) programs. Phase IV of the AIT Barracks Complex FY20 will construct one 300 person barracks and one 156 person barracks. Aviation Maintenance Training facilities in the FY18 and FY24 programs will construct new specialized training areas. New watercraft being delivered to the 7th BDE (TBX) will necessitate expansion and improvements to the third port. In addition, the main gate improvement project is projected to be approved for FY20 MILCON as well as Planning Charrette funding and an initial design directive to address land purchases to accommodate this expansion and improvements. Lastly, the incorporation of Planning Districts and Form Based Planning will functionally integrate land uses through the regulation of building types, heights, setbacks, circulation patterns, and landscaping while providing the opportunity for mixed or alternative land uses within the planning context of protecting the character of districts and ensuring long-term mission effectiveness.

5

Upper Warwick Corridor Economic Analysis

5 Upper Warwick Corridor Economic Analysis

The defense industry is a major sector industry in this region, bringing in outside dollars that allow for investment and economic growth. In fact, Hampton Roads population has the highest percentage of veterans of any large MSA other than Colorado Springs. Military employment pays incomes that exceed the regional average when benefits are included, and brings many skilled individuals into the labor market as dependents or civilians when they exit the service.

This economic impact analysis is intended to identify the current economic impact of Fort Eustis on the Newport News local economy and to identify opportunities for economic development and expansion along the upper Warwick business corridor between Fort Eustis Boulevard and Denbigh Boulevard, referred to as "the Warwick Boulevard Corridor." The economic impact analysis pays particular attention to the Warwick Boulevard corridor, which contains a number of commercial establishments as well as multi-family residential, parks, schools, and other institutional uses which serve residents and military personnel of Fort Eustis. There are a number of vacant and underutilized parcels along the Warwick Boulevard Corridor that present redevelopment opportunities.

5.1 Economic and Demographic Profile

The demographic profile of Newport News is similar to that of the MSA, with variations. In 2016, the population of Newport News was 181,825 (181,985 in 2015). As shown in Table 5.1.A, between 2000 and 2010, the City experienced a growth rate of around 0.3% compared to a growth rate of 13% statewide. Between 2010 and 2016 the growth rate increased to 0.45%. The median age in Newport News is lower than the MSA, but the household size and diversity is similar in Newport News and the MSA.

Table 5.1.A: Newport News and Virginia Beach-Norfolk, VA-NC Metropolitan Statistical Area Population Summary

Demographic Data	Newport News	Virginia Beach-Norfolk, VA-NC MSA
Population	181,825	1,667,323
Median Age	32.8	36.9
Average Household Size	2.5	2.56
Race		
White	50.4%	59.2%
Black/African American	40.4%	30.0%
Asian	3.2%	3.9%
More Than One Race/Other	6%	4.1%
Veteran Populations	20,992 (16%)	--
Median Income	$26,903	$29,735
Civilian Income	$23,928	--
Veteran Income	$43,859	--
Median Household Income	$50,077	$59,129

Demographic Data	Newport News	Virginia Beach-Norfolk, VA-NC MSA
Employment		
Civilian Labor Force	90,814	893,885
Armed Forces	7,656	74,054
Unemployment Rate	8.7%	--
Civilian	8.9%	-5%
Veteran	7.7%	--

Source: U.S. Census Bureau, American Fact Finder, ESRI forecasts

See Table 5.1.B for estimated employment numbers.

Table 5.1.B: 2016 Estimated Employment

Estimated Employment	2016 Total
Military Personnel	8,241
Civilians	3,158
Total	11,399

Source: JBLE FY16 Economic Impact Analysis, 2017

5.1.1 Housing Located at Fort Eustis

As of 2016, there were a total of 881 Military Family Housing (MFH) units at Eustis. The MFH units are divided into 10 neighborhoods located within the northern and eastern sections of the installation. The neighborhoods consist of the following:

- Antwerp Village
- Big Oak Farm
- Inchon Village
- LeHavre Village
- Marseilles Village
- Newport Village
- North Village
- North Village East
- South Village
- St. Nazaire Village

Fort Eustis MFH is privatized and managed by Balfour Beatty Communities. In addition to the standard housing units, unaccompanied housing is provided for single soldiers in the ranks of E-1 to E-5. Each soldier is provided a private sleeping room and furnishings. Fort Eustis will complete an off-installation housing study for military personnel in 2018. The study will identify the Off-Post housing location of soldiers which plays an important role in housing demand for Hampton Roads.

5.1.2 Schools

School-age children living at Fort Eustis attend Newport News Public Schools. There is one school on the installation: General Stanford Elementary School. This school serves grades Pre-K through 5th grade, with an enrollment of 487 students in 2017.

Figure 28 General Stanford Elementary School is located within the boundaries of Fort Eustis.

5.2 Fort Eustis Economic Impact

Fort Eustis has a significant, positive economic impact on the region. In 2016, the installation's payroll was more than $687.9 million (see Table 5.2.A). Much of this payroll is spent in the local region for housing, food, and other consumer products. In addition, Fort Eustis purchases materials, equipment, and supplies from local and regional firms. With the purchase of utility service, major construction activity, impact aid for local schools, and the number of indirect jobs created, the estimated total economic impact from Fort Eustis on the local community was $1 billion.

Table 5.2.A: Expenditures and Permanent Party Payroll

Military Payroll	
Active Duty Military	$409.2M
Army National Guard/Reserve	$5.0M
Army Students	$3.1M
Total Military Pay	$417.3M
Civilian Pay	
Appropriated Fund	$253.1M
Non-Appropriated Fund	$9.3M
Base Exchange	$3.8M
Commissary	$4.4M
Total Civilian Pay	$270.6M
Local Contract Expenditures	
Construction	$34.7M
Services	$14.5M
Materials, Equipment, & Supplies	$39.2M
Corps of Engineers Projects	$12.4M

Local Contract Expenditures	
Total Expenditures	$80.5M

Sources: 2016 Joint Base Langley-Eustis

Table 5.2.B: Estimate of Number and Dollar Value of Indirect Jobs Created

Type of Personnel	Ft Eustis Base Jobs
Total Military Personnel	8,241
Civilian Personnel	3,158
Total:	11,399
Estimated Indirect Jobs Created	5,645
Average Annual Salary in Hampton Roads	$41,631
Estimated Annual Dollar Value of Jobs Created	$235,000,000

Source: 2016 Joint Base Langley-Eustis

5.3 Analysis of Civilian Employment

5.3.1 Occupation and Employment

Hampton Roads has the second largest concentration of military personnel in the nation. In addition to the large military presence, the region's economic drivers include:

- Agriculture
- Defense-related Industry
- Manufacturing
- Service
- Shipping
- Technology
- Tourism

According to the U.S. Bureau of Labor Statistics, within the Virginia Beach-Norfolk-Newport News MSA, local employment shares were significantly higher than the national average in 8 of the 22 occupational groups, including architecture and engineering; sales and related; and construction and extraction.

Delving further into the occupational groups, above-average concentrations of employment were found in several of the occupations within the architecture and engineering group. Nuclear engineers were employed at 16.8 times the national rate, and marine engineers and naval architects at 21.3 times the U.S. average. On the other hand, architects, except landscape and naval, had a location quotient of 1.0, indicating that this particular occupation's local and national employment shares were similar (See Table 5.3.1).

Table 5.3.1 Architecture and Engineering Employment and Wages, Virginia Beach-Norfolk-Newport News Metropolitan Statistical Area, May 2016

Occupation	Employment		Mean wage	
	Level	Location Quotient	Hourly	Annual
Architecture and engineering occupations	21,580	1.6	$38.82	$80,730
Architects, except landscape and naval	520	1.0	$37.79	$78,600
Landscape architects	40	0.4	$31.54	$65,590
Cartographers and photogrammetrists	70	1.1	$30.76	$63,990
Surveyors	230	1.0	$36.11	$75,100
Aerospace engineers	810	2.2	$55.13	$114,670
Biomedical engineers	--	--	$37.61	$78,220
Chemical engineers	120	0.7	$51.87	$107,890
Civil engineers	1,950	1.3	$41.97	$87,300
Computer hardware engineers	220	0.6	$53.09	$110,430
Electrical engineers	1,420	1.5	$42.89	$89,200
Electronics engineers, except computer	1,230	1.8	$43.55	$90,580
Environmental engineers	290	1.1	$42.82	$89,060
Health and safety engineers, except mining safety engineers and inspectors	130	0.9	$38.30	$79,660
Industrial engineers	740	0.6	$41.35	$86,000
Marine engineers and naval architects	910	21.3	$45.12	$93,840
Materials engineers	130	0.9	$51.01	$106,100
Mechanical engineers	1,880	1.3	$42.47	$88,340
Nuclear engineers	1,560	16.8	$39.00	$81,120
Engineers, all other	1,360	2.1	$46.97	$97,700
Architectural and civil drafters	310	0.6	$23.85	$49,610
Electrical and electronics drafters	130	0.9	$30.01	$62,430
Drafters, all other Aerospace engineering, and operations technicians	--	--	$30.25	$62,920
Civil engineering technicians	370	1.0	$25.02	$52,030
Electrical and electronics engineering technicians	2,040	2.9	$32.58	$67,760
Electro-mechanical technicians	330	4.6	$25.71	$53,480
Environmental engineering technicians	80	1.0	$21.20	$44,100
Industrial engineering technicians	310	0.9	$28.06	$58,370
Mechanical engineering technicians	410	1.7	$26.72	$55,580
Engineering technicians, except drafters, all other	2,140	5.5	$35.74	$74,340
Surveying and mapping technicians	300	1.1	$20.54	$42,720

Source: U.S. Bureau of Labor Statistics, Mid-Atlantic Information Office, May 30, 2017

5.3.2 Employment Outlook

The Economic Information Services Division of the Virginia Employment Commission identified industries with the largest projected employment growth within Newport News (See Table 5.3.2). They estimate that health care and social services will have the greatest increase in projected employment between 2014 and 2024 with a 23% increase, followed by professional, scientific, and technical services with a 14% increase.

Table 5.3.2: City of Newport News Employment Projections

Industries	2014 Estimated Employment	2024 Projected Employment	Percent Change
Health Care and Social Assistance	25,732	31,637	23%
Professional, Scientific, and Technical Services	12,065	13,752	14%
Educational Services	22,084	24,539	11%
Retail Trade	27,314	28,618	5%
Construction	8,445	9,370	11%
Administrative and Support Services	10,976	11,963	9%

Source: Virginia Employment Commission, Community Profile, Newport News, June 23, 2017.

5.3.3 Retail Gap Analysis of the Warwick Boulevard Corridor

A retail leakage and surplus analysis was performed for the Warwick Boulevard Corridor, refer to Table 5.3.3. Known as a gap analysis, this type of analysis is useful in identifying potential retail opportunities. The findings of the analysis identified leakage and surplus of major store types within the surrounding area of the Warwick Boulevard Corridor and the larger Virginia Beach-Norfolk MSA. Within the Warwick Boulevard Corridor, gaps in four major store types were identified – motor vehicle and parts dealers; furniture and home furnishings stores; building materials, garden equipment, and supply stores; and general merchandise stores.

The trade area necessary to support auto, furniture, and building supply store types relies on much larger geographic trade areas than the Warwick Boulevard Corridor. When examined in combination with the larger MSA, there remains a gap in general merchandise stores within the Warwick Boulevard Corridor. General merchandise stores (NAIC code 452) include department stores, general merchandise stores, and warehouse clubs and supercenters (North American Industry Classification System). There are 24 general merchandise stores within the Warwick Boulevard Corridor; 537 within the larger MSA.

Table 5.3.3: Retail Trade Area Surplus/Gap Analysis

	Warwick Boulevard Corridor and Surrounding Area		Virginia Beach-Norfolk, VA-NC	
	Surplus/ Leakage	No. of Businesses	Surplus/ Leakage	No. of Businesses
Total Retail Trade and Food & Drink	-4.8	406	0.4	12,991
Total Retail Trade	-5.7	264	1.5	8,782
Total Food & Drink	5.2	142	-9.2	4,209

	Warwick Boulevard Corridor and Surrounding Area		Virginia Beach-Norfolk, VA-NC	
	Surplus/ Leakage	No. of Businesses	Surplus/ Leakage	No. of Businesses
Motor Vehicle & Parts Dealers	-2.8	1,132	-36.1	42
Automobile Dealers	-4.2	459	-41.9	19
Other Motor Vehicle Dealers	9.5	214	20.2	5
Auto Parts, Accessories & Tire Stores	1.6	459	13.1	17
Furniture & Home Furnishings Stores	2.3	471	-4.0	14
Furniture Stores	2.6	208	-17.9	9
Home Furnishings Stores	1.8	263	23.5	5
Electronics & Appliance Stores	13.2	369	38.9	13
Building Materials, Garden Equipment & Supply Stores	13.4	628	-17.5	23
Building Material & Supplies Dealers	13.8	491	-19.9	19
Lawn & Garden Equip & Supply Stores	7.9	137	37.1	5
Food & Beverage Stores	-2.1	1233	27.8	40
Grocery Stores	-1.4	897	27.4	32
Specialty Food Stores	-35.0	245	14.5	7
Beer, Wine & Liquor Stores	22.1	91	50.0	1
Health & Personal Care Stores	7.4	656	19.4	23
Gasoline Stations	20.8	385	19.0	17
Clothing & Clothing Accessories Stores	-1.1	1,187	42.1	27
Clothing Stores	-3.0	790	40.4	19
Shoe Stores	-4.6	168	22.9	4
Jewelry, Luggage & Leather Goods Stores	9.9	229	71.1	4
Sporting Goods, Hobby, Book & Music Stores	-1.8	569	23.2	11
Sporting Goods/Hobby/Musical Instruments Stores	0.5	467	16.7	9
Book, Periodical & Music Stores	-12.6	102	76.3	2
General Merchandise Stores	-3.7	537	-17.8	24
Department Stores Excluding Leased Depts.	-3.8	190	-8.7	9
Other General Merchandise Stores	-3.7	347	-32.8	16
Miscellaneous Store Retailers	-5.9	1,456	46.4	26
Florists	-1.3	145	100	0
Office Supplies, Stationery & Gift Stores	-23.0	400	79.0	5
Used Merchandise Stores	-12.0	274	11.2	7
Other Miscellaneous Store Retailers	5.1	637	42.1	13

	Warwick Boulevard Corridor and Surrounding Area		Virginia Beach-Norfolk, VA-NC	
	Surplus/ Leakage	No. of Businesses	Surplus/ Leakage	No. of Businesses
Nonstore Retailers	9.5	159	85.2	
Electronic Shopping & Mail-Order Houses	20.6	56	100	0
Vending Machine Operators	-25.2	16	100	0
Direct Selling Establishments	-2.8	87	61.3	3
Food Services & Drinking Places	-9.2	4,209	5.2	142
Special Food Services	-7.1	112	46.1	2
Drinking Places - Alcoholic Beverages	-18.5	111	25.8	2
Restaurants/Other Eating Places	-9.0	3,986	4.6	137

Source: ESRI and Infogroup, Retail Market Place, 2017

There are two warehouse clubs (Sam's Club and Costco) and two superstores (Target and Walmart) just beyond the Warwick Boulevard Corridor, to the south and one immediately to the north at the Marquis Center. With an estimated population of 80,779, the potential exists to support an additional superstore within the Warwick Boulevard Corridor area. Additionally, discount variety stores are growing across the nation and could be supported within the study area; however, additional market feasibility studies will be necessary to identify viable sites.

As noted in the 2014 article "*The changing face of retail trade*" by Michael Rieley (U.S. Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections), the increasing popularity of online shopping is reshaping the retail trade industry. Nationwide, e-commerce sales (electronic shopping and mail-order houses, NAICS 4541) were 7.2% of total sales in 2015, up from a revised 6.4% in 2014 (U.S. Census of the Economy, 2015 Annual Retail Trade Survey). However, e-commerce sales accounted for 10.8% of the estimated monthly sales for the first 6 months of 2017 (U.S. Census of the Economy, Economic and Statistical Administration, July 14, 2017). To survive, retailers, and in particular, "big box" general merchandize retailers (i.e., warehouse clubs and supercenters), must adjust their business practices to accommodate the increasing online shopping growth.

5.4 Findings and Comments

Fort Eustis has a significant, positive economic impact on the region. The estimated total annual economic impact from Fort Eustis on the local community was $1 billion in 2016. The installation's payroll accounts for more than $687.9 million per year. Much of this payroll is spent in the local region for housing, food, and other consumer products. In addition, Fort Eustis purchases materials, equipment, and supplies from local and regional firms. These purchases amount to more than $344 million per year. The estimated annual dollar value of jobs created in 2016 was $235 million.

Above-average concentrations of employment were found in several of the occupations within the architecture and engineering group, but more analysis is needed to determine the specific cause. The Virginia Employment Commission projects that between 2014 and 2024, 13,263 additional jobs will be added to the city of Newport News in the health care and social assistance; professional, scientific, and technical services; educational services; retail trade; construction; and administrative and support services sectors.

With an estimated population of 80,779, the potential exists to support an additional superstore within the Warwick Boulevard Corridor area. However, additional market feasibility studies will be necessary to identify viable sites.

As with other U.S. communities, Newport News has begun actively thinking about how to reinvigorate blighted corridors, and in particular, Warwick Boulevard in the Denbigh area. This corridor presents many important redevelopment opportunities, in light of its proximity to Fort Eustis.

The previously completed Warwick Boulevard Corridor Study acknowledged that much of the land along Warwick Boulevard is zoned for commercial use, however, the supply of commercial property exceeds demand.

One of the recommendations of the corridor study is to encourage the redevelopment of aging, vacant, and underutilized commercial shopping centers into mixed-use centers with employment centers with office, retail, residential, and community. Vacant and underutilized shopping centers on Warwick Boulevard, such as Sherwood Shopping Center could be redeveloped to house a large employment center or major public/semi-public service entity, stimulating the redevelopment of the Warwick corridor. Potential uses for the Sherwood Shopping Center area, which warrant further study include:

- a new or satellite college, university and/or technical training center
- new technology or data center
- public library and/or public service center
- medical outpatient center, with related offices and services

Additionally, the Fort Eustis Gateway/Warwick Corridor Business Improvement Grant Program was created to provide incentives for property owners within the upper Warwick Boulevard business corridor. The program offers grants to restore the character, appearance, and vitality of retail and commercial structures and properties. This is a funding source that could be utilized to assist in short-term for visual improvements.

In the long-term, additional redevelopment strategies, including public/private partnerships similar to Oyster Point could be utilized to develop and complement employment center uses.

Compatibility Tools

6 Compatibility Tools

There are numerous programs and plans available to assist in the compatibility efforts between military installations and the local communities that surround them. These tools are available at the federal, state, regional, and local government levels. The following sections provide an overview of the tools that are available and should be considered a general summary and are not exhaustive.

These tools may be applied during the implementation process to aid in sustaining the military's mission, preserve lands, and / or encourage compatible land uses. The programs and plans can be used by the acquisition committee, as described in Section 9, in varying ways depending on the particular need of Fort Eustis. For example, the Army Compatible Use Buffer (ACUB) or Readiness and Environmental Protection Initiative (REPI) programs, apply to adjacent lands surrounding the installation. Lands near the installation would be acquired or preserved resulting in protection from future development, thereby, reducing the potential for compatibility concerns in the future. Other programs such as the Range Compatible Use Zone (RCUZ) or Installation Operational Noise Management Plan (IONMP) are studies that would be conducted by the Army to determine impacts outside of the installation from training that takes place on the installation.

6.1 Federal Programs and Plans

6.1.1 Army Compatible Use Buffer (ACUB) Program

The ACUB Program supports the Army's mission to fight and win the nation's wars. Winning wars requires a trained and ready force. Trained and ready soldiers require land for maneuver exercises, live fire training, equipment and soldier skill testing, and other operations. Training restrictions, costly workarounds, and compromised training realism can result from incompatible development surrounding the installation (external encroachment) and from threatened and endangered species on the installation (internal encroachment). Title 10, Section 2684a of the U.S. Code authorizes the DoD to form agreements with non-federal governments or private organizations to limit encroachments and other constraints on military training, testing, and operations by establishing buffers around installations. The Army implements this authority through the ACUB program, which is managed at Army Headquarters level.

The ACUB program allows installations to work with partners to encumber off-post land to protect habitat and buffer training without acquiring any new land for Army ownership. Through ACUB, the Army reaches out to partners to identify mutual objectives of land conservation and to prevent development of critical open areas. The Army can contribute funds to the partner's purchase of easements or properties from willing landowners. These partnerships preserve high-value habitat and limit incompatible development in the vicinity of military installations. Establishing buffer areas around Army installations limits the effects of encroachment and maximizes land inside the installation that can be used to support the installation's mission.

6.1.2 Department of Defense Sustainable Range Initiative

UNITED STATES DEPARTMENT OF DEFENSE
SUSTAINABLE RANGES INITIATIVE ★ ★ ★

The DoD Sustainable Ranges Initiative ensures the long-term viability and continuity of military training and testing ranges while providing good stewardship for the land. Through a framework of continuing, cooperative, and coordinated efforts within government, and partnerships with groups beyond installation boundaries, the Sustainable Range initiative is safeguarding America and sustaining our lands and resources for years to come.

6.1.3 Forest Legacy Program (FLP)

The FLP was authorized by the *Food, Agriculture, Conservation, and Trade Act of 1990* to identify and protect environmentally important, private forestlands threatened with conversion to non-forest uses. The FLP is a USDA Forest Service Program, in partnership with the state, that will help support local efforts to protect environmentally sensitive, privately owned forest lands threatened by conversion to non-forest use through land acquisition and conservation easements.

6.1.4 Installation Operational Noise Management Plan (IONMP)

U.S. ARMY FORT RILEY
INSTALLATION OPERATIONAL
NOISE MANAGEMENT PLAN

The IONMP provides a review of the current and future noise environment. The IONMP provides a methodology for analyzing exposure to noise associated with military operations and provides guidelines for achieving compatibility between the Army and the surrounding communities. The Army has an obligation to U.S. citizens to recommend uses of land around its installations that will protect citizens from noise and other hazards and protect the public's investment in the installation. The IONMP assessment for Fort Eustis was last conducted in May 2007 by the Directorate of Environmental Health Engineering.

6.1.5 Range Compatible Use Zone (RCUZ) Program

The RCUZ Program helps protect the public's health, safety, and welfare by minimizing both local community and on-installation exposure to noise and potential safety hazards resulting from military training activities, while protecting the operational capacity of the range training complex. The RCUZ Program seeks to achieve compatibility between military training range installations and neighboring communities by working in partnership with local governments. It seeks to achieve, to the extent practical, compatible development of lands adjacent to the range complex by providing compatible land use recommendations to local communities for their consideration in local planning.

Although the range at Fort Eustis, is not immediately adjacent to neighborhoods, and the noise contours remain within the installation or the neighboring waterways, the noise carries into the surrounding community.

The RCUZ Program would use noise and safety analyses to focus on human health and safety and / or the cause of community annoyance due to noise levels associated with training at the installation.

6.1.6 Readiness and Environmental Protection Initiative (REPI) Program

The pattern of development has changed over the years and where installations were once isolated, urban and suburban development is now abutting military facilities. The DoD created the REPI Program in 2003 in response to this type of incompatible development and loss of habitat around its installations. The program offers a way to not only conserve land, but to also prevent any restrictions imposed by local jurisdictions that might diminish the goals of the military mission or lead to inadequate training and testing. The program utilizes buffer projects, landscape partnerships, and stakeholder engagement to provide problem solving and decision-support tools for the community. According to the March 2016 REPI Buffer Fact Sheet, over 437,000 acres of buffer land at 88 locations in 30 states across the country have been protected.

6.1.7 Sentinel Landscapes

The U.S. Departments of Agriculture (USDA), DoD, and the Interior (DOI) established the Sentinel Landscapes partnership through a Memorandum of Understanding in 2013. The partnership is a nationwide federal, local, and private collaboration dedicated to promoting natural resource sustainability and the preservation of agricultural and conservation land uses in areas surrounding military installations. Agencies from the three Departments coordinate the partnership at the national level through the Sentinel Landscapes Federal Coordination Committee.

Sentinel Landscapes are working or natural lands important to the Nation's defense mission – places where preserving the working and rural character of key landscapes strengthens the economies of farms, ranches, and forests; conserves habitat and natural resources; and protects vital test and training missions conducted on those military installations that anchor such landscapes.

The Sentinel Landscapes partnership seeks to recognize and incentivize landowners to continue maintaining these landscapes in ways that contribute to the nation's defense. Where shared interests can be identified within a landscape, the partnership coordinates mutually beneficial programs and strategies to preserve, enhance, or protect habitat and working lands near military installations in order to reduce, prevent, or eliminate restrictions due to incompatible development that inhibit military testing and training.

6.2 State Programs and Plans

The State of Virginia is a "Dillon Rule" state. This means the municipal governments only have the powers that are expressly granted to them by the state legislature, those that are necessarily implied from that grant of power, and those that are essential and indispensable to the municipality's existence and functioning.

6.2.1 Virginia Military Advisory Council (Virginia Codes Section 2.2-2666.1)

The Virginia Military Advisory Council (VMAC), formed by Section 2.2-2666.1 of the Code of Virginia, was created to maintain a cooperative and constructive relationship between the Commonwealth and the

leadership of the Armed Forces of the U.S. and the military commanders of such Armed Forces stationed in the Commonwealth, and to encourage regular communication on continued military facility viability, the exploration of privatization opportunities, and issues affecting preparedness, public safety and security. It is comprised of 11 members, specifically identified in the Code.

6.2.2 Counties, Cities, and Towns (Virginia Code Title 15.2)

The Code of Virginia specifically addresses planning and zoning for cities and counties. Virginia Code Title 15.2 – Counties, Cities and Towns contains numerous sections including provisions for comprehensive plans, zoning ordinances, subdivision ordinances, airport regulations, and the Virginia Uniform Statewide Building Code (USBC).

6.2.2.1 Joint Power (Virginia Code Section 15.2-1300)

Section 15.2-1300.A of the Code of Virginia grants powers to any political subdivision to exercise jointly any power with another political subdivision that has a similar power. This is intended to foster cooperation between counties, cities, and towns facing common issues. This power could be used by any of the municipalities or counties to impose a zoning overlay relating to Fort Eustis, which would assist in addressing the land use and other compatibility issues.

6.2.2.2 Airport Legislation (Virginia Code Section 15.2-2204, 2294, and 2295)

Virginia has several existing laws pertaining to airports, including military installations, and land use. The first is Virginia Code Section 15.2-2204 D, which states that any proposed comprehensive plan amendment, change in zoning, or application for a special permit on a parcel of land within 3,000 feet of the boundary of a military base, military installation, military airport, or licensed public-use airport must provide written notice to the military or airport at least 10 days before the public hearing. The military or airport is then allowed the opportunity to submit comments or recommendations.

The second is Virginia Code Section 15.2-2294, which states that every jurisdiction shall regulate building height and natural growth, based on Federal Aviation Act Part 77, for the purpose of protecting the safety of air navigation and the public investment in air navigation facilities.

The third is Code Section 15.2-2295 which permits localities to require sound attenuation for buildings within noise overlay zones. The jurisdiction must be adjacent to the installation and can only require certain uses to have sound attenuation, including residential, retail, assembly, institutional, and office uses. It requires that sound attenuation occur during the building process and identifies that future tenants / landowners be notified when real property lies within the noise overlay zone.

6.2.2.3 Planning, Subdivision of Land and Zoning (Virginia Code Section 15.2-22)

All localities are required to develop a comprehensive plan for the development of their communities. The plan must be reviewed by the locality at least once every five years. Comprehensive plans have been mandatory in Virginia since 1980. Development and administration of the plan is delegated to the planning commission, which the locality must create "in order to promote the orderly development of the locality and its environs." Localities may participate in a joint local commission under section 15.2-2219 of the Virginia Code. Comprehensive plans are perhaps the single most important land use control device available to local governments to guide ultimate decision-making in land use matters.

Zoning is intended to "strike a balance between private property rights and public interests." To this ultimate general end, all Virginia zoning and planning powers derive from the enabling legislation in Chapter 22 of Title 15.2 of the Virginia Code. The General Assembly has statutorily identified several purposes for zoning and other land use ordinances that encourage localities "to improve public health, safety, convenience, and welfare of [their] citizens and to plan for the future development of communities to the end that transportation systems be carefully planned; that new community centers be developed with adequate highway, utility, health, educational, and recreational facilities; that the need for mineral resources and the needs of agriculture, industry, and business be recognized in future growth; that residential areas be provided with healthy surroundings for family life; that agricultural and forestal land be preserved; and that the growth of the community be consonant with the efficient and economical use of public funds."

6.2.3 Real Estate Disclosure (Virginia Codes Section 55-519.1 and 55-248.12)

Real estate disclosures are used in Virginia to notify potential property owners of conditions affecting the property that should be made available prior to purchase. Section 55-519.1 of the Virginia Code requires sellers to notify potential buyers if the real property for sale lies within 65 dBA or higher noise contours or an accident potential zone. Renters are also protected under Virginia State law (Section 55-248.12) which requires landlords to disclose that the rental property lies within a noise contour 65 dBA or higher or an accident potential zone.

6.2.4 Virginia Uniform Statewide Building Code (USBC)

The Virginia USBC is a state regulation promulgated by the Virginia Department of Housing and Community Development. It is divided into three stand-alone pieces. The first one, known as the Virginia Construction Code, contains regulations specific to the construction of new buildings and structures, as well as alterations, additions, and change of occupancy in existing buildings and structures. The second piece, the Virginia Rehabilitation Code, contains optional regulations specific to the rehabilitation of existing buildings that may be used as an acceptable alternative to the Construction Code. The third piece, the Virginia Maintenance Code, contains the regulations for the maintenance of existing structures, which are enforced at the discretion of the local governments.

6.2.5 Chesapeake Bay Preservation Act (Bay Act)

The Chesapeake Bay Preservation Act (Bay Act) was enacted by the Virginia General Assembly in 1988 as a critical element of Virginia's non-point source management program (§62.1-44.15:67 *et seq.*). The Bay Act program is designed to improve water quality in the Chesapeake Bay and other waters of the State by requiring the use of effective land management and land use planning. At the heart of the Bay Act is the concept that land can be used and developed to minimize negative impacts on water quality. The Act specifies that the protection of the Chesapeake Bay and its tributaries is to be accomplished through a cooperative state-local program and that local governments are uniquely qualified to advance this goal through their zoning and land use authorities. In accordance with this premise, the Bay Act requires cities, counties, and towns in Tidewater, Virginia to administer the Bay Act and the Chesapeake Bay Preservation Area Designation and Management Regulations through their local ordinances, policies, and comprehensive plans.

6.3 Regional Programs, Organizations, and Plans

6.3.1 Chesapeake Bay Program

The Chesapeake Bay Program is a regional partnership that leads and directs Chesapeake Bay restoration and protection. Bay Program partners include federal and state agencies, local governments, non-profit organizations, and academic institutions. It is a unique regional partnership that brings together leaders and experts from a vast range of agencies and organizations. Each Bay Program partner uses its own resources to implement Bay restoration and protection activities. Partners work together through the Bay Program's goal teams, workgroups, and committees to collaborate, share information, and set goals.

6.3.2 Hampton Roads Military and Federal Facilities Alliance

The Hampton Roads Military and Federal Facilities Alliance coordinates with locally elected officials; senior federal government leaders for all area facilities, commands, and organizations; the Virginia Congressional delegation; the General Assembly; the Commonwealth of Virginia; and industry to ensure awareness of anticipated Federal actions with near-, mid- and long-term impact on the Hampton Roads region. The Alliance is governed by a Board of Directors comprised of 13 Public Sector Directors and 12 Private Sector Directors. Public Sector Directors are elected representatives of the Cities of Chesapeake, Franklin, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg; and the Counties of Isle of Wight, James City, and York.

6.3.3 Hampton Roads Planning District Commission (HRPDC)

The HRPDC is comprised of a collection of 17 cities and counties located near Chesapeake Bay. The HRPDC is a regional organization representing this area's 17 local governments, including the cities of Chesapeake, Franklin, Hampton,

Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, Williamsburg, the Town of Smithfield, and the counties of Gloucester, Isle of Wight, James City, Southampton, Surry, and York. Planning District Commissions are voluntary associations and were created in 1969 pursuant to the Virginia Area Development Act and a regionally executed Charter Agreement. The HRPDC was formed in 1990 by the merger of the Southeastern Virginia Planning District Commission and the Peninsula Planning District Commission. The HRPDC is solely an advisory body and serves three main functions:

- Serve as a forum for local and elected officials and chief administrators to deliberate and decide issues of regional importance;
- Provide the local governments and citizens of Hampton Roads with credible and timely planning, research, and analysis on matters of mutual concern; and
- Offer leadership, strategies, and support services to other public and private, local, and regional agencies in their efforts to improve the region's quality of life.

6.3.4 Hampton Roads Transportation Planning Organization (HRTPO)

The Hampton Roads Transportation Planning Organization (HRTPO) is the body created by the Hampton Roads localities and appropriate state and federal agencies to perform the duties of an MPO under the federal regulations.

Voting representation on the HRTPO Board includes elected officials from the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg, and the Counties of Gloucester, Isle of Wight, James City, and York; plus representatives from the Transportation District Commission of Hampton Roads (TDCHR), Williamsburg Area Transit Authority (WATA), and the Virginia Department of Transportation (VDOT). Non-voting board members include representatives from the Virginia Department of Rail and Public Transportation (DRPT), the Virginia Port Authority (VPA), the Virginia Department of Aviation (VDOA), the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Federal Aviation Administration (FAA). The HRTPO Board continually assesses its membership to account for emerging trends or shifts in the area of regional transportation and may add other stakeholders as deemed appropriate.

The HRPDC provides staffing for the HRTPO to assist them in carrying out their responsibilities and to coordinate efforts with the Transportation District Commission of Hampton Roads, Williamsburg Area Transit Authority (WATA), and VDOT. The HRTPO's Transportation Technical Advisory Committee (TTAC) provides review and recommendations on all regional transportation planning efforts.

6.4 Local Programs and Plans

Individual municipalities maintain comprehensive plans and zoning regulations allowing them to formulate the regulations that work best for them. The following provides a brief overview of the regulatory document and the implication it has for development around the military installations.

6.4.1 Newport News One City, One Future Comprehensive Plan 2040

The comprehensive plan provides information about the City's vision, demographics, housing, community facilities, and land use. The purpose of the comprehensive plan is to provide the framework to guide and direct the future growth and development of Newport News. The City's comprehensive plan was initially adopted in 1964.

The City is in the final stages of conducting their latest update to the comprehensive plan. The updated comprehensive plan has a new planning horizon of 2040 and contains the following six chapters:

- Chapter 1 - Introduction
- Chapter 2 - Existing Conditions
- Chapter 3 - Planning Legacy
- Chapter 4 - The Dream
- Chapter 5 - Future Land Use and Transportation Plan
- Chapter 6 - Plan Implementation, Monitoring, and Amendments

Figure 29 The City is in the final stages of conducting their latest update to the comprehensive plan: One City, One Future Comprehensive Plan 2040.

The comprehensive plan contains the City's official policies on land use, urban design, transportation, housing, public facilities and services, environment, and economic development.

Application to the Fort Eustis Joint Land Use Study

Fort Eustis is located within the incorporated limits of the City of Newport News with the exception of a 24 acre tract situated on the north bank of Skiffe's Creek in James City County. The comprehensive plan contains a total of nine land use categories consisting of the following: residential, mixed-use, commercial, office and research and development, industrial, civic and open space, utilities, transportation, and government. The Fort Eustis installation is designated as Government/Military on the Land Use and Transportation Map. The majority of the area surrounding or within proximity to the installation consists of developed residential subdivisions with a residential land use designation. The area located adjacent to the north boundary of the installation is comprised of Industrial land use and contains a developed industrial park (Oakland Industrial Park) along with a few privately owned undeveloped parcels.

Chapter 2, Existing Conditions, of the comprehensive plan identifies and discusses in Section 2.1, A Prosperous and Resilient City, the significant economic impact on the economy and the positive effect on the workforce of the City derived from Fort Eustis. Additionally, Chapter 2, Section 2.2, A Sustainable City, discusses recurrent flooding and sea level rise within the City and specifically around Fort Eustis. This section goes on to discuss

the need to conduct future modeling and reporting to understand how critical infrastructure along the waterfront may be impacted and determine whether revisions to existing policies are needed.

Chapter 5, Future Land Use and Transportation Plan contains multiple priorities and strategies that would assist in addressing several areas identified in the JLUS as areas of concern. The priorities and strategies that were identified during the analysis consist of the following:

- *A SUSTAINABLE CITY*
  - Priority – d: Require future development and redevelopment along the shoreline to assess the potential for coastal erosion, and if required, determine which stabilization method (shoreline armoring) will be implemented.
    - Strategy - Enforce best practices in site design to reduce runoff and erosion, prevent flooding, and improve the quality of waterways.
  - Priority – h: Prepare a working waterfront policy.
    - Strategy - Commit funds to assess working waterfronts and draft a policy for implementation.
- *A PROSPEROUS AND RESILIENT CITY*
  - Priority – e: As seal level rise modeling and analyses are completed for the Hampton Roads, City of Newport News will identify opportunities to improve long term resilience.
    - Strategy – Preform studies and analyses to identify best practices, priority areas for long term protection and long term investment.
- *AN ACCESSIBLE CITY*
  - Priority – a: Identify alternate sources of funding and reprioritize investments for transportation projects.
    - Strategy – Prepare a multimodal transportation plan to capture the latest information on travel and growth trends within the city, infrastructure conditions, projected deficiencies, strategies and prioritized actions, estimated costs, and available funding sources, including recommendations from the Fort Eustis Joint Land Use Study.
- *A CITY THAT RESPECTS ITS UNIQUENESS*
  - Priority – b: Perform a comprehensive historic resources investigation.
    - Strategy – Compile a comprehensive inventory of cultural, historic and archaeological resources for improved management and preservation. Prioritize resources for preservation.

6.4.2 Newport News Zoning Ordinance

The zoning ordinance promotes the health, safety, and general welfare of the public by establishing the regulations for development and use of land throughout the city. The zoning ordinance contains a zoning map and implementing regulations that depict the different use districts and defines the rules and standards that

apply to each district. In general, zoning designations align with the land use designations on the Future Land Use and Transportation Map.

Application to the Fort Eustis Joint Land Use Study

The Fort Eustis installation has a residential R-1 Single Family Dwelling Unit zoning designation on the City of Newport News zoning map. The intent of the R-1 Single Family Dwelling Unit zoning district is to establish regulations for those areas in which single-family detached homes have been erected on lots in excess of previously applicable minimum lot requirements. However, it should be noted that the land is under federal jurisdiction and is not required to adhere to local zoning regulations.

The area directly to the north of the installation is designated industrial and consist of M-2 Heavy Industrial District. The remaining areas, adjacent to or within close proximity (separated by the Warwick River) of Fort Eustis, have primarily low density and intensity residential zoning designations consisting of the following: R-1 Single-Family Dwelling District, R-2 Single-Family Dwelling District, R-3 Single-Family Dwelling District, and R-5 Low Density Multiple-Family Dwelling District. None of the aforementioned zoning districts provide any measures to specifically address redevelopment or future development adjacent to or within close proximity to Fort Eustis. The zoning ordinance could be amended to create a Military Influence Area Overlay District that applies directly to Fort Eustis and portions of the surrounding areas. The intent of the overlay district would be to protect the mission footprint of the installation and to reduce potential encroachment issues related to existing development, new development, or potential redevelopment surrounding the installation.

6.4.3 Toward 2035 Leading the Way: James City County Comprehensive Plan

The purpose of the James City County comprehensive plan is to guide growth and development over a 20-year period by providing the long-range vision, goals and strategies of the community. James City County adopted its first comprehensive plan in 1975, which established the foundation for managing growth in the County. James City County's current plan, *Toward 2035: Leading the Way*, was adopted in 2015, with a planning horizon of 2035 and contains a total of 11 separate elements as listed below:

- Demographics
- Population Needs
- Housing
- Economic Development
- Environment
- Community Character
- Parks and Recreation
- Public Facilities
- Transportation
- Land Use
- Land Use Map Descriptions and Development Standards

The James City County comprehensive plan serves as a guide to landowners, developers, businesses, citizens, and County officials about future land use decisions.

Figure 30 James City County's current plan, Toward 2035: Leading the Way, was adopted in 2015, with a planning horizon of 2035

Application to the Fort Eustis Joint Land Use Study

A 24 acre portion of Fort Eustis is located within James City County across from the main installation on the north bank of Skiffe's Creek near the mouth of the James River. The 24 acre tract of land is designated as Federal, State, and County on the 2035 Land Use Map. The area directly adjacent to the 24 acre tract and to the north of the main installation is privately owned and is designated General Industry on the 2035 Land Use Map.

Several of the elements within the comprehensive plan contain goals with associated strategies and actions that would assist in addressing areas of concern as identified in the JLUS. The priorities and strategies that were identified during the analysis consist of the following:

- ENVIRONMENT ELEMENT
  - Goal - Continue to maintain and improve the high level of environmental quality in James City County and protect and conserve sensitive lands and waterways for future generations.
  - Strategies and Actions
    - ENV 1.3 – Through the Chesapeake Bay Preservation Ordinance, enforce Resource Protection Areas (RPAs) protecting all tidal wetlands, tidal shores, nontidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow, perennial streams and a 100-foot-wide buffer adjacent to and landward of other RPA components.
    - ENV 1.5.10 – Promote the preservation of open space in areas adjacent to marsh lands to allow for inland retreat of vegetation and additional water containment areas as sea level rises.
- TRANSPORTATION ELEMENT
  - Goal – Provide citizens, businesses and visitors of James City County with an efficient, safe and attractive multimodal transportation system that reinforces or is consistent with the goals and land use patterns of the comprehensive plan.

- Strategies and Actions
  - T 3.2 – Actively pursue additional local, State, Federal, and private funding to accelerate the construction for all needed modes of transportation facilities.
  - T 1.3 – Identify road segments with future moderate to severe road capacity deficiencies and develop a plan to mitigate congestion that may include one or more of the following actions:
    - T 1.3.1 – Adding the road segment to the Six Year Improvement Program and considering public-private partnerships among other mechanisms to fund proposed improvements.
    - T 1.3.2 – Precluding high traffic generating uses in or near the affected road segment, as allowed by the Code of Virginia.
    - T 1.3.3 – Developing a distributed grid of routes to provide better traffic distribution in developed areas.
    - T 1.3.4 – Maximizing current road capacity by adding turn lanes or travel lanes, where appropriate, in a context sensitive manner.
    - T 1.3.5 – Designing and implementing transit, pedestrian and/or cycling alternatives along the corridor, including multi-use paths and paved shoulders.

- LAND USE ELEMENT
  - Goal – Achieve a pattern of land use and development that reinforces and improves the quality of life for citizens and assists in achieving the goals of the comprehensive plan in Population Needs, Economic Development, Environment, Housing, Public Facilities, Transportation, Parks and Recreation and Community Character.
  - Strategies and Actions
    - LU 4.7.3 – Through the development process, reinforcing clear and logical boundaries for commercial and industrial property within the PSA by:
      a. Providing sufficient buffering and open space from nearby residential uses.

6.4.4 James City County Zoning Ordinance

The intent of the James City County zoning ordinance is to implement the comprehensive plan through a series of regulations. The zoning ordinance divides the County into districts, known as zoning districts, and regulates the location, type, use, density, and intensity of development. The purpose of the zoning ordinance is to lessen congestion in the streets; to secure safety from fire, panic, and other dangers; to promote health and general welfare; to provide adequate light and air; to protect historic area; to prevent the overcrowding of land; to avoid undue concentration of population; and to facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements.

Application to the Fort Eustis Joint Land Use Study

The portion of Fort Eustis located within James City County consist of a 24 acre tract of land and is designated as Public Land (PL) on the zoning map. The area directly adjacent to the 24 acre tract and to the north of the main installation is privately owned and is designated General Industrial (M-2) on the zoning map. The intent of the General Industrial M-2 zoning district is to establish an area where the principal use of land is for industrial operations which are not compatible with residential or commercial service establishments. The James City County zoning ordinance does not provide any measures to specifically address redevelopment or future development adjacent to or within close proximity to Fort Eustis. The zoning ordinance could be amended to create a Military Influence Area Overlay District that applies directly to the installation owned lands and the surrounding areas. The intent of the overlay district would be to protect the mission footprint of the installation and to reduce potential encroachment issues related to existing development, new development, or potential redevelopment surrounding the installation.

6.4.5 Charting the Course to 2035 - The County of York Comprehensive Plan

York County adopted the original comprehensive plan in 1991. The 1991 Plan had a planning horizon of 2010. The County adopted a complete update to the comprehensive plan in 2013 with a new planning horizon of 2035. The Introduction Section of the updated York County comprehensive plan describes the Plan as *"necessary to ensure the efficient use of land in recognition of environmental constraints and the capacity of the public infrastructure. It seeks to provide for an appropriate mix of residential, commercial, and industrial development; to guide such development to appropriate areas of the County based on the carrying capacity of the land, the existing development character, and the presence of infrastructure and public facilities; to preserve the County's natural and historic resources and aesthetic quality; and to prevent the overburdening of the County's roads, utilities, facilities, and services."*

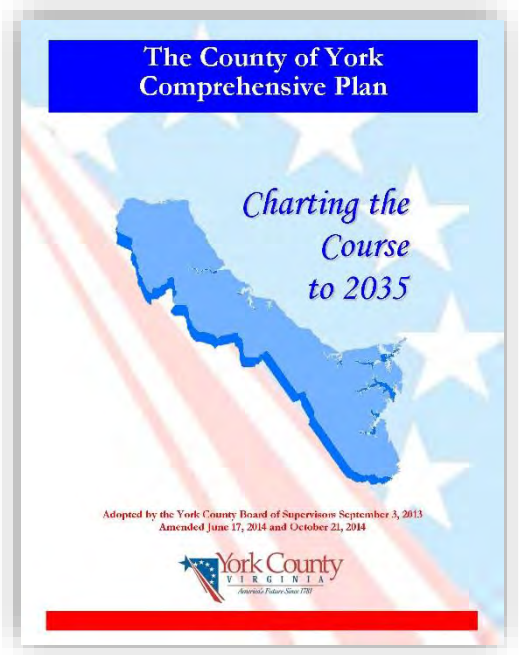


Figure 31 York County adopted a complete update to the Comprehensive Plan in 2013 with a new planning horizon of 2035.

The comprehensive plan contains seven elements along with an introduction, glossary, demographics, and citizen input derived during the update process. The seven elements of the York County comprehensive plan consist of the following:

- Community Facilities
- Economic Development

- Environment
- Historic Resources
- Housing
- Transportation
- Land Use

Application to the Fort Eustis Joint Land Use Study

Fort Eustis is not located within any portion of York County. However, York County is directly affected by Fort Eustis as a "bedroom community" to the installation and portions of the County are included within the JLUS study area. The Demographic Profile Section of the Plan identifies that *"more than a fifth of the Peninsula's military personnel (22.1%) live in York County, where armed forces personnel represent a larger share of the labor force than in any other Peninsula locality."* Based on discussions with the Technical Working Group and the Policy Committee, the portion of York County that is most influenced by the Fort Eustis military personnel and their families is the area around the George Washington Memorial Highway (Route 17) and the Fort Eustis Boulevard intersection (Route 105). This area of York County provides a significant amount of the housing, schools, commercial, and retail needs for the military families living Off-Post. The Plan designates a portion of this area as a Mixed Use Overlay. The Overlay applies to all four quadrants of this intersection.

The extreme northern extend of the JLUS study area is a peninsula shaped area that is bounded by Penniman Road (Route 199), I-64, and the Naval Weapons Station. The comprehensive plan designates this area as Economic Opportunity. The Plan states *"this designation recognizes the presence of a full I-64 interchange and the potential for extension of public utilities to serve a mix of office, commercial, tourist-related, and light industrial uses."*

Several elements within the comprehensive plan contain goals and objectives with associated strategies and actions that would assist in addressing areas of concern identified in the JLUS. The priorities and strategies that were identified during the analysis consist of the following:

- LAND USE ELEMENT
  - Goal - Provide for orderly and efficient land use patterns that protect, preserve, and enhance the natural and physical attributes of the County that define and contribute positively to its appearance and character.
  - Objectives:
    3. Consider development patterns and plans established in adjoining jurisdictions when making local land use decisions and designations.
    4. Promote land use compatibility between local military installations and the areas that surround them.
  - Implementation Strategies:
    11. Participate with local military bases in collaborative land use planning efforts.

- TRANSPORTATION ELEMENT
  - Goal - Provide for the safe and efficient movement of people and goods within York County and throughout the Hampton Roads region.
  - Objectives:
    1. Promote the development of a regional multi-modal transportation system.
    2. Maintain adequate levels of service on County roadways (i.e., LOS D or better).
    3. Increase funding for transportation improvements critical to the mobility of York County's citizens.
    4. Promote development and land use strategies that enhance roadway safety and preserve the carrying capacity of the roadway network.
  - Implementation Strategies:
    1. Continue to support and participate in the regional network and modeling effort of the Hampton Roads Transportation Planning Organization (HRTPO).
    2. Continue to aggressively pursue all available road funding sources through the Commonwealth Transportation Board and the HRTPO.

6.4.6 York County Zoning Ordinance

York County's first zoning ordinance was adopted in 1957, followed by several major updates, with the most recent in 1995. The zoning ordinance sets forth the rules and regulations governing development in the County. The zoning ordinance was adopted to implement the comprehensive plan and to achieve the following objectives: expand business opportunities, reduce the rate of residential growth, maintain the high quality of life in the County, and protect its natural environment. York County also has an adopted zoning map depicting zoning district designations for each piece of property in the County.

The portion of the JLUS study area near the George Washington Memorial Highway (Route 17) and the Fort Eustis Boulevard intersection (Route 105) consists of the following zoning designations: R20-Medium Density Single-Family Residential District, the RMF-Multi-Family Residential District, the GB-General Business District, the PD-Planned Development District, and the Route 17 Corridor Overlay District. The portion of the peninsula shaped area located in the extreme northern extend of the JLUS study area that is bound by Penniman Road (Route 199), I-64, and the Naval Weapons Station consist of the following zoning designations; EO-Economic Opportunity District, the PD-Planned Development District, and the RR-Rural Residential District.

Based on the geographic distance of Fort Eustis and the associated training areas, a Military Influence Area Overlay District is not recommended for York County.

7

Development Compatibility Analysis

7 Development Compatibility Analysis

The Development Compatibility Analysis is an important component of the JLUS process, as it effectively evaluates the study area's potential for new development and the relationship with the mission of Fort Eustis. The magnitude of this information and the interdependencies demonstrated between military and civilian interests reinforces the needs for safeguarding Fort Eustis as an asset to the U.S. Military and an engine for continued economic growth and development in Hampton Roads.

Current plans, policies, and ordinances for local governments; expanding utility service areas; the military mission footprint of Fort Eustis; and the urbanization of the region will keep land use compatibility and the balance between competing interests important for future years. Identifying potential conflict areas and enumerating their impacts, should inform recommendations for the JLUS and help stakeholders prioritize their implementation.

Future growth and development potential surrounding Fort Eustis was analyzed within the overall study area. As the conditions were analyzed, it was determined that the focus of the analysis should be narrowed to a two-mile focus area. The two-mile focus area was selected to ensure that the impacts from the mission at Fort Eustis were accounted for and applied to the appropriate lands. The focus area included portions of FAAF and Newport News / Williamsburg International Airport airspace, third port mission activities, aquatic training area, main gate safety buffer, and noise zones. The analysis was used to determine if, when, or where conditions might occur that create (or exacerbate) conflicts between military operations and nearby development types, locations, patterns, or intensities.

The magnitude, timing, and location of future growth in the region were measured and evaluated using CommunityViz.™ The GIS-based software provides a framework for studying the impacts of physical development or policy decisions using localized data and a series of user-defined parameters. The parameters used included the following:

- Aquatic Training Areas. The James River Training Area covers the area of the James River between Jamestown to the north and the James River Bridge to the south. This area is used by the 10th and 24th Battalions of the 7th Sustainment Brigade to provide maritime training. Uses permitting water access, including marinas, would need to be carefully considered.
- Conservation Lands and Easements. Conservation areas were considered highly compatible with the mission of Fort Eustis. Lands in conservation will not allow for development or congregations of large groups of people.
- Development Type. Consideration was given regarding residential, commercial, and industrial development. Compatibility varied depending on the type of development and the location.
- Existing Regulations. Regulations in place including density, intensity, height, and land use type (e.g., residential, commercial, industrial, conservation) were incorporated into the analysis.

- Existing Buildings. Although there is a potential for redevelopment, lands with existing buildings were not considered highly suitable for development.
- Felker Army Airfield and Newport News / Williamsburg International Airport Airspace. Newport News / Williamsburg International Airport and FAAF are located about 10 miles from one another and share overlapping airspace. Types of uses, as well as building heights, must be considered within this area.
- Main Gate Safety Buffer. The main entrance gate into Fort Eustis is located on Fort Eustis Boulevard off of Highway 60 / Warwick Boulevard and is used for both commercial and personal vehicle access. The Army typically requires a 1,000-foot stand-off buffer from the gate. Uses must be carefully regulated within the 1,000-foot stand-off buffer.
- Noise Zones. The primary source of noise at Fort Eustis comes from the firing of small arms and daily aircraft operations from FAAF. Graphically, the noise contours land entirely within the boundary of Fort Eustis or the adjacent waterways, but the noise emanating from Fort Eustis can actually be heard within the residential communities located across the Warwick River, outside of the noise contours.
- Roads. Proximity to existing roads and the potential for future roads was weighted as an important factor for future development. Access to transportation facilities often increases the desire for future development. Significant development surrounding the installation can increase the potential for incompatibilities.
- Third Port. The third port includes training missions on Skiffe's Creek and the James River. Training missions take place in both day and night conditions and include blank ammunition fire, non-lethal weapons testing of lasers, long-range acoustics devices, flares, smoke, highly experimental heat waves, and unmanned robotic vessel testing, as well as vessel maneuvering.
- Wetlands. Wetlands were considered a deterrent for future development potential and therefore had a high ranking for installation compatibility.

From the analysis, three areas of concern were identified as areas where incompatibilities may have a significant impact on the community and / or the mission of Fort Eustis. The three areas are: Third Port Zone, Main Gate Safety Zone, and Gun Range Noise Zone. They are discussed in further detail under Section 8.3 Land Use Compatibility.

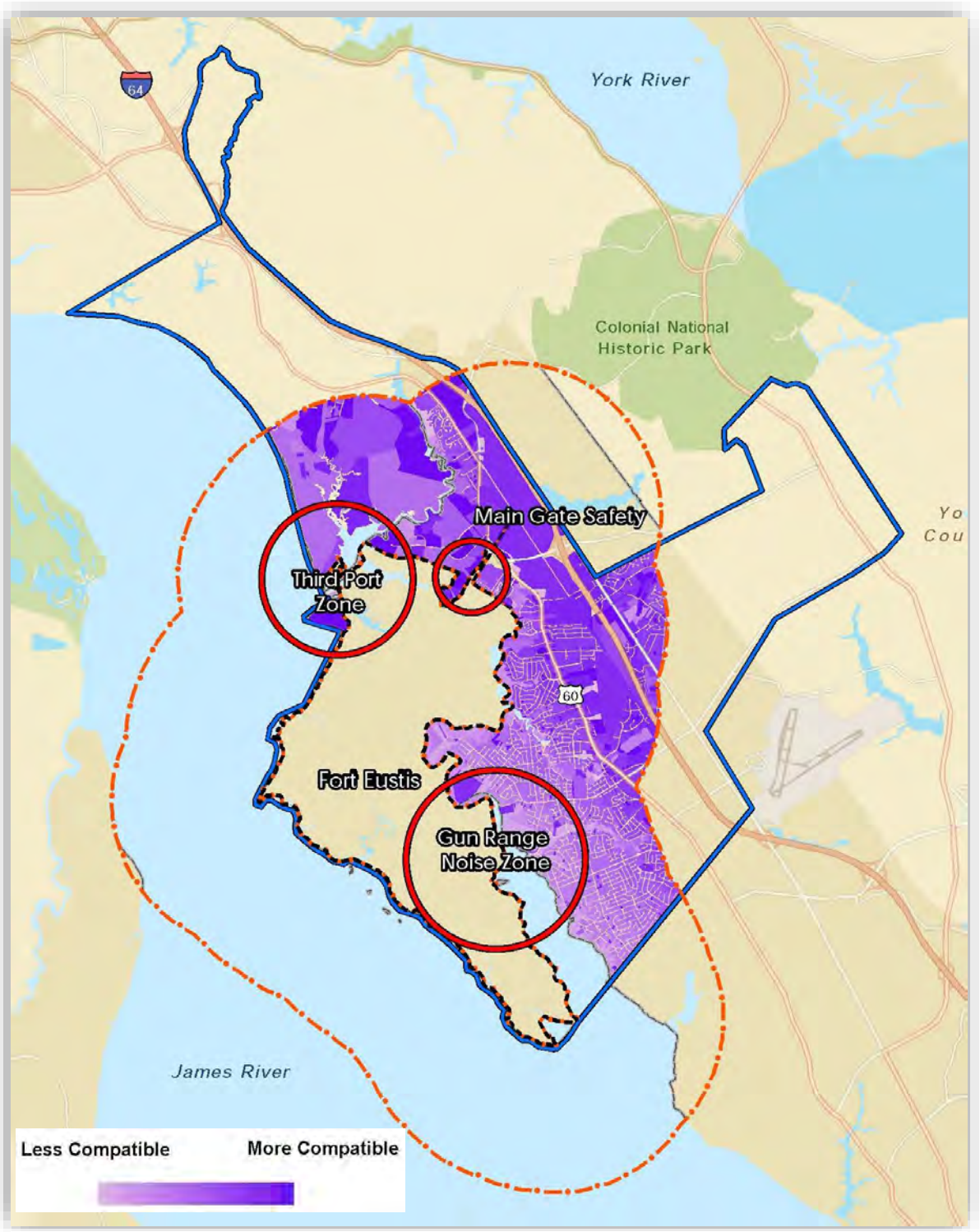


Figure 32 The Development Compatibility Analysis effectively evaluates the study area's potential for new development and the relationship with the mission of Fort Eustis. The areas in light purple are considered to be less compatible with military operations and the areas in darker purple are considered to be more compatible.

Compatibility and Encroachment Analysis

8 Compatibility and Encroachment Analysis

The intent of the JLUS is to increase compatibility and reduce encroachment – an interrelated concept with both military and civilian implications.

Encroachment "runs both ways" and it takes many forms. Encroachment, as defined by the U.S. DoD, referring to incompatible uses of land, air, water and other resources, is "the cumulative impact of urban and rural development that can hamper the military's ability to carry out its testing and training mission." For the civilian community, encroachment can affect quality of life from noise and smoke to traffic and housing. Land use controls that can help sustain mission capability, can also be seen as encroaching on the rights of property owners, affecting property values, and leading to a potential loss of income from development.

Compatibility can be described as the balance between the goals and needs of the community and the mission requirements of the military. Table 8.0 shows the 24 compatibility and encroachment factors that were identified and analyzed in order to assess Fort Eustis's impact on the local community as well as the community's impact on Fort Eustis's operations.

Table 8.0 Compatibility and Encroachment Factors

Development Factors		
	Land Use	Comprehensive growth policy plans and zoning ordinances
	Land Suitability Analysis	A comprehensive inventory and assessment of development conditions and features
	Safety Zones	Restricted areas due to higher risks to public safety
	Vertical Obstructions	Features such as buildings and trees that can lead to frequency interference and flight obstructions
	Housing Availability	Adequate supply of and access to housing
	Infrastructure Extensions and Capacity	The extension or provision of infrastructure including transportation, solid waste, water, etc.
	Antiterrorism / Force Protection	Safety of personnel, facilities, and information from outside threats
	Noise and Vibration	Unwanted levels of noise and vibrations

Development Factors		
	Dust / Smoke / Steam	Dust, smoke, or steam in sufficient quantity to disrupt flight operations or quality of life
	Light and Glare	Manmade lighting or excessive glare
	Energy Development	Alternative energy sources can cause glare, vertical obstructions, or radar interference
	Frequency Spectrum	Frequency Spectrum capacity is a limited resource that is critical for military and civilian communications
	UXO and Munitions	Potential for unexploded ordnances (UXO) and munitions
People Factors		
	Coordination / Communication	Collaboration and communication between military installations, jurisdictions, land and resource agencies, conservation authorities, and other regulatory agencies
	Public and Military Safety	Issues such as public trespassing could compromise the safety of the military and the civilians
	Legislative Initiatives	Federal, state, or local regulations that may impact the military mission or civilian interaction
	Cultural Resources	Cultural resources in the community or on the military installation may require development constraints or prevent development from occurring
Natural Resource Factors		
	Land / Air / Water Spaces	Land, air, and water spaces must be available and of sufficient size to meet the needs of both the military and the community
	Air Quality	Pollutants that may limit visibility and non-attainment of air quality standards that may restrict future operations
	Scarce Natural Resources	The location of valuable natural resources can impact land utilization
	Climate Adaptation	The effect of climate change may result in storm frequencies, extreme temperatures, drought, sea level rise and recurrent flooding
	Threatened and Endangered Species	Sensitive biological resources may require special development considerations
	Marine Environment	Regulatory or permit requirements protecting marine and ocean resources

Development Factors		
	Water Quality / Quantity	The availability of quality water with an adequate supply

Each of the compatibility factors was informed by available data and pertinent documents, reports, and studies; input from TWG and PC members and key stakeholders, including local government staff; and input received during public meetings. These factors represent the primary land use compatibility challenges used to assess impacts from the perspective of both the surrounding community and Fort Eustis. All of the factors were reviewed, however, not all of the factors were applicable. If a factor was deemed unnecessary, it was removed from the following discussion. Several of the factors were grouped together under "Areas of Interest" in order to streamline the analysis and reduce duplication.

Each Area of Interest was presented to the TWG and PC in meetings held September 27 and September 29, 2017, respectively. The TWG reviewed each Area of Interest and provided revisions to the language and ranked them based on priority. The PC was then presented with the results from the TWG and given the same opportunity to modify the results. A discussion of the Areas of Interest, their impact on the community and the military, their priority ranking, and the compatibility factors considered can be found in the following section.

8.1 Formalized Communication (FC)

Area of Interest

The community has a great working relationship with the military. A more formalized communication process will only aid in solidifying the relationship.

Applicable Compatibility Factors

	Coordination / Communication

Priority Ranking

The Formalized Communication Area of Interest received a high priority ranking, meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

HIGH

Compatibility Review

Formalized communication measures are often an area that is focused on for strengthening during the JLUS process. During the survey portion of the study, respondents made several notes about the perceived lack of communication between Fort Eustis, the local governments, and the populace. Fort Eustis has taken steps to share information, but the greater public has not yet been educated on where to find it. A standardized communication process will create a consistent method for reaching the public and for the public to reach Fort Eustis.

Figure 33 The community noted that there was a perceived lack of communication between Fort Eustis, the local governments, and the community.

8.2 JLUS Implementation (JI)

Area of Interest

Communication, outreach, and coordination are critical tools in building and maintaining relationships among elected officials, stakeholders, and citizens in order to mitigate compatibility issues beginning with the implementation of the JLUS and continuing forward.

Applicable Compatibility Factors

	Coordination / Communication

Priority Ranking

The JLUS Implementation Area of Interest received a high priority ranking, meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

HIGH

Compatibility Review

Without implementation, a JLUS is just a document on a shelf. Implementation is the key to a successful process and the only way to promote compatibility and defend against encroachment. The formation of a JLUS Implementation Committee continues the momentum that was established throughout the JLUS process. The committee will be the driving force through the implementation phase and ultimately complete the goal the JLUS set out to accomplish.

Figure 34 James City County, Newport News, York County, and Fort Eustis will work together towards implementation.

As a component of the implementation process, a GIS database is necessary to easily store relevant data. The first steps of the JLUS process began with contacting local governments within the study area and Fort Eustis to gather GIS data. The data was used to analyze the area, compare facts, and graphically display information. The municipalities within the study area have varying levels of data and in some situations, the JLUS team was able to create new data where none previously existed. Moving forward with the implementation of the JLUS, local governments in the study area would benefit from a regional database to share relevant GIS-based data that has already been gathered and / or created during the JLUS process. The establishment of a data repository, in particular for GIS data, can save time and money when moving forward with the implementation of the study.

8.3 Land Use Compatibility (LUC)

Area of Interest

Continue development as currently planned to minimize impacts to the training missions of Fort Eustis.

Applicable Compatibility Factors

	Land Use
	Land Suitability Analysis
	UXO and Munitions
	Antiterrorism / Force Protection
	Noise and Vibration

Priority Ranking

The Land Use Compatibility Area of Interest received a high priority ranking, meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

HIGH

Compatibility Review

Military installations were traditionally established in rural areas with little development outside of the gates. As cities and counties have grown, development surrounding installations has blossomed. Communities found that siting residential and non-residential uses in proximity to installations provided an economic boom for the community and fulfilled housing and commercial needs for the military personnel and their dependents. Without the proper tools in place, growth surrounding the installation can actually harm the mission of the military by encroaching on the facility, thereby leading to reduced or restricted trainings, altered missions, and / or closure.

Due to the dynamic nature of the military operations and training exercises, many different types of development can qualify as encroachment. Incompatible uses adjacent to the military installations, particularly when located within noise contours or safety zones include the following:

- Uses that concentrate people in small areas;
- Uses that attract birds;
- Sensitive land uses such as hospitals, schools, or day cares;
- Uses that emit electrical emissions;
- Uses that produce excessive lighting; and
- Uses that release smoke, dust, or steam.

As was detailed in the Development Compatibility Analysis, the analysis area focused on the two miles immediately surrounding Fort Eustis. The two-mile area included the impacts of the third port, the main gate safety buffer, a portion of the aquatic training area, the noise zones from the small arms range, and the majority of the FAAF airspace.

From the analysis, three areas of concern were identified as areas where incompatibilities may have a higher potential for impact on the community and / or the mission of Fort Eustis. The three areas include third port zone, main gate safety zone, and gun range noise zone.

Third Port Zone. The Third Port Zone takes into consideration the impacts that occur from training missions on Skiffe's Creek, the James River, and FAAF airspace. Training missions take place in both day and night conditions and include utilizing blank ammunition fire, non-lethal weapons testing of lasers, long range acoustics devices, flares, smoke, highly experimental heat waves, and unmanned robotic vessel testing as well as vessel maneuvering. The third port area is adjacent to the boundary of James City County and within a portion of Newport News. The James City County and Newport News land uses in the area are primarily light industrial. This use is considered compatible as it does not congregate seasonal or permanent populations, minimal noise complaints would be expected and training missions would be able to continue as currently planned. In addition, heights of buildings must be carefully considered and coordinated with Fort Eustis due to the airspace overlapping the area.

Main Gate Safety Zone. The main entrance gate into Fort Eustis is located on Fort Eustis Boulevard off of Highway 60 / Warwick Boulevard and is used for both commercial and personal vehicle access. The gate is located within the city limits of Newport News and is surrounded by industrial land use to the west and residential land use to the east. As currently designed, the entrance has compatibility concerns due to the main gate design and proximity of residential development. The Lee's Mill neighborhood is located directly to the east of the gate, which creates an anti-terrorism/force protection issue as their location is within the required 1,000-foot stand-off buffer. However, with changes to the design of the gate and the acquisition of additional land, the compatibility concerns for the existing neighborhood and adjacent industrial development would be minimized.

Gun Range Noise Zone. The primary source of noise at Fort Eustis comes from the firing of small arms and daily aircraft operations from FAAF. The noise contours land entirely within the boundary of Fort Eustis or the adjacent waterways, but can be heard within the residential communities outside of the noise contours. The Gun Range Noise Zone expands the noise contours to illustrate that the sounds can actually travel farther than just within the boundaries. The zone encompasses platted, existing single-family residential housing. The platted lands minimize the potential for more dense and intense development that could have issues with the noise emanating from the installations.

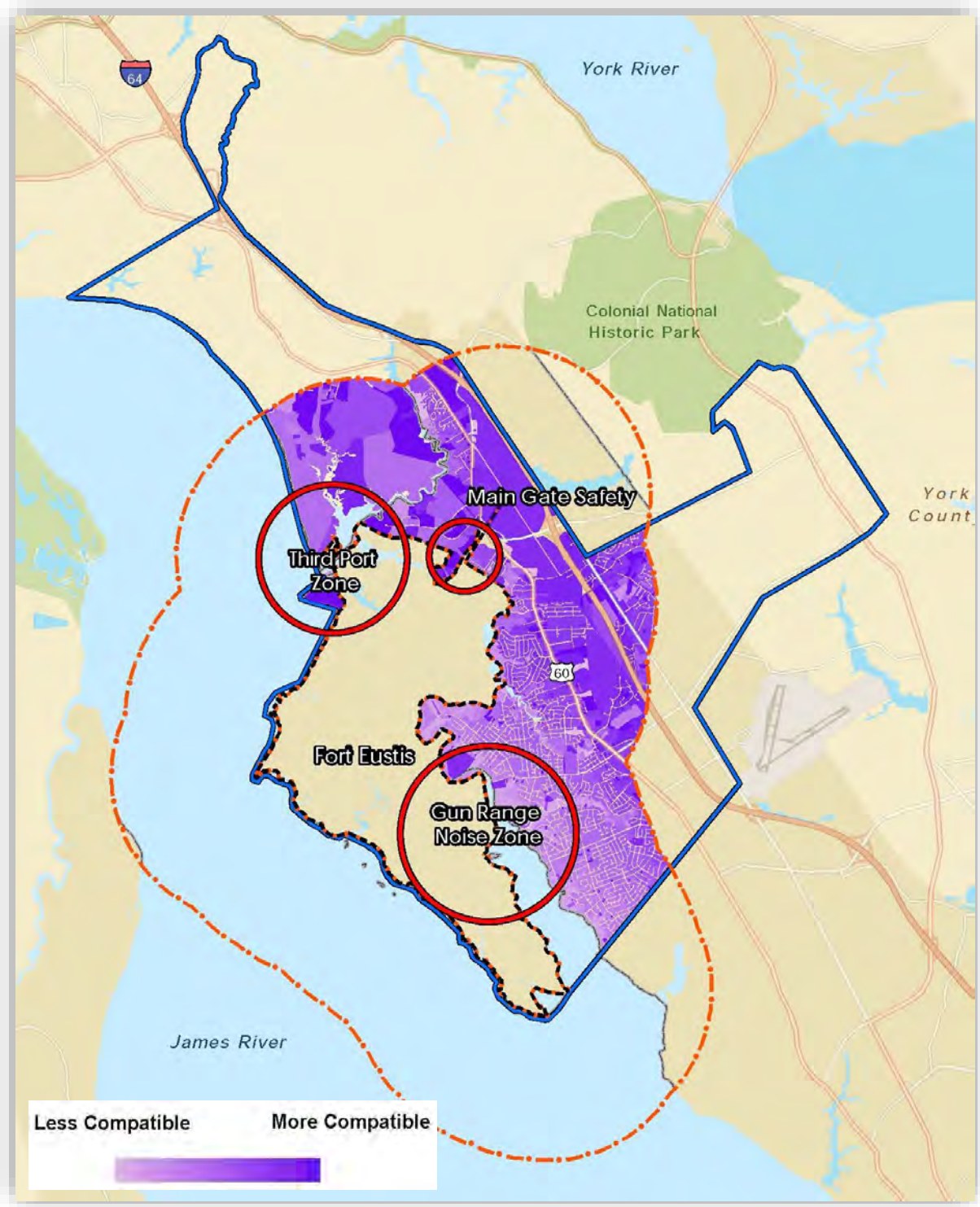


Figure 35 The development compatibility analysis identified areas of concern that include the third port zone, main gate safety zone, and gun range noise zone.

Each Area of Concern has a unique development pattern and interface with the military footprint. The majority of the areas are substantially built out and the development patterns have been able to adapt to the impacts of the military actions. There are a number of uses that would create significant incompatibilities within the identified Area of Concern should the future land use or zoning designations change. The following generally described uses that would be considered incompatible within the Areas of Concern.

Third Port Zone

- Residential uses including multi-family and single family
- Seasonal and hospitality uses such as resorts, timeshares, and hotel or motels
- Heavy industrial uses that may generate steam or smoke
- Sensitive land uses such as hospitals, schools, or day cares
- Large scale marinas

Main Gate Safety Zone

- Residential developments that would increase density within the area
- Uses that concentrate people in small areas

Gun Range Noise Zone

- Residential developments that would increase density within the area without proper noise attenuation techniques

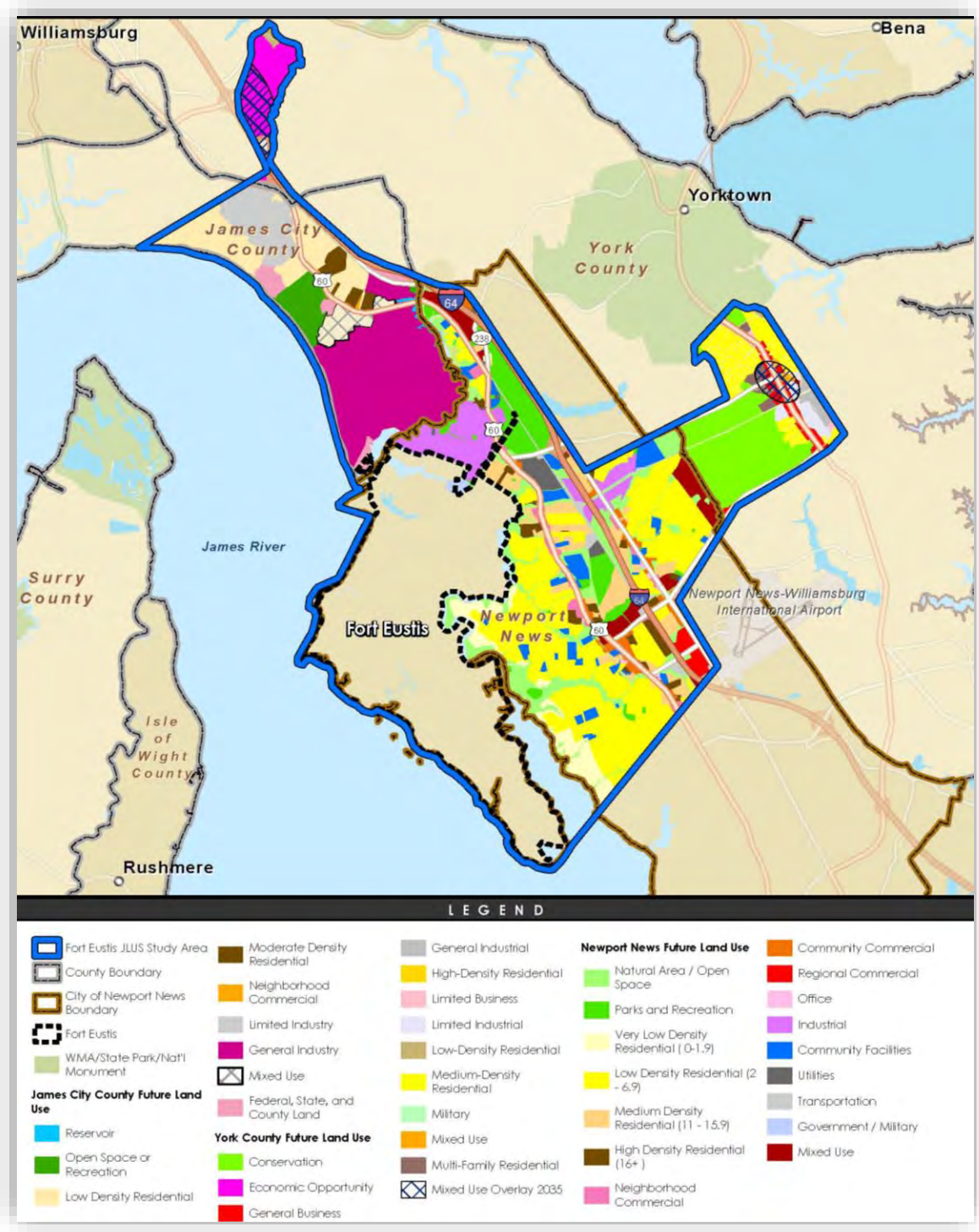


Figure 36 Future land use designations within the study area

8.4 Main Gate (MG)

Area of Interest

As currently designed, the Main Gate, at Fort Eustis Boulevard doesn't meet the requirements of the Army and could lead to safety concerns for the community.

Applicable Compatibility Factors

	Antiterrorism / Force Protection
	Public and Military Safety

Priority Ranking

The Main Gate Area of Interest received a high priority ranking, meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

HIGH

Compatibility Review

The main entrance gate into Fort Eustis is located on Fort Eustis Boulevard off of Highway 60 / Warwick Boulevard, shown on Figure 39. The gate provides easy access to the installation due to its proximity to I-64 and the major thoroughfare of Warwick Boulevard. The gate is used for commercial and personal vehicle access, causing back-ups and traffic delays when detailed searches are required. As currently designed, the entrance has compatibility concerns due to the design and surrounding development.

The Lee's Mills neighborhood is located directly to the east of the gate. The location creates an anti-terrorism / force protection issue as the neighborhood is within the required 1,000 foot stand-off buffer. Army Antiterrorism and Force Protection (AT/FP) seeks to deter or blunt terrorist acts against Army personnel and assets and is guided by the Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings. The 1,000 foot requirement is necessary to ensure safety

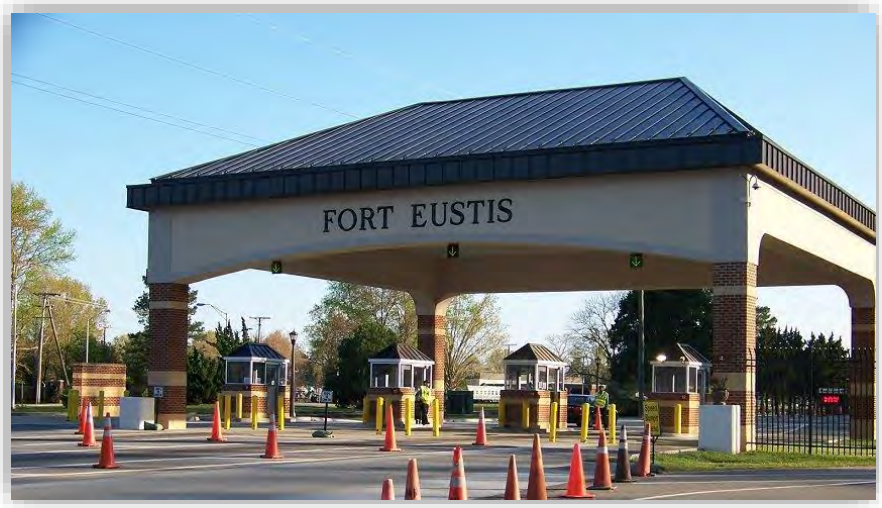


Figure 37 The main entrance gate into Fort Eustis is located on Fort Eustis Boulevard off of Highway 60 / Warwick Boulevard.

should a potentially dangerous vehicle try to enter the installation. As it currently stands, each of the residents within the 1,000 foot buffer area would need to be notified or possibly evacuated if a suspicious vehicle, cargo, or package attempts to enter the installation.

Also, just south of the entrance is the main electric substation for Fort Eustis, which supplies all of the electricity to the installation. Its location adjacent to the fenceline, along Dozier Road, leads to safety and security concerns. Dozier Road runs parallel to Fort Eustis Boulevard and is designated Industrial, but contains a few single family homes.

By acquiring property along Dozier Road, the main entrance gate could be reconfigured to address the safety concerns, reduce traffic build-up during times of emergency, and potentially provide more direct access to public facilities on the installation.

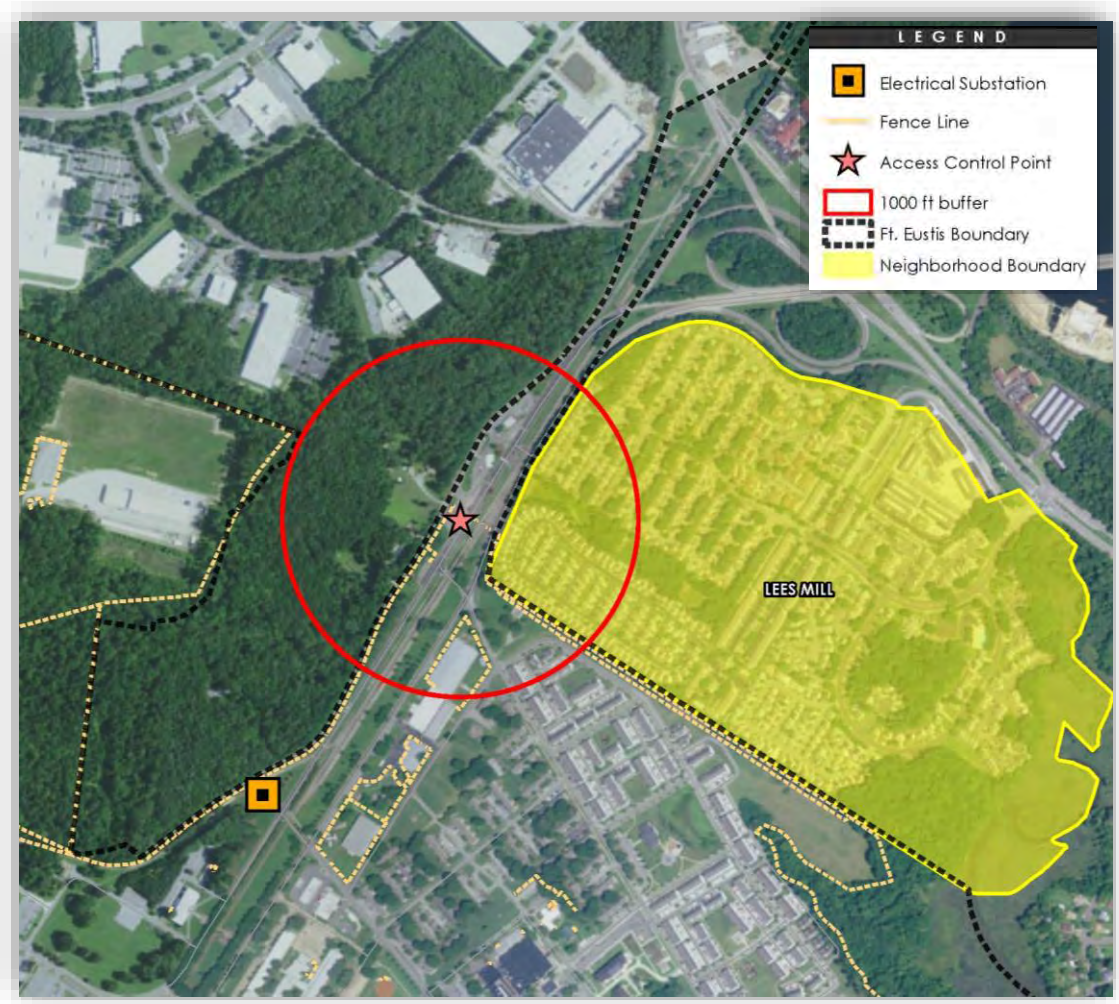


Figure 38 The Lee's Mills neighborhood is located directly to the east of the gate and a main electric substation is located south of the main gate.

8.5 Policy Reinforcement (PR)

Area of Interest

Fort Eustis affects multiple jurisdictions and local regulations are not in place within every municipality, or are in need of strengthening, in order to provide protection standards for the military and continued community growth.

Applicable Compatibility Factors

Land Use

Priority Ranking

The Policy Reinforcement Area of Interest received a high priority ranking, meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

HIGH

Compatibility Review

Local governments establish governing authority one of two ways – Home Rule or Dillon Rule. Home Rule gives local government governing authority to make a range of decisions that have not been expressly authorized by the state. On the other hand, Dillon Rule creates a framework where local governments can only legislate what the state government has authorized. Typically, the state issues an enabling legislation that gives the local government state power within a defined scope to achieve local objectives. Virginia is a Dillon Rule state. The enabling legislation authorizing comprehensive plans and zoning ordinances can be found in Title 15.2 of the Virginia Code.

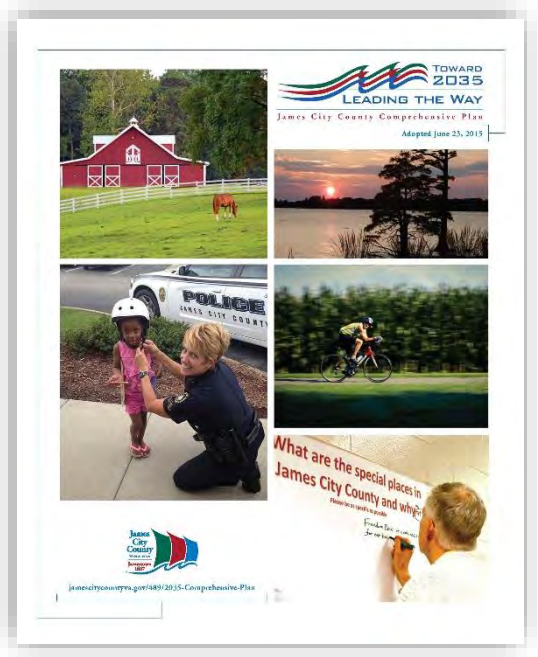
The enabling legislation requires that all localities develop a comprehensive plan for the development of their communities. The plan must be reviewed by the locality at least once every five years. Comprehensive plans have been mandatory in Virginia since 1980. Comprehensive plans are perhaps the single most important land use control available to local governments to guide ultimate decision-making in land use matters.

Zoning is intended to "strike a balance between private property rights and public interests." To this end, all Virginia zoning and planning powers derive from the enabling legislation in Chapter 22 of Title 15.2 of the Virginia Code. The General Assembly has statutorily identified several purposes for zoning and other land use ordinances that encourage localities "to improve public health, safety, convenience and welfare of [their] citizens and to plan for the future development of communities to the end that transportation systems be carefully planned; that new community centers be developed with adequate highway, utility, health,

educational, and recreational facilities; that the need for mineral resources and the needs of agriculture, industry, and business be recognized in future growth; that residential areas be provided with healthy surroundings for family life; that agricultural and forestal land be preserved; and that the growth of the community be consonant with the efficient and economical use of public funds."

In order to understand the lands surrounding the installation, the municipalities comprehensive plans, zoning ordinances, future land use maps, and zoning maps were collected and reviewed.

James City County. *Toward 2035 Leading the Way,* the James City County comprehensive plan recognizes the military influence on the economy and impacts on the demographics in the community. They also have a "Federal, State, and County Land" category where all military lands are designated on the Future Land Use Map.

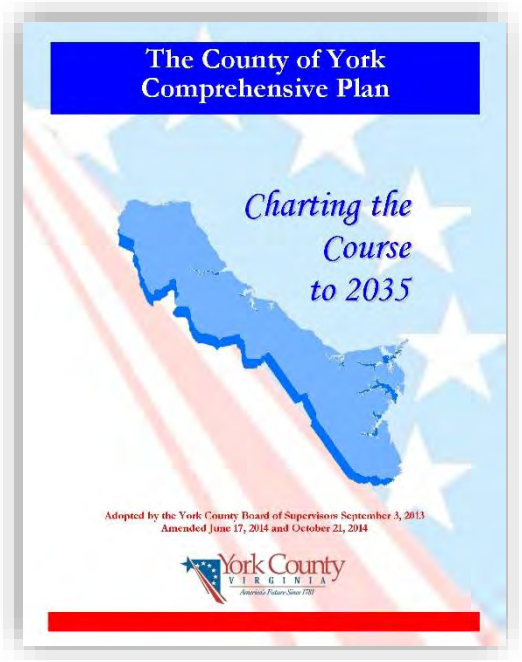


The County has established a Primary Service Area (PSA), which defines areas presently provided with public water, sewer, and high levels of other public services, as well as areas expected to receive such services over the next 20 years. Most residential, commercial, and industrial development will occur within the PSA. Development outside of the PSA is strongly discouraged.

Specific policies are not incorporated into the comprehensive plan or zoning ordinance to address military compatibility and encroachment.

Newport News. The Newport News comprehensive plan is in the process of an update. Staff is finalizing the plan and expects public hearings in June 2018. Although it has not yet been adopted, it is the most current plan available and was therefore used for a review. The draft plan recognizes preparation of the JLUS and the importance of the military on the economy and community demographics. A "Government / Military"

future land use designation is established in both the adopted and proposed plans. The category is designated for military bases and other related facilities.



Specific policies are not incorporated into the comprehensive plan or zoning code to address military compatibility and encroachment. The current update to the comprehensive plan, which will be followed by an update to the land development regulations, will serve as an opportunity to incorporate techniques and strategies to encourage compatibility and minimize encroachment.

York County. Approximately 32% of York County's land contains military landholding; however, Fort Eustis is not a part of that land area. Due to the location of Fort Eustis, York County's comprehensive plan and Land Development Regulations will not have any policies that are focused directly on Fort Eustis. However, Naval Weapons Station Yorktown and Naval Supply Center, Cheatham Annex are both located within the County. The County recognizes the important influence the military has on both the economy and community demographics. Additionally, policies are in place that encourage the sharing of resources with military installations that include emergency services and recreational opportunities. Additional coordination and communication techniques could be incorporated that are focused on Fort Eustis and overall military impacts.

The review of the local comprehensive plan and zoning ordinances note that some tools and strategies are in place to address compatibility surrounding Fort Eustis. Additional strategies are recommended to further support military compatibility in the area.

8.6 Sea Level Rise and Coastal Flooding (SLR)

Area of Interest

Sea level rise and coastal flooding is affecting both the installation and external properties, infrastructure, and resources within the community.

Applicable Compatibility Factors

	Climate Adaptation

Priority Ranking

The Sea Level Rise and Coastal Flooding Area of Interest received a high priority ranking, meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

HIGH

Compatibility Review

Although the communities surrounding Fort Eustis, James City County and Newport News, are not as impacted by SLR and recurrent flooding as other parts of Hampton Roads, effects are still predicted along the James River and its tidal tributaries. One of the most pronounced areas of SLR is at Fort Eustis, where shoreline erosion and marsh loss onsite have been exacerbated. The Installation Complex Encroachment Management Plan (ICEMAP) estimates 1,031 acres of land loss at Fort Eustis by 2100 under current SLR rates. An even larger area is affected under the projected SLR acceleration scenarios published by the Intergovernmental Panel on Climate Change (IPCC), extending to almost the entirety of Mulberry Island under the higher scenarios.

The majority of this land loss is within the marsh areas on Mulberry Island and elsewhere on the installation, which are almost entirely at risk of inundation. Perimeter marsh areas are known to help dissipate storm surge and provide broader coastal flood benefits beyond the immediate site, so the loss of these areas can have adverse effects on the surrounding community as well. Mulberry Island is one of the largest areas of tidal wetlands in the area and currently provides storm surge dissipation benefits. Recent and ongoing regional, coastal resiliency efforts (referred to as the "Dutch Dialogues") have identified the wetland areas on Fort Eustis as one of the 10 high priority areas for nourishment of core remaining wetlands to help offset loss of tidal marsh areas in the region.

The massive predicted loss of land from Mulberry Island has several implications for Fort Eustis. Although it appears that few training operations may be directly affected by the shoreline erosion or inundation from SLR or coastal flooding, indirect effects appear to be more prevalent. Within Fort Eustis, roads will be at high risk

for inundation due to SLR, including Harrison Road, Taylor Avenue, Mulberry Island Road, Back River Road, and Condon Road. The inundation of these roads would limit access to several essential locations within Fort Eustis. Access to Fort Eustis would also be impacted as Shellabarger Drive and Warwick Boulevard are also at high risk for inundation from SLR. Significant cultural sites, like historic structures and archeological sites, are also at risk of being flooded and destroyed.

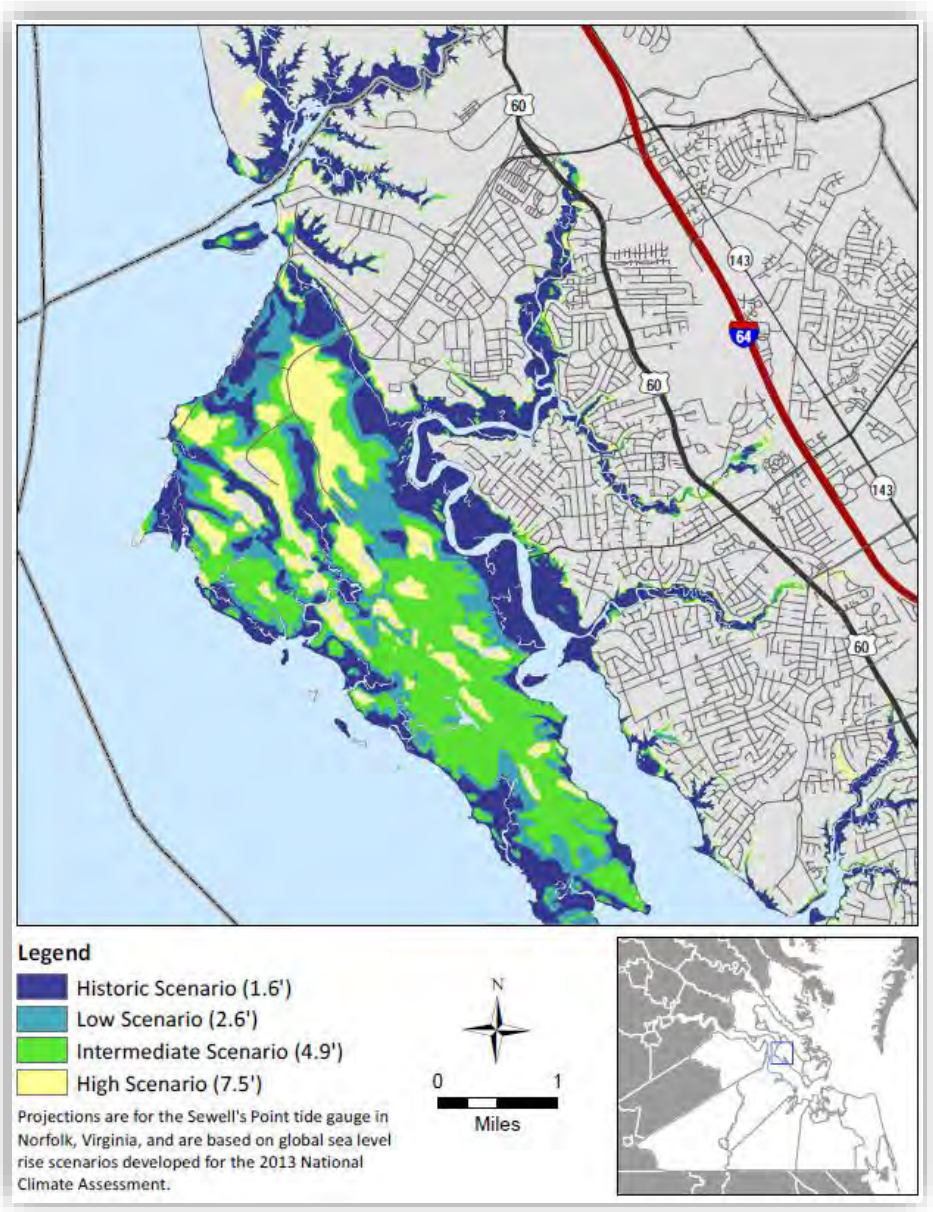


Figure 39 Areas potentially vulnerable to sea level rise by 2100 from HRPDC.

8.7 Third Port Mission (TPM)

Area of Interest

The third port supports training missions for the Army and other military branches. In order to protect and foster the missions, the Port must be shielded from water and land encroachments.

Applicable Compatibility Factors

	Land / Air / Sea Spaces

Priority Ranking

The Third Port Mission Area of Interest received a high priority ranking, meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

HIGH

Compatibility Review

The third port is a deep-water port, located on the James River, that provides safe harbor for the Army's watercraft fleet, and is used to train personnel in cargo logistics and vessel operations.

Figure 40 The third port, outlined in gold, enables training of watercraft and vessel operations in the James River Training Area.

The third port enables training of watercraft and vessel operations in the James River Training Area. Third Port has several assigned U.S. Army vessels, including 11 tug boats ranging from 86 foot side-loadable warping tugs to 128 foot large tugs. Other craft include 274 foot Logistic Support Vessels, 174 foot Landing Craft Utility (LCU) 2000, 135 foot LCU 1600, 73 foot Landing Craft Mechanized, 140 foot (100-ton) Barge Cranes, a 250 foot Floating Machine Shop, and various other craft.

Figure 41 View of the Third Port

The 7 SB, which operates out of the third port facility, conducts transportation school operations throughout the James River Training Area, as well as additional logistics training operations at Fort Story. Training missions include utilizing blank ammunition fire, non-lethal weapons testing of lasers, long range acoustics devices, flares, smoke, highly experimental heat waves, and unmanned robotic vessel testing, as well as vessel maneuvering. This port has also been utilized as a joint service training facility for watercraft operations and cargo handlers. It averages over 1,000 vessels per year and 10,000 military vessel movements per year conducting both day and night operations.

Figure 43 Third Port has several assigned U.S. Army vessels, including 11 tug boats ranging from 86 foot side-loadable warping tugs to 128 foot large tugs.

Similar to the issues described in Section 8.9 Waterway Access, increased land and water incompatibilities could lead to encroachment and hindrance of the port's mission. An abundance of personal and commercial watercraft in the water creates conflict for the training mission.

8.8 Traffic (T)

Area of Interest

Ingress and egress to Fort Eustis can contribute to the regional traffic congestion that occurs on a regular basis.

Applicable Compatibility Factors

	Antiterrorism / Force Protection
	Infrastructure Extensions and Capacity

Priority Ranking

The Traffic Area of Interest received a high priority ranking, meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

HIGH

Compatibility Review

The total amount of roadway usage in Hampton Roads, measured in terms of vehicle-miles of travel (VMT), was just over 40 million miles each day in 2009. Between 2000 and 2009, the total amount of roadway travel in Hampton Roads increased by nearly 4 million miles per day, or a total of about 11%. This is higher than the growth experienced in both Virginia (9%) and the U.S. (7%). After the 2009 recession, traffic decreased and is just now increasing again – growth ranges between 1 and 5% across the region. Roadway congestion not only lowers the quality of life in Hampton Roads, but also impacts regional commerce, particularly in those critical sectors that depend heavily on the regional transportation network: freight movement, tourism, and the military.

Figure 42 Roadway congestion is increasing.

A survey conducted by the HRTPO for the long-range transportation plan (LRTP) found that the most important issues facing Hampton Roads and the most critical neighborhood transportation problems were reducing highway congestion (84.3%) and traffic congestion (25%), respectively. Traffic congestion is a regional issue that affects the entirety of Hampton Roads, in addition to the area immediately surrounding Fort Eustis.

The results of the Fort Eustis JLUS survey also noted significant concerns regarding traffic back-ups surrounding the installation. A contributing factor to the back-ups around the installation are the operation of the two gates providing access to the installation. For example, if the main gate is closed for more than 10 minutes, traffic will back up all the way to I-64.

There are a number of improvements that have been proposed as part of the LRTP within the study area. The LRTP is a blueprint for the region's multimodal transportation development. It identifies regionally significant, fiscally-constrained transportation projects with a minimum planning horizon of 20 years. The LRTP is updated every four years to capture changes in the region and was most recently completed in 2016 and updated in 2017. Changes in growth can impact demand on the regional transportation system, therefore future plans must consider alternatives to effectively address these needs. Once alternatives are determined, funds are then identified to cover the costs of these future transportation investments. This entire process requires regional cooperation and public participation.

The long-range priority projects identified within the study area are listed in Table 8.8.A. The I-64 peninsula widening is included as a regional high-priority project within the LRTP. It will be completed in three segments and will result in six conventional lanes beginning at Jefferson Avenue and terminating at Route 199 west of Williamsburg; the project is fully funded. There is a separate project to reconfigure the Fort Eustis Boulevard Interchange. The projects were identified by the Hampton Roads Transportation Accountability Commission to be constructed with funds from the Hampton Roads Transportation Fund.

Table 8.8.A 2040 Long Range Priority Projects to be Constructed within Study Area

Project Name	From	To	Completion Time Frame
I-64 Widening (Peninsula) - Segment 1	Jefferson Ave. (Exit 255)	Route 238 (Exit 247)	Complete
I-64 Widening (Peninsula) - Segment 2	Route 238 (Exit 247)	Route 199 (Exit 242)	Under Construction Estimated Completion Spring 2019
I-64 Widening (Peninsula) - Segment 3	Route 199 (Exit 242)	Route 199 (Exit 234)	Estimated Construction Completion 2020-2021
Fort Eustis Blvd Interchange	N/A	N/A	Far (2032-2040)

Source: 2040 Hampton Roads Long-Range Transportation Plan

Other projects within the region were evaluated using the HRTPO Project Prioritization Tool, an objective methodology which evaluates transportation projects based on their technical merits and regional benefits. The projects listed in Table 8.8.B. are located in and around the study area. Improvements within the general

vicinity can have a significant positive impact on the congestion even if they are not directly within the study area.

Table 8.8.B 2040 Long Range Transportation Projects within Study Area

Map ID	Project Name	Project Type	From	To	Completion Time Frame	Locality
1	Richmond Rd (U.S. 60) at Rte 199 West Ramp	Interchange Improvement	N/A	N/A	Complete	James City County
2	Longhill Road (Phase I)	Widening	Humelsine Pkwy (Rte 199)	Old Towne Road	Middle (2023-2031)	James City County
3	Sidewalks along Longhill Rd over Route 199	Bicycle/ Pedestrian Facility	DePue Drive	Lane Place	Far (2032-2040)	James City County
4	Monticello Avenue at Ironbound Road (Route 615)	Interchange Improvements	N/A	N/A	Complete	James City County
5	Monticello Avenue Shared Use Path	Bicycle/ Pedestrian Facility	Treyburn Drive	Ironbound Rd (Rte 615)	Near (2015-2022)	Williamsburg
6	Bypass Road/Page Street/Capitol Landing Road	Interchange Improvements	N/A	N/A	Middle (2023-2031)	Williamsburg
7	Humelsine Pkwy (Rte 199) at Brookwood Dr	Interchange Improvement	N/A	N/A	Near (2015-2022)	James City County
8	WATA Transit Operations Center	Transit Operations Center	N/A	N/A	Near (2015-2022)	James City County
9	Airport Access Road	Realignment	Marclay Rd at Rte 617	Airport	Complete	James City County
10	Skiffe's Creek Connector	New Construction	Green Mount Pkwy	Merrimac Trail (Rte 143)	Near (2015-2022)	James City County
11	George Washington Memorial Highway (Route 17)	Widening	1 mi North of Coleman Bridge	Main St (@ Walmart)	Far (2032-2040)	Gloucester
12	I-64 Peninsula Widening – Segment 1	Widening	Jefferson Avenue (Exit 255)	0.5 miles E of Exit 247	Complete	Multi-Jurisdictional
13	Atkinson Boulevard	New Construction	Jefferson Ave	Warwick Blvd	Under Construction	Newport News

Map ID	Project Name	Project Type	From	To	Completion Time Frame	Locality
14	I-64 at Denbigh Boulevard (Route 173) (Study)	Study – Intersection / Interchange	N/A	N/A	N/A	Newport News
15	Denbigh Boulevard Bridge Replacement	Bridge Replacement	Richneck Rd	Trailblazer Blvd	Near (2015-2022)	Newport News
16	Newport News Transportation Center	Passenger Rail Station	N/A	N/A	Committed	Newport News
17	George Washington Memorial Highway (U.S. 17)	Widening	Dare Rd	Denbigh Blvd (Rte 173)	Near (2015-2022)	York County
18	George Washington Memorial Highway (Route 17)	Widening	Hampton Hwy	Dare Rd	Near (2015-2022)	York County
19	Multiuse Path Along Yorktown Rd	Bicycle / Pedestrian Facility	Cardinal Ln (Rte 670)	Victory Blvd (Rte 171)	Middle (2023-2031)	York County
20	Victory Boulevard (Route 171)	Widening	G.W. Memorial Hwy (U.S. 17)	Hampton Hwy (Rte 134)	Near (2015-2022)	York County
21	Victory Boulevard (Route 171) (PE)	Study - Roadway	Poquoson City Limit	Hampton Hwy (Rte 134)	N/A	Multi-Jurisdictional
22	Victory Boulevard (Route 171) (PE)	Study - Roadway	Wythe Creek Rd (Rte 172)	York City Limit	N/A	Multi-Jurisdictional
23	Wythe Creek Road	Widening	Alphus St	Commander Shepard Blvd	Near (2015-2022)	Multi-jurisdictional
24	Saunders Road	Widening	Big Bethel Rd	Newport News City Limit	Near (2015-2022)	Hampton
25	J. Clyde Morris Boulevard/G.W. Hwy (U.S. 17)	Widening	I-64	York County CL	Far (2032-2040)	Newport News
26	Liberty Parkway	New Alignment	Oyster Point Rd	Freedom Way	Far (2032-2040)	Newport News
27	Peninsula Fixed Guideway (Study)	Study - Fixed Guideway	Newport News City Hall	Denbigh Blvd (Rte 173)	N/A	Multi-Jurisdictional
28	Warwick Boulevard Over Lake Maury	Bridge Replacement	Gatewood Rd	J. Clyde Morris Blvd	Near (2015-2022)	Newport News

Map ID	Project Name	Project Type	From	To	Completion Time Frame	Locality
29	Coliseum Drive Extension	Extension	Hampton Roads Center Parkway	Butler Farm Road	Near (2015-2022)	
30	Washington Avenue	Bridge Replacement	39th St	41st St	Complete	Newport News

Source: 2040 Hampton Roads Long-Range Transportation Plan

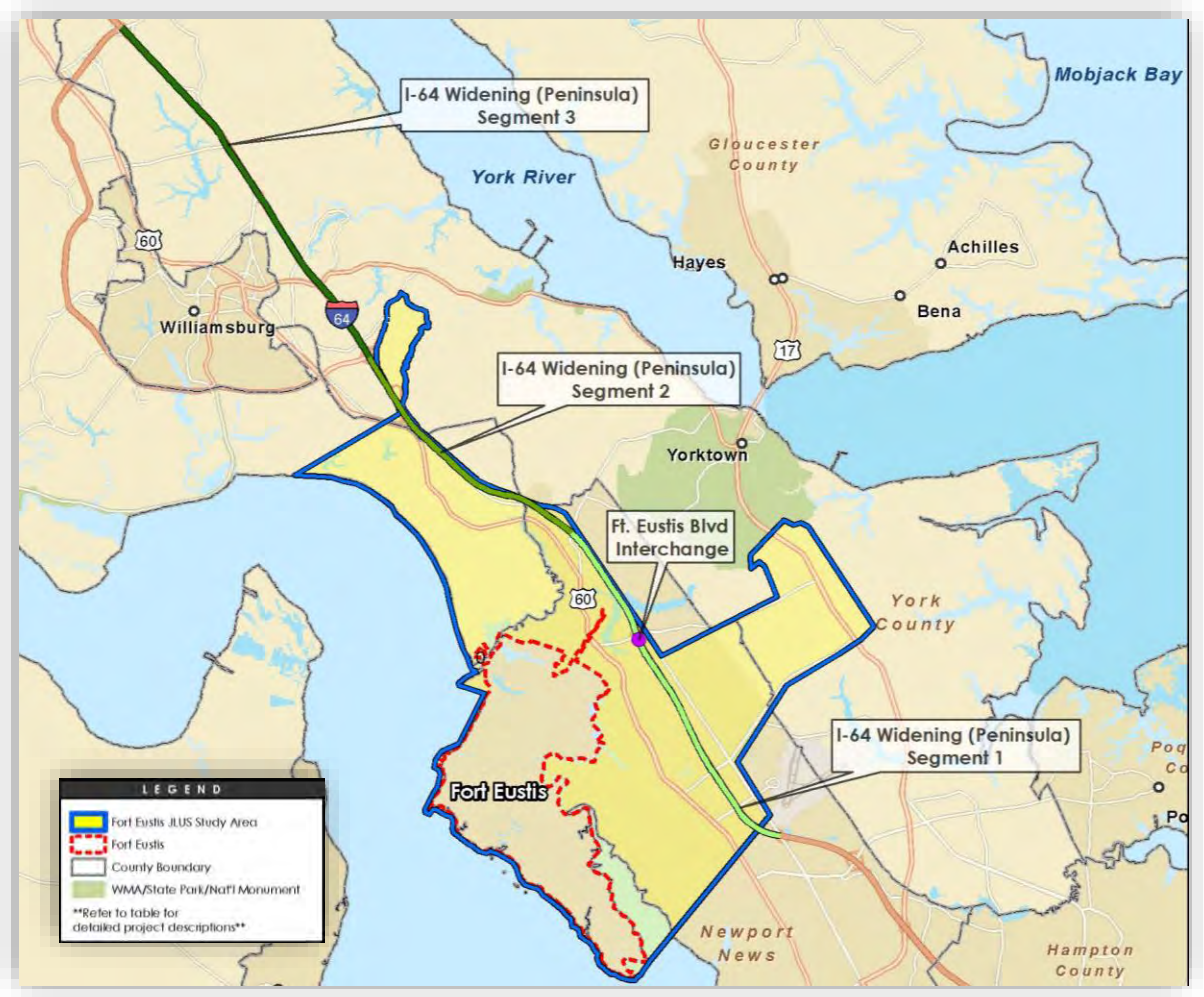


Figure 43 2040 Long-Range Transportation Priority Projects

Figure 44 2040 Long-Range Transportation Projects

8.9 Waterway Access (WA)

Area of Interest

Fort Eustis is accessible via the James River, Warwick River and Skiffe's Creek. Waterway traffic creates security concerns when approaching and accessing Fort Eustis.

Applicable Compatibility Factors

	Antiterrorism / Force Protection
	Safety Zones
	UXO and Munitions
	Public and Military Safety

Priority Ranking

The Waterway Access Area of Interest received a high priority ranking, meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

HIGH

Compatibility Review

Fort Eustis is located along a peninsula bounded by the James River, Warwick River, and Skiffe's Creek – shown on Figure 47. The waterways service multiple users including commercial and recreational fisherman, military vessels, military training exercises, and civilian watercraft. The wide range of uses contributes to heavy traffic and creates a concern that users will impede training exercises and / or attempt to access Fort Eustis's shoreline.

There is approximately 22 miles of littoral boundary along the Fort Eustis coastline creating opportunities for entry within the tributaries, creeks, estuaries, and tidal areas. Trespassing has occurred in the past primarily for unauthorized poaching or hunting on Mulberry Island. In other instances, kayakers have entered the tidal creeks around the installation during training exercises. Unauthorized visitors could inadvertently enter dangerous training areas including the small arms range.

Additionally, the third port is located in Skiffe's Creek where numerous critically important Army vessels are stored and significant training exercises take place. Goose Island is located on the south side of the third port, and although it is immediately adjacent to the installation it is actually owned by the State of Virginia. Ownership by the State of Virginia, as opposed to federal ownership, can lead to jurisdictional issues relating to maintenance as well as safety and security.

Figure 45 Fort Eustis is located along a peninsula bounded by the James River, Warwick River, and Skiffe's Creek.

An abundance of military vessels and civilian watercraft utilizing the same waterway, such as within the James River and Skiffe's Creek, can lead to an unsafe environment. Personal boating facilities should be kept to a minimum to lessen civilian and military incompatibilities.

The James River Reserve Fleet, made up of federally-owned obsolete merchant type vessels and naval auxillaries, is also located within the James River and is managed by the Department of Transportation's Maritime Administration, a tenant at Fort Eustis. In addition to storing ships, the James River Reserve Fleet is used by the Navy and other agencies for training exercises. Although they are not managed by JBLE personnel, the Reserve Fleet is linked to them by association.

The U.S. Code of Federal Regulations (33 CFR 334-280) currently restricts access to the defined Army Training and Small Craft Testing Area located in the James River, but doesn't apply to the larger training areas utilized in the James River, Warwick River, and Skiffe's Creek. The Army is unable to preclude visitors from accessing these areas and must halt training activities should there be any interference. In an effort to provide increased security and to notify civilians of the activities taking place along the shoreline, Fort Eustis has hired two game wardens to patrol the shoreline. The once-weekly patrols help to educate the boating populace should the warden encounter someone; however, they are unable to make them leave the area.

A modification to 33 CFR 334-280 is necessary to formally establish Surface Danger Zones and expand the restricted areas in an effort to protect the mission of the Fort and to ensure the safety of the civilians using the waterways. Additionally, retaining land management of Goose Island would provide shoreline protection and security for the area surrounding the third port. Outreach efforts are needed to notify the boating community of changes, safety procedures, and other educational factors that might aid in encouraging safe boating procedures. Additionally, the land uses abutting the waterways need to be carefully considered in an effort to mediate the amount of boat traffic adjacent to Fort Eustis.

8.10 Alternative Energy Development (AED)

Area of Interest

Alternative energy development has the potential to create adverse effects on military operations.

Applicable Compatibility Factors

	Light and Glare
	Energy Development
	Frequency Spectrum

Priority Ranking

The Alternative Energy Development Area of Interest received a medium priority ranking, meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

Compatibility Review

Virginia has substantial energy resources in its rivers, forests, winds, and fossil fuel and uranium deposits. The coastal plain that occupies the eastern part of Virginia includes the site of the first English settlement in North America, several of the state's modern-day major population centers, and the nation's largest coal port. To the west, the flat coastal plain meets the rolling hills and basins of the Piedmont region along a boundary typified by rapids and waterfalls. Most of the state's hydroelectric power is supplied from further west, where the rolling hills rise into the Blue Ridge Mountains. The valleys and ridges that occupy the western part of the state parallel the spine of the Appalachian Mountains and, along with the Appalachian Plateau, they contain most of the state's coal, Virginia's primary energy resource. The Appalachian Plateau, which cuts across the southwestern corner of Virginia, also holds almost all of the state's oil and natural gas fields. Almost two-thirds of Virginia is forested and the state's widely distributed forests hold abundant biomass potential. Virginia has offshore wind energy resources as well. Uranium, a nuclear fuel, has recently been discovered near the state's southern border. The deposit, though not developed, may be one of the nation's largest.

According to the U.S. Energy Information Administration, energy consumption in Virginia is more than two and a half times greater than the state's energy production. The transportation sector is the leading end-use energy-consuming sector in the state. Virginia has the third largest state-maintained transportation network in the nation, including six major interstate highways. More than a dozen railroads operate on 3,500 miles of railway in the state, and two of the nation's busiest commercial airports and one of the nation's largest

seaports. The transportation, commercial, and residential sectors each consume much more energy than the state's industrial sector.

Figure 46 Example of a large-scale wind farm.

Hydroelectric power, including pumped hydroelectric storage, is the renewable resource with the greatest generating capacity in Virginia; however, biomass generates more electricity annually. In 2016, biomass fueled almost 5% of the state's total net electricity generation. Wood and wood waste, municipal solid waste, and landfill gas are the most common forms of biomass used in Virginia. Hydroelectric generation is variable and typically contributes less than 2% of Virginia's net electricity generation. The state has both conventional and pumped hydroelectric facilities. Virginia's Bath County Pumped Storage Station, with a generating capacity of 3,003 megawatts, is the largest pumped hydroelectric storage facility in the world. During periods of low demand, inexpensive power is taken from conventional power plants to pump water from the lower reservoir to the upper reservoir. During periods of high demand, the water is released from the upper reservoir and flows to the lower reservoir. Electricity is generated as the water flows through turbines that are located between the reservoirs. Although the plant uses more power than it generates, it supplies power in periods of peak demand when electricity prices are highest.

In October 2016, Amazon Solar Farm U.S. East, the largest solar farm in the mid-Atlantic region at that time, went into service on Virginia's Eastern Shore. The 80-megawatt installation contributed to the more than doubling of Virginia's solar PV generation in the past year. Several other large facilities are scheduled to be operational in the state by late 2017. However, the largest share of solar photovoltaic generation in Virginia is provided by small distributed facilities. The state also has large areas with wind energy potential off its Atlantic Coast and in the Chesapeake Bay, and more limited resources onshore on Virginia's western mountain ridges. The state does not have any wind-powered utility-scale electricity generation. An offshore wind demonstration project was in development in federal waters off Virginia, but funding was withdrawn and activities have ceased.

Virginia has established a voluntary renewable portfolio goal encouraging investor-owned utilities to acquire 15% of base year 2007 sales from eligible renewable technologies by 2025. Virginia also enacted a mandatory utility green power option in 2007 that gives electric utility customers the option of purchasing 100% of their

electricity from renewable energy sources. If a utility does not offer a program that meets the 100% renewable energy requirement, its customers can purchase green power from any licensed retail supplier.

The Army is also working towards supplying their share of renewable power. According to Federal News Radio, over the past five years, the Army has been building renewable power facilities on its bases in pursuit of an overall goal of 1-gigawatt of renewable energy by 2025. It's nearly a third of the way there, with 300 megawatts worth of renewable energy already online and more in the contracting pipeline.

However, large scale renewable energy projects such as wind and solar farms can have significant impacts on the mission of Fort Eustis. Wind turbines can be more than 500 feet in height and have rotating blades (with diameters up to 260-feet) mounted atop towers. Wind farms can consist of a few to several hundred turbines and cover tens to thousands of acres. Such wind farms have the potential to limit military operations primarily as either physical obstacles or sources of electromagnetic interference on weapons systems. Also, construction materials used in the development of solar energy infrastructure may employ reflective surfaces causing visual impairment or communication systems interference for pilots in training.

Figure 47 Example of large scale solar farm.

8.11 Airspace Management (AM)

Area of Interest

Coordination between Fort Eustis and the Newport News / Williamsburg International Airport, as well as the military entities using the airports, is essential for continued airspace management.

Applicable Compatibility Factors

Land / Air / Sea Spaces

Priority Ranking

The Airspace Management Area of Interest received a medium priority ranking, meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

Medium

Compatibility Review

In the U.S., airspace is categorized as regulatory and non-regulatory. Within these categories exist: controlled (classes A, B, C, D, and E) and uncontrolled (class G) airspace, based on which air traffic control service is provided to instrument flight rules (IFR) flights and some visual flight rules (VFR) flights. Class F is not used in the U.S. Besides controlled and uncontrolled airspace, other types of airspace include "special use" and "other airspace."

Class D airspace is typically established around any airport with a functioning control tower. Class D airspace is generally cylindrical in form and normally extends from the surface to 2,500-feet above the ground. The outer radius of the airspace is variable, but is generally 4 nautical miles. Class E airspace extends from 1,200 feet above ground level (AGL) up to but not including 18,000-feet mean sea level (MSL), the lower limit of Class A airspace. Most airspace in the U.S. is Class E.

Special use airspace is an area designated for operations, primarily military, that may impose limitations on aircraft not participating in the operations. Special use air space includes the following:

- Restricted Airspace,
- Military Operations Area,
- Warning Area,
- Alert Areas,
- Temporary Flight Restrictions,
- National Security Areas, and
- Controlled Firing Areas.

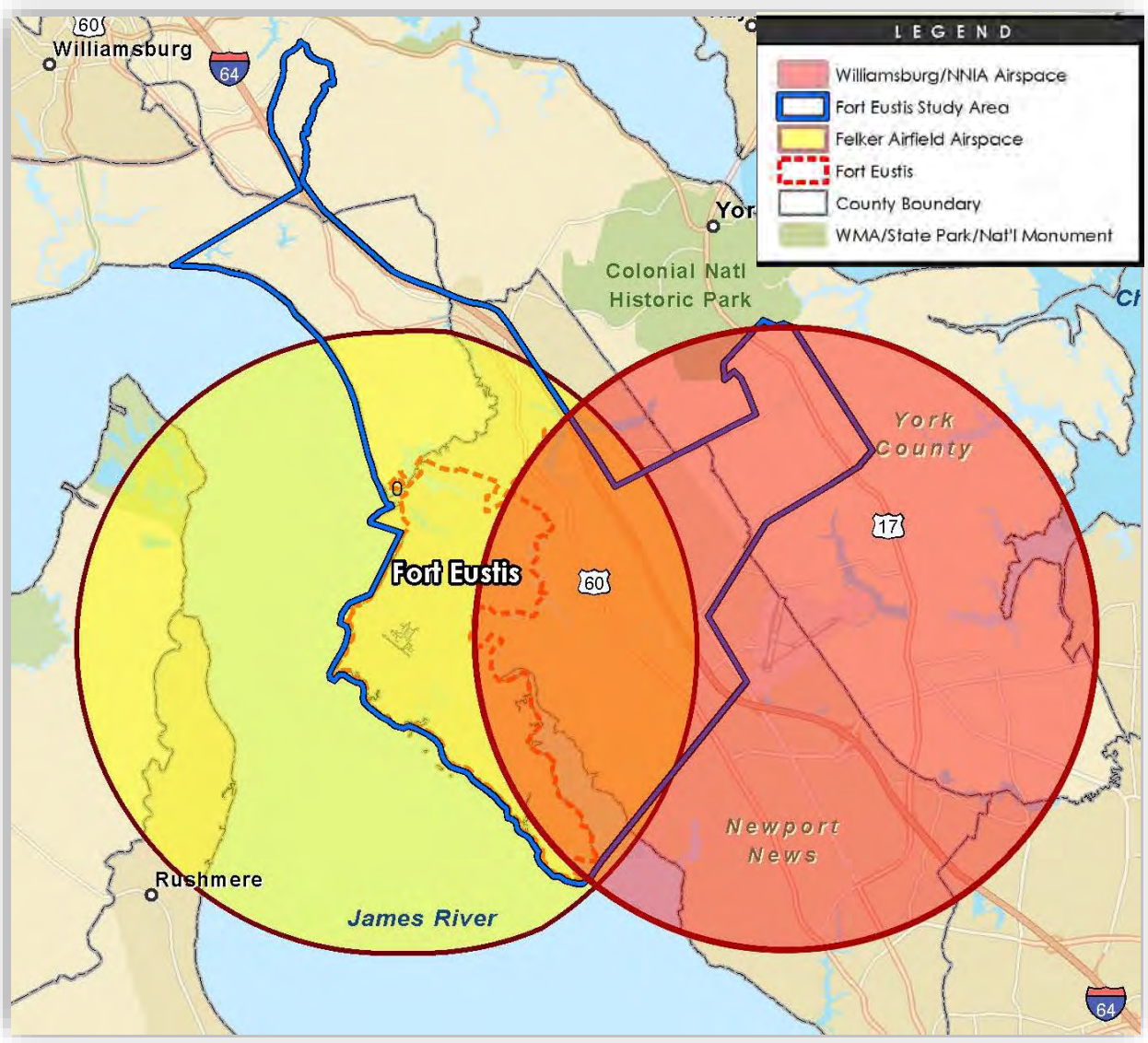


Figure 48 Felker Army Airfield and Newport News / Williamsburg International Airport Airspace

Restricted airspace is an area within which the operation of aircraft is subject to restriction. Restricted airspace is established to separate activities considered to be hazardous to other aircraft, such as artillery firing or aerial gunnery. Restricted airspace may not be active at all times in which case a schedule of dates and times when aviation may occur is posted.

Military operation areas (MOA) are areas in which military activities are regularly conducted. No clearance is required to enter MOAs, but pilots should verify that no hazardous activity is underway before entering an MOA. In the U.S., civilian and military pilots have equal rights to MOA airspace, and both have equal responsibility to see and avoid other air traffic. MOAs serve as a warning, since military aircraft often fly at high speeds and are intentionally difficult to see.

Hampton Roads is a busy area for private, commercial, and military aviation. Newport News / Williamsburg International Airport and FAAF are located about 10 miles from one another and share overlapping airspace, as shown on Figure 50.

FAAF was built in 1949 and was the home of the first U.S. military heliport. It is located in the central portion of Fort Eustis and consists of a single runway (3,020 feet) which orients in a northwest to southeast fashion, as well as aircraft operations and maintenance facilities, aprons, and taxiways for fixed-wing and rotary-wing aircraft. The airfield is still primarily a heliport, but also supports more than 2,000 fixed-wing operations per year. The airfield supports the U.S. Army Transportation Center and Aviation Logistics School mission as well as several tenants including the U.S Army Reserve and the Aviation Applied Technology Directorate (AATD). There are relatively few permanent aircraft stationed on the airfield when compared to historical figures, however, the airfield receives daily use which includes both daytime and nighttime (Navy) operations. Although the airfield has no defined helicopter routes, they do routinely use aviation operation routes to practice landings and takeoffs totally within Fort Eustis boundaries.

Newport News / Williamsburg International Airport (IATA: PHF, ICAO: KPHF, FAA LID: PHF) is located in Newport News with runways extending into York County. The airport serves the Hampton Roads metropolitan area along with Norfolk International Airport and Richmond International Airport. The airport is owned and operated by the Peninsula Airport Commission, which is a political subdivision of the Commonwealth of Virginia. In 2016, the airport handled 411,500 passengers; down slightly from the 418,900 in 2015.

The Newport News / Williamsburg International Airport allows the military to use their airport for refueling or landing when FAAF closes at 11:00 p.m.; however, no formal agreements are in place to allow for this. There is a formal agreement in place allowing Norfolk Naval Station to use FAAF for practice landings and take-offs. In order to effectively continue the shared use of facilities, formal communication and coordination measures need to be incorporated.

Additionally, a Bird / Wildlife Aircraft Strike Hazard (BASH) Plan was established in February 2017 for JBLE. The BASH program is designed to minimize aircraft exposure to potentially hazardous wildlife strikes during airfield and flying operations. The FAA addresses wildlife hazards with aircraft through regulatory guidance, including the Wildlife Hazard Management Plan (WHMP). Although the plans have a similar purpose, the regulations vary widely due to the type of aircraft utilizing the facility. In addition, the local jurisdictions may not incorporate supporting language within the comprehensive plan and/or land development regulations to minimize bird and wildlife strikes. As part of the coordination procedures, BASH and WHMP standards need to be reviewed and integrated into regulatory documents to keep the functionality of both Newport News / Williamsburg International Airport and FAAF.

8.12 Dredge Disposal (DD)

Area of Interest

Dredge disposal solutions are needed for long-term dredging needs.

Applicable Compatibility Factors

Climate Adaptation

Priority Ranking

The Dredge Disposal Area of Interest received a medium priority ranking, meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

Medium

Compatibility Review

There has been a long history of dredging at Skiffe's Creek to support the operations at Fort Eustis. JBLE dredges the outfall of Skiffe's Creek to the James River on a regular basis to maintain training operations and access. Dredging is recommended to be every five years, or as otherwise necessary to maintain the depths necessary for training vessels to navigate the four-mile stretch of creek used by Fort Eustis operations. When dredging is neglected, vessels must navigate through the silted-in port, causing not only navigation issues, but increasing the need for maintenance for the boats used in training.

Originally, Goose Island, the property facing Fort Eustis on the opposite side of Skiffe's Creek that is managed by the Virginia Department of Game and Inland Fisheries (DGIF), was constructed from dredged material upon the initial establishment of Fort Eustis and associated waterfront improvements. Since the creation of Goose Island, its western shoreline has experienced significant erosion, while the shallow water between it and Fort Eustis has experienced accretion and is now connected to the mainland via tidal marsh. For many years, an onsite dredge material management area was constructed on Mulberry Island to contain the spoil that arises from dredging operations. Unfortunately, the onsite dredge material management area is at capacity and cannot accommodate additional spoil at its current size and berm elevations.

Dredging operations to maintain use of the port are expected to continue. Selection of a suitable disposal location is essential for maintaining this activity. The onsite dredging area used for disposal in the past has now reached capacity and is slated for redevelopment as a motor pool. No alternative disposal area or method has been identified. Disposing of future dredged material offsite would greatly increase dredge costs versus past operations when onsite spoil was feasible. Several factors must be considered when disposing of dredged material. The VMRC has put together a list of considerations when determining a disposal site. These

considerations include: encroachment into natural drainageways, the chemical nature of the dredged material and its potential for polluting underground water supplies, encroachment over underground utilities, value of the natural environment, and proximity to populated areas.

A solution for future disposal needs to be determined that meets the requirements of VMRC while also being cost-effective for Fort Eustis. All onsite options should be exhausted before relying on offsite disposal. Several different options can be explored that could also benefit Fort Eustis in other ways, like beneficial reuse of dredged material to create additional marsh areas and combat shoreline erosion and marsh loss.

Figure 49 JBLE dredges the outfall of Skiffe's Creek to the James River on a regular basis to maintain training operations and access.

8.13 Installation Access (IA)

Area of Interest

Approximately 80% of Fort Eustis is unfenced, leaving the potential for unauthorized visitors to enter the installation.

Applicable Compatibility Factors

	Antiterrorism / Force Protection
	UXO and Munitions
	Safety Zones
	Public and Military Safety

Priority Ranking

The Installation Access Area of Interest received a medium priority ranking, meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

Medium

Compatibility Review

It is estimated that 80% of Fort Eustis is unfenced – identified on Figure 52. Although the majority of the area is surrounded by water, providing a natural barrier from unauthorized visitors, trespassers are still able to access the installation via water and land. The trespassing that occurs in the coastal areas was further described in Section 8.9 Waterway Access. Trespassing on the landward side occurs primarily where fencing is not in place. One area in particular is adjacent to the Oakland Industrial Park. Trespassers are primarily from nearby residences attempting to access services in the cantonment area.

In locations where fencing is in place, there has been tree growth and civilians attaching structures to the fenceline. Attaching to the fenceline leads to antiterrorism and force protection concerns such

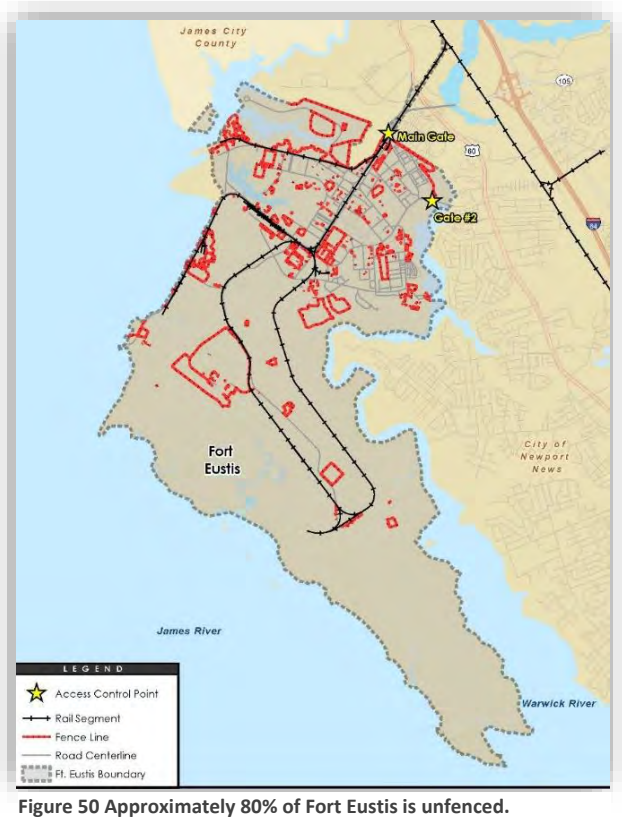


Figure 50 Approximately 80% of Fort Eustis is unfenced.

as trespassing on to the installation. In the past, the installation was able to move the fenceline more than three feet inside their property boundary to reduce encroachment in that area. However, this might not be an option in all portions of the installation.

8.14 Unmanned Aircraft Systems (UAS)

Area of Interest

Private unmanned aircraft systems (UAS), commonly referred to as drones, are prohibited from flying over the installation, but the public may not be properly educated on the rules.

Applicable Compatibility Factors

	Public and Military Safety
	Land / Air / Sea Spaces

Priority Ranking

The Unmanned Aircraft Systems Area of Interest received a medium priority ranking, meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

Medium

Compatibility Review

Due to the relatively new, but prolific presence of unmanned aircraft systems (UAS), the rules are still evolving. The UAS are subject to regulation by the FAA to ensure safety of flight and safety of people and property on the ground. Many states and local jurisdictions are also beginning to incorporate policies into their regulations. State and local restrictions affecting UAS operations must be consistent with federal statutory and regulatory framework pertaining to the following:

- Control of the airspace,
- Flight management and efficiency,
- Air traffic control,
- Aviation safety,
- Navigational facilities, and
- The regulation of aircraft noise at its source.

According to the *"FAA's State and Local Regulation of Unmanned Aircraft Systems Fact Sheet,"* dated February 15, 2015, the FAA proposed a framework of regulations that would allow routine commercial use of certain small UAS within the aviation system, while maintaining flexibility to accommodate future technological innovations. The FAA's Notice of Proposed Rulemaking offered safety rules for small UAS (under 55 pounds) conducting non-recreational or non-hobby operations. The proposed rule defines permissible hours of flight, line-of-sight observation, altitude, operator certification, optional use of visual observers, aircraft registration and marking, and operational limits.

Figure 51 Example of a commercial drone

Consistent with its statutory authority, the FAA is requiring Federal registration of UAS to operate them. Registering UAS will help protect public safety in the air and on the ground, aid the FAA in the enforcement of safety related requirements for the operation of UAS, and build a culture of accountability and responsibility among users operating in U.S. airspace. No state or local UAS registration law may relieve a UAS owner or operator from complying with the Federal UAS registration requirements. Because Federal registration is the exclusive means for registering UAS for purposes of operating an aircraft in navigable airspace, no state or local government may impose an additional registration requirement on the operation of UAS in navigable airspace without first obtaining FAA approval.

Fort Eustis is one of 132 military installations participating in a FAA Pilot Program to restrict flying UAS within protected airspace. The Army's UAS policy includes the following.

- Commercial Use of UAS is prohibited within an Army installation without prior approval from the Senior Commander or an O-6 or equivalent. Operators that are permitted must comply with the commercial UAS requirements found in Title 14, Code of Federal Regulations, Part 107.
- Recreational Use of a UAS is also prohibited unless previously authorized by senior command or their designee. Recreational operators must abide by the requirements found at www.faa.gov/uas and register at the installation's administration office.

Unauthorized use of UAS from within the installation can result in loss of installation access privileges, forfeiture of unauthorized videos or photographs, adverse personnel action, and possible criminal prosecution. Installation law enforcement officials will refer incidents involving unauthorized UAS flights controlled outside of the installation to local law enforcement.

8.15 Vertical Obstructions (VO)

Area of Interest

The introduction of vertical obstructions can interfere with the success of training missions as well as the safe operations of the airport. The vertical obstructions can include not only trees and buildings but also telecommunication towers.

Applicable Compatibility Factors

	Vertical Obstructions
	Land Use
	Frequency Spectrum

Priority Ranking

The Vertical Obstructions Area of Interest received a medium priority ranking, meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

Medium

Compatibility Review

Tall structures such as buildings, construction cranes, and cell towers within the vicinity of an airport can be hazardous to the navigation of airplanes. The FAA, through FAR Part 77, established a method of identifying surfaces that should be free from penetration by obstructions in order to maintain sufficient airspace around airports. FAR Part 77 identifies the maximum height at which a structure would be considered an obstacle at any given point around an airport. The extent of the area needing to be evaluated for tall structure impacts can extend miles from an airport facility. Tall structure impacts have historically involved the height of buildings and the height of cranes used in construction. However, antennae and telecommunication towers also need careful review for future sitings. The location of tall structures within local airspace can significantly affect the ability of FAA's Air Traffic Control to route aircraft into and out of an airport and can also reduce an airport's capacity.

Aviation electronic navigation aids (such as radar facilities and instrument landing systems) are necessary to provide for the safe movement of aircraft. Although many of the navigation systems are located on the airport, some systems are located off airport property. Such electronic systems have the potential of being interfered with if non-aviation related electronic sources are placed in proximity or if structures are constructed which could block the navigation aid signals. Where off-airport electronic navigation facilities exist, any development proposed to be located near these facilities needs to be reviewed by the FAA to determine if interference to the use of the navigation aid would occur.

Figure 52 Tall structures such as buildings, construction cranes, and cell towers within the vicinity of an airport can be hazardous to the navigation of airplanes.

The Newport News / Williamsburg International Airport is located just outside of the JLUS study area. FAAF is located 10 miles away at Fort Eustis. Restrictions are in place in Newport News's zoning ordinance to regulate heights and uses around the airport. Division 1 of Article XXXI of the Newport News zoning ordinance, regulates the use of property in the vicinity of Newport News / Williamsburg International Airport by establishing an airport approach restricted use zone. The overlay establishes zones that include all of the land lying beneath the approach surfaces, transitional surfaces, horizontal surfaces, and conical surfaces as they apply to the Newport News / Williamsburg International Airport. Uses are also restricted to include those uses that "Create electrical interference with navigational signals or radio communication between the airport and airborne aircraft; Diminish the ability of pilots to distinguish between airport lights and other lights; Result in glare in the eyes of pilots using the airport; Impair visibility in the vicinity of the airport; Create bird strike hazards; or Otherwise in any way endanger or interfere with the landing, takeoff, or maneuvering of aircraft intending to use the airport."

James City County establishes individual height restrictions within each of the zoning districts. Height restrictions vary from 35 feet up to 60 feet. Specific policies are not in place relating to height compatibility with FAAF.

It is an essential proactive step that Newport News has taken to establish an overlay district to protect the function of the airport. However, the average layperson may have some difficulty interpreting the height restrictions within the zoning ordinance potentially leading to incompatible development. Additionally, steps should be taken to consider the impacts on not just the Newport News / Williamsburg International Airport, but also FAAF and the helicopter routes and flight paths that are used to train in and around Fort Eustis.

8.16 Wildlife and Habitat Preservation (WHP)

Area of Interest

Fort Eustis and the surrounding communities provide habitat for wildlife as well as significant wetlands and marshes.

Applicable Compatibility Factors

	Threatened and Endangered Species

Priority Ranking

The Wildlife and Habitat Preservation Area of Interest received a medium priority ranking, meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

Compatibility Review

The Endangered Species Act (ESA) defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range." Endangered species are automatically protected *from* harming, harassing, collecting, or killing, under Section 9 of the ESA.

The ESA defines a threatened species as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Threatened species receive protections through separate regulations issued under Section 4(d) of the ESA. These regulations occur separately from the listing and detail what prohibitions are in effect.

National Oceanic and Atmospheric Administration (NOAA) scientists use the best scientific and commercial information available as the basis for their listing decisions. Scientists may not consider the economic impact of listing a particular species. A species is listed as threatened or endangered if any of the following factors are met:

- Present or threatened destruction, modification, or curtailment of its habitat or range;
- Overutilization for commercial, recreational, scientific, or educational purposes;
- Disease or predation;
- Inadequacy of existing regulatory mechanisms; or
- Other natural or human-made factors affecting its continued existence.

The following species are identified as Threatened or Endangered by the U.S. Fish and Wildlife Service (USFWS) within James City County or York County. It is important to note that just because they are located within the county, it does not mean they are within the study area or on the installation.

Table 8.16 USFWS Threatened or Endangered Species

Group	Common Name	Scientific Name	Status
Birds	Bald Eagle	Haliaeetus leucocephalus	Recovery
Flowering Plants	Harper's Fimbristylis	Fimbristylis perpusilla	Under Review
Flowering Plants	Small Whorled Pogonia	Isotria medeoloides	Threatened
Flowering Plants	Sensitive Joint-Vetch	Aeschynomene virginica	Threatened
Mammals	Northern Long-Eared Bat	Myotis septentrionalis	Threatened

Source: USFWS, Species by County Report, retrieved October 3, 2017.

Threatened and Endangered Species are primarily managed through National Environmental Policy Act (NEPA) regulations and the USFWS. It is important to be cognizant of the species that exist within the region and the potential impact they could have on both the mission of Fort Eustis and future development within the community. However, they do not represent a significant challenge regarding future development or the mission of Fort Eustis.

Figure 53 (Left) Bald Eagles were once endangered but are now considered in recovery within the study area. (Right) Northern Long-Eared Bats are a threatened species that occur within the study area.

8.17 Cultural Resources (CR)

Area of Interest

Fort Eustis offers valuable historical information through the Army Transportation Museum and other historical sites.

Applicable Compatibility Factors

♡	Cultural Resources

Priority Ranking

The Cultural Resources Area of Interest received a low priority ranking, meaning the recommendations should be implemented within 10 years upon completion of the JLUS.

Low

Compatibility Review

Fort Eustis is home to 229 archaeological sites, one historic building, and several historic earthworks associated with the American Civil War. Identified prehistoric sites include those dating to the Early Archaic, Middle Archaic, Late Archaic, Early Woodland, Middle Woodland, and Late Woodland period. Sites range from small, seasonally occupied campsites to larger base camps.

Located on Fort Eustis is the U.S. Army Transportation Museum. It is devoted entirely to the history of U.S. Army transportation from colonial days to the present. It offers a unique glimpse of the importance of logistical support to the Army. The Museum artifact collection numbers just under 7,000 objects, plus another 1,000 exhibit props. The collection includes nearly 100 macro

Figure 54 US Army Transportation Museum is located on Fort Eustis

artifacts ranging from planes, helicopters, tugboats and landing craft to trucks, jeeps, hovercraft and trains.

On average, about 50,000 visitors a year come to Fort Eustis to see the museum. Of these, approximately 35% are soldiers. The rest are family members of soldiers or the general public. The Museum is open Tuesday - Saturday from 9:00 a.m. to 4:30 p.m. The outdoor exhibits close at 4:00 p.m. Fort Eustis is a limited access installation, which means that visitors will need to stop at the Guard House near the gate and receive a Visitor's Pass before entering the museum.

8.18 Light and Glare (LG)

Area of Interest

Lighting controls and standards for new development are not codified by existing regulations or could be strengthened. There is potential for new development impacting flight paths and training missions caused by glare or lighting.

Applicable Compatibility Factors

	Land Use
	Light and Glare

Priority Ranking

The Light and Glare Area of Interest received a low priority ranking, meaning the recommendations should be implemented within 10 years upon completion of the JLUS.

Low

Compatibility Review

The inappropriate or excessive use of artificial light – known as light pollution – can have serious environmental consequences for humans, wildlife, and our climate. Components of light pollution include:

- Glare – excessive brightness that causes visual discomfort,
- Skyglow – brightening of the night sky over inhabited area,
- Light trespass – light falling where it is not intended or needed, and
- Clutter – bright, confusing and excessive groupings of light sources.

Light pollution is a side effect of industrial civilization. Its sources include building exterior and interior lighting, advertising, commercial properties, offices, factories, streetlights, and illuminated sporting venues.

Light pollution can interfere with the nighttime training missions as well as flight operations and training. Conversely, lighting from Fort Eustis can negatively impact the community and possibly the wildlife environment.

Street lights, building lights, outdoor sports fields, factories, rail spurs, and commercial uses can cause light pollution if not properly regulated. Commercial and retail developments usually require the most outdoor lighting for urban land uses because of the business advertising needs and the associated parking areas.

Light patterns have shifted over the years as development has occurred. The Nighttime Lights Time Series from NOAA National Centers for Environmental Information identifies the areas exposed to nighttime lighting. The Time Series, when focused on Hampton Roads, a highly urbanized area, shows significant light visibility is

already in place. Refer to Figure 57. Design standards and specific dark sky lighting requirements can aid in creating a standard practice to reduce light pollution both at Fort Eustis and within the community.

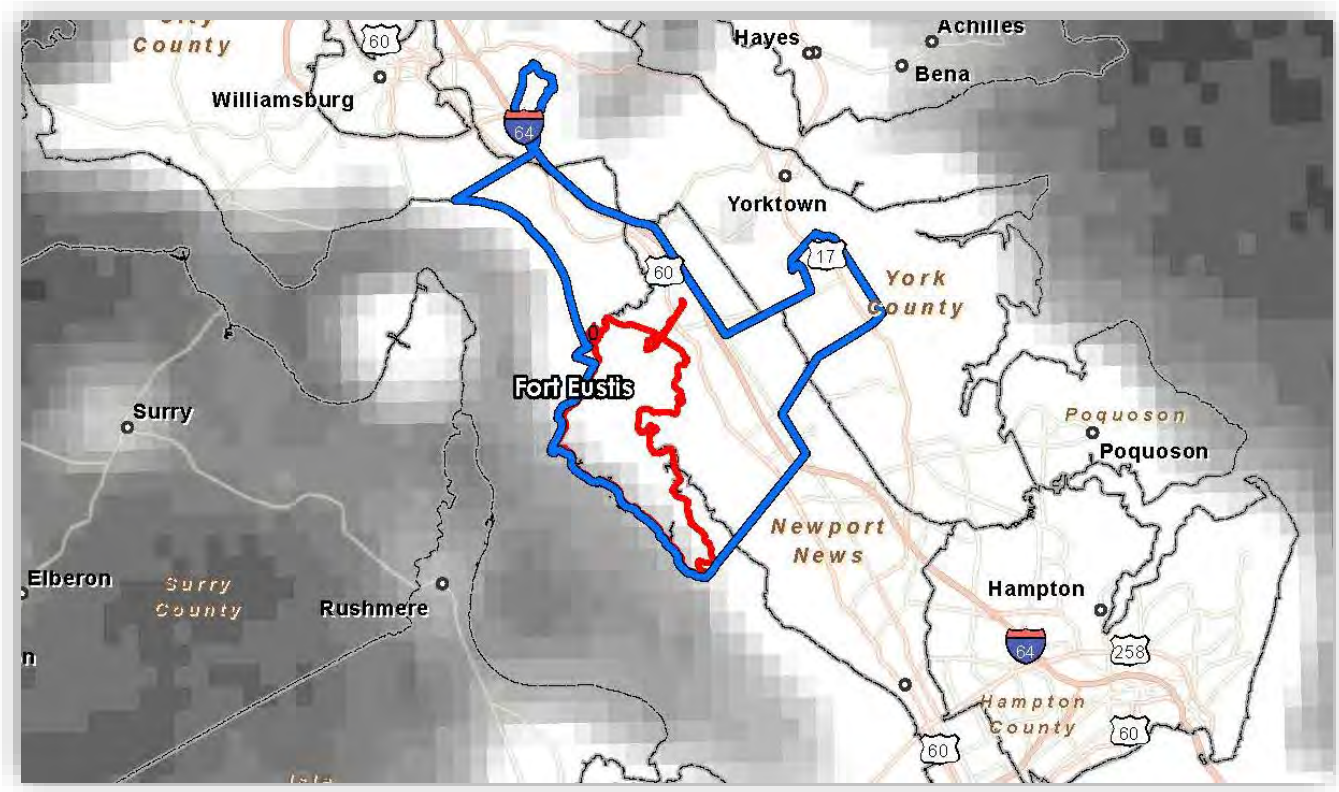


Figure 55 The Nighttime Lights Time Series from NOAA National Centers for Environmental Information identifies the areas exposed to nighttime lighting in 2013. The dark areas show where light is not prevalent, and the white areas show where there is abundant light.

8.19 Noise (N)

Area of Interest

Noise generated from small arms weapons firing and daily aircraft operations from Felker Army Airfield can create minor daily interferences.

Applicable Compatibility Factors

	Noise and Vibration

Priority Ranking

The Noise Area of Interest received a low priority ranking, meaning the recommendations should be implemented within 10 years upon completion of the JLUS.

Low

Compatibility Review

Noise is generally described as unwanted sound. Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air or water, and are sensed by the human ear. Unwanted sound can be based on objective effects (such as hearing loss and speech interruptions) or subjective judgments (such as noise complaints and annoyance).

Noise is measured using several metrics that reflect different noise characteristics. There are differences in continuous (e.g., aircraft flying) versus impulsive (e.g., weapons firing) types of noise, variations in frequency, and duration of noise exposure. Duration of noise exposure also dictates how a person perceives noise; a relatively long steady noise, like a train, aircraft passing or traffic, "feels" different than a rapid loud gunshot type noise. Noise metrics for this analysis are used for the day-night average sound level. The day-night average sound level (Ldn or DNL) is the average noise level over a 24-hour period. Because noise is considered more intrusive at night, a 10-decibel penalty is applied for operations occurring during nighttime hours, between 10:00 p.m. and 7:00 a.m. Noise contours are depicted on maps identifying the level of noise exposure based on the DNL.

Noise Modeling

Noise assessments are conducted in accordance with the DoD Instruction Directive 4715.13 subject; DoD Noise Program (DoD 2005); and Army Regulation (AR) 200-1, Environmental Protection and Enhancement, Chapter 14, Operational Noise (U.S. Army 2007).

Operational data is input into computer software models which calculate noise exposure levels associated with the multiple types of military operations. Operational data includes the types of weapons and ammunitions fired, number of rounds fired, time of day in which rounds are fired, and the location of firing areas and targets. Figure 58 identifies the noise zones surrounding FAAF and the small arms range at Fort Eustis.

Figure 56 Noise zones surrounding Felker Army Airfield and the Small Arms Range

Small Arms Range Noise Model.

The computer model used to create the noise contours for small arms (.50 caliber and below) ranges is the Small Arms Range Noise Assessment Model (SARNAM). SARNAM incorporates the latest available information on weapons noise source models, directivity, sound propagation, and the effects of noise mitigation and safety structures such as berms, wall, and ricochet barriers. The SARNAM calculation algorithms assume weather conditions or wind direction that favors sound propagation.

Noise modeling results change depending on the types of weapons fired; location from where, direction in which, frequency, and time of day (and night) they are fired; weather conditions during the reporting period; and some of those inputs must be assumed by the modeler or are input per the modeler's discretion.

Aircraft Noise Model.

Aircraft flight data was obtained to derive average daily operations by runway and type of aircraft Analysis of aircraft operations included the types of aircraft, flight patterns, variations in altitude, number of operations, ground run-up information, and hours of operations. The data was input into NOISEMAP, to produce a map of noise levels. NOISEMAP is a suite of computer programs and components developed by the Air Force to predict noise exposure in the vicinity of an airfield due to aircraft flight, maintenance, and ground run-up operations.

Land Use Compatibility Planning

Through Army regulations, noise exposure on communities is translated into Noise Zones. Regulation guidelines state that for land use planning purposes, noise-sensitive land uses range from "acceptable" to "not recommended" within the Noise Zones. The program defines the following four Noise Zones:

- Noise Zone I (NZ I). NZ I includes all areas in which the PK15(met) decibels are less than 87 dB (for small arms), the ADNL is less than 65 (for aircraft), or the CDNL is less than 62 (for large arms and explosions)—it's usually the furthest zone from the noise source, and it is basically all areas not in either of the next two zones. As a rule, this area is suitable for all types of land use.
- Noise Zone II (NZ II). This is the next furthest area away from the noise source where the PK15(met) decibels are between 87 and 104, the ADNL is between 65 and 75, or the CDNL is between 62 and 70. The noise exposure here is considered significant and the use of land in this zone should generally be limited to activities such as manufacturing, warehousing, transportation, and resource protection. Residential use is strongly discouraged.
- Noise Zone III (NZ III). NZ III is the area closest to the source of the noise where the PK15(met) decibels are greater than 104, the ADNL is greater than 75, or the CDNL is greater than 70. The noise level in this area is so severe that no noise-sensitive uses should be considered therein.
- Land Use Planning Zone (LUPZ). This zone is at the upper end of the NZ I and is defined by a CDNL of 57-62 or an ADNL of 60-65. It accounts for the fact that some installations have seasonal variability in their operations (or several unusually busy days during certain times of the year) and that averaging those busier days over the course of a year (as with the DNL) effectively dilutes their impact. Showing this extra zone creates one more added buffer to encroachment and it signals to planners that encroachment into this area is the beginning of where complaints may become an issue, and that extra care should be taken when approving plans.

Table 8.19 lists the noise zones in tabular format, presents the noise levels encompassed within the particular noise zone, and identifies whether sensitive land uses such as homes, schools, hospitals, places of worship are compatible with that zone.

TABLE 8.19 NOISE ZONES AND SENSITIVE LAND USE COMPATIBILITY

Noise Zone	Noise Limits			Land Use Compatibility Level
	Small Arms (PK15(met))	Aviation (ADNL)	Large Arms, Demolition, Etc. (CDNL)	
Zone I	<87 dB	<65 dB	<62 dB	Compatible
Zone II	87-104 dB	65-75 dB	62-70 dB	Normally Incompatible
Zone III	>104 dB	>75 dB	>70 dB	Incompatible
LUPZ	N/A	60-65 dB	57-62 dB	Compatible

An Installation Operational Noise Management Plan (IONMP) was conducted for Fort Eustis in May 2007 by the U.S. Army Center for Health Promotion and Preventive Medicine. The IONMP provides a review of the current and future noise environment, a methodology for analyzing exposure to noise associated with military operations, and guidelines for achieving compatibility between the Army and the surrounding communities.

Although Fort Eustis supports a wide range of operations, and sources generating noise are diverse, the primary source of noise at Fort Eustis comes from the firing of small arms and daily aircraft operations from FAAF. FAAF is a nearly perfect location for helicopter operations. It is geographically far enough from the cantonment area and civilian neighborhoods to minimize noise issues. The noise contours land entirely within the boundary of Fort Eustis or the adjacent waterways. Currently there are no incompatible land uses within the Zone III (incompatible) or the Zone II (normally incompatible) noise zones for either of these operations.

Recommendations

9 Recommendations

The Recommendations portion of the report provides a list of strategies and actions that can be used to resolve, prevent, and mitigate Areas of Interest identified within the Compatibility Analysis. The recommendations are intended to be general so that each local government has the ability to tailor them to meet their needs during the implementation phase. Some of the recommendations provide multiple strategies to achieve the same objective. Therefore, if one recommendation is implemented there may be another that is no longer necessary. Through the tailored implementation phase, each local government will be able to determine the methodology that best suits their community.

Each section lists the Area of Interest (in red) and the Recommendation (in grey). If additional details are necessary to fully understand the recommendation, they are provided immediately following. Lastly the responsible entity is listed. Because the implementation plan is tailored for each government, not every jurisdiction will be required to implement every recommendation. The primary responsible entity is the one that will take the lead role in implementation. The partner entity will assist the primary entity in implementation.

A summary table at the end of this chapter lists the recommendation and the responsible entity. The black square (■) denotes the entity that will be primarily responsible for implementing the recommendation. The white square (□) denotes the partner entity that will be necessary to assist with the implementation. If a lead entity is needed to take a leadership role for the recommendation, Newport News will be identified as the primary responsible entity as they are the Study sponsor.

9.1 Formalized Communication (FC)

Area of Interest

The community has a great working relationship with the military. A more formalized communication process will only aid in solidifying the relationship.

Implementation Timing
Within 1-3 years

9.1.1 Formalized Communication (FC1)

Prepare and adopt a communication memorandum of understanding (MOU) between Fort Eustis, Newport News, James City County, and York County outlining a procedure for future communications.

A MOU between Fort Eustis, Newport News, James City County, and York County would provide a clear outline of communication procedures to ensure that everyone is adequately informed.

Responsible Entity	
James City County	■
Newport News	■
York County	■
Fort Eustis	■
Other	

9.1.2 Formalized Communication (FC2)

Create a Communication Coordination Manual to be shared with identified individuals.

A Communication Coordination Manual, to be updated yearly, would identify necessary individuals within the local governments and at Fort Eustis. The manual would provide detailed information such as City Council and County Board of Supervisors meeting dates, departmental contact information, city hall location, etc. By updating the manual on a yearly basis, the contacts would stay current.

Responsible Entity	
James City County	☐
Newport News	■
York County	☐
Fort Eustis	☐
Other	

■ Primary Entity; ☐ Partner Entity

9.1.3 Formalized Communication (FC3)

Expand communication efforts with all jurisdictions in the study area.

Communication between Fort Eustis and the community should be made an effortless process. Opportunities include:

- Updating jurisdictions and regional planning organizations websites to link to Fort Eustis web page, include contact information, and relevant activities etc.
- Make points of contact for the community and Fort Eustis widely known and easily identifiable.
- Identify appropriate methods of contact, contact numbers, and expected response time.

Responsible Entity	
James City County	■
Newport News	■
York County	■
Fort Eustis	■
Other	■

9.1.4 Formalized Communication (FC4)

Establish an MOU between Fort Eustis Fire Department and Newport News area hospitals for transporting patients.

Create a formal MOU between Newport News and Fort Eustis providing a clear policy to allow Fort Eustis Fire Department to transport patients to nearby hospitals.

Responsible Entity	
James City County	
Newport News	■
York County	
Fort Eustis	■
Other	

9.1.5 Formalized Communication (FC5)

Establish an MOU between Fort Eustis Military Police and Newport News Police Department and James City County Police Department for any issues around the installation.

Create a formal MOU between James City County, Newport News, and Fort Eustis providing coordination between the Fort Eustis Military Police, Newport News Police Department, and James City County Police Department.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	■
Other	

■ Primary Entity; ☐ Partner Entity

9.1.6 Formalized Communication (FC6)

Establish regularly scheduled meetings between local jurisdictions and Fort Eustis to discuss proposed land use changes, environmental concerns, construction projects, and other issues.

Set quarterly or twice yearly meetings for local jurisdictions and representatives from Fort Eustis to discuss current issues in the area. Other entities may need to be included such as the HRTPO, environmental organizations, state entities, or others. The meetings could have designated representatives or could have voluntary attendees depending on the agenda topics.

Responsible Entity	
James City County	■
Newport News	■
York County	■
Fort Eustis	■
Other	■

9.1.7 Formalized Communication (FC7)

Establish a Fort Eustis community outreach program to engage and update the public.

Fort Eustis should establish a community outreach program that includes tours of the installation, educational brochures, community friendly website, and cyclical community open houses. The open house would provide an overview of training activities, construction projects, and other items of interest while also providing an opportunity for citizens to speak.

Responsible Entity	
James City County	☐
Newport News	☐
York County	☐
Fort Eustis	■
Other	

9.2 JLUS Implementation (JI)

Area of Interest

Communication, outreach, and coordination are critical tools in building and maintaining relationships among elected officials, stakeholders, and citizens in order to mitigate compatibility issues beginning with the implementation of the JLUS and continuing forward.

Implementation Timing
Within 1-3 years

■ Primary Entity; ☐ Partner Entity

9.2.1 JLUS Implementation (JI1)

The Fort Eustis JLUS Technical Working Group should transition to a JLUS Implementation Committee and be responsible for monitoring the implementation of the recommended JLUS strategies and act as a forum for continued communication and sharing of information and current events associated with JLUS.

The Technical Working Group is familiar with the JLUS process as well as the strategies that have been formulated. Their familiarity would allow them to transition to an Implementation Committee and carry the program through to application. The Committee should meet on a regular basis and be responsible for coordinating and addressing the concerns presented within the Fort Eustis JLUS.

Responsible Entity	
James City County	■
Newport News	■
York County	■
Fort Eustis	■
Other	■

9.2.2 JLUS Implementation (JI2)

Establish a GIS Database that includes Fort Eustis and the municipalities that fall within the study area. The Fort Eustis JLUS GIS Database would incorporate all the JLUS GIS data layers as well as other regional, state and federal data sets to be utilized by city and county governments during the development approval process.

Fort Eustis JLUS GIS Database Clearinghouse would incorporate all the JLUS GIS data layers as well as other regional, state and federal data sets to be utilized by city and county governments during the development approval process. One entity would be primarily responsible for the database while all of the municipalities and Fort Eustis would supply the data.

Responsible Entity	
James City County	☐
Newport News	■
York County	☐
Fort Eustis	☐
Other	☐

9.3 Land Use Compatibility (LUC)

Area of Interest

Continue development as currently planned to minimize impacts to the training missions of Fort Eustis.

Implementation Timing
Within 1-3 years

■ Primary Entity; ☐ Partner Entity

9.3.1 Land Use Compatibility (LUC1)

Establish coordination procedures for areas of concern within the MIOD to minimize future incompatibilities from proposed land use or zoning changes.

Coordination procedures should be established to minimize incompatibilities resulting from privately initiated comprehensive plan land use and / or zoning changes.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	■
Other	

9.3.2 Land Use Compatibility (LUC2)

Establish an Acquisition Committee responsible for developing an acquisition plan and for coordinating and prioritizing acquisition efforts.

An Acquisition Committee should be established to lead the prioritization, acquisition, and funding research for potential parcel acquisition. The Committee could be made up of the JLUS Implementation Committee or a subset thereof.

Responsible Entity	
James City County	☐
Newport News	☐
York County	☐
Fort Eustis	■
Other	■

9.3.3 Land Use Compatibility (LUC3)

Develop a land acquisition strategy by identifying parcels that may be suitable for acquisition that support the preservation of military readiness for existing and potential future missions.

Once the acquisition committee is established they should begin identifying appropriate parcels that may be suitable for acquisition that support the preservation of military readiness. Determine the ownership, zoning, future land use, and parcel value, and other information to determine the potential for acquisition. Include a prioritization strategy to identify the parcels that should be pursued.

Responsible Entity	
James City County	☐
Newport News	☐
York County	☐
Fort Eustis	■
Other	■

■ Primary Entity; ☐ Partner Entity

9.4 Main Gate (MG)

Area of Interest

As currently designed, the Main Gate, at Fort Eustis Boulevard doesn't meet the requirements of the Army and could lead to safety concerns for the community.

Implementation Timing
Within 1-3 years

9.4.1 Main Gate (MG1)

Utilize the acquisition committee established in LUC2 to develop an acquisition plan for the main gate area and for coordinating and prioritizing acquisition efforts.

An acquisition committee should be established to lead the prioritization, acquisition, and funding research for potential parcel acquisition. The committee could be made up of the JLUS Implementation committee or a subset thereof.

Responsible Entity	
James City County	☐
Newport News	
York County	
Fort Eustis	■
Other	■

9.4.2 Main Gate (MG2)

Develop a land acquisition strategy for the main gate by identifying parcels that may be suitable for acquisition that support the preservation of military readiness for existing and potential future missions.

Identify appropriate parcels that may be suitable for acquisition that support the preservation of military readiness. Determine the ownership, zoning, future land use, and parcel value, and other information to determine the potential for acquisition. Include a prioritization strategy to identify the parcels that should be pursued.

Responsible Entity	
James City County	☐
Newport News	☐
York County	
Fort Eustis	■
Other	■

■ Primary Entity; ☐ Partner Entity

9.4.3 Main Gate (MG3)

Evaluate the feasibility of encroachment partnering agreements (allowed pursuant to Title 10 USC 2684a) with eligible entities to protect the Fort Eustis main gate from incompatible development.

Title 10 USC 2684a allows the Secretary of Defense or the Secretary of a military department to partner with an eligible entity to acquire real property in the vicinity of, or ecologically related to, a military installation to limit incompatible development, preserve habitat, or protect the mission of the installation from encroachment. Eligible entities include the state, a political subdivision of the state, or a private entity that has the goal of conservation, restoration, or preservation of land and natural resources.

Responsible Entity	
James City County	☐
Newport News	☐
York County	
Fort Eustis	■
Other	■

9.5 Policy Reinforcement (PR)

Area of Interest

Fort Eustis affects multiple jurisdictions. Local regulations may not be in place within every municipality, or are in need of strengthening, in order to meet military protection standards while still allowing for continued community growth.

Implementation Timing
Within 1-3 years

9.5.1 Policy Reinforcement (PR1)

Establish a Military Influence Area (MIA) with a Military Influence Overlay District (MIOD), or other similar alternative.

Create a Military Influence Overlay District (MIOD) made up of Military Influence Areas that reflects the types and intensity of compatible uses. The MIOD is the collective geographic area of all of the Military Influence Areas (MIAs). The MIAs are established to identify where specific compatibility issues may occur. The MIAs should incorporate the lands that include:

- The impacts of the third port,
- The main gate safety buffer,
- The aquatic training area,

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

■ Primary Entity; ☐ Partner Entity

- The noise zones from the small arms range, and
- The FAAF airspace.

The boundary for each MIA should be determined through coordination with Fort Eustis and the applicable local government during the implementation phase.

9.5.2 Policy Reinforcement (PR2)

Update comprehensive plan to incorporate MIA, MIOD, and other military compatibility policies. Update and adopt future land use maps, and supporting goals, objectives, and policies.

Once the MIA and MIODs have been determined, the comprehensive plan should be updated to incorporate the new overlay district(s) or other appropriate regulatory measures. Sections that need to be updated include the future land use map as well as implementing policies.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	
Other	

9.5.3 Policy Reinforcement (PR3)

Update zoning regulations to incorporate MIA and MIOD.

Similar to the updates recommended for the comprehensive plan, the zoning ordinance and zoning map should be updated to implement the newly drafted MIA and MIOD.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	
Other	

9.5.4 Policy Reinforcement (PR4)

Develop and distribute information for property owners that provides details on applicable regulations that govern development within the MIOD.

New regulations applicable to the MIOD, or other similar regulatory process, can be confusing to land owners and community developers unfamiliar with the process. Through the development and dissemination of brochures, website, and pamphlets, the public can become educated on the new changes and how they apply to their property.

Responsible Entity	
James City County	■
Newport News	■
York County	

■ Primary Entity; ☐ Partner Entity

Fort Eustis	
Other	

9.5.5 Policy Reinforcement (PR5)

Establish by policy within the zoning ordinance or land development regulations, a formal requirement that provides Fort Eustis an opportunity to engage in discussion and formal notification of new development located adjacent to the installation or in proximity so as to impact traffic patterns in/around the installation. This should include providing the installation with detailed site plans, project build out descriptions, elevations and construction plans, where appropriate.

The zoning ordinance or land development regulations should be updated to incorporate a Fort Eustis representative in the review process to ensure that copies of development proposals, comprehensive plan amendments, rezonings, and other land use or regulation changes are reviewed for impacts to Fort Eustis. The regulations should incorporate the State of Virginia Code sections 15.2-2211, 15.2-2294, 15.2-2283, 15.2-2200 and 15.2-2204 requirements that promote coordination between military installations and local municipalities.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

9.5.6 Policy Reinforcement (PR6)

Seek regular input from Fort Eustis representatives for technical assistance (e.g., code updates, comprehensive plan updates, and development review processes).

Representatives from Fort Eustis are great resources to help local governments when drafting policies that may have an impact to the military. It is important to set-up a system that allows an easy exchange of ideas and feedback on a regularly occurring basis. The JLUS Implementation Committee, proposed through the implementation process (Recommendation JI1), could facilitate the exchange necessary to determine the appropriate technical expert.

Responsible Entity	
James City County	■
Newport News	■
York County	■
Fort Eustis	☐
Other	

■ Primary Entity; ☐ Partner Entity

9.5.7 Policy Reinforcement (PR7)

Review jurisdictional CIPs that occur within the MIOD to identify projects that may conflict with the mission of the installation.

A Capital Improvements Plan (CIP) is a detailed fiscal and planning document used to identify, direct, and prioritize a jurisdiction's or agency's (federal, state or local) investment in capital facilities, including infrastructure. Identify projects within the CIP that could conflict with the installations mission and / or infrastructure improvements that could spur growth in an incompatible manner.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

9.6 Sea Level Rise and Coastal Flooding (SLR)

Area of Interest

Sea level rise and coastal flooding are affecting both the installation and external properties, infrastructure, and resources within the community.

Implementation Timing
Within 1-3 years

9.6.1 Sea Level Rise and Coastal Flooding (SLR1)

Identify the critical elevations associated with sustainment of various operations and resources and compare them to the various SLR projections to better understand the risk to each.

The study may include, but is not limited to finished floor elevations of the different buildings, edge of pavement elevations, fixed piers or waterfront structures, maneuver trails, range features, and other similar evaluations.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	

■ Primary Entity; ☐ Partner Entity

9.6.2 Sea Level Rise and Coastal Flooding (SLR2)

Evaluate the railroad embankments to understand their risk to coastal flooding and possible effects to training operations.

Conduct a study to identify the railroad embankments and the SLR projections for those same areas. Strategies and techniques should be included to mitigate impacts to rail activities.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	

9.6.3 Sea Level Rise and Coastal Flooding (SLR3)

Review Langley's Flood Impact Analysis Tool to determine if its scope is sufficient to address Fort Eustis flood risk assessment and work to incorporate more detailed information as needed to refine the results and management benefits.

Langley's Flood Impact Analysis Tool uses Geographical Information Systems (GIS) technology to visualize flood maps. A thorough review of the tool should be conducted to determine if Fort Eustis is adequately represented. Incorporate additional information, as necessary, to refine the results and management benefits.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	■

9.6.4 Sea Level Rise and Coastal Flooding (SLR4)

Encourage efforts to evaluate upgrades to interior and exterior roads to better resist SLR and coastal flooding if it is determined critical to long-term access / operations for Fort Eustis.

Conduct analyses to determine the upgrades necessary for roadways to better resist SLR and coastal flooding. Research funding mechanisms and joint collaborations for exterior roadways.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	■

■ Primary Entity; ☐ Partner Entity

9.6.5 Sea Level Rise and Coastal Flooding (SLR5)

Although less conventional and environmental concerns would need to be addressed, perform a feasibility study on how to incorporate perimeter barriers in tandem with water level controls and adaptive management techniques to provide coastal flooding reduction within the vicinity.

The study may include, but is not limited to modifying maneuver trails, railroad embankments, Harrison Road, and existing culvert/bridge crossings to serve as levee systems for flood control storage, storm surge dissipation, and future wetland management in areas otherwise at risk of inundation. Extension of new perimeter barriers across key channels to higher spots along the southern shore of Mulberry Island should also be considered, to help optimize the extents of protection.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	

9.6.6 Sea Level Rise and Coastal Flooding (SLR6)

Evaluate historic preservation options to protect cultural resources within affected areas from SLR and coastal flooding.

Historic cultural resources occur throughout Fort Eustis. SLR and coastal flooding can degrade or erode them if not properly protected. Evaluate the Army's historic preservation options to ensure the preservation and protection of those resources from the impacts of SLR and coastal flooding.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	

9.6.7 Sea Level Rise and Coastal Flooding (SLR7)

Perform a feasibility study and model the benefits that large-scale marsh protection/enhancement or coastal flood storage systems could have on dissipating storm surge within the broader vicinity of Fort Eustis.

Within the study identify how such efforts could help other external infrastructure, properties, and resources within James City County, the City of Newport News, or elsewhere. Explore collaborative funding approaches or grants to allow for the more aggressive implementation options. Additionally, evaluate options for large expansion of tidal marsh areas to help increase tidal surge dissipation and flood protection benefits to the Fort Eustis and the surrounding community. Among other

Responsible Entity	
James City County	☐
Newport News	☐
York County	☐
Fort Eustis	■
Other	

■ Primary Entity; ☐ Partner Entity

alternatives, consider whether forested areas could be utilized, as a tradeoff from one natural resource to another.

9.6.8 Sea Level Rise and Coastal Flooding (SLR8)

Evaluate alternatives on how to protect the regionally-identified high priority wetlands onsite from erosion and inundation to SLR.

As part of the evaluation consider implementation of widespread marsh sills to reduce erosion, headland controls, marsh enhancement and nourishment activities, re-creation of nearshore marsh islands, beneficial re-use of dredged material, and other similar techniques.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	

9.7 Third Port Mission (TPM)

Area of Interest

The third port supports training missions for the Army and other military branches. In order to protect and foster the missions, the Port must be shielded from water and land encroachments.

Implementation Timing
Within 1-3 years

9.7.1 Third Port Mission (TPM1)

Develop documentation to increase awareness and understanding of the mission of the third port and the locations of Fort Eustis water training areas, purpose of the operations, and various impacts (e.g., water restrictions) on the surrounding communities.

Brochures, pamphlets, website language, and other materials should be drafted to educate the public on the third port mission and training areas. The materials should be developed for several audiences including:

- local jurisdiction and agency staff members
- the development community
- landowners

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

■ Primary Entity; ☐ Partner Entity

9.7.2 Third Port Mission (TPM2)

Foster the inclusion of information related to Fort Eustis Third Port Mission as a component of personal watercraft education classes.

Create materials that can be incorporated into safety boater information including class materials as well as brochures, handouts, and website language.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

9.8 Traffic (T)

Area of Interest

Ingress and egress to Fort Eustis contributes to the regional traffic congestion that occurs on a regular basis.

Implementation Timing
Within 1-3 years

9.8.1 Traffic (T1)

Establish a committee to coordinate between Fort Eustis and Newport News to develop a long-term strategy to improve installation access.

Establish a committee focused on traffic issues associated with ingress and egress to the installation and economic development in the area. The committee could consist of a sub-committee of the JLUS Implementation team. Other responsible entities should include the HRTPO and economic development organizations.

Responsible Entity	
James City County	
Newport News	■
York County	
Fort Eustis	■
Other	■

■ Primary Entity; ☐ Partner Entity

9.8.2 Traffic (T2)

Conduct a study to quantify demand cycles and address alternatives such as repositions or improvements to gate access.

An analysis would need to be completed to determine what the demand cycles are for accessing Fort Eustis. The analysis could be completed by a transportation engineer and should include recommendations for repositioning or improvements for gate access.

Responsible Entity	
James City County	
Newport News	■
York County	
Fort Eustis	■
Other	

9.8.3 Traffic (T3)

Fort Eustis staff should participate in HRTPO Transportation Technical Advisory Committee Meeting (TTAC) monthly meetings as TTAC Non-Voting member.

HRTPO Transportation Technical Advisory Committee (TTAC) meets on a monthly basis and includes voting representatives from Hampton Roads localities and various transportation agencies. TTAC also includes non-voting members from various military branches. Fort Eustis needs to participate in the regional conversation by sending a representative to the meetings.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	■

9.9 Waterway Access (WA)

Area of Interest

Fort Eustis is accessible via the James River, Warwick River, and Skiffe's Creek. Waterway traffic creates security concerns when approaching and accessing Fort Eustis.

Implementation Timing
Within 1-3 years

■ Primary Entity; ☐ Partner Entity

9.9.1 Waterway Access (WA1)

Prepare and distribute materials that clearly define the areas used by the military and distribute to the public for educational purposes.

Increase the public's awareness of the areas used by the military for training as well as areas that public access is restricted. Post signs and buoys at strategic locations to warn boaters they are approaching an active military installation. Provide informational brochures that include the area boundaries at marinas and locations where fishing and hunting licenses are issued, boating classes, and where boats are registered.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

9.9.2 Waterway Access (WA2)

Provide educational material on websites and associated agencies to notify of the potential dangers of entering the area.

Coordinate with state and local agencies such as the Department of Natural Resources, Department of Game and Inland Fisheries, and / or Department of Conservation and Recreation to educate the public on the potential dangers of entering the installation. Educational materials may include handouts, brochures, and language to be added to websites.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	■

9.9.3 Waterway Access (WA3)

Evaluate the need for a closure order, land lease, or a land transfer for Fort Eustis to have authority over Goose Island.

Goose Island is currently owned by the Commonwealth of Virginia and managed by the Virginia Department of Game and Inland Fisheries. The property is in close proximity to the third port and can have significant impacts on the Fort's capacity to train and to maintain security. Fort Eustis should coordinate directly with the State of Virginia to determine the most appropriate course of action.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	■

■ Primary Entity; ☐ Partner Entity

9.9.4 Waterway Access (WA4)

Develop a long-range plan, similar to a growth management plan, to address boat use of waterways and manage waterway access around Fort Eustis.

Create a user-friendly plan that provides guidance to local municipalities and Fort Eustis that illustrates a process by which water management issues can be addressed. Include an analysis of the use of the waterway and a strategy for emergency waterway closure, should the need arise.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	■
Other	

9.9.5 Waterway Access (WA5)

Local officials need to pursue the application previously begun with the U.S. Army Corps of Engineers to help lobby to approve restricted access to the creeks, marsh areas, and waterways surrounding Fort Eustis.

Fort Eustis previously submitted a request to the U.S. Army Corps of Engineers, to amend the existing language in 33 CFR 334-280. The request included expanding the existing restricted areas and implementing new danger zone areas. The U.S. Army Corps of Engineers has asked for revisions and a subsequent resubmittal. Fort Eustis and the local jurisdictions, where possible, should follow through with the submittal process until approvals have been granted.

Responsible Entity	
James City County	☐
Newport News	☐
York County	
Fort Eustis	■
Other	☐

9.10 Alternative Energy Development (AED)

Area of Interest

Alternative energy development has the potential to create adverse effects on military operations.

Implementation Timing
Within 4-6 years

■ Primary Entity; ☐ Partner Entity

9.10.1 Alternative Energy Development (AED1)

Develop siting guidelines for commercial solar farms and wind turbine farms to be included in the zoning ordinance.

Municipalities containing lands within the MIOD would need to update their zoning ordinance and development review process to incorporate siting guidelines for commercial solar farms and wind turbine farms.

Responsible Entity	
James City County	■
Newport News	
York County	
Fort Eustis	☐
Other	

9.10.2 Alternative Energy Development (AED2)

Require review and coordination by Army representative for any proposed alternative energy project.

Local governments within the MIOD will need to update their review and approval process within the land development regulations to include a review and coordination component by an Army representative for a large-scale proposed alternative energy project.

Responsible Entity	
James City County	■
Newport News	
York County	
Fort Eustis	☐
Other	

9.11 Airspace Management (AM)

Area of Interest

Coordination between Fort Eustis and the Newport News / Williamsburg International Airport, as well as the military entities using the airports, is essential for continued airspace management.

Implementation Timing
Within 4-6 years

■ Primary Entity; ☐ Partner Entity

9.11.1 Airspace Management (AM1)

Establish procedures for coordination between Fort Eustis and Newport News / Williamsburg International Airport to maintain air space management.

Put into place a procedure using a mechanism such as a Memorandum of Understanding, to formalize a communication process between Fort Eustis and Newport News / Williamsburg International Airport.

Responsible Entity	
James City County	
Newport News	■
York County	
Fort Eustis	■
Other	■

9.11.2 Airspace Management (AM2)

Establish coordination procedures for all military branches utilizing Felker Army Airfield and Newport News / Williamsburg International Airport.

Create a Memorandum of Understanding between all military branches utilizing FAAF and Newport News / Williamsburg International Airport to ensure a standardized communication and notification method is established.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	■

9.11.3 Airspace Management (AM3)

Incorporate BASH standards into the zoning ordinance for the Newport News / Williamsburg International Airport.

Ensure that military branches are able to continue to utilize the Newport News / Williamsburg International Airport by incorporating BASH standards into the Newport News Zoning Ordinance. The BASH Plan was completed in February 2017 by Joint Base Langley-Eustis. Recommendations and policies can be synthesized from the plan and incorporated into the ordinance to minimize aircraft exposure to potentially hazardous wildlife strikes.

Responsible Entity	
James City County	
Newport News	■
York County	
Fort Eustis	☐
Other	

■ Primary Entity; ☐ Partner Entity

9.11.4 Airspace Management (AM4)

Provide educational information on reducing the potential for hazardous bird and wildlife attractions that may impede safe air operations to local jurisdictions, agencies, and landowners in the region.

An educational component is needed to inform the community regarding the potential for hazardous bird and wildlife attractions near FAAF and Newport News / Williamsburg International Airport. Educational resources may include brochures, websites, or other materials that can be distributed to local jurisdictions, agencies, and landowners in the region.

Responsible Entity	
James City County	
Newport News	■
York County	
Fort Eustis	☐
Other	

9.12 Dredge Disposal (DD)

Area of Interest

Dredge disposal solutions are needed for long-term dredging needs.

Implementation Timing
Within 4-6 years

9.12.1 Dredge Disposal (DD1)

Perform feasibility study for retrofit of existing dredge disposal area, to increase its storage capacity and extend its design life.

Conduct a feasibility study to determine the opportunities available for the existing dredge disposal area. Consider expansion and environmental impacts, as well as increasing the height of the perimeter berm.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	

■ Primary Entity; ☐ Partner Entity

9.12.2 Dredge Disposal (DD2)

Evaluate other onsite locations for new dredge disposal areas, in an attempt to avoid offsite disposal.

Conduct a land analysis to determine if other locations are available for dredge disposal areas within the boundaries of Fort Eustis.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	

9.12.3 Dredge Disposal (DD3)

Consider options for onsite beneficial reuse of dredge material, pending current water quality conditions and general characteristics of dredged sediment.

Analyze the possibility of reuse of dredge materials. This may include, but is not limited to tidal marsh establishment and enhancement at various locations along the shoreline, Mulberry Island, supplement to past shoreline erosion controls and nourishment activities, elevation increases at range areas, and elevation increases at horse stables and surrounding pasture.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	

9.12.4 Dredge Disposal (DD4)

Explore collaborative opportunities with the Virginia Department of Game and Inland Fisheries (VDGIF) to use future dredged material for expansion / enhancement of Goose Island and the marsh areas between it and the mainland.

Open dialogue between Fort Eustis and the Virginia Department of Game and Inland Fisheries (VDGIF) to explore opportunities for the use of dredged materials. Meetings should be held as necessary to explore the opportunities available that might include the expansion / enhancement of Goose Island as well as the surrounding marshland.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	■

■ Primary Entity; ☐ Partner Entity

9.13 Installation Access (IA)

Area of Interest

Approximately 80% of Fort Eustis is unfenced, leaving the potential for unauthorized visitors to enter the installation.

Implementation Timing
Within 4-6 years

9.13.1 Installation Access (IA1)

Develop design standards within the zoning ordinance for parcels adjacent to the installation to ensure proper separation.

Create standards to be incorporated within the MIOD of the zoning ordinance that include such items as setbacks, buffers, and other design requirements to increase safety and security around the installation.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

9.13.2 Installation Access (IA2)

Prepare maps that clearly define the areas used by the military for training and distribute to the public for educational purposes.

Increase the public's awareness of the areas used by the military for training as well as areas that public access is restricted. Create a map that clearly identifies the restricted areas and installation boundaries to be distributed throughout the community both online and in paper format.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

■ Primary Entity; ☐ Partner Entity

9.13.3 Installation Access (IA3)

Provide educational material on local government and associated agencies websites to notify of the potential dangers of entering the area.

Create educational materials that may include handouts, brochures, and language to be added to websites to educate the community on the potential dangers of entering the installation. Distribute the information via websites, social media, public forums, and through handouts.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

9.14 Unmanned Aircraft Systems (UAS)

Area of Interest

Private unmanned aircraft systems (UAS), commonly referred to as drones, are prohibited from flying over the installation, but the public may not be properly educated on the rules.

Implementation Timing
Within 4-6 years

9.14.1 Unmanned Aircraft Systems (UAS1)

Create an education program to alert those flying unmanned aircraft systems of the impacts they may have on the installation and that they are prohibited.

The community needs to be educated on the rules and requirements of unmanned aircraft systems as they relate to Fort Eustis. Educational classes could be provided as well as brochures and website materials to be distributed throughout the community, the FAA, and social organizations.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	☐

■ Primary Entity; ☐ Partner Entity

9.14.2 Unmanned Aircraft Systems (UAS2)

Establish MOU with Fort Eustis and local Police Department to coordinate issues and establish standards for notifying unmanned aircraft system users.

Create a MOU between Fort Eustis, James City County, and Newport News to allow police and sheriff's officers to work with Fort Eustis in enforcing the UAS standards established on the installation.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	■
Other	

9.14.3 Unmanned Aircraft Systems (UAS3)

Establish coordination procedures between Fort Eustis and Newport News / Williamsburg International Airport regarding usage of unmanned aircraft system within the airspaces.

Create a formal coordination process, such as an MOU, regarding the use of unmanned aircraft systems within the Newport News / Williamsburg International Airport and Fort Eustis airspaces. The process should establish guidance regarding where and when the unmanned aircraft systems can be used, how the requirements will be enforced, and other pertinent information.

Responsible Entity	
James City County	
Newport News	☐
York County	
Fort Eustis	■
Other	■

9.15 Vertical Obstructions (VO)

Area of Interest

The introduction of vertical obstructions can interfere with the success of training missions as well as the safe operations of the airport. The vertical obstructions can include not only trees and buildings but also telecommunication towers.

Implementation Timing
Within 4-6 years

■ Primary Entity; ☐ Partner Entity

9.15.1 Vertical Obstructions (VO1)

Identify/map areas of concern for vertical obstructions.

Create a vertical constraints map identifying locations within the MIOD where tall structures should be prohibited. The height should be predetermined through discussions with Fort Eustis and the impacted local governments.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

9.15.2 Vertical Obstructions (VO2)

Include Fort Eustis on telecommunication tower siting and approval process when located within the MIOD.

Establish within the zoning ordinance, procedures for Fort Eustis to review and comment on proposed telecommunication towers within the MIOD.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

9.15.3 Vertical Obstructions (VO3)

Increase public awareness of the issues resulting from vertical obstructions and the impacts to the airport.

Craft educational materials including pamphlets, brochures, or handouts, and share with builders, landowners, and other interested parties through websites and meetings to distribute information about the impacts of vertical obstructions on the mission of Fort Eustis.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

■ Primary Entity; ☐ Partner Entity

9.15.4 Vertical Obstructions (VO4)

Prepare and adopt consistent vertical obstruction standards that would apply to new and substantially rehabilitated public buildings and / or structures, such as antennae.

Update the zoning ordinance to include vertical obstruction standards within the MIOD. This action should include:

- Identify existing vertical obstruction issues
- Ensure compliance with FAA Part 77 requirements when establishing height regulations or restrictions
- Ensure that each jurisdiction's current development standards are clearly defined

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

9.16 Wildlife and Habitat Preservation (WHP)

Area of Interest

Fort Eustis and the surrounding communities provide habitat for wildlife as well as significant wetlands and marshes.

Implementation Timing
Within 4-6 years

9.16.1 Wildlife and Habitat Preservation (WHP1)

Share resources and provide assistance where needed between the Army and municipalities to ensure NEPA as well as other state and federal regulations area met.

The municipalities within the JLUS study area can provide support to the Army when completing the NEPA review process and other regulatory processes. Support can include the sharing of data and resources.

Responsible Entity	
James City County	■
Newport News	■
York County	☐
Fort Eustis	☐
Other	

■ Primary Entity; ☐ Partner Entity

9.16.2 Wildlife and Habitat Preservation (WHP2)

Pursue funding through the Army Compatible Use Buffer (ACUB) Program and Readiness and Environmental Protection Initiative (REPI) to provide opportunities for habitat.

Federal programs provide opportunities for additional funding sources in an effort to preserve lands and habitat.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	☐

9.17 Cultural Resources (CR)

Area of Interest

Fort Eustis offers valuable historical information through the Army Transportation Museum and other historical sites.

Implementation Timing
Within 10 years

9.17.1 Cultural Resources (CR1)

Establish a MOU with the appropriate entities to require coordination and the sharing of the cultural resources in the area.

There are a significant number of historic groups and associations within the area. Establish a MOU with these entities, and others, as appropriate, to coordinate and share the cultural resources available.

Responsible Entity	
James City County	■
Newport News	■
York County	■
Fort Eustis	■
Other	■

■ Primary Entity; ☐ Partner Entity

9.17.2 Cultural Resources (CR2)

Analyze the opportunity to provide access to the Army Transportation Museum through realignment of the main gate.

During the design and planning phase of the main gate realignment, analyze the potential to provide direct access to the Army Transportation Museum for civilians.

Responsible Entity	
James City County	
Newport News	■
York County	
Fort Eustis	■
Other	

9.18 Light and Glare (LG)

Area of Interest

Lighting controls and standards for new development are not codified by existing regulations or could be strengthened. There is potential for new development impacting flight paths and training missions caused by glare or lighting.

Implementation Timing
Within 10 years

9.18.1 Light and Glare (LG1)

Coordinate with Fort Eustis to determine the locations off the installation with the greatest concerns relative to existing or future light and glare potential.

Begin a discussion with Fort Eustis, Newport News, and James City County to determine potential locations in the community where there are concerns relating to light and glare. Create a map based on the discussion and incorporate Dark Sky requirements as identified in LG2.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	■
Other	

■ Primary Entity; ☐ Partner Entity

9.18.2 Light and Glare (LG2)

Develop and establish Dark Sky Lighting requirements within the MIOD to minimize urban sky glow and light trespassing into adjacent properties.

Incorporate Dark Sky lighting requirements into zoning regulations and building codes of local governments within the Fort Eustis and Newport News / Williamsburg International Airport airspace.

Responsible Entity	
James City County	**COMPLETE**
Newport News	■
York County	
Fort Eustis	
Other	

9.19 Noise (N)

Area of Interest

Noise generated from small arms weapons firing and daily aircraft operations from Felker Army Airfield can create minor daily interferences.

Implementation Timing
Within 10 years

9.19.1 Noise (N1)

Increase public understanding of noise sources including the purpose of the small arms range, the users of the range, and the importance of the range.

Educate the community regarding the purpose of the small arms range, the users of the range, and the importance of the range so they can better understand why it is necessary. Resources to be used should include the Fort Eustis Public Affairs Office (PAO), the Warrior newspaper, the local media, newsletters, text alerts, brochures, and annual outreach functions.

Responsible Entity	
James City County	
Newport News	■
York County	
Fort Eustis	☐
Other	

■ Primary Entity; ☐ Partner Entity

9.19.2 Noise (N2)

Create a MOU between the Army and all other military personnel that use Felker Army Airfield to establish procedures for noise complaints.

A MOU should be established between all military branches that use FAAF to identify a procedure should a noise complaint occur during training.

Responsible Entity	
James City County	
Newport News	
York County	
Fort Eustis	■
Other	■

9.19.3 Noise (N3)

Provide current and adequate information to facilitate informed decisions by jurisdictions, developers, and interested citizens relative to a property's location and nearby military impacts.

Provide training to local officials and municipal departments so they can deliver an educated response to the community in regards to military impacts associated with noise. Additionally, on an annual basis, at a minimum, hold open houses where interested citizens are able to gather information.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

9.19.4 Noise (N4)

Educate the community on any changes in noise frequency and intensity.

Increase community awareness of training schedules and military operations through the use of local media sources, websites, newsletters, and outreach functions.

Responsible Entity	
James City County	■
Newport News	■
York County	
Fort Eustis	☐
Other	

■ Primary Entity; ☐ Partner Entity

9.19.5 Noise (N5)

Develop a list of potential noise attenuation standards that could be given to homeowners when remodeling or building new structures.

A listing of potential sound attenuation standards should be incorporated into the zoning ordinance. By doing so, future development and redevelopment will have the tools readily available should they desire to mitigate interior noise interference.

Responsible Entity	
James City County	
Newport News	■
York County	
Fort Eustis	
Other	

■ Primary Entity; ☐ Partner Entity

9.20 Recommendations Summary

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
9.1 Formalized Communication (FC) **Implementation Timing: Within 1-3 years**	**The community has a great working relationship with the military. A more formalized communication process will only aid in solidifying the relationship.**				
FC1. Prepare and adopt a communication MOU between Fort Eustis, Newport News, James City County, and York County outlining a procedure for future communications.	■	■	■	■	
FC2. Create a Communication Coordination Manual to be shared with identified individuals.	☐	■	☐	☐	
FC3. Expand communication efforts with all jurisdictions in the study area.	■	■	■	■	■
FC4. Establish an MOU between Fort Eustis Fire Department and Newport News area hospitals for transporting patients.		■		■	
FC5. Establish an MOU between Fort Eustis Military Police and Newport News Police Department and James City County Police Department for any issues around the installation.	■	■		■	
FC6. Establish regularly scheduled meetings between local jurisdictions and Fort Eustis to discuss proposed	■	■	■	■	■

■ Primary Entity; ☐ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
land use changes, environmental concerns, construction projects, and other issues.					
FC7. Establish a Fort Eustis community outreach program to engage and update the public.	☐	☐	☐	■	
9.2 JLUS Implementation (JI) **Implementation Timing: Within 1-3 years**	**Communication, outreach, and coordination are critical tools in building and maintaining relationships among elected officials, stakeholders, and citizens in order to mitigate compatibility issues beginning with the implementation of the JLUS and continuing forward.**				
JI1. The Fort Eustis JLUS Technical Working Group should transition to a JLUS Implementation Committee and be responsible for monitoring the implementation of the recommended JLUS strategies and act as a forum for continued communication and sharing of information and current events associated with JLUS.	■	■	■	■	■
JI2. Establish a GIS Database that includes Fort Eustis and the municipalities that fall within the study area. The Fort Eustis JLUS GIS Database would incorporate all the JLUS GIS data layers as well as other regional, state and federal data sets to be utilized by city and county governments during the development approval process.	☐	■	☐	☐	☐

■ Primary Entity; ☐ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
9.3 Land Use Compatibility (LUC) **Implementation Timing: Within 1-3 years**	**Continue development as currently planned to minimize impacts to the training missions of Fort Eustis.**				
LUC1. Establish coordination procedures for areas of concern within the MIOD to minimize future incompatibilities from proposed land use or zoning changes.	■	■		■	
LUC2. Establish an Acquisition Committee responsible for developing an acquisition plan and for coordinating and prioritizing acquisition efforts.	☐	☐	☐	■	■
LUC3. Develop a land acquisition strategy by identifying parcels that may be suitable for acquisition that support the preservation of military readiness for existing and potential future missions.	☐	☐	☐	■	■
9.4 Main Gate (MG) **Implementation Timing: Within 1-3 years**	**As currently designed, the Main Gate, at Fort Eustis Boulevard doesn't meet the requirements of the Army and could lead to safety concerns for the community.**				
MG1. Utilize the Acquisition Committee established in LUC2 to develop an acquisition plan for the main gate area and for coordinating and prioritizing acquisition efforts.	☐			■	■
MG2. Develop a land acquisition strategy for the main gate by	☐	☐		■	■

■ Primary Entity; ☐ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
identifying parcels that may be suitable for acquisition that support the preservation of military readiness for existing and potential future missions.					
MG3. Evaluate the feasibility of encroachment partnering agreements (allowed pursuant to Title 10 USC 2684a) with eligible entities to protect the Fort Eustis main gate from incompatible development.	☐	☐		■	■
9.5 Policy Reinforcement (PR) **Implementation Timing: Within 1-3 years**	**Fort Eustis affects multiple jurisdictions. Local regulations may not be in place within every municipality, or are in need of strengthening, in order to meet military protection standards while still allowing for continued community growth.**				
PR1. Establish a Military Influence Area (MIA) with a Military Influence Overlay District (MIOD), or other similar alternative.	■	■		☐	
PR2. Update comprehensive plan to incorporate MIA, MIOD, and other military compatibility policies. Update and adopt future land use maps, and supporting goals, objectives, and policies.	■	■			
PR3. Update zoning regulations to incorporate MIA and MIOD.	■	■			
PR4. Develop and distribute information for property owners that provides details on applicable	■	■			

■ Primary Entity; ☐ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
regulations that govern development within the MIOD.					
PR5. Establish by policy within the zoning ordinance or land development regulations, a formal requirement that provides Fort Eustis an opportunity to engage in discussion and formal notification of new development located adjacent to the installation or in proximity so as to impact traffic patterns in/around the installation. This should include providing the installation with detailed site plans, project build out descriptions, elevations and construction plans, where appropriate.	■	■		□	
PR6. Seek regular input from Fort Eustis representatives for technical assistance (e.g., code updates, comprehensive plan updates, and development review processes).	■	■	■	□	
PR7. Review jurisdictional CIPs that occur within the MIOD to identify projects that may conflict with the mission of the installation.	■	■		□	
9.6 Sea Level Rise (SLR)	**Sea level rise and coastal flooding is affecting both the installation and external properties, infrastructure, and resources within the community.**				
Implementation Timing: Within 1-3 years					

■ Primary Entity; □ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
SLR1. Identify the critical elevations associated with sustainment of various operations and resources and compare them to the various SLR projections to better understand the risk to each.				■	
SLR2. Evaluate the railroad embankments to understand their risk to coastal flooding and possible effects to training operations.				■	
SLR3. Review Langley's Flood Impact Analysis Tool to determine if its scope is sufficient to address Fort Eustis flood risk assessment and work to incorporate more detailed information as needed to refine the results and management benefits.				■	■
SLR4. Encourage efforts to evaluate upgrades to interior and exterior roads to better resist SLR and coastal flooding if it is determined critical to long-term access / operations for Fort Eustis.				■	■
SLR5. Although less conventional and environmental concerns would need to be addressed, perform a feasibility study on how to incorporate perimeter barriers in tandem with water level controls and adaptive management techniques to provide				■	

■ Primary Entity; ☐ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
coastal flooding reduction within the vicinity.					
SLR6. Evaluate historic preservation options to protect cultural resources within affected areas from SLR and coastal flooding.				■	
SLR7. Perform a feasibility study and model the benefits that large-scale marsh protection/enhancement or coastal flood storage systems could have on dissipating storm surge within the broader vicinity of Fort Eustis.	☐	☐	☐	■	
SLR8. Evaluate alternatives on how to protect the regionally-identified high priority wetlands onsite from erosion and inundation to SLR.				■	
9.7 Third Port Mission (TPM)	**The third port supports training missions for the Army and other military branches. In order to protect and foster the missions, the Port must be shielded from water and land encroachments.**				
Implement Implementation Timing: Within 1-3 years					
TPM1. Develop documentation to increase awareness and understanding of the mission of the third port and the locations of Fort Eustis water training areas, purpose of the operations, and various impacts (e.g., water restrictions) on the surrounding communities.	■	■		☐	
TPM2. Foster the inclusion of information related to Fort Eustis third	■	■		☐	

■ Primary Entity; ☐ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
port Mission as a component of personal watercraft education classes.					
9.8 Traffic (T) **Implement Implementation Timing: Within 1-3 years**	**Ingress and egress to Fort Eustis contributes to the regional traffic congestion that occurs on a regular basis.**				
T1. Establish a committee to coordinate between Fort Eustis and Newport News to develop a long-term strategy to improve installation access.		■		■	■
T2. Conduct a study to quantify demand cycles and address alternatives such as repositions or improvements to gate access.		■		■	
T3. Fort Eustis staff should participate in HRTPO Transportation Technical Advisory Committee Meeting (TTAC) monthly meetings as TTAC Non-Voting member.				■	■
9.9 Waterway Access (WA1) **Implement Implementation Timing: Within 1-3 years**	**Fort Eustis is accessible via the James River, Warwick River and Skiffe's Creek. Waterway traffic creates security concerns when approaching and accessing Fort Eustis.**				
WA1. Prepare and distribute materials that clearly define the areas used by the military and distribute to the public for educational purposes.	■	■		□	
WA2. Provide educational material on websites and associated agencies to	■	■		□	■

■ Primary Entity; □ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
notify of the potential dangers of entering the area.					
WA3. Evaluate the need for a closure order, land lease, or a land transfer for Fort Eustis to have authority over Goose Island.				■	■
WA4. Develop a long-range plan, similar to a growth management plan, to address boat use of waterways and manage waterway access around Fort Eustis.	■	■		■	
WA5. Local officials need to pursue the application previously begun with the U.S. Army Corps of Engineers to help lobby to approve restricted access to the creeks, marsh areas, and waterways surrounding Fort Eustis.	□	□		■	□
9.10 Alternative Energy Development (AED) **Implement Implementation Timing: Within 4-6 years**	**Alternative energy development has the potential to create adverse effects on military operations.**				
AED1. Develop siting guidelines for commercial solar farms and wind turbine farms to be included in the zoning ordinance.	■			□	
AED2. Require review and coordination by Army representative for any proposed alternative energy project.	■			□	

■ Primary Entity; □ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
9.11 Airspace Management (AM) **Implement Implementation Timing: Within 4-6 years**	**Coordination between Fort Eustis and the Newport News / Williamsburg International Airport, as well as the military entities using the airports, is essential for continued airspace management.**				
AM1. Establish procedures for coordination between Fort Eustis, and Newport News / Williamsburg International Airport to maintain air space management.		■		■	■
AM2. Establish coordination procedures for all military branches utilizing Felker Army Airfield and Newport News / Williamsburg International Airport.				■	■
AM3. Incorporate BASH standards into the zoning ordinance for the Newport News / Williamsburg International Airport.		■		□	
AM4. Provide educational information on reducing the potential for hazardous bird and wildlife attractions that may impede safe air operations to local jurisdictions, agencies, and landowners in the region.		■		□	
9.12 Dredge Disposal (DD) **Implement Implementation Timing: Within 4-6 years**	**Dredge disposal solutions are needed for long-term dredging needs.**				
DD1. Perform feasibility study for retrofit of existing dredge disposal				■	

■ Primary Entity; □ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
area, to increase its storage capacity and extend its design life.					
DD2. Evaluate other onsite locations for new dredge disposal areas, in an attempt to avoid offsite disposal.				■	
DD3. Consider options for onsite beneficial reuse of dredge material, pending current water quality conditions, and general characteristics of dredged sediment.				■	
DD4. Explore collaborative opportunities with the Virginia Department of Game and Inland Fisheries (VDGIF) to use future dredged material for expansion / enhancement of Goose Island and the marsh areas between it and the mainland.				■	■
9.13 Installation Access (IA) **Implement Implementation Timing: Within 4-6 years**	**Approximately 80% of Fort Eustis is unfenced, leaving the potential for unauthorized visitors to enter the installation.**				
IA1. Develop design standards within the zoning ordinance for parcels adjacent to the installation to ensure proper separation.	■	■		□	
IA2. Prepare maps that clearly define the areas used by the military for training and distribute to the public for educational purposes.	■	■		□	

■ Primary Entity; □ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
IA3. Provide educational material on local government and associated agencies websites to notify of the potential dangers of entering the area.	■	■		☐	
9.14 Unmanned Aircraft Systems (UAS) **Implement Implementation Timing: Within 4-6 years**	**Private unmanned aircraft systems (UAS), commonly referred to as drones, are prohibited from flying over the installation, but the public may not be properly educated on the rules.**				
UAS1. Create an education program to alert those flying unmanned aircraft systems of the impacts they may have on the installation and that they are prohibited.	■	■		☐	☐
UAS2. Establish MOU with Fort Eustis and local Police Department to coordinate issues and establish standards for notifying unmanned aircraft system users.	■	■		■	
UAS3. Establish coordination procedures between Fort Eustis and Newport News / Williamsburg International Airport regarding usage of unmanned aircraft system within the airspaces.		☐		■	■
9.15 Vertical Obstructions (VO) **Implement Implementation Timing: Within 4-6 years**	**The introduction of vertical obstructions can interfere with the success of training missions as well as the safe operations of the airport. The vertical obstructions can include not only trees and buildings but also telecommunication towers.**				
VO1. Identify/map areas of concern for vertical obstructions.	■	■		☐	

■ Primary Entity; ☐ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
VO2. Include Fort Eustis on telecommunication tower siting and approval process when located within the MIOD.	■	■		☐	
VO3. Increase public awareness of the issues resulting from vertical obstructions and the impacts to the airport.	■	■		☐	
VO4. Prepare and adopt consistent vertical obstruction standards that would apply to new and substantially rehabilitated public buildings and/or structures, such as antennae.	■	■		☐	
9.16 Wildlife and Habitat Preservation (WHP) **Implement Implementation Timing: Within 4-6 years**	**Fort Eustis and the surrounding communities provide habitat for wildlife as well as significant wetlands and marshes.**				
WHP1. Share resources and provide assistance where needed between the Army and municipalities to ensure NEPA as well as other state and federal regulations area met.	■	■	☐	☐	
WHP2. Pursue funding through the Army Compatible Use Buffer (ACUB) Program and Readiness and Environmental Protection Initiative (REPI) to provide opportunities for habitat.				■	☐

■ Primary Entity; ☐ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
9.17 Cultural Resources (CR) **Implement Implementation Timing: Within 10 years**	**Fort Eustis offers valuable historical information through the Army Transportation Museum and other historical sites.**				
CR1. Establish a MOU with the appropriate entities to require coordination and the sharing of the cultural resources in the area.	■	■	■	■	■
CR2. Analyze the opportunity to provide access to the Army Transportation Museum through realignment of the main gate.		■		■	
9.18 Light and Glare (LG) **Implement Implementation Timing: Within 10 years**	**Lighting controls and standards for new development are not codified by existing regulations or could be strengthened. There is potential for new development impacting flight paths and training missions caused by glare or lighting.**				
LG1. Coordinate with Fort Eustis to determine the locations off the installation with the greatest concerns relative to existing or future light and glare potential.	■	■		■	
LG2. Develop and establish Dark Sky Lighting requirements within the MIOD to minimize urban sky glow and light trespassing into adjacent properties.	**COMPLETE**	■			
9.19 Noise (N) **Implement Implementation Timing: Within 10 years**	**Noise generated from small arms weapons firing and daily aircraft operations from Felker Army Airfield can create minor daily interferences.**				
N1. Increase public understanding of noise sources including the purpose of		■		☐	

■ Primary Entity; ☐ Partner Entity

	JAMES CITY COUNTY	NEWPORT NEWS	YORK COUNTY	FORT EUSTIS	OTHER
the small arms range, the users of the range, and the importance of the range.					
N2. Create a MOU between the Army and all other military personnel that use Felker Army Airfield to establish procedures for noise complaints.				■	■
N3. Provide current and adequate information to facilitate informed decisions by jurisdictions, developers and interested citizens relative to a property's location and nearby military impacts.	■	■		☐	
N4. Educate the community on any changes in noise frequency and intensity.	■	■		☐	
N5. Develop a list of potential noise attenuation standards that could be given to homeowners when remodeling or building new structures.		■			

■ Primary Entity; ☐ Partner Entity

10

Implementation Plan

10 Implementation Plan

The foundation of the Fort Eustis JLUS is a community-driven, cooperative, strategic planning process among Fort Eustis, Newport News, James City County, and York County, as well as stakeholders, elected officials, and the community. As such, the coordinated project represents a truly collaborative planning process. The 71 recommendations in the previous section are the product of consensus among the JLUS participants, and provide a practical, coordinated approach to continued regional planning for military and civilian compatibility.

Each of the recommendations incorporate one or more actions that can be implemented to promote compatible land use, prevent encroachments upon the military mission, mitigate existing incompatibilities, facilitate compatible future development, and provide mechanisms to foster communication and coordination. The recommended strategies function as tools to aid the community in their goal of ensuring the continued sustainability of the military mission at Fort Eustis. Collectively, these strategies represent an assertive and coordinated approach that demonstrate the community's commitment to that goal.

The question then becomes, "How do we implement the recommendations?" The process for implementation can be confusing and complicated. The recommendations themselves vary as well as the processes and procedures of the municipalities implementing them. However, if the recommendations remain as words in a report, the intent of the study is not accomplished. Through actual implementation, the community and the military are able to fulfill the goal of the JLUS and work together to create a thriving community while maintaining support for the mission of the Installation.

The recommendation strategies have been categorized into groups that provide a general description of what they entail. They consist of:

- **Communication and Coordination.** Recommendations in the Communication and Coordination category would provide opportunities and strategies for increased communication or coordination between Fort Eustis, the community, stakeholders, elected officials, civilians, and military families.
- **Education.** Recommendations under the Education category will help educate the community on facts and details that might help to clarify information or provide new information.
- **Policy.** Policy recommendations include changes to regulatory documents such as the comprehensive plan, zoning ordinances, and/or building codes.
- **Program or Process.** A program or process may need to be established to address a specified area of interest.
- **Study.** Studies or reports may be needed to determine additional information, conduct additional analyses, and research before the next steps can be determined.

The following Implementation Plan will provide a general overview for each municipality to put into place the recommendations set forth within the JLUS.

10.1 City of Newport News

Fort Eustis is located primarily within the City of Newport News. It is important for the City to assist in the establishment of the Fort Eustis JLUS Implementation Committee and to serve as an active member of the Committee. The Fort Eustis JLUS Implementation Committee will be responsible for monitoring and coordinating with all participating entities for the overall implementation of the JLUS.

The recommendations summarized in the following section are crafted specifically to meet the needs of the City of Newport News and with guidance from the overall committee. The process below provides a general overview of the steps that Newport News can take to implement their portion of the JLUS process. Only the recommendations that identified Newport News as the primary responsible party are discussed. However, as Newport News is the study sponsor, they have also been identified as the responsible entity when a leadership role is required for the recommendation.

10.1.1 Communication and Coordination

Communication and coordination measures can help resolve many of the concerns that were identified within the JLUS. Communication and coordination provides opportunities to share information and a forum to receive feedback. Communication and coordination strategies include establishing formal procedures such as memorandums of understanding (MOU) or formal processes such as recurring meetings.

Communication Procedures

Communication procedures are important to establish to easily facilitate discussion when the need arises. A frequently used method is a MOU. A MOU is a formal agreement established between multiple parties. Although it is not legally binding, it is a valuable agreement that indicates an intended common action. They aid in establishing the role of each party and can provide guidance for intended future actions. The MOU provides a tool that can be referenced when a question arises.

- Prepare and adopt a communication memorandum that outlines procedures for future communications with the municipalities of the study area and Fort Eustis.
- Coordination procedures should be outlined that provide opportunities for discussion of privately initiated comprehensive plan land use and / or zoning changes.
- Establish a MOU between the Fort Eustis Fire Department and local hospitals to provide for sharing of community resources associated with the transportation of patients to the local hospitals.
- Put into place a procedure, using a mechanism such as a MOU, to formalize a communication process between Fort Eustis and Newport News / Williamsburg International Airport.
- Create a MOU between Fort Eustis, James City County, and Newport News to allow police and sheriff's officers to work with Fort Eustis in enforcing the UAS standards established on the installation.
- Create a formal coordination process, such as a MOU, regarding the use of unmanned systems within the Newport News / Williamsburg International Airport and Fort Eustis airspaces. The process should

establish guidance regarding where and when the unmanned systems can be used, how the requirements will be enforced, and other pertinent information.

- Establish a MOU with historic groups, Fort Eustis, and other agencies to coordinate and share the cultural resources available.

Committees

- Establish a committee focused on traffic issues associated with ingress and egress to the installation and economic development in the area.

Activities

- A Communication Coordination Manual, updated on a yearly basis, would identify key individuals within the local governments and at Fort Eustis. The Manual would provide detailed information such as City Council and County Commission meeting dates, departmental contact information, city hall location, emergency contacts, and other such pertinent information.
- Communication between the community and Fort Eustis should be a seamless process. Efforts to provide opportunities for communication could include updating jurisdictions and regional planning organizations websites to link to the Fort Eustis web page; provide relevant contact information and activities on websites; make points of contact for the community and Fort Eustis widely known and easily identifiable; and identify appropriate methods of contact, contact numbers, and expected response time.
- Set regularly scheduled meetings for local jurisdictions and representatives from Fort Eustis to discuss current issues in the area such as proposed land use changes, environmental concerns, and construction projects. The meetings could have designated representatives or could have voluntary attendees depending on the agenda topics.
- Representatives from Fort Eustis are great resources to help local governments when drafting policies that may have an impact to the military. It is important to setup a system that allows an easy exchange of ideas and feedback on a regularly occurring basis. The JLUS Implementation Committee could facilitate the exchange necessary to determine the appropriate technical expert.
- Initiate a discussion with Fort Eustis, Newport News, and James City County to determine potential locations in the community where there are concerns relating to light and glare.

10.1.2 Education

An informed community can minimize misunderstandings and provide the knowledge needed leading to more informed decision making. Several recommendations throughout the JLUS provide opportunities for the community and Fort Eustis to learn from one another. Educational programs include the following:

- New regulations applicable to the MIOD, or other similar regulatory process, can be confusing to land owners and community developers unfamiliar with the process. Through the development and

dissemination of brochures, website, and pamphlets, the public can become educated on the new changes and how they apply to their property.

- Brochures, pamphlets, website language, and other materials should be drafted to educate the public on the third port mission and training areas. The materials should be developed for several audiences which may include local jurisdictions and agency staff members, the development community, and landowners.
- Create materials that can be incorporated into safety boater information including class materials as well as brochures, handouts, and website language.
- Increase the public's awareness of the areas used by the military for training as well as areas that public access is restricted. Post signs and buoys at strategic locations to warn boaters they are approaching an active military installation. Create a map that clearly identifies the restricted areas and installation boundaries to be distributed throughout the community both online and in paper format. Provide informational brochures that include the area boundaries at marinas and locations where fishing and hunting licenses are issued, boating classes, and where boats are registered.
- Coordinate with state and local agencies such as the Department of Natural Resources, Department of Game and Inland Fisheries, and / or Department of Conservation and Recreation to educate the public on the potential dangers of entering the installation. Educational materials may include handouts, brochures, and language to be added to websites.
- An educational component is needed to inform the community regarding the potential for hazardous bird and wildlife attractions near FAAF and Newport News / Williamsburg International Airport. Educational resources may include brochures, websites, or other materials that can be distributed to local jurisdictions, agencies, and landowners in the region.
- Educate the community on the rules and requirements of unmanned aircraft systems as they relate to Fort Eustis. Educational classes could be provided as well as brochures and website materials to be distributed throughout the community and social organizations.
- Craft educational materials including pamphlets, brochures, or handouts, and share with builders, landowners, and other interested parties through websites and meetings to distribute information about the impacts of vertical obstructions on the mission of Fort Eustis.
- Educate the community regarding the purpose of the small arms range, the users of the range, and the importance of the range so they can better understand why it is necessary. Resources to be used should include the Fort Eustis Public Affairs Office (PAO), the Warrior newspaper, the local media, newsletters, text alerts, brochures, and annual outreach functions.
- Provide training to local officials and municipal departments so they can deliver an educated response to the community in regards to military impacts associated with noise. Additionally, on an annual basis, at a minimum, hold open houses where interested citizens are able to gather information.
- Increase community awareness of training schedules and military operations through the use of local media sources, websites, newsletters, and outreach functions so they may be better prepared for changes in noise frequency and intensity.

10.1.3 Policy

A crucial step for implementing the JLUS within Newport News is to lay the foundation within the City's Land Development Regulations and comprehensive plan by establishing a Military Influence Overlay District (MIOD) or other similar alternative. The MIOD is a geographic boundary consisting of the JLUS study area boundary located within Newport News. Within the MIOD, specific concerns can be addressed through the Military Influence Area (MIA). The MIAs should incorporate the lands that include: the impacts of the third port, the main gate safety buffer, the aquatic training area, the noise zones from the small arms range, and the FAAF airspace. The exact boundaries of the overlay and MIAs should be determined through discussions with Newport News and Fort Eustis.

As part of the continued coordination between the Army and Newport News, review of development and proposed land use changes need to be shared, particularly when they are located within the MIOD. The zoning ordinance or land development regulations should be updated to incorporate a Fort Eustis representative in the review process to ensure that copies of development proposals, comprehensive plan amendments, rezonings, and other land use or regulation changes are reviewed for impacts to Fort Eustis. In particular, telecommunication towers projects should receive input from Fort Eustis before approval if located within the MIOD. The land development regulations should incorporate the State of Virginia Code sections 15.2-2211, 15.2-2294, 15.2-2283, 15.2-2200 and 15.2-2204 requirements that promote coordination between military installations and local municipalities.

Additional standards that should be incorporated into regulatory documents include:

- Ensure that military branches are able to continue to utilize the Newport News / Williamsburg International Airport by incorporating BASH standards into the Newport News Zoning Ordinance.
- Create standards to be incorporated within the MIOD of the zoning ordinance that include such items as setbacks, buffers, and other design requirements to increase safety and security around the installation.
- Update the zoning ordinance to include vertical obstruction standards within the MIOD.
- Incorporate Dark Sky lighting requirements into zoning regulations and building codes within the MIOD that includes Fort Eustis and Newport News / Williamsburg International Airport airspace.
- Incorporate into the zoning ordinance a list of potential noise attenuation standards that could be given to homeowners when remodeling or building new structures.

10.1.4 Program or Process

Many programs and processes are currently in place to aid the local governments within the study area and Fort Eustis in achieving their objectives. The JLUS identified some additional programs and processes or modifications to those that are already in place.

- Fort Eustis JLUS GIS Database Clearinghouse would incorporate all the JLUS GIS data layers as well as other regional, state and federal data sets to be utilized by city and county governments during the

development approval process. One entity would be primarily responsible for the database while all of the municipalities and Fort Eustis would supply the data.

- The municipalities within the JLUS study area can provide support to the Army when completing the NEPA review process and other regulatory processes. Support can include the sharing of data and resources.

10.1.5 Study

The implementation of the JLUS may lead to additional studies or projects that need to take place before the next steps can be implemented. The following projects or studies will lead the county into the next phases of implementation:

- Identify projects within the CIP that could conflict with the installations mission and / or infrastructure improvements that could spur growth in an incompatible manner.
- Conduct an analysis to determine the demand cycles for accessing Fort Eustis. The analysis should be completed by a transportation engineer and include recommendations for repositioning or improvements for gate access.
- Create a user-friendly plan that provides guidance to local municipalities and Fort Eustis that illustrates a process by which water management issues can be addressed. Include an analysis of the use of the waterway and a strategy for emergency waterway closure, should the need arise.
- Create a vertical constraints map identifying locations within the MIOD where tall structures should be prohibited. The height should be predetermined through discussions with Fort Eustis and the impacted local governments.
- During the design and planning phase of the main gate realignment, analyze the potential to provide direct access to the Army Transportation Museum for civilians.

10.2 James City County

A small portion of Fort Eustis is located within James City County, but the impacts can be felt within the community. It is important for the County to assist in the establishment of the Fort Eustis JLUS Implementation Committee and to serve as an active member of the Committee. The Fort Eustis JLUS Implementation Committee will be responsible for monitoring and coordinating with all participating entities for the overall implementation of the JLUS.

The recommendations summarized in the following section are crafted specifically to meet the needs of James City County and with guidance from the overall committee. The process below provides a general overview of the steps that James City County can take to implement their portion of the JLUS process. Only the recommendations that identified James City County as the primary responsible party were discussed.

10.2.1 Communication and Coordination

Communication and coordination measures can help resolve many of the concerns that were identified within the JLUS. Communication and coordination provides opportunities to share information and a forum

to receive feedback. Communication and coordination strategies include establishing formal procedures such as a MOU or formal processes such as recurring meetings.

Communication Procedures

Communication procedures are important to establish to easily facilitate discussion when the need arises. A frequently used method is a MOU. A MOU is a formal agreement established between multiple parties. Although it is not legally binding, it is a valuable agreement that indicates an intended common action. They aid in establishing the role of each party and can provide guidance for intended future actions. The MOU provides a tool that can be referenced when a question arises.

- Prepare and adopt a communication memorandum that outlines procedures for future communications with the municipalities of the study area and Fort Eustis.
- Coordination procedures should be outlined that provide opportunities for discussion of privately initiated comprehensive plan land use and / or zoning changes.
- Create a MOU between Fort Eustis, James City County and Newport News to allow police and sheriff's officers to work with Fort Eustis in enforcing the UAS standards established on the installation.
- Establish a MOU with historic groups, Fort Eustis, and other agencies to coordinate and share the cultural resources available.

Activities

- Communication between the community and Fort Eustis should be a seamless process. Efforts to provide opportunities for communication could include updating jurisdictions and regional planning organizations websites to link to Fort Eustis web page; provide relevant contact information and activities on websites; make points of contact for the community and Fort Eustis widely known and easily identifiable; and identify appropriate methods of contact, contact numbers, and expected response time.
- Set regularly scheduled meetings for local jurisdictions and representatives from Fort Eustis to discuss current issues in the area such as proposed land use changes, environmental concerns, and construction projects. The meetings could have designated representatives or could have voluntary attendees depending on the agenda topics.
- Representatives from Fort Eustis are great resources to help local governments when drafting policies that may have an impact to the military. It is important to setup a system that allows an easy exchange of ideas and feedback on a regularly occurring basis. The JLUS Implementation Committee could facilitate the exchange necessary to determine the appropriate technical expert.
- Initiate a discussion with Fort Eustis, Newport News, and James City County to determine potential locations in the community where there are concerns relating to light and glare.

10.2.2 Education

An informed community can minimize misunderstandings and provide the knowledge needed leading to more informed decision making. Several recommendations throughout the JLUS provide opportunities for the community and Fort Eustis to learn from one another. Educational programs include the following:

- New regulations applicable to the MIOD, or other similar regulatory process, can be confusing to land owners and community developers unfamiliar with the process. Through the development and dissemination of brochures, website, and pamphlets, the public can become educated on the new changes and how they apply to their property.
- Brochures, pamphlets, website language, and other materials should be drafted to educate the public on the third port mission and training areas. The materials should be developed for several audiences which may include local jurisdictions and agency staff members, the development community, landowners.
- Create materials that can be incorporated into safety boater information including class materials as well as brochures, handouts, and website language.
- Increase the public's awareness of the areas used by the military for training as well as areas that public access is restricted. Post signs and buoys at strategic locations to warn boaters they are approaching an active military installation. Provide informational brochures that include the area boundaries at marinas and locations where fishing and hunting licenses are issued, boating classes, and where boats are registered.
- Coordinate with state and local agencies such as the Department of Natural Resources, Department of Game and Inland Fisheries, and / or Department of Conservation and Recreation to educate the public on the potential dangers of entering the installation. Educational materials may include handouts, brochures, and language to be added to websites.
- Increase the public's awareness of the areas used by the military for training as well as areas that public access is restricted via land and water. Create a map that clearly identifies the restricted areas and installation boundaries to be distributed throughout the community both online and in paper format.
- The community needs to be educated on the rules and requirements of unmanned aircraft systems as they relate to Fort Eustis. Educational classes could be provided as well as brochures and website materials to be distributed throughout the community, the FAA, and social organizations.
- Craft educational materials including pamphlets, brochures, or handouts, and share with builders, landowners, and other interested parties through websites and meetings to distribute information about the impacts of vertical obstructions on the mission of Fort Eustis.
- Provide training to local officials and municipal departments so they can deliver an educated response to the community in regards to military impacts associated with noise. Additionally, on an annual basis, at a minimum, hold open houses where interested citizens are able to gather information.

- Increase community awareness of training schedules and military operations through the use of local media sources, websites, newsletters, and outreach functions so they may be better prepared for changes in noise frequency and intensity.

10.2.3 Program or Process

Many programs and processes are currently in place to aid the local governments within the study area and Fort Eustis in achieving their objectives. The JLUS resulted in some additional programs and processes or modifications to those that are already in place.

- The municipalities within the JLUS study area can provide support to the Army when completing the NEPA review process and other regulatory processes. Support can include the sharing of data and resources.

10.2.4 Policy

A crucial step for implementing the JLUS within James City County is to lay the foundation within the County's Land Development Regulations and comprehensive plan by establishing a Military Influence Overlay District (MIOD) or other similar alternative. The MIOD is a geographic boundary consisting of the JLUS study area boundary located within James City County. Within the MIOD, specific concerns can be addressed through the Military Influence Area (MIA). The MIAs should incorporate the lands that include: the impacts of the third port, the aquatic training area, and the FAAF airspace. The exact boundaries of the overlay and MIAs should be determined through discussions with James City County and Fort Eustis.

As part of the continued coordination between the Army and James City County, review of development and proposed changes need to be shared, particularly when occuring within the MIOD. The zoning ordinance or land development regulations should be updated to incorporate a Fort Eustis representative in the review process to ensure that copies of development proposals, comprehensive plan amendments, rezonings, and other land use or regulation changes are reviewed for impacts to Fort Eustis. In particular, the following projects should receive input from Fort Eustis before approval when located within the MIOD: proposed alternative energy projects and telecommunication towers. The updated land development regulations should incorporate the State of Virginia Code sections 15.2-2211, 15.2-2294, 15.2-2283, 15.2-2200 and 15.2-2204 requirements that promote coordination between military installations and local municipalities.

Additional standards that should be incorporated into regulatory documents include:

- Siting guidelines within the zoning ordinance for commercial solar wind farms and wind turbine farms within the MIOD
- Create standards to be incorporated within the MIOD of the zoning ordinance that include such items as setbacks, buffers, and other design requirements to increase safety and security around the installation.
- Update the zoning ordinance to include vertical obstruction standards within the MIOD.

- Incorporate Dark Sky lighting requirements into zoning regulations and building codes of local governments within the MIOD that includes Fort Eustis and Newport News / Williamsburg International Airport airspace.

10.2.5 Study

The implementation of the JLUS can often lead to additional studies or projects that need to take place before the next steps can be implemented. The following projects or studies will lead the city into the next phases of implementation:

- A Capital Improvements Plan (CIP) is a detailed fiscal and planning document used to identify, direct, and prioritize a jurisdiction's or agency's (federal, state or local) investment in capital facilities, including infrastructure. Identify projects within the CIP that could conflict with the installations mission and / or infrastructure improvements that could spur growth in an incompatible manner.
- Create a user-friendly plan that provides guidance to local municipalities and Fort Eustis that illustrates a process by which water management issues can be addressed. Include an analysis of the use of the waterway and a strategy for emergency waterway closure, should the need arise.
- Create a vertical constraints map identifying locations within the MIOD where tall structures should be prohibited. The height should be predetermined through discussions with Fort Eustis and the impacted local governments.

10.3 York County

Although Fort Eustis is not located within York County, some of the impacts can be felt within the community. It is important for the County to assist in the establishment of the Fort Eustis JLUS Implementation Committee and to serve as an active member of the Committee. The Fort Eustis JLUS Implementation Committee will be responsible for monitoring and coordinating with all participating entities for the overall implementation of the JLUS.

The recommendations summarized in the following section are crafted specifically to meet the needs of York County and with guidance from the overall committee. The process below provides a general overview of the steps that York County can take to implement their portion of the JLUS process. Only the recommendations that identified York County as the primary responsible party were discussed.

10.3.1 Communication and Coordination

Communication and coordination measures can help resolve many of the concerns that were identified within the JLUS. Communication and coordination provides opportunities to share information and a forum to receive feedback. Communication and coordination strategies include establishing formal procedures such as a MOU or formal processes such as recurring meetings.

Communication Procedures

Communication procedures are important to establish to easily facilitate discussion when the need arises. A frequently used method is a MOU. A MOU is a formal agreement established between multiple parties. Although it is not legally binding, it is a valuable agreement that indicates an intended common action. They aid in establishing the role of each party and can provide guidance for intended future actions. The MOU provides a tool that can be referenced when a question arises.

- Prepare and adopt a communication memorandum that outlines procedures for future communications with the municipalities of the study area and Fort Eustis.
- Establish a MOU with historic groups, Fort Eustis, and other agencies to coordinate and share the cultural resources available.

Activities

- Communication between the community and Fort Eustis should be a seamless process. Efforts to provide opportunities for communication could include updating jurisdictions and regional planning organizations websites to link to Fort Eustis web page; provide relevant contact information and activities on websites; make points of contact for the community and Fort Eustis widely known and easily identifiable; and identify appropriate methods of contact, contact numbers, and expected response time.
- Set quarterly meetings for local jurisdictions and representatives from Fort Eustis to discuss current issues in the area such as proposed land use changes, environmental concerns, and construction projects. The meetings could have designated representatives or could have voluntary attendees depending on the agenda topics.
- Representatives from Fort Eustis are great resources to help local governments when drafting policies that may have an impact to the military. It is important to setup a system that allows an easy exchange of ideas and feedback on a regularly occurring basis. The JLUS Implementation Committee could facilitate the exchange necessary to determine the appropriate technical expert.

10.4 Fort Eustis

Although the JLUS is focused primarily on policies, programs, plans, and studies that can be conducted by local governments, Fort Eustis can contribute as well. The recommendations summarized in the following section are specific to the needs and abilities of Fort Eustis. The process below provides a general overview of the steps that Fort Eustis can take to implement their portion of the JLUS process. Only the recommendations that identified Fort Eustis as the primary responsible party were discussed.

It is important for Fort Eustis to assist in the establishment of the Fort Eustis JLUS Implementation Committee and to serve as an active member of the Committee. The Fort Eustis JLUS Implementation Committee will be responsible for monitoring and coordinating with all participating entities for the overall implementation of the JLUS.

10.4.1 Communication and Coordination

Communication and coordination measures can help resolve many of the concerns that were identified within the JLUS. Communication and coordination provides opportunities to share information and a forum to receive feedback. Communication and coordination strategies include establishing formal procedures such as a MOU or formal processes such as recurring meetings.

Communication Procedures

Communication procedures are important to establish to easily facilitate discussion when the need arises. A frequently used method is a MOU. A MOU is a formal agreement established between multiple parties. Although it is not legally binding, it is a valuable agreement that indicates an intended common action. They aid in establishing the role of each party and can provide guidance for intended future actions. The MOU provides a tool that can be referenced when a question arises.

- Prepare and adopt a communication memorandum that outlines procedures for future communications with the municipalities of the study area and Fort Eustis.
- Coordination procedures should be outlined that provide opportunities for discussion of privately initiated comprehensive plan land use and / or zoning changes.
- Establish a MOU between the Fort Eustis Fire Department and local hospitals to provide for a sharing of community resources associated with the transportation of patients to the local hospitals.
- Put into place a procedure using a mechanism such as a MOU, to formalize a communication process between Fort Eustis, and Newport News / Williamsburg International Airport.
- Create a MOU between all military branches utilizing FAAF and Newport News / Williamsburg International Airport to ensure a standardized communication and notification method is established for airspace management and noise.
- Create a MOU between Fort Eustis, James City County, and Newport News to allow police and sheriff's officers to work with Fort Eustis in enforcing the UAS standards established on the installation.
- Create a formal coordination process, such as a MOU, regarding the use of unmanned systems within the Newport News / Williamsburg International Airport and Fort Eustis airspaces. The process should establish guidance regarding where and when the unmanned systems can be used, how the requirements will be enforced, and other pertinent information.
- Establish a MOU with historic groups, Fort Eustis, and other agencies to coordinate and share the cultural resources available.

Committees

- An acquisition committee should be established to lead the prioritization, acquisition, and funding research for potential parcel acquisition. The committee could be made up of the JLUS Implementation committee or a subset thereof.
- Establish a committee focused on traffic issues associated with ingress and egress to the installation and economic development in the area.

- HRTPO Transportation Technical Advisory Committee (TTAC) meets on a monthly basis and includes voting representatives from Hampton Roads localities and various transportation agencies. TTAC also includes non-voting members from various military branches. Fort Eustis needs to participate in the regional conversation by sending a representative to the meetings.

Activities

- Communication between the community and Fort Eustis should be a seamless process. Efforts to provide opportunities for communication could include updating jurisdictions and regional planning organizations websites to link to Fort Eustis web page; provide relevant contact information and activities on websites; make points of contact for the community and Fort Eustis widely known and easily identifiable; and identify appropriate methods of contact, contact numbers, and expected response time.
- Set quarterly meetings for local jurisdictions and representatives from Fort Eustis to discuss current issues in the area such as proposed land use changes, environmental concerns, and construction projects. The meetings could have designated representatives or could have voluntary attendees depending on the agenda topics.
- Representatives from Fort Eustis are great resources to help local governments when drafting policies that may have an impact to the military. It is important to set-up a system that allows an easy exchange of ideas and feedback on a regularly occurring basis. The JLUS Implementation Committee could facilitate the exchange necessary to determine the appropriate technical expert.
- Initiate a discussion with Fort Eustis, Newport News, and James City County to determine potential locations in the community where there are concerns relating to light and glare.
- Open up dialogue between Fort Eustis and the Virginia Department of Game and Inland Fisheries (VDGIF) to explore opportunities for the use of dredged materials. Meetings should be held as necessary to explore the opportunities available that might include the expansion / enhancement of Goose Island as well as the surrounding marshland.

10.4.2 Program or Process

Many programs and processes are currently in place to aid the local governments within the study area and Fort Eustis in achieving their objectives. The JLUS resulted in some additional programs and processes or modifications to those that are already in place.

- Fort Eustis should establish a community outreach program that includes tours of the installation, educational brochures, community friendly website, and cyclical community open houses. The open house would provide an overview of training activities, construction projects, and other items of interest while also providing an opportunity for citizens to speak.
- Fort Eustis previously submitted a request to the U.S. Army Corps of Engineers, to amend the existing language in 33 CFR 334-280. The request included expanding the existing restricted areas and implementing new danger zone areas. The U.S. Army Corps of Engineers has asked for revisions and a

subsequent resubmittal. Fort Eustis and the local jurisdictions, where possible, should follow through with the submittal process until approvals have been granted.

- Pursue funding through the Army Compatible Use Buffer (ACUB) Program and Readiness and Environmental Protection Initiative (REPI) to provide opportunities for habitat.

10.4.3 Study

The implementation of the JLUS can often lead to additional studies or projects that need to take place before the next steps can be implemented. The studies are primarily related to sea level rise and dredging but also include land acquisition, traffic, and other subject matter. The following projects or studies will lead the city into the next phases of implementation:

- Develop a land acquisition strategy by identifying parcels that may be suitable for acquisition that support the preservation of military readiness for existing and potential future missions including properties for the main gate.
- Title 10 USC 2684a allows the Secretary of Defense or the Secretary of a military department to partner with an eligible entity to acquire real property in the vicinity of, or ecologically related to, a military installation to limit incompatible development, preserve habitat, or protect the mission of the installation from encroachment. Eligible entities include the state, a political subdivision of the state, or a private entity that has the goal of conservation, restoration, or preservation of land and natural resources.
- Identify the critical elevations associated with sustainment of various operations and resources and compare them to the various SLR projections to better understand the risk to each. The study may include, but is not limited to finished floor elevations of the different buildings, edge of pavement elevations, fixed piers or waterfront structures, maneuver trails, range features, and other similar evaluations.
- Conduct a study to identify the railroad embankments and the SLR projections for those same areas. Strategies and techniques should be included to mitigate impacts to rail activities.
- Langley's Flood Impact Analysis Tool uses Geographical Information Systems (GIS) technology to visualize flood maps. A throughout review of the tool should be conducted to determine if Fort Eustis is adequately represented. Incorporate additional information, as necessary, to refine the results and management benefits.
- Conduct analyses to determine the upgrades necessary for roadways to better resist SLR and coastal flooding. Research funding mechanisms and joint collaborations for exterior roadways.
- Perform a feasibility study on how to incorporate perimeter barriers in tandem with water level controls and adaptive management techniques to provide coastal flooding reduction within the vicinity. The study may include, but is not limited to modifying maneuver trails, railroad embankments, Harrison Road, and existing culvert/bridge crossings to serve as levee systems for flood control storage, storm surge dissipation, and future wetland management in areas otherwise at risk of inundation. Extension of new perimeter barriers across key channels to higher spots along the

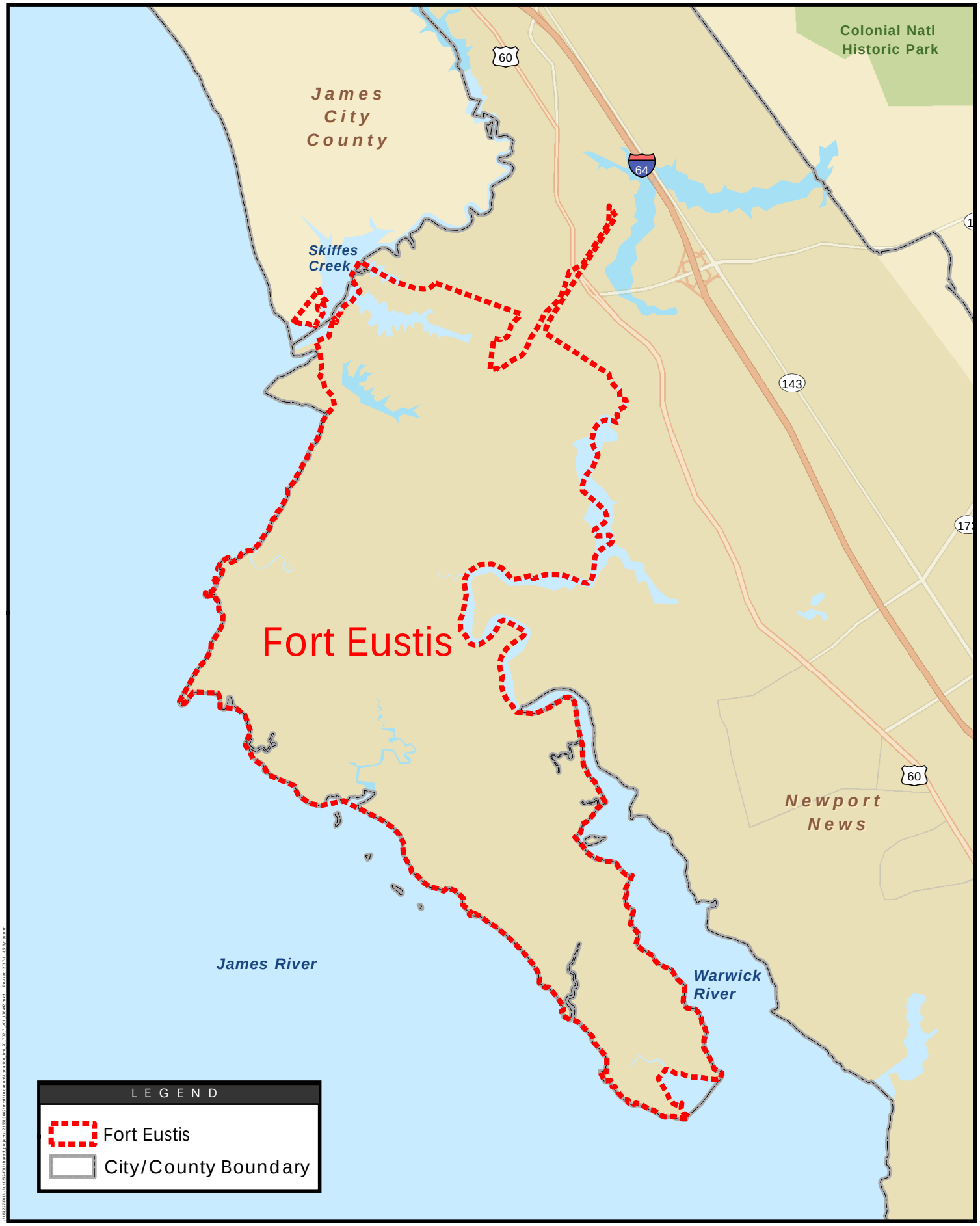
southern shore of Mulberry Island should also be considered, to help optimize the extents of protection.

- SLR and coastal flooding can degrade or erode historic cultural resources located at Fort Eustis if not properly protected. Evaluate the Army's historic preservation options to ensure the preservation and protection of those resources from the impacts of SLR and coastal flooding.
- Perform a feasibility study and model the benefits that large-scale marsh protection/enhancement or coastal flood storage systems could have on dissipating storm surge within the broader vicinity of Fort Eustis. Within the study identify how such efforts could help other external infrastructure, properties, and resources within James City County, the City of Newport News, or elsewhere. Explore collaborative funding approaches or grants to allow for the more aggressive implementation options. Additionally, evaluate options for large expansion of tidal marsh areas to help increase tidal surge dissipation and flood protection benefits to the Fort Eustis and the surrounding community. Among other alternatives, consider whether forested areas could be utilized, as a tradeoff from one natural resource to another.
- Evaluate alternatives on how to protect the regionally-identified high priority wetlands onsite from erosion and inundation to SLR. As part of the evaluation consider implementation of widespread marsh sills to reduce erosion, headland controls, marsh enhancement and nourishment activities, re-creation of nearshore marsh islands, beneficial re-use of dredged material, and other similar techniques.
- An analysis would need to be completed to determine what the demand cycles are for accessing Fort Eustis. The analysis could be completed by a transportation engineer and should include recommendations for repositioning or improvements for gate access.
- Goose Island is currently owned by the Commonwealth of Virginia and managed by the Virginia Department of Game and Inland Fisheries. The property is in close proximity to the third port and can have significant impacts on the Fort's capacity to train and to maintain security. Fort Eustis should coordinate directly with the State of Virginia to determine the most appropriate course of action.
- Create a user-friendly plan that provides guidance to local municipalities and Fort Eustis that illustrates a process by which water management issues can be addressed. Include an analysis of the use of the waterway and a strategy for emergency waterway closure, should the need arise.
- Conduct a feasibility study to determine the opportunities available for the existing dredge disposal area. Consider expansion and environmental impacts, as well as increasing the height of the perimeter berm.
- Conduct a land analysis to determine if other locations are available for dredge disposal areas within the boundaries of Fort Eustis.
- Analyze the possibility of reuse of dredge materials. This may include, but is not limited to tidal marsh establishment and enhancement at various locations along the shoreline, Mulberry Island, supplement to past shoreline erosion controls and nourishment activities, elevation increases at range areas, elevation increases at horse stables and surrounding pasture.

- During the design and planning phase of the main gate realignment, analyze the potential to provide direct access to the Army Transportation Museum for civilians.

11

Maps



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Fort Eustis JLUS Map 1

Location Exhibit

November 2017

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Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

0 0.5 1 Miles

N

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Fort Eustis JLUS Map 2

Location Aerial

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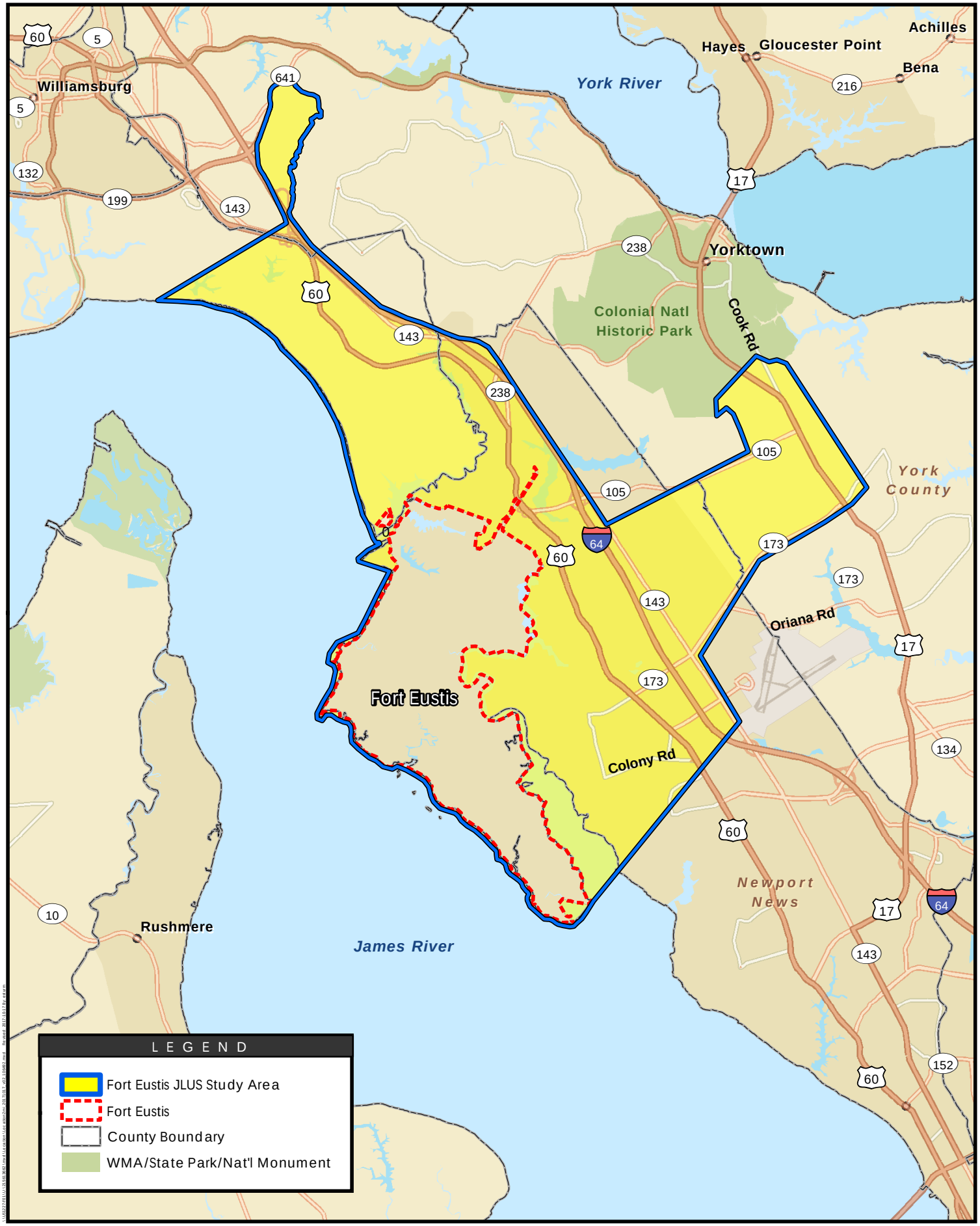

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Fort Eustis JLUS Map 3

Study Area

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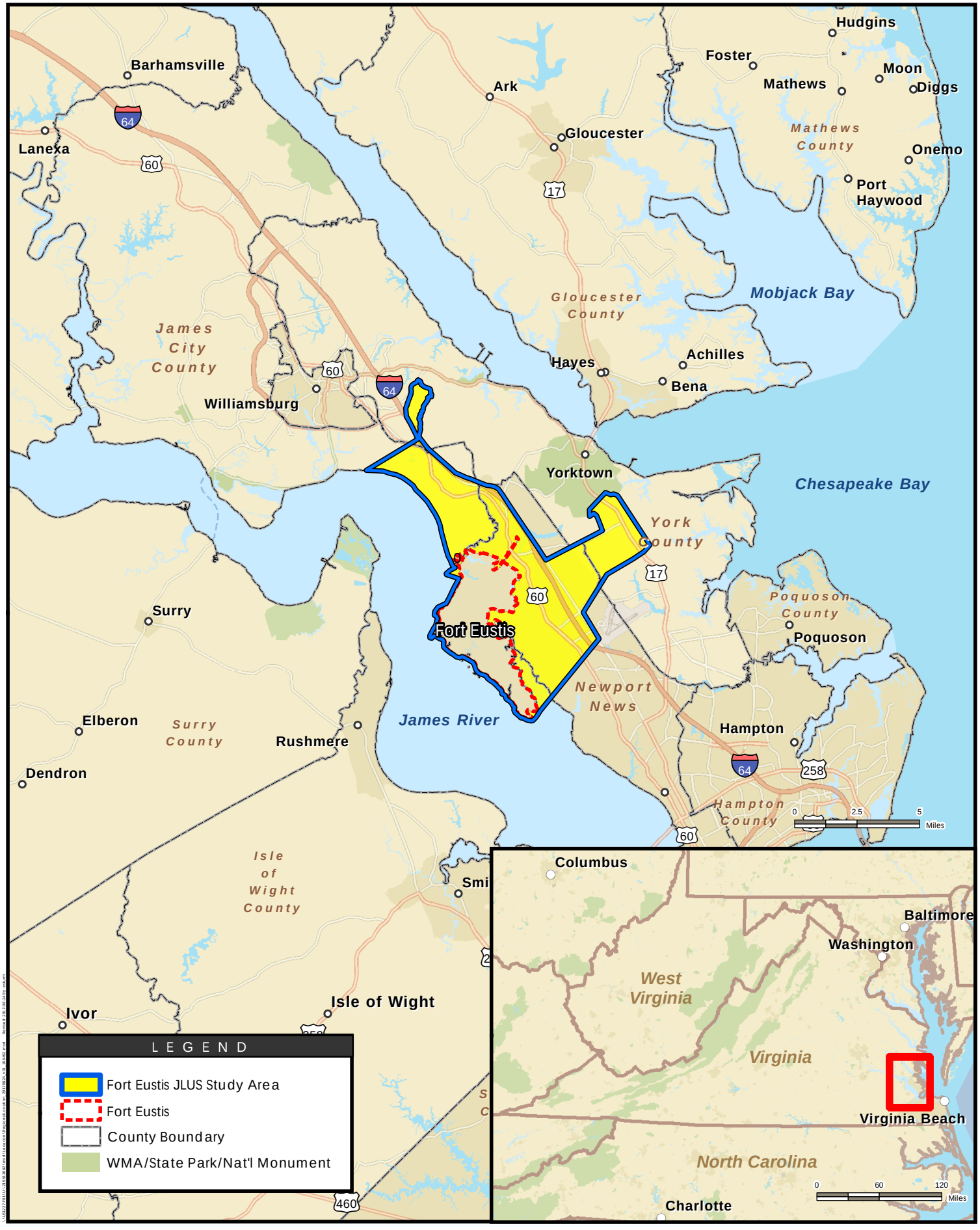

Fort Eustis JLUS Map 4

Regional Location

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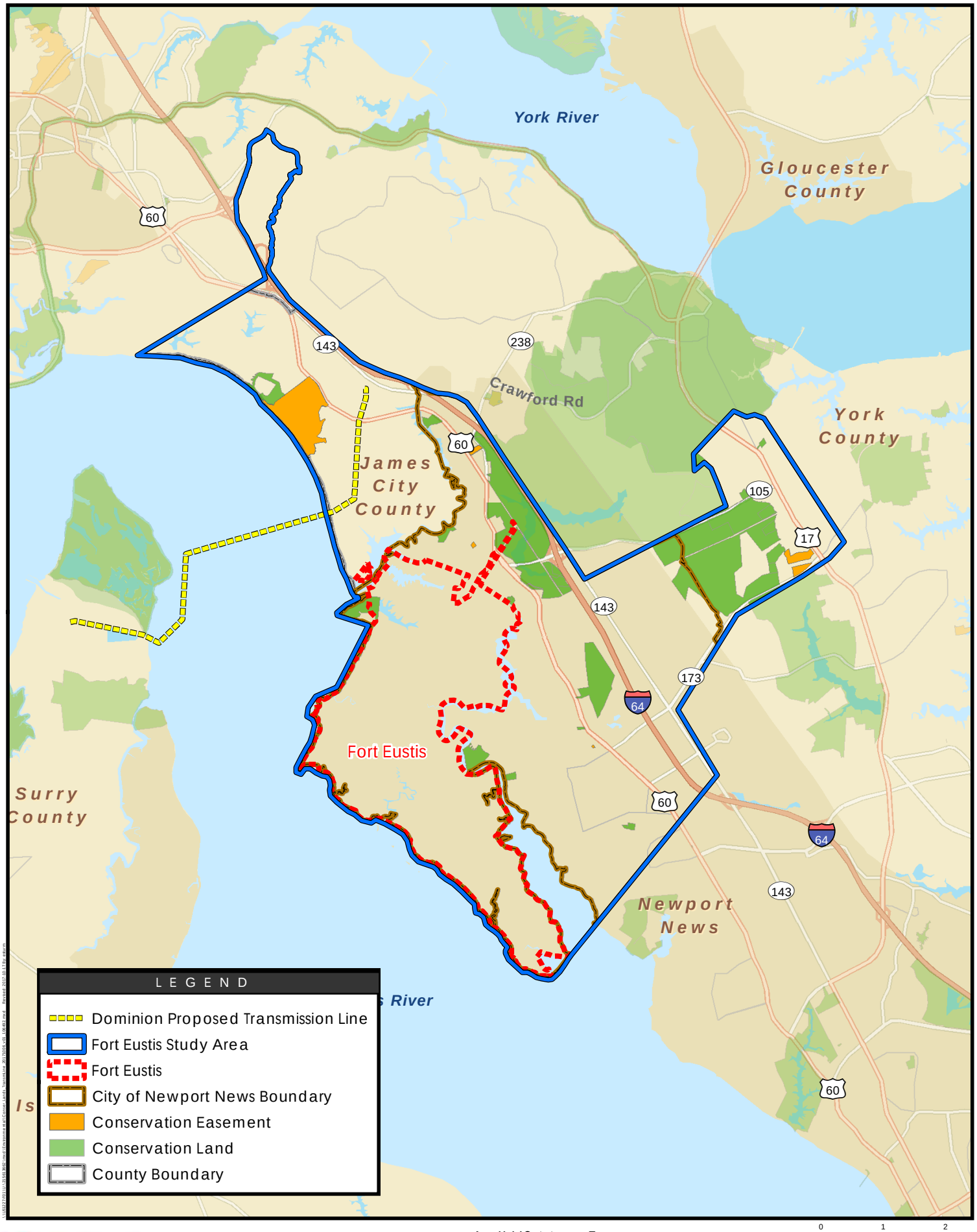

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Fort Eustis JLUS Map 5

Conservation Lands and Easements / Proposed Transmission Line Exhibit

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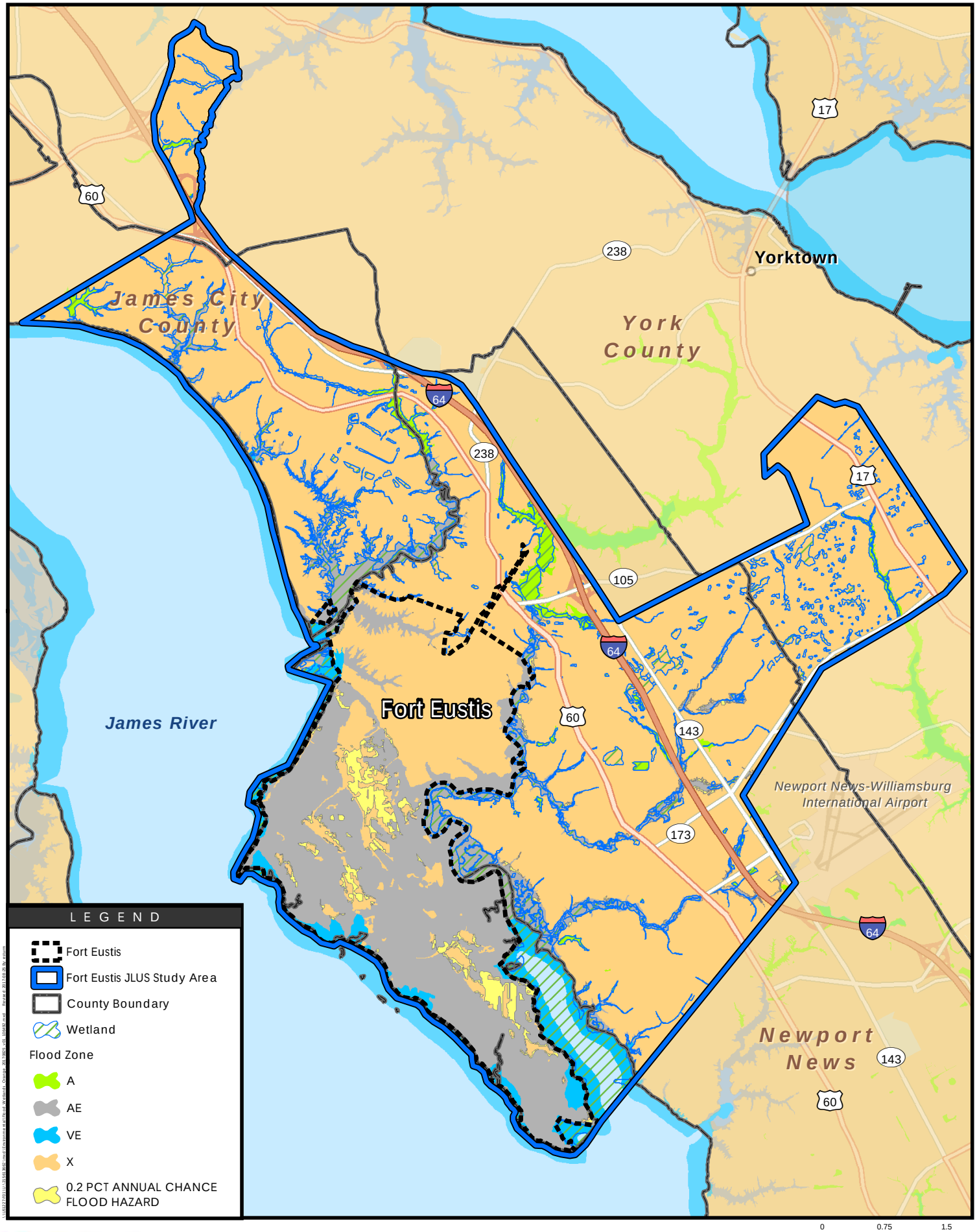

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Fort Eustis JLUS Map 6

Environmental Factors

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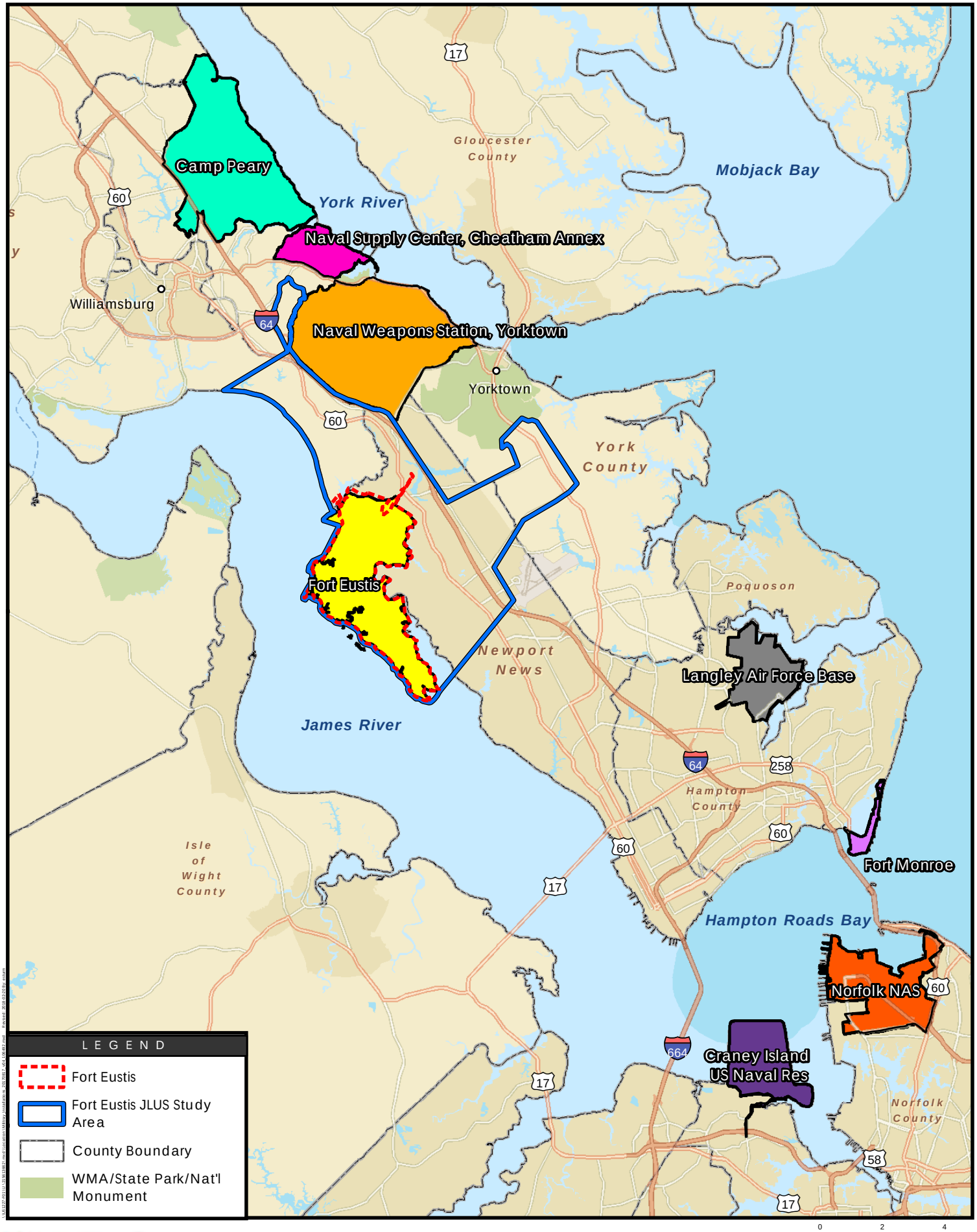

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Fort Eustis JLUS Map 7

Regional Military Installations
September 2017

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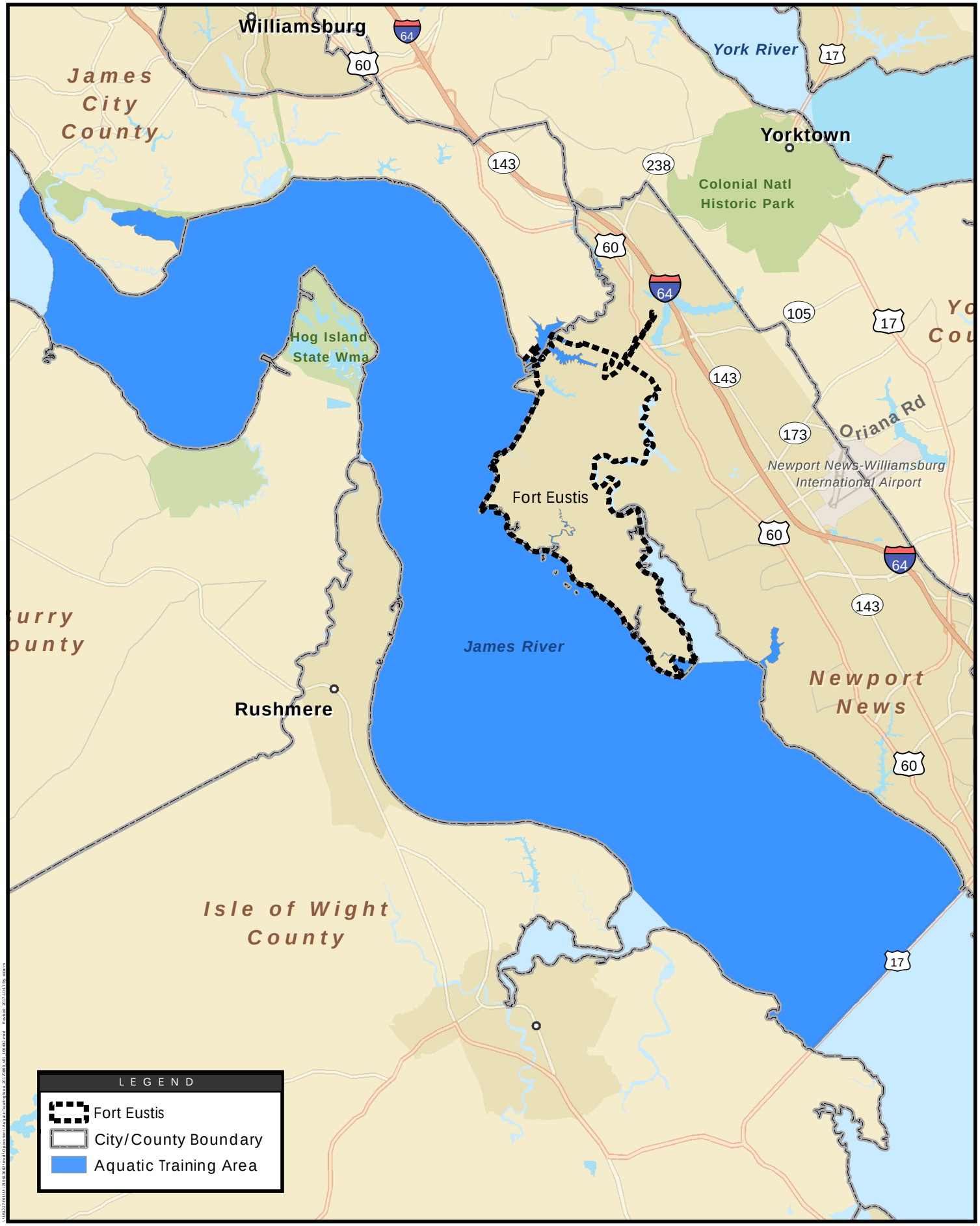

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Fort Eustis JLUS Map 8

Aquatic Training Area

September 2017

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0 1.25 2.5 Miles

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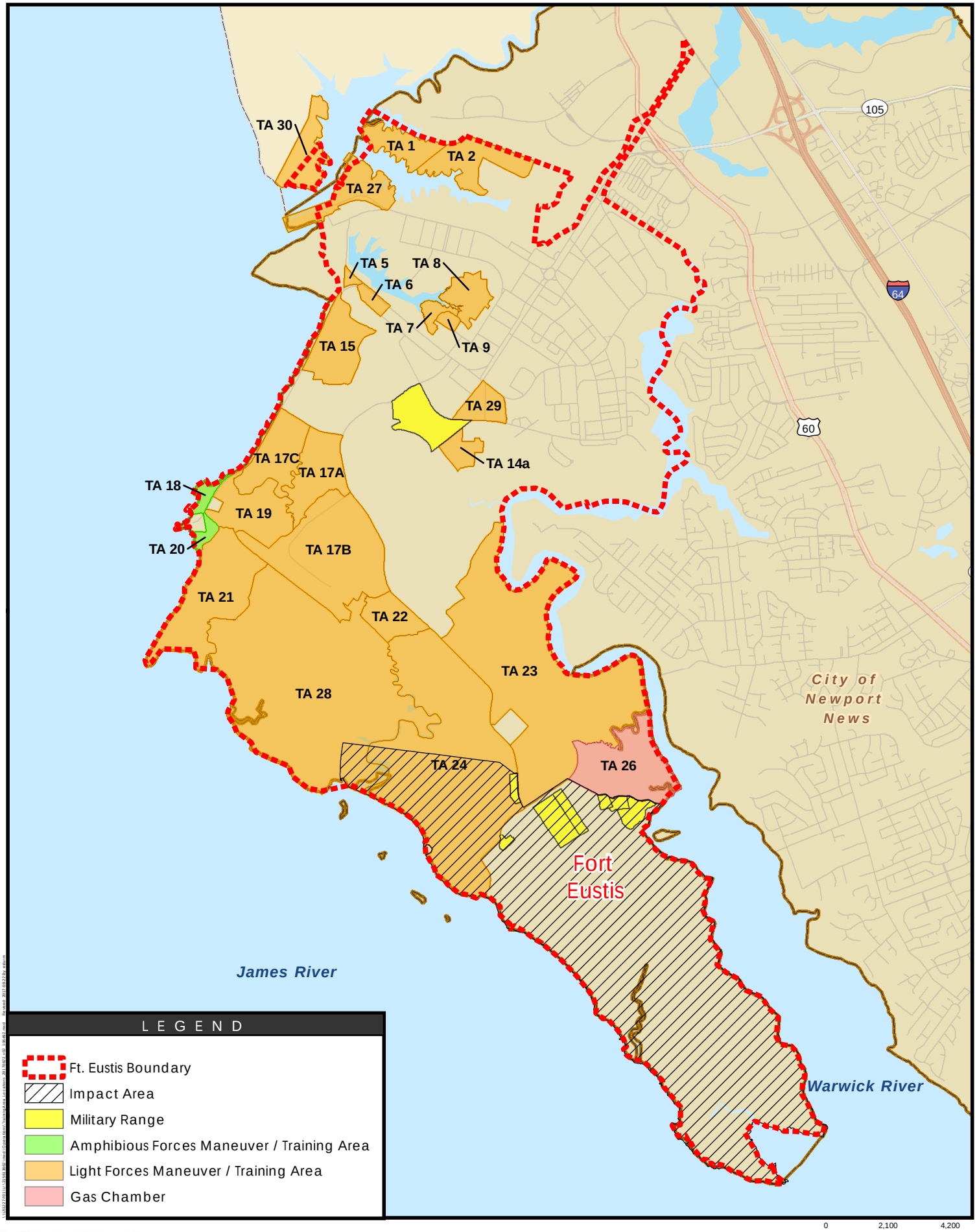

Fort Eustis JLUS Map 9

Training Locations Exhibit

September 2017

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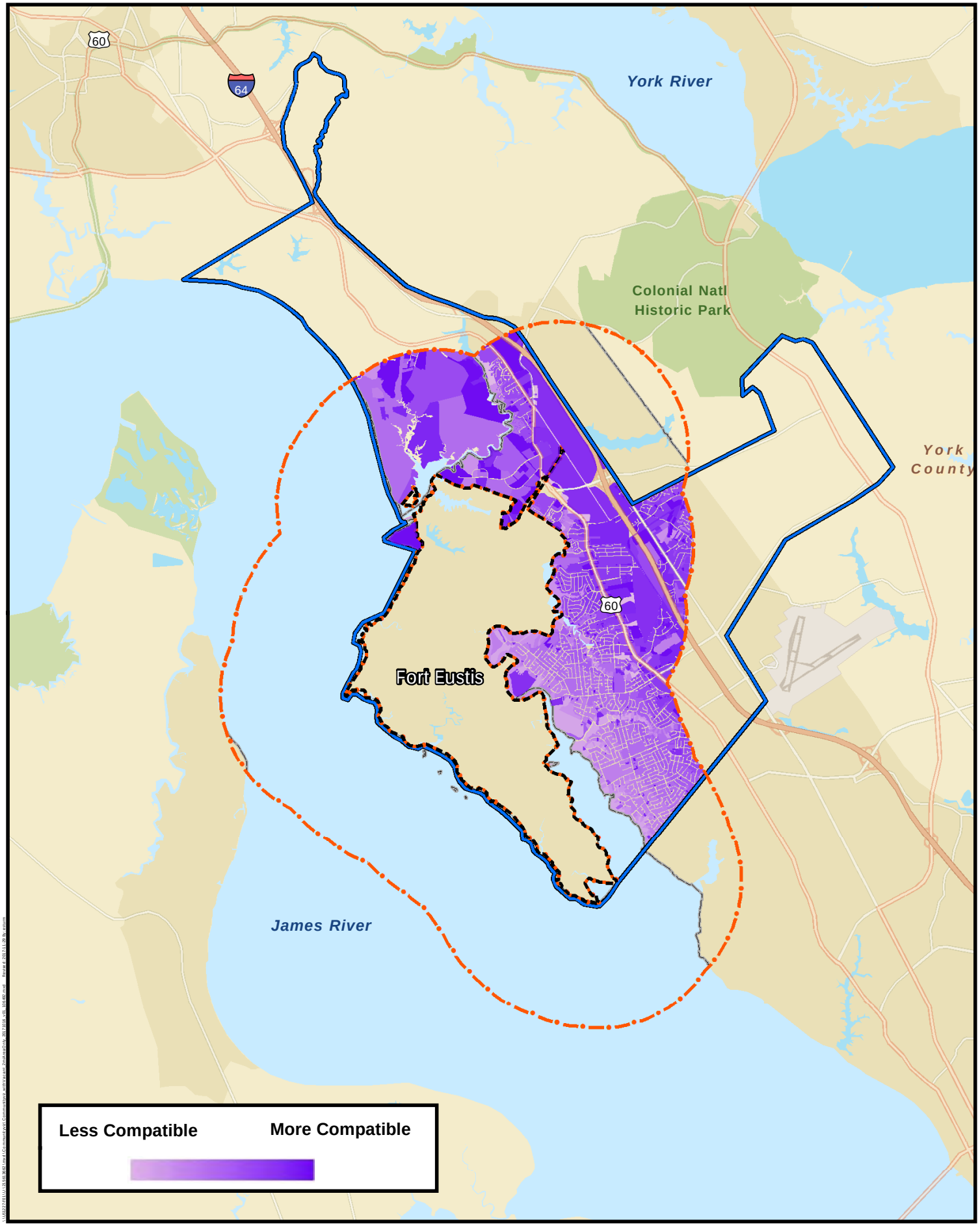
tel 941.907.6900
fax 941.907.6911

0 2,100 4,200 Feet

N



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Fort Eustis JLUS Map 10

Development Suitability Analysis

September 2017

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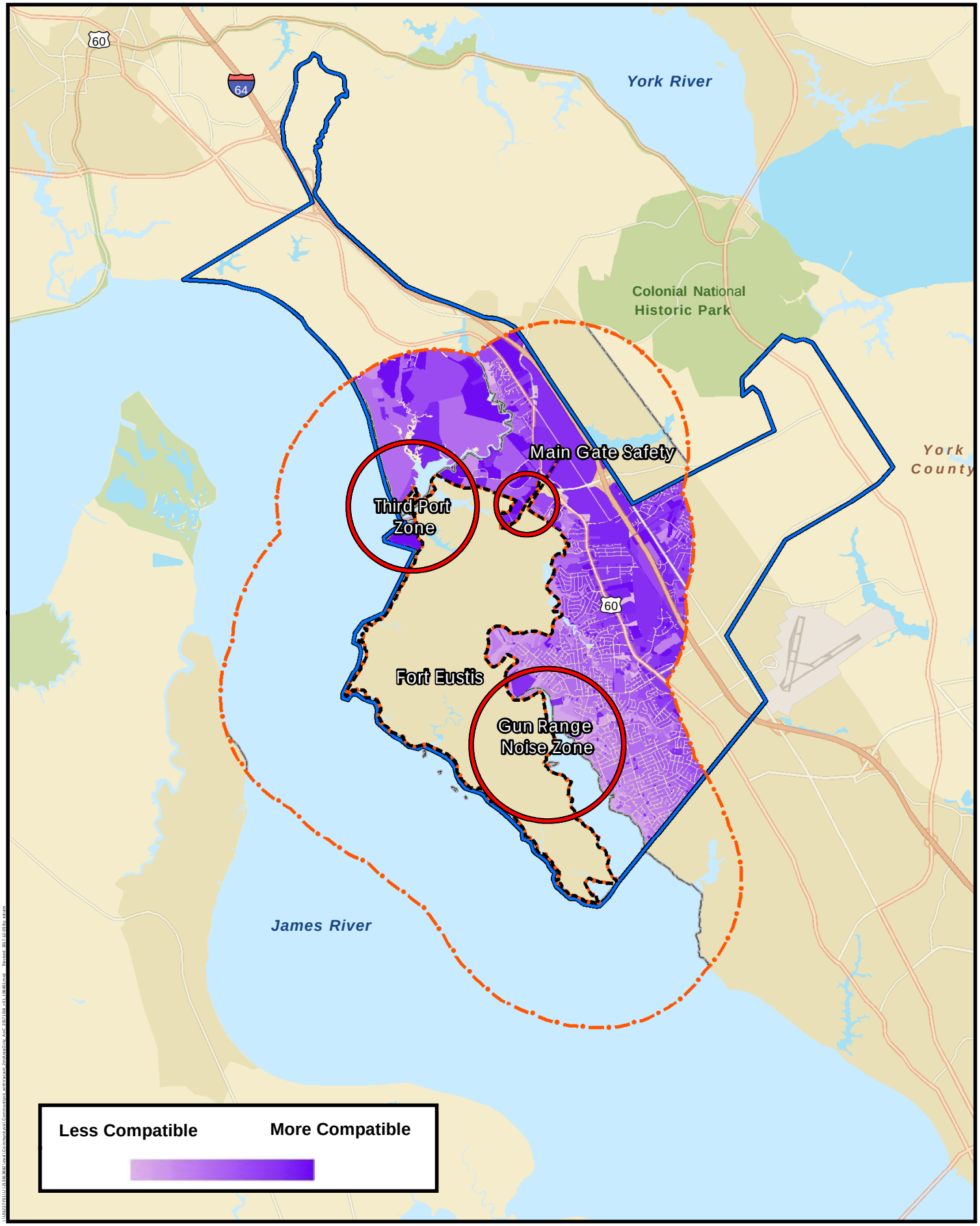
0 1 2 Miles

N



Fort Eustis JLUS **Map 11**
Development Suitability Analysis with Areas of Concern
September 2017

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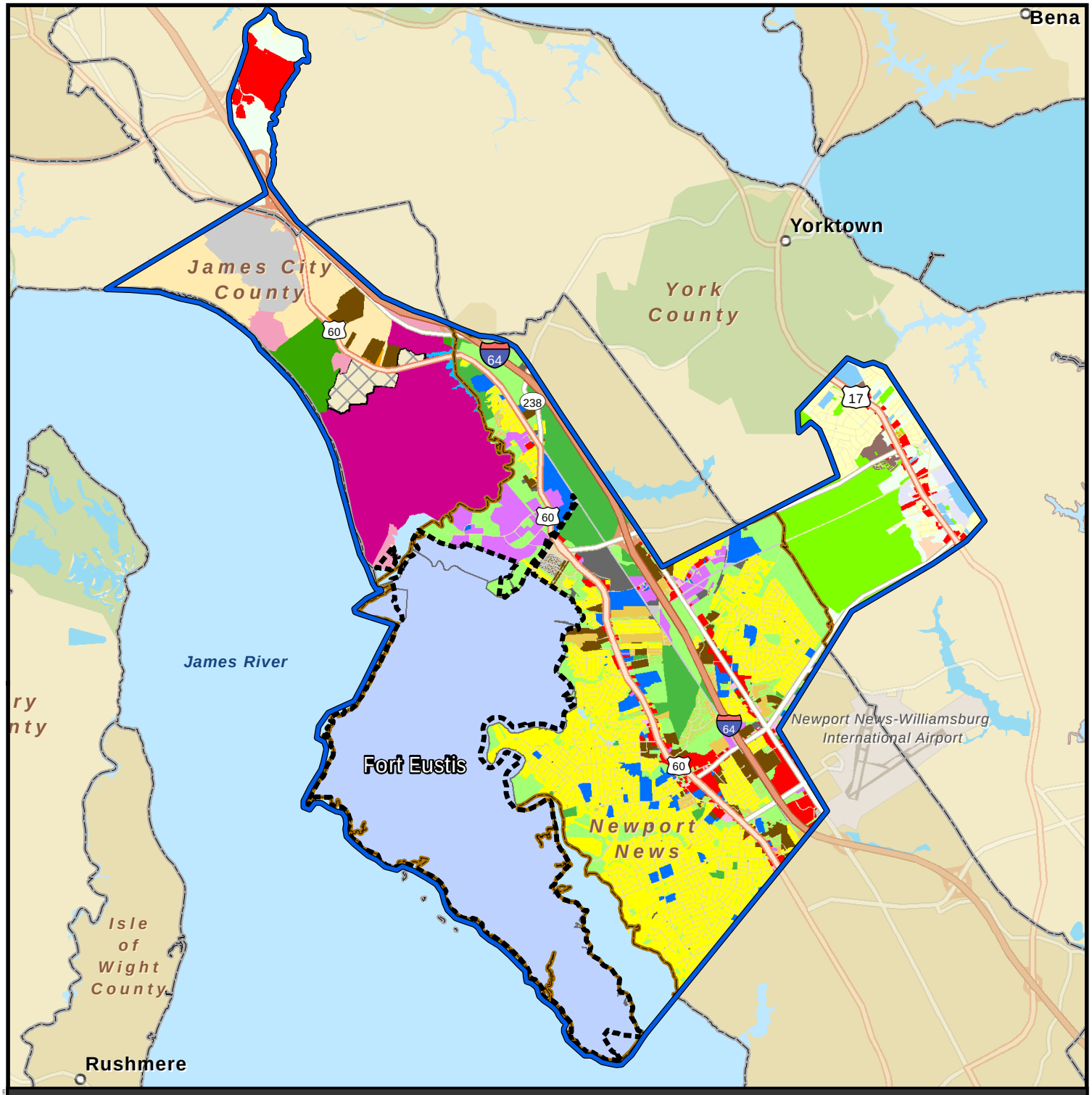

LEGEND

- Fort Eustis JLUS Study Area
- Fort Eustis
- City of Newport News Boundary
- County Boundary

York County Existing Land Use

- Agricultural
- Commercial
- Conservation
- Light Industrial
- Military
- Mixed Use
- Multi-Family Residential
- Public Lands
- Single-Family Residential
- Vacant

Newport News Existing Land Use

- Natural Area/Open Space
- Parks
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Office
- Industrial
- Community Facilities
- Utilities
- Transportation
- Government/Military
- Mixed-Use

James City County Existing Land Use

- Reservoir
- Open Space or Recreation
- Low Density Residential
- Moderate Density Residential
- Neighborhood Commercial
- Limited Industry
- General Industry
- Mixed Use
- Federal, State, and County Land

Fort Eustis JLUS Map 12

Existing Land Use Exhibit

September 2017

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0 0.75 1.5 Miles

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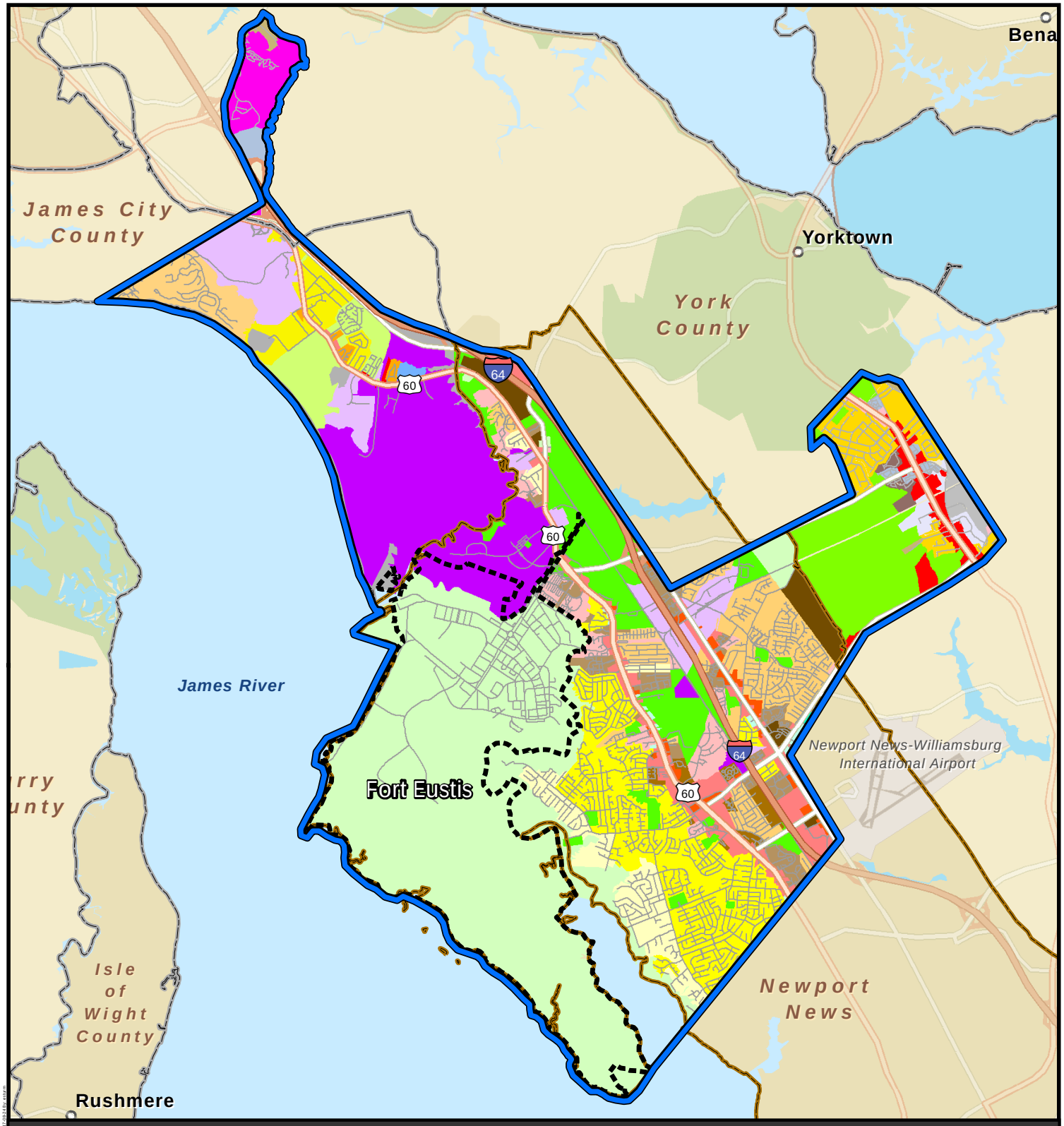


LEGEND

- Fort Eustis JLUS Study Area
- Fort Eustis
- City of Newport News Boundary
- County Boundary

York County Zoning: EO, GB, IG, IL, LB, NB, PD, R7, R13, R20, R33, RMF, RR, RC, WCI, YVA

Newport News Zoning: C1, C2, M1, M2, O1, O2, P1, R1, R2, R3, R4, R5, R6, R7, R8, R9

James City County Zoning: B1, LB, M1, M2, MU, PL, R2, R4, R5, R8

Fort Eustis JLUS Map 13

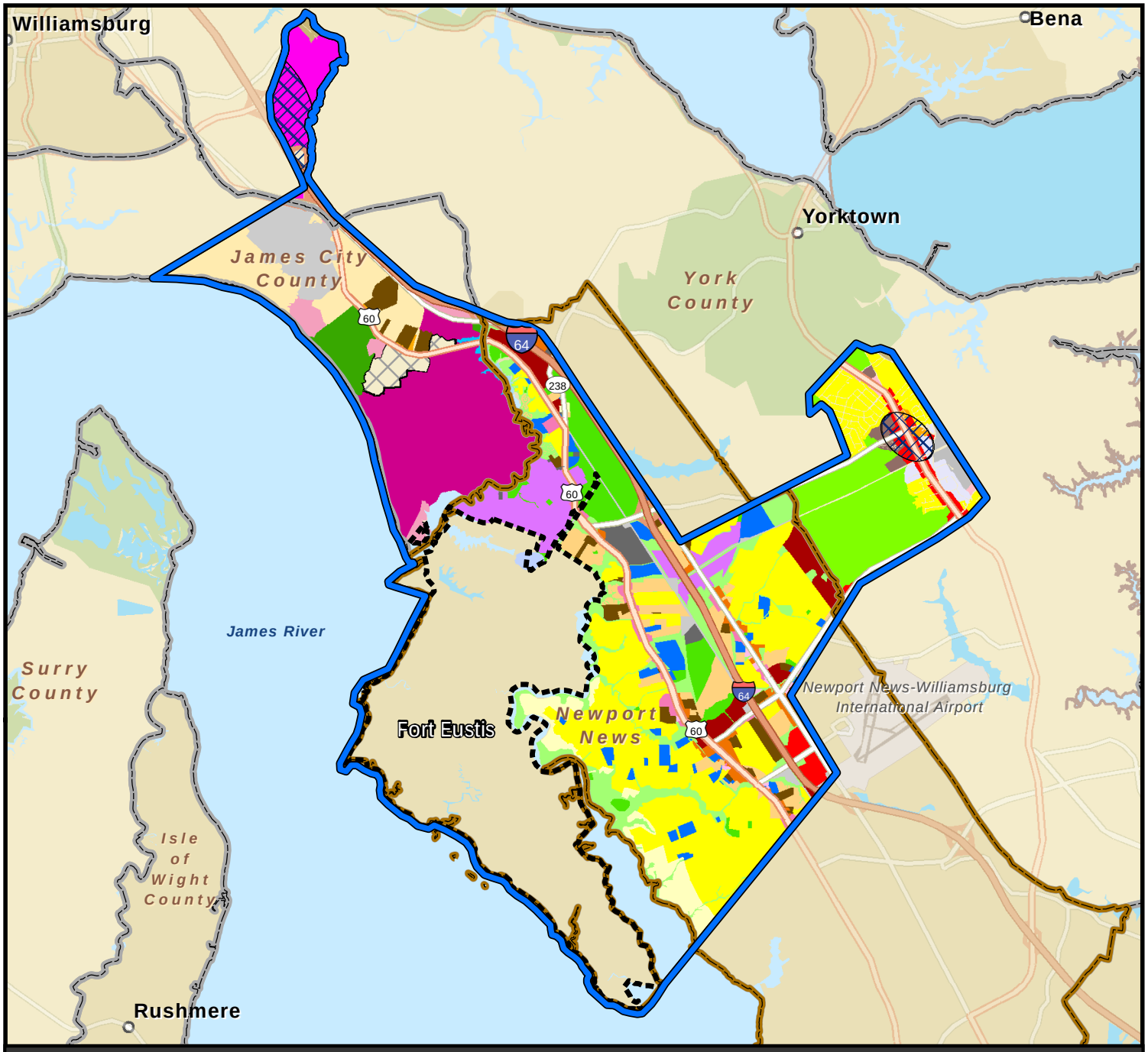
Zoning Map

September 2017

Stantec Consulting Services Inc.
6900 Professional Parkway East
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

0 0.75 1.5 Miles

N



LEGEND

- Fort Eustis JLUS Study Area
- County Boundary
- City of Newport News Boundary
- Fort Eustis
- WMA/State Park/Nat'l Monument

James City County Future Land Use

- Reservoir
- Open Space or Recreation
- Low Density Residential
- Moderate Density Residential
- Neighborhood Commercial
- Limited Industry
- General Industry
- Mixed Use
- Federal, State, and County Land

York County Future Land Use

- Conservation
- Economic Opportunity
- General Business
- General Industrial
- High-Density Residential
- Limited Business
- Limited Industrial
- Low-Density Residential
- Medium-Density Residential
- Military
- Mixed Use
- Multi-Family Residential
- Mixed Use Overlay 2035

Newport News Future Land Use

- Natural Area / Open Space
- Parks and Recreation
- Very Low Density Residential (0-1.9)
- Low Density Residential (2 - 6.9)
- Medium Density Residential (11 - 15.9)
- High Density Residential (16+)
- Neighborhood Commercial
- Community Commercial
- Regional Commercial
- Office
- Industrial
- Community Facilities
- Utilities
- Transportation
- Government / Military
- Mixed Use

Stantec

Fort Eustis JLUS Map 14

Future Land Use Map

September 2017

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tel 941.907.6900
fax 941.907.6911

0 1 2 Miles

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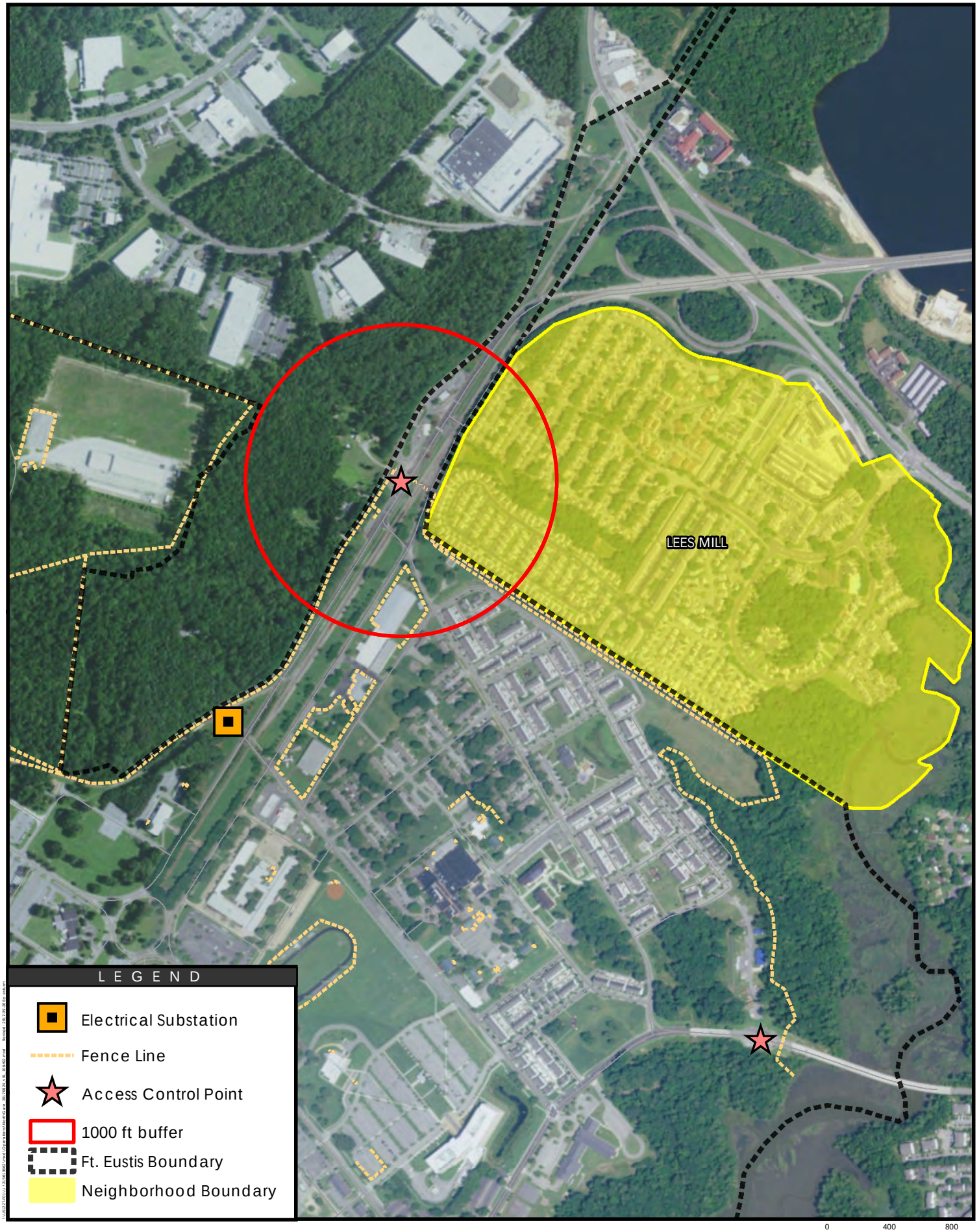

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Fort Eustis JLUS Map 15

Main Gate Exhibit

September 2017

Stantec Consulting Services Inc.
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tel 941.907.6900
fax 941.907.6911

0 400 800 Feet

N

Fort Eustis JLUS Map 16

Third Port

September 2017

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Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

0 350 700 Feet

N

Fort Eustis JLUS Map 17

2040 Long Range Transportation Priority Projects

September 2017

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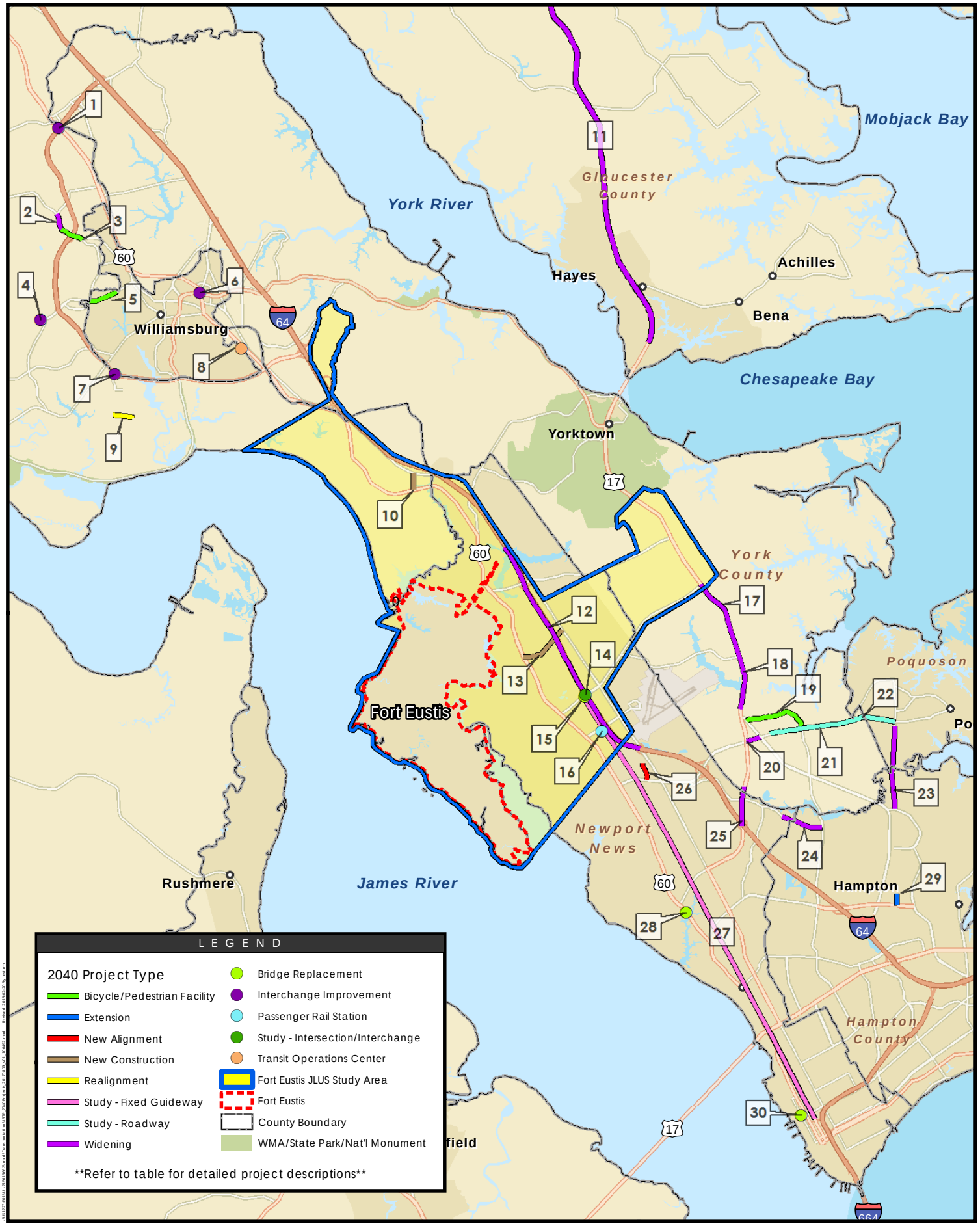
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

0 1.5 3 Miles

N



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Fort Eustis JLUS Map 18

2040 Long Range Transportation Projects

September 2017

Stantec Consulting Services Inc.
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Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

0 1.5 3 Miles

N

Fort Eustis JLUS Map 19

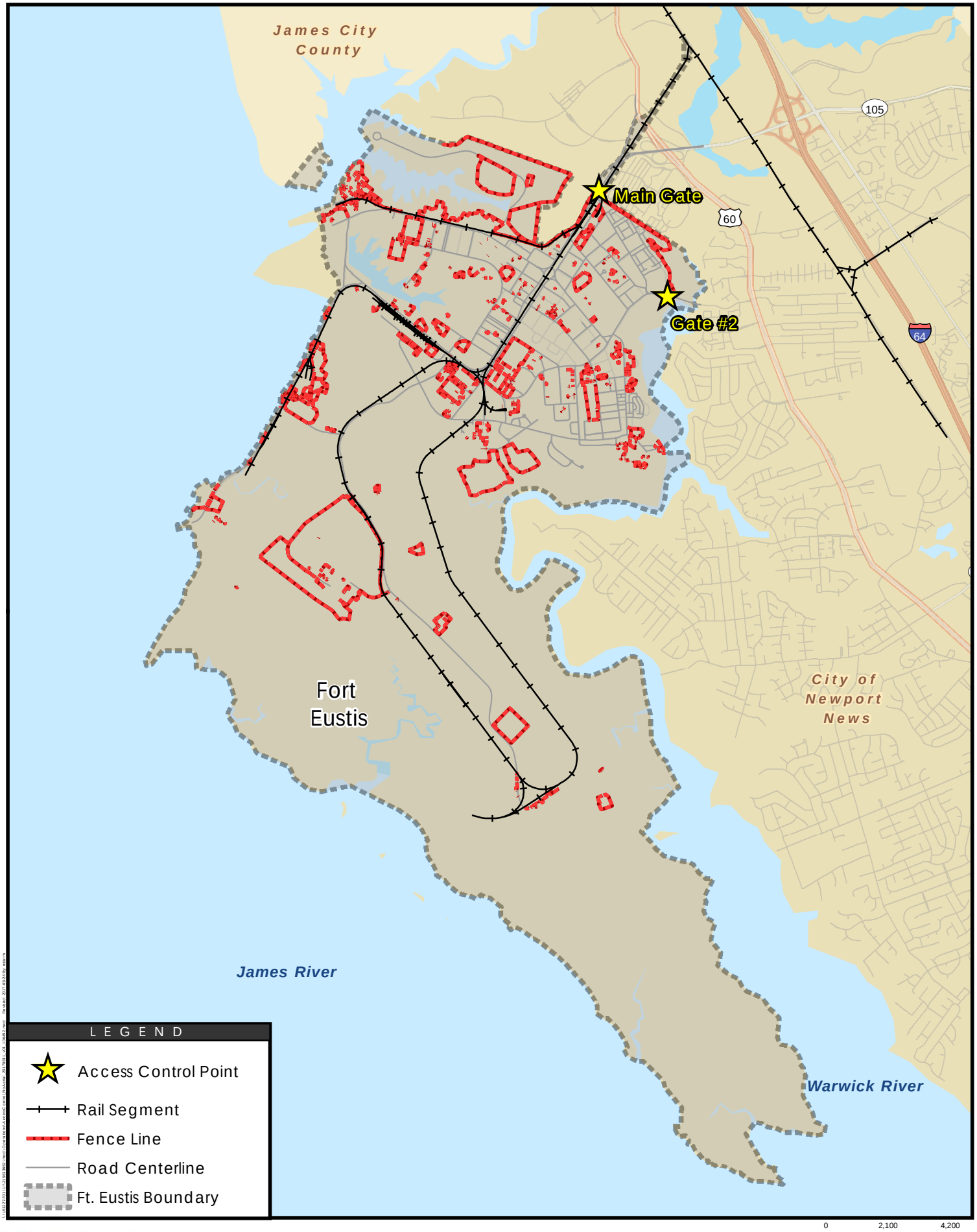
Felker Airfield Airspace Exhibit

September 2017

Stantec Consulting Services Inc.
6900 Professional Parkway East
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

0 1.5 3 Miles

N



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Fort Eustis JLUS Map 20

Fort Eustis Access Control Points

September 2017

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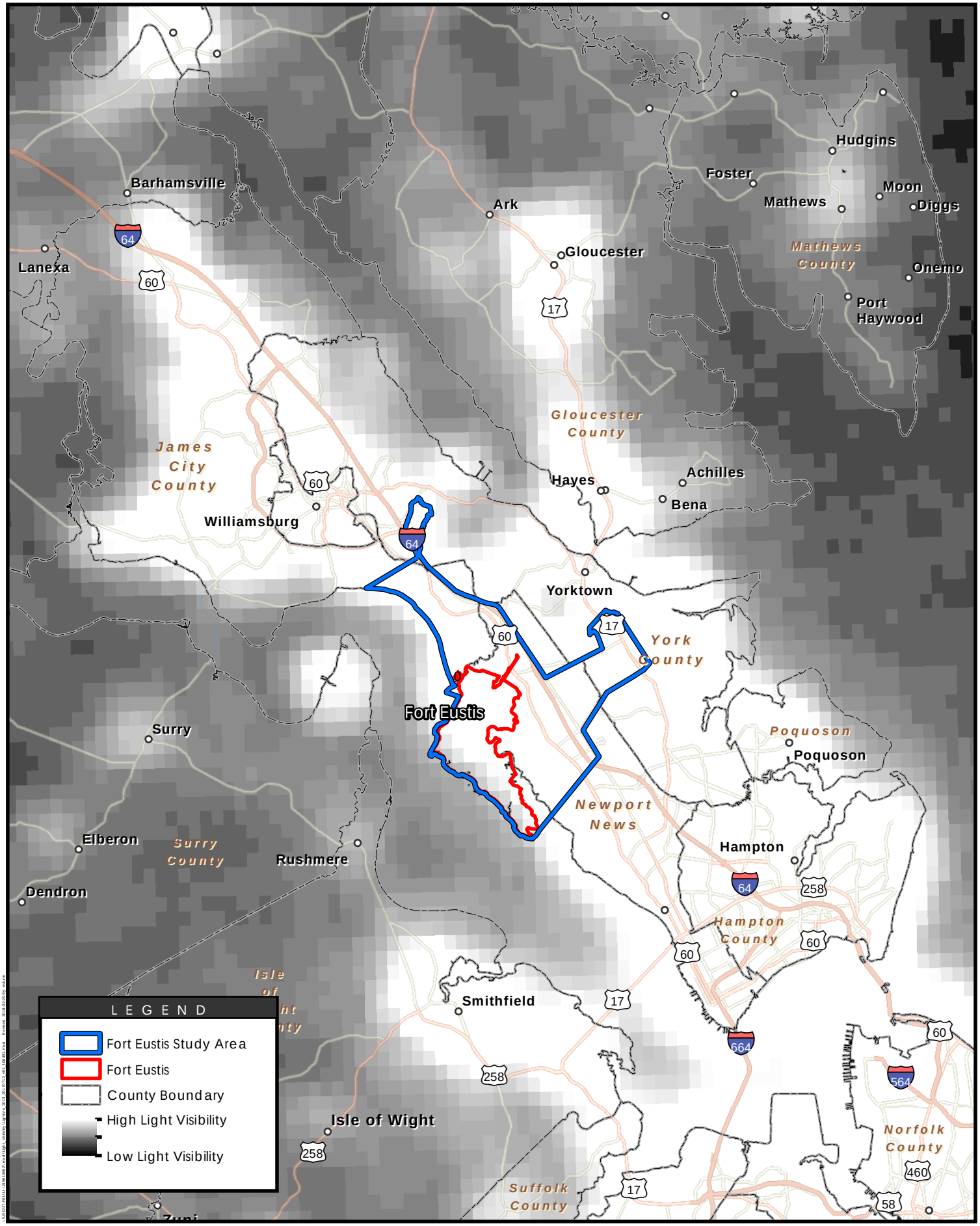
tel 941.907.6900
fax 941.907.6911

0 2,100 4,200 Feet

N



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Fort Eustis JLUS Map 21

Night Lighting Average Visibility - 2013

February 2018

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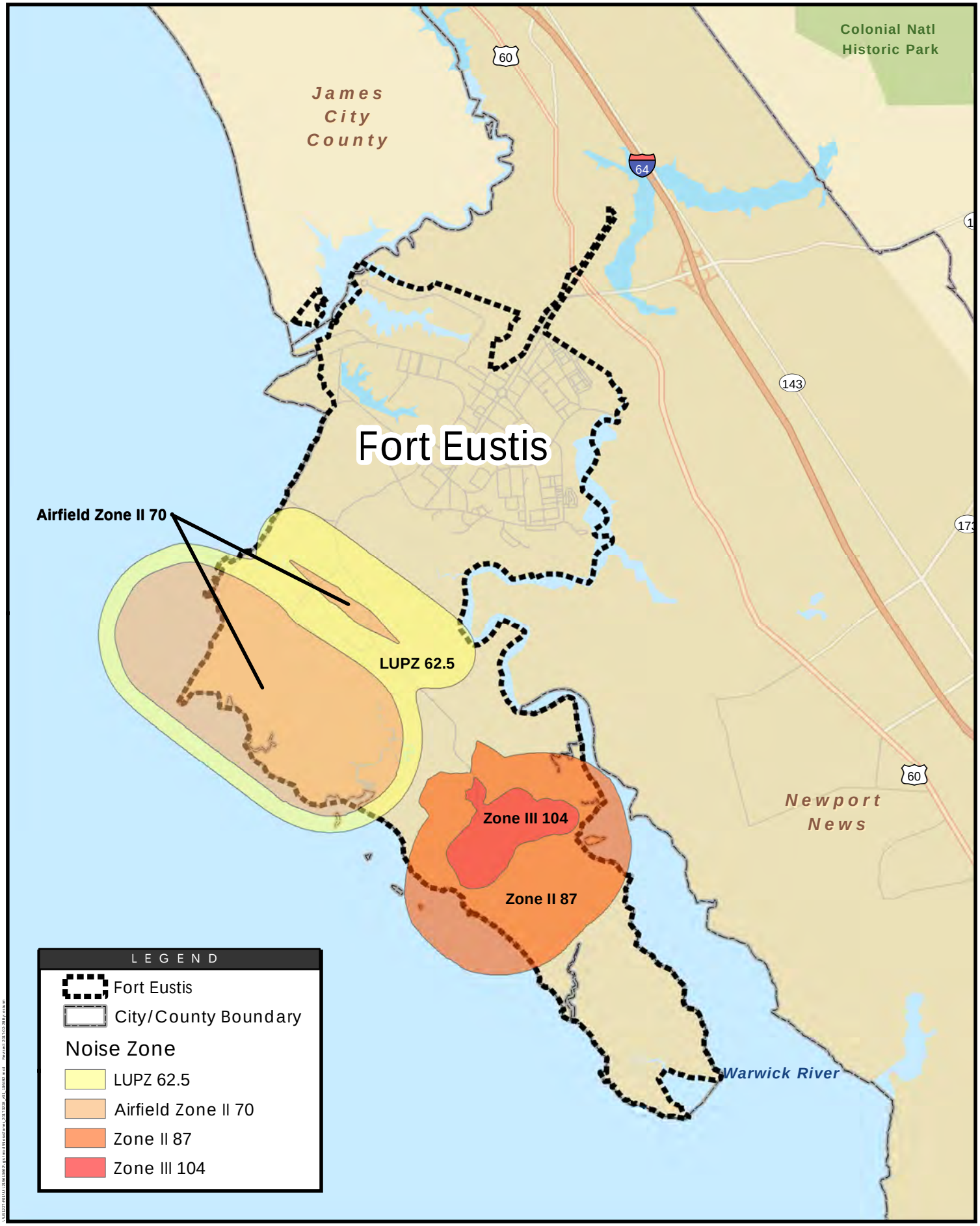
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

0 2.5 5 Miles

N



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Fort Eustis JLUS Map 22

Noise Zones

February 2017

Stantec Consulting Services Inc.
6900 Professional Parkway East
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

0 0.5 1 Miles

N

12

Appendices

Acronyms

A

AATD	Aviation Applied Technology Directorate
ABW	Air Base Wing
ACP	Access Control Point
ACUB	Army Compatible Use Buffer
ADC	Association of Defense Communities
AFB	Air Force Base
AICP	American Institute of Certified Planners
AIT	Advanced Individual Training
APZ	Accident Potential Zone
AR	Army Regulation
ARCSD	Army Reserve Component Support Division
ASI	Additional Skill Identifier
ATFP	Anti-Terrorism Force Protection

B

BASH	Bird/Wildlife Aircraft Strike Hazard
BDE	Brigade
BMP	Best Management Practice
BRAC	Base Realignment and Closure

C

CDNL	Concussion Weighted Day Night Average Sound Level
CFR	Code of Federal Regulations
COCOM	Combat Command
CONUS	Contiguous United States

D

dB	Decibel
DA	Department of the Army

DENTAC	United States Army Dental Activity
DEQ	Department of Environmental Quality
DGIF	Virginia Department of Game and Inland Fisheries
DHS	Department of Homeland Security
DNL	Day-Night Average Sound Level (or Ldn)
DOD	Department of Defense
DODI	Department of Defense Instruction
DOI	Department of Interior
DOT	Department of Transportation
DPTMS	Directorate of Planning, Training, Mobilization and Scheduling

E

EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act

F

FAA	Federal Aviation Administration
FAAF	Felker Army Airfield
FAR	Federal Aviation Regulations
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FLP	Forest Legacy Program
FORSCOM	United States Army Forces Command
FY	Fiscal Year

G

GIS	Geographic Information System
GISP	GIS Professional

H

HRPDC	Hampton Roads Planning District Commission
HRTAC	Hampton Roads Transportation Accountability Commission
HRTF	Hampton Roads Transportation Fund
HRTPO	Hampton Roads Transportation Organization

I

ICEMAP	Installation Complex Encroachment Management Plan
IFR	Instrument Flight Rules
IMCOM	Installation Management Command
IONMP	Installation Operational Noise Management Plan
IPCC	Intergovernmental Panel on Climate Change

J

JBLE	Joint Base Langley Eustis
JLOTS	Joint Logistics-Over-The-Shore Training
JLUS	Joint Land Use Study
JPA	Joint Permit Application

L

LCU	Landing Craft Utility
LOTS	Logistics-Over-The-Shore Training
LOS	Line of Sight
LRTP	Long Range Transportation Plan
LUPZ	Land Use Planning Zone

M

MFH	Multi-Family Housing
MIA	Military Influence Area
MILCON	Military Construction
MIOD	Military Influence Overlay District

MOA	Military Operations Area
MOS	Military Occupational Specialty
MOU	Memorandum of Understanding
MSA	Metropolitan Statistical Area
MSG	Mission Support Group
MTFA	Maintenance Test Flight Area

N

NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NAS	Naval Air Station
NCO	Non-Commissioned Officer
NEPA	National Environmental Policy Act
NER	Northeast Region
NERC	North American Electric Reliability Corporation
NFIP	National Flood Insurance Program
NGO	Non-Governmental Organization
NIT	Norfolk International Terminal
NNMT	Newport News Marine Terminal
NOAA	National Oceanic and Atmospheric Administration
NOISEMAP	Environmental Noise Mapping Software
NPDES	National Pollutant Discharge Elimination Program
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTIA	National Telecommunications and Information Administration
NWI	National Wetland Inventory
NZ	Noise Zone

O

OEA	Office of Economic Adjustment
OMB	U.S. Office of Management and Budget
ORF	Norfolk International Airport

P

PC	Policy Committee

PE	Professional Engineer
PHF	Newport News / Williamsburg International Airport
PIC	Principal in Charge
PIO	Public Information Officer
PM	Project Manager
PMT	Portsmouth Marine Terminal
PSA	Primary Service Area

R

R	Retired
RCUZ	Range Compatible Use Zone
REDC	Regional Economic Development Strategy
REPI	Readiness and Environmental Protection Integration

S

SARNAM	Small Arms Range Noise Assessment Model
SB	Sustainment Brigade
SLR	Sea Level Rise
SRM	Sustainment, Restoration and Modernization

T

TA	Training Area
TEU	Twenty-Foot Equivalent Units
TRADOC	U.S. Army Training and Doctrine Command
TRANSLOTS	Transportation Logistics-Over-The-Shore Training
TWG	Technical Working Group

U

UAS	Unmanned Aerial Systems
UFC	Unified Facilities Criteria
US	United States
USACE	United States Army Corps of Engineers
USATCFE	United States Army Transportation Center Fort Eustis

USATSCH	United States Army Transportation School
USBC	Uniform Statewide Building Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFS	United States Forestry Service
USFWS	United States Fish and Wildlife Service
USNORTHCOM	U.S. Northern Command

V

VA	Virginia
VFR	Visual Flight Rules
VIG	Virginia International Gateway
VMAC	Virginia Military Advisory Council
VMRC	Virginia Marine Resources Commission
VMT	Vehicle Miles Travelled

W

WHMP	Wildlife Hazard Management Plan
WWTP	Wastewater Treatment Plant

Fort Eustis JLUS Survey Results

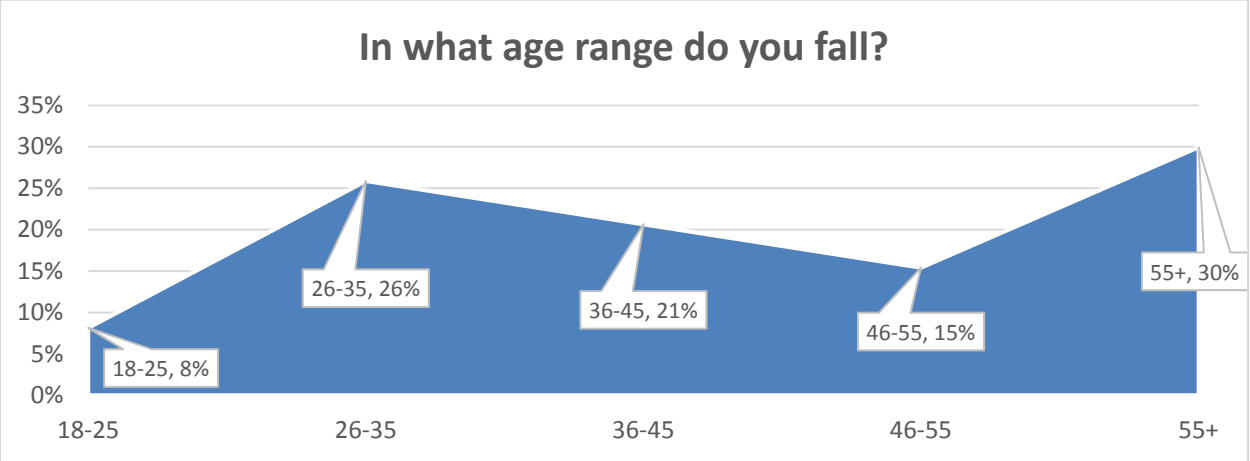
As part of the public outreach effort for the Fort Eustis JLUS, an eleven-question survey was distributed to the community. The intent of the survey was to provide information to the Policy Committee, Technical Working Group, and project team regarding general demographics and a sense of the public's perceptions and interactions with Fort Eustis.

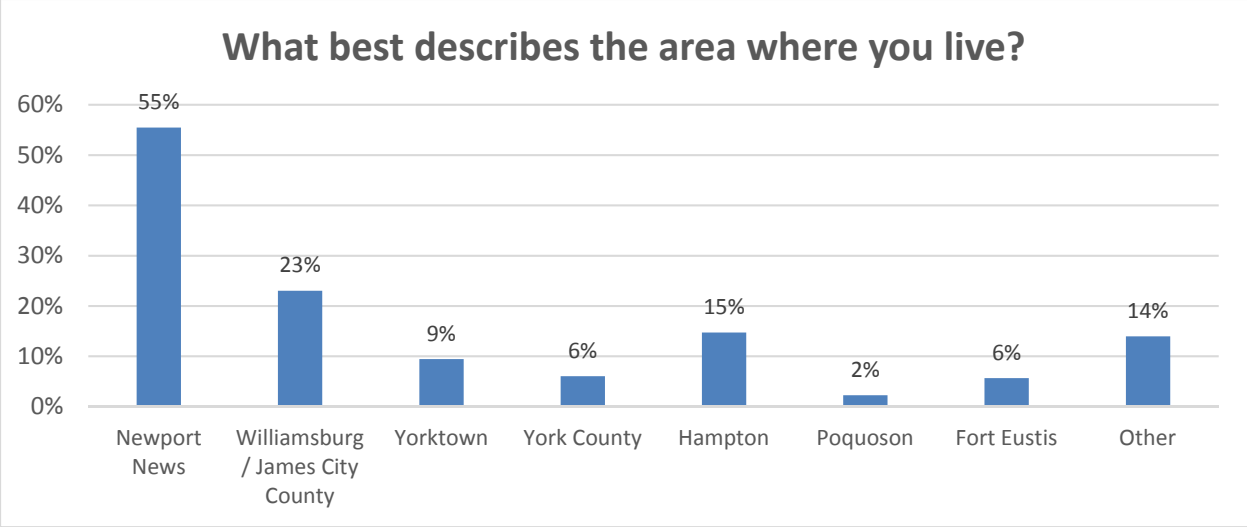
The survey was made available for a four-month period (April 2017 – August 2017) using the project website and through attendance at community events. A total of 348 surveys were completed. The survey questions are divided into the following categories:

- General Demographics
- Familiarity with Fort Eustis
- Communication with Fort Eustis
- Perception of Fort Eustis in the Community
- Impacts of Fort Eustis in the Community

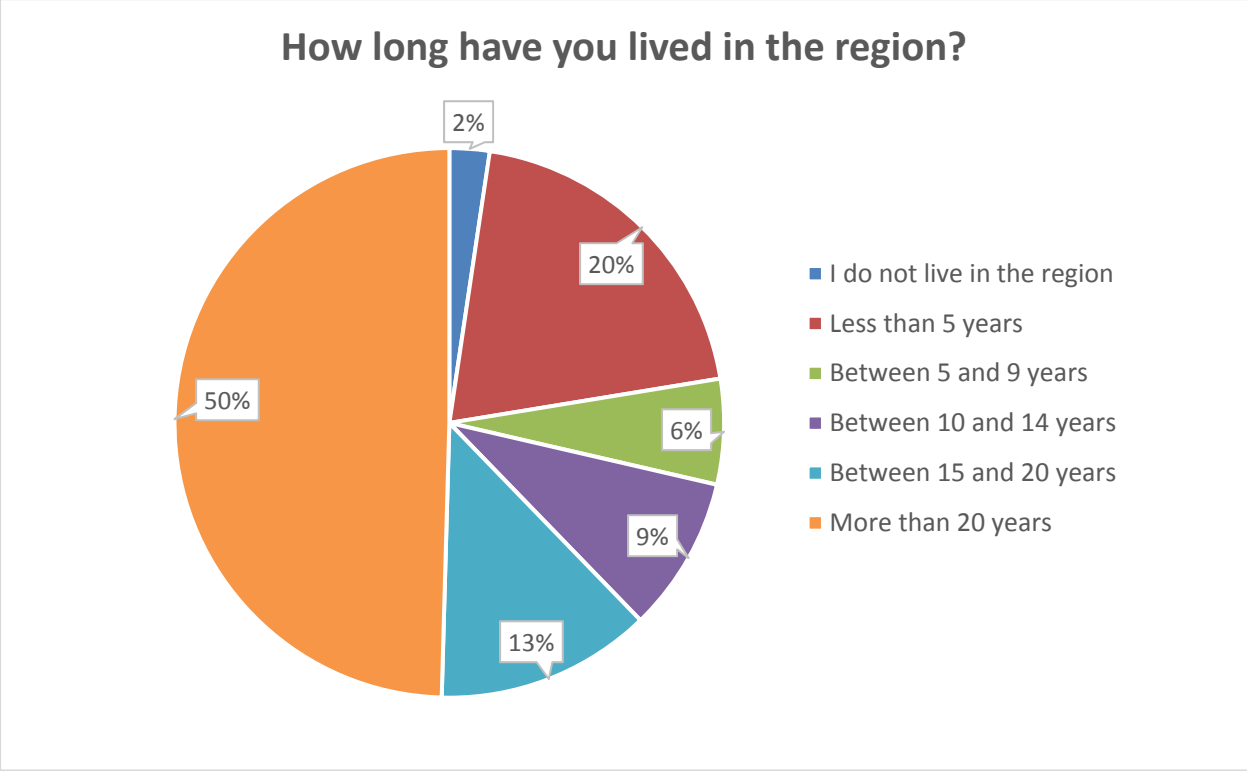
General Demographics

The respondents varied in age from 18 to 55+. The majority of the respondents were between 26 and 45 years old (47%), followed by residents aged 55 and up (30%). The majority of survey respondents were from Newport News (55%) and Williamsburg / James City County (23%). Most of the respondents live within the region and have for more than 20 years (50%).



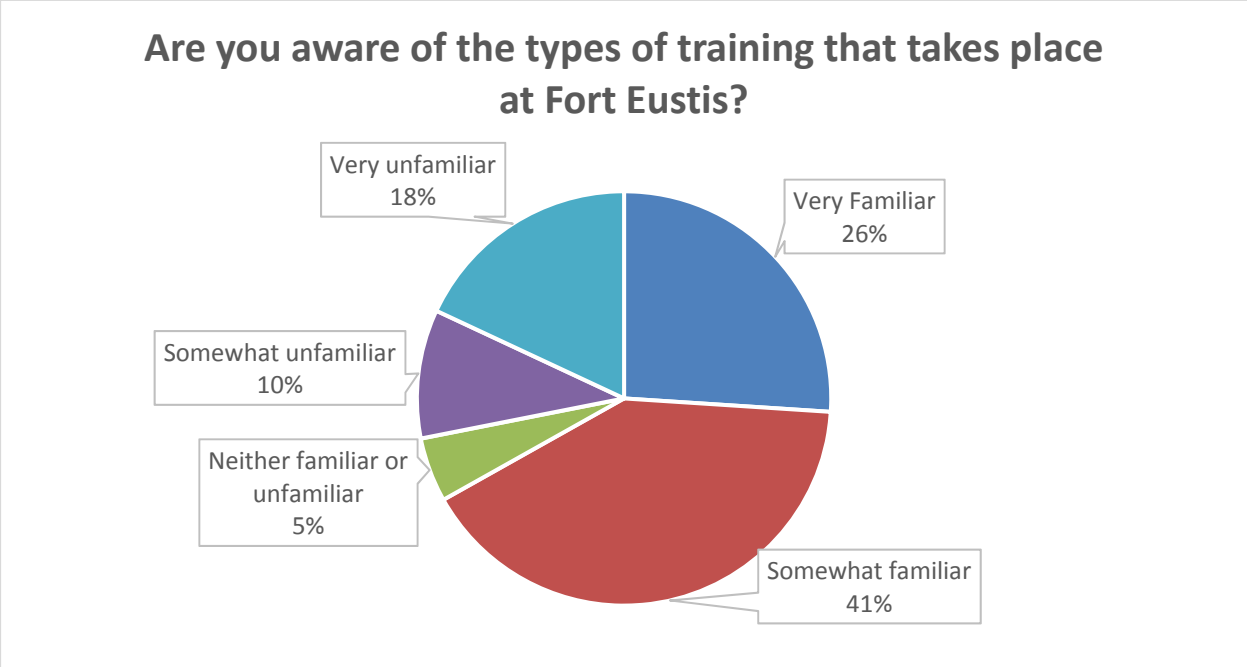


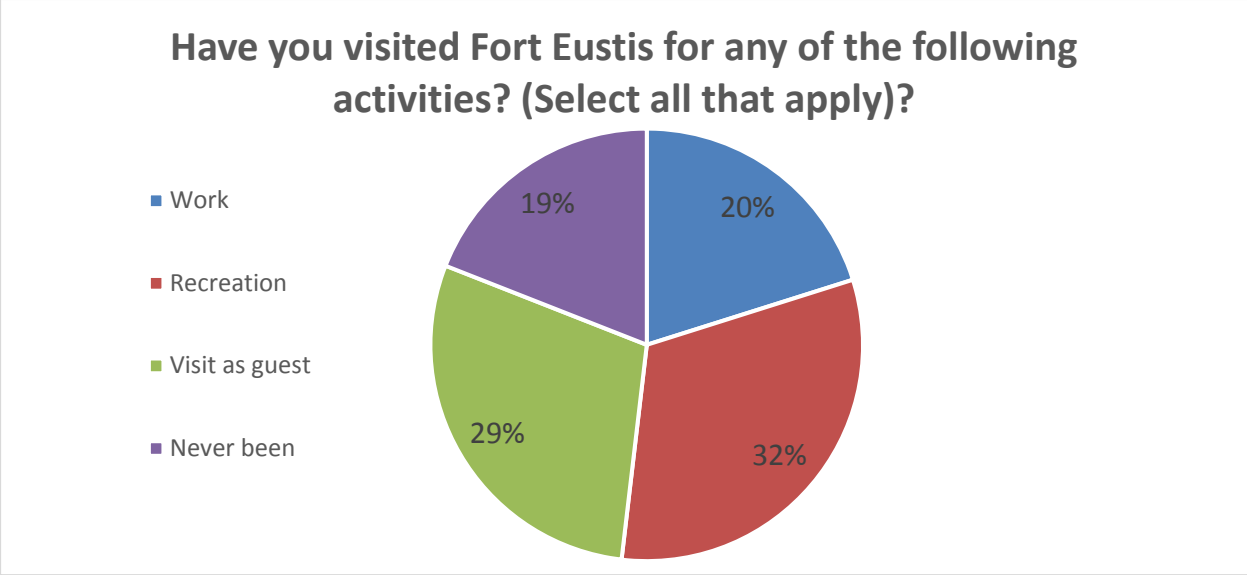
"Other" responses include California (1), Chesapeake (4), Fort Monroe (1), Gloucester (5), Rushmere (1), Isle of Wight (1), Lee Hall (2), Matthews (1), Norfolk (6), NOVA (1), Port Warwick (1), Raleigh-Durham (1), Richmond (1), Sandstone (1), South Hill VA (1), Suffolk (2), Virginia Beach (3)



Familiarity with Fort Eustis

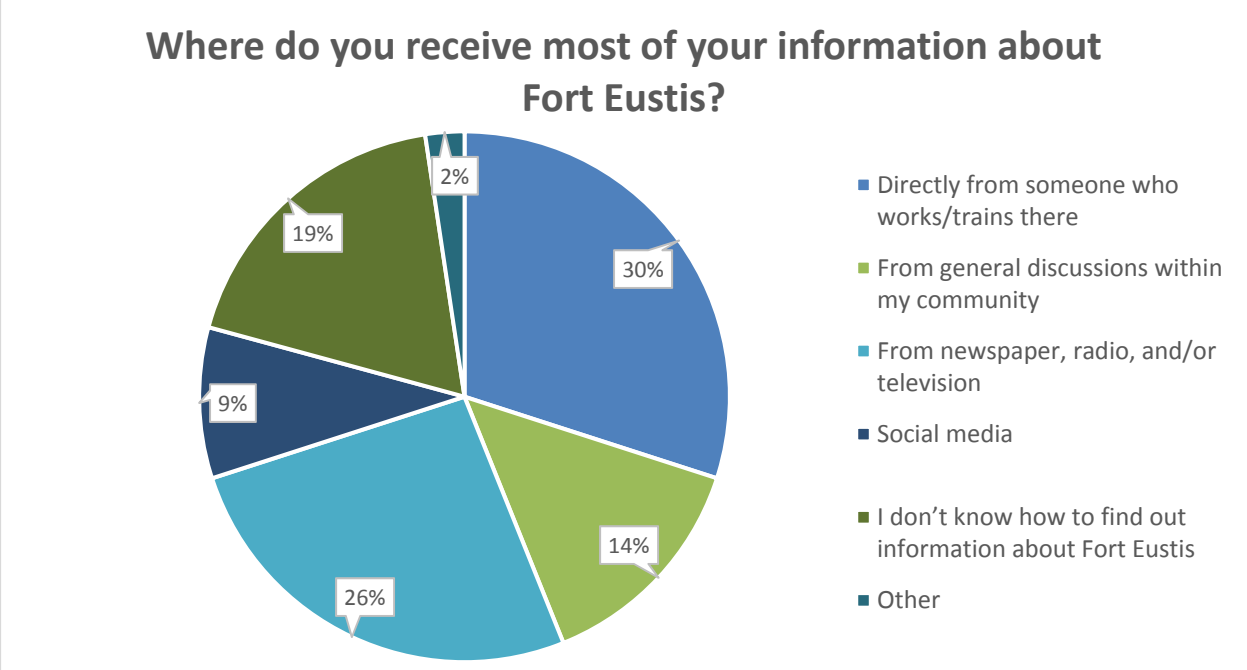
Overall, respondents appeared to be familiar with the types of training that takes place at Fort Eustis and have had a reason to visit the installation. In total, over 65% of the respondents were "very familiar" or "somewhat familiar" with the types of training that takes place at Fort Eustis. Less than 30% of the respondents were "somewhat unfamiliar" or "very unfamiliar" with the training operations. Respondents have visited Fort Eustis for a variety of reasons, but primarily for recreation (32%) or as a guest (29%). Approximately 19% have never been on Post. This leaves the impression that the community is fairly knowledgeable of the role that Fort Eustis plays in the military community, but there are some gaps where additional education may be necessary.





Communication with Fort Eustis

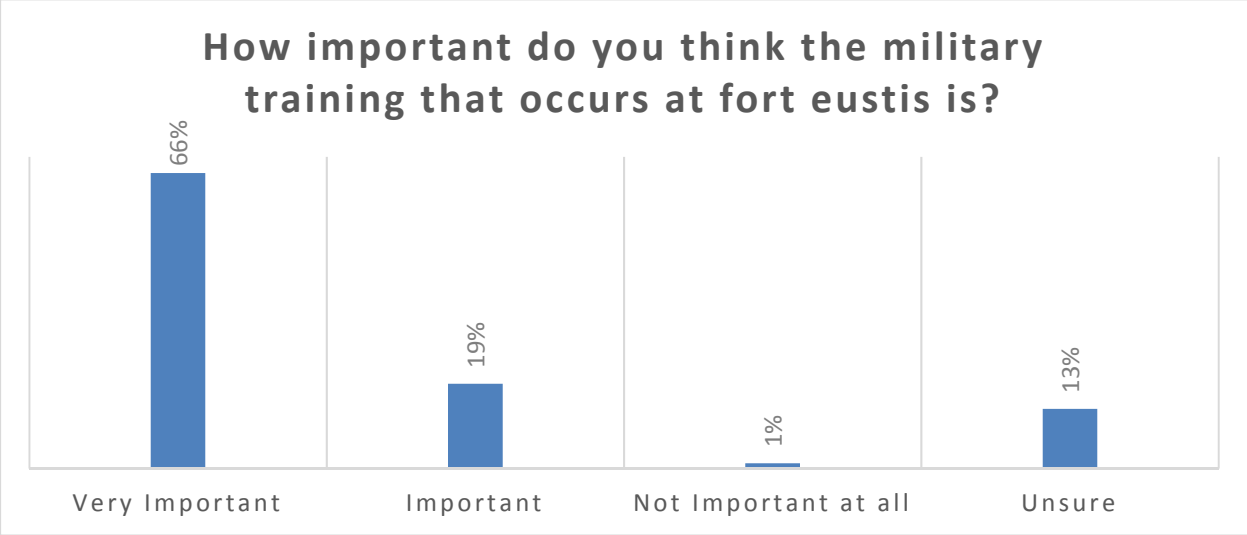
Respondents were asked how they received information regarding Fort Eustis. The results found that information was distributed to civilians primarily through people who work or train there, approximately 30%. Other sources include newspaper, radio, and or television (26%). Approximately 18% of the respondents were not sure how to find out information about Fort Eustis.

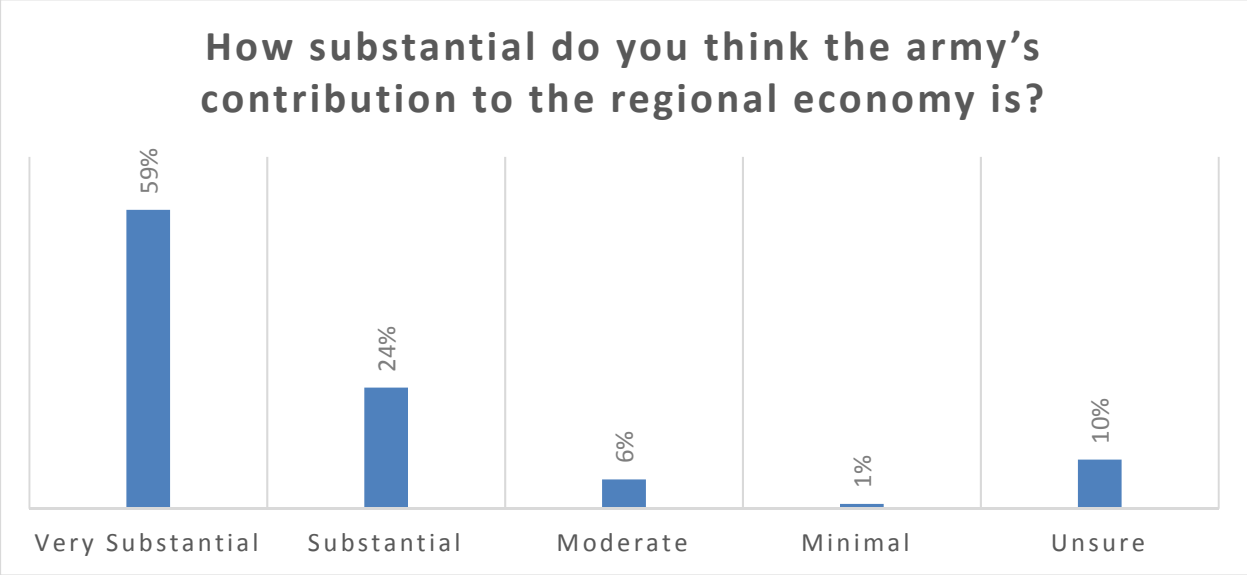


"Other" responses include Retired military (2), Navy Newspaper (1), Working at Fort Eustis (2), and Growing up Military (1)

Perception of Fort Eustis in the Community

The community recognizes the importance of Fort Eustis – evident by the more than 85% of respondents that found military training at Fort Eustis to be "very important" or "important." Additionally, 83% found the Army's contribution to the regional economy to be "very substantial" or "substantial." Only 1% of respondents didn't believe military training at Fort Eustis was important or that the Army didn't make a substantial contribution to the regional economy.





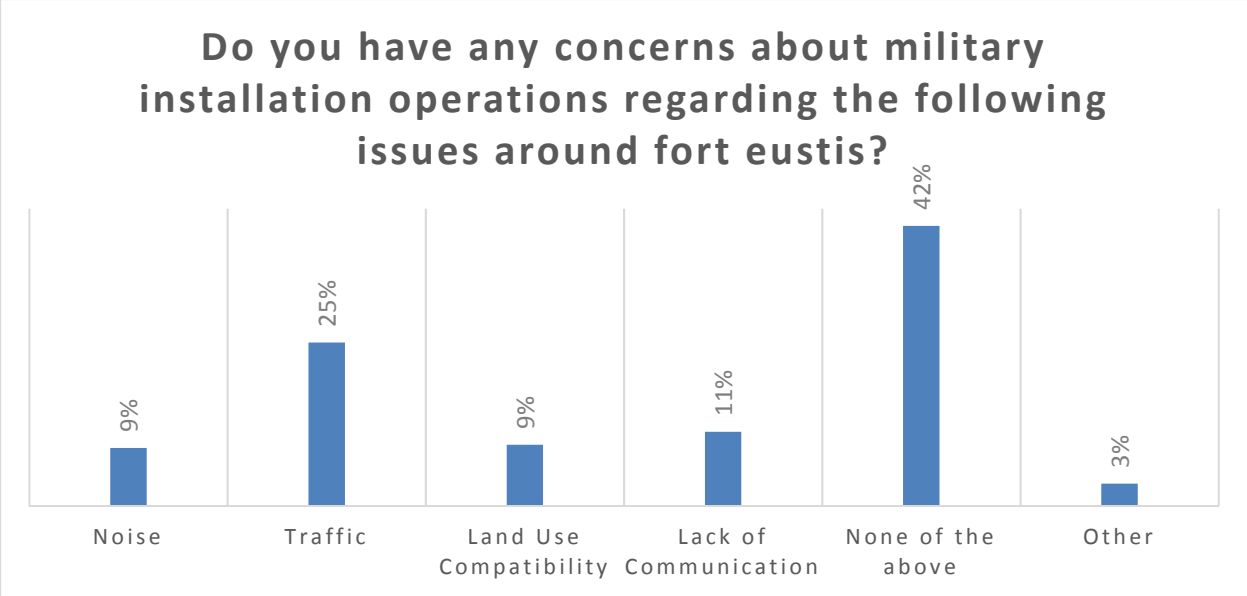
Respondents were given the opportunity to write in the benefits of having Fort Eustis as their neighbor. Respondents found many benefits with the highest ranking including economic impact (21%), safety and

security (19%), and jobs (17%). Other benefits included military/Army pride, on post amenities, recreation activities, and the community.

Benefits of Fort Eustis as Neighbor	# of Responses
Economic Impact	69
Safety and Security	63
Jobs	57
Military / Army Pride	32
On Base Amenities (i.e. exchange, commissary, childcare)	28
Recreation Activities (i.e. pool, gym, theater)	19
The Community (people, housing and schools)	19
Military and Veterans Benefits (retired and active duty)	14
Diversity	12
Training Opportunities	7
Preservation of Land	7
Culture and History	6

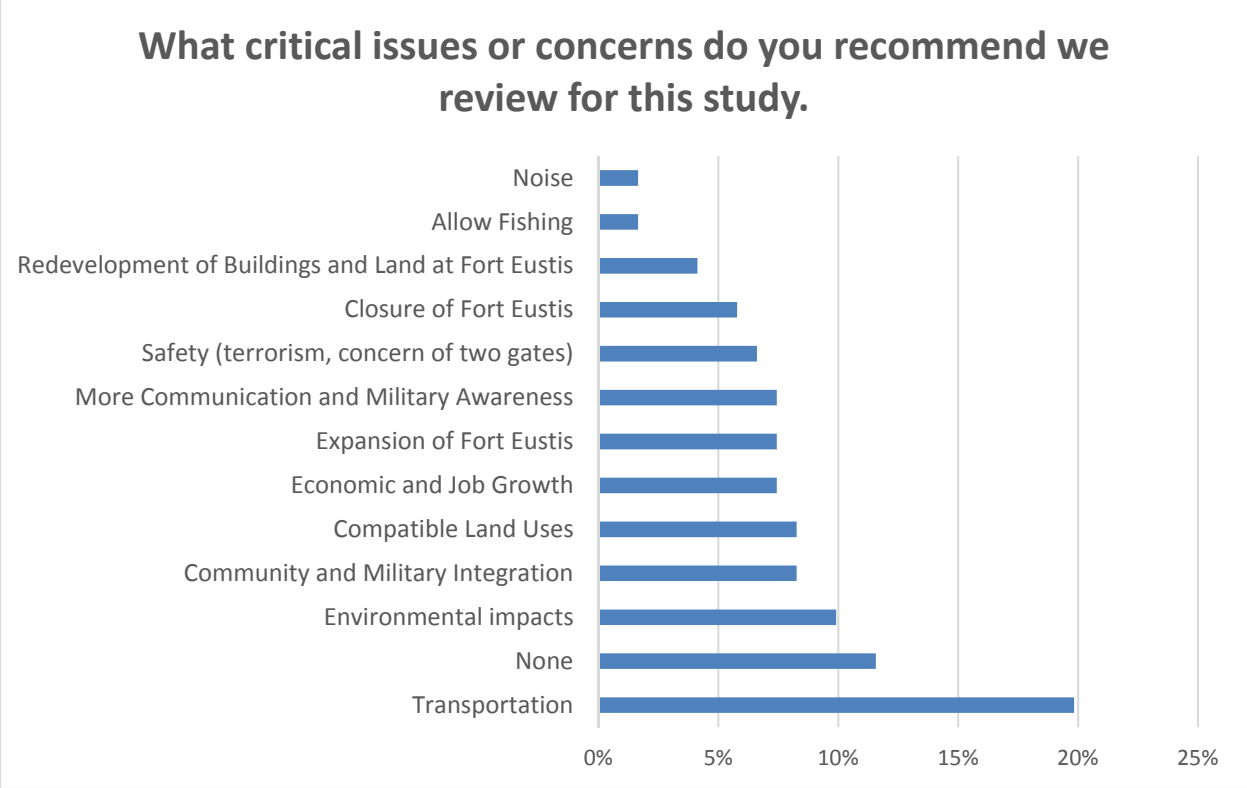
Impacts of Fort Eustis in the Community

The last subject area of the survey was the impacts of Fort Eustis on the community. Respondents were asked to identify if any of the following were a concern to them. The options included noise, traffic, land use compatibility, lack of communication, none of the above, or other. Forty-two percent of the respondents didn't have a concern with military operations. Of the concerns listed, the ones of most significance were traffic (25%) and lack of communication (11%).



At the end of the survey, respondents were given the opportunity to provide information regarding the critical issues or concerns that should be reviewed for the study. Of the 348 respondents, 113 provided a response. The most common concerns identified were transportation, no issues, and environmental impacts. Other concerns identified included:

- Allow Fishing
- Closure of Fort Eustis
- Community and Military Integration
- Compatible Land Uses
- Economic and Job Growth
- Expansion of Fort Eustis
- More Communication and Military Awareness
- Noise
- Redevelopment of Buildings and Land at Fort Eustis
- Safety



Military Influence Overlay District
Model Zoning Overlay

1. Fort Eustis Military Influence Overlay District (MIOD). The Fort Eustis Military Influence Overlay District is established to ensure that the continually changing mission of Fort Eustis is protected to the maximum extent possible while also fostering the vision of the community. The MIOD shall be the area located on Map XX. The Fort Eustis MIOD shall modify the underlying zoning districts and shall control in the event of any conflict with zoning district regulations.
    a. Communication Procedures.
        i. Provide notice to the commander of Fort Eustis of the adoption of any regulation, including any amendment thereof, or any adoption of or amendment to any comprehensive planning document which affects any portion of the Fort Eustis MIOD.
        ii. Provide written notice to the commander of Fort Eustis of each development proposal which affects any portion of the Fort Eustis MIOD to provide the commander of Fort Eustis an opportunity to assess any impact and coordinate issues with planning staff.
        iii. Provide a "Notice of Potential Impact" to each individual receiving a construction permit for improvements within the MIOD.
    b. Military Influence Area (MIA) Zones. The Fort Eustis MIOD is comprised of five Military Influence Area (MIA) zones. The MIAs include:
        i. Third Port MIA. The Third Port MIA is established to prevent interference with Fort Eustis training missions that occur on Skiffe's Creek, the James River, and within the Felker Army Field Airspace.
        ii. Main Gate MIA. The Main Gate MIA is the area immediately surrounding the main Fort Eustis gate located on Fort Eustis Boulevard. The MIA is established to promote safety and security around the installation.
        iii. Aquatic Training MIA. The Aquatic Training MIA is established to prevent interference with Fort Eustis training missions in the identified area of the James River between Jamestown on the north and the James River Bridge on the south
        iv. Noise MIA. The Noise MIA is established to notify residents of the potential for noise impacts due to their proximity to Fort Eustis.
        v. Airspace MIA. The Airspace MIA is established to protect the shared Newport News / Williamsburg International Airport and Felker Army Airfield airspace from incompatible development that would hinder use of the airspace.
    c. MIA Zone Standards
        i. Third Port MIA. The Third Port MIA shall be the area located on Map XX.
            1. Use restrictions. The following uses shall be restricted within the Third Port MIA:

a. Residential uses including multi-family, single family
b. Seasonal and hospitality uses such as resorts, timeshares, and hotel or motels
c. Heavy industrial uses that may generate steam or smoke
d. Sensitive land uses such as hospitals, schools, or day cares
e. Large scale marinas

2. Vertical Obstructions. Proposed development must comply with subsection xxx v.2.

ii. Main Gate MIA. The Main Gate MIA shall be the area located on Map XX.

1. Design Standards. All development applications for areas immediately adjacent to Fort Eustis, within the MIA, adopted after the effective date of this ordinance, must adhere to the following guidelines.
a. A 3-foot buffer is required between Fort Eustis property line and any structure adjacent to the property.
b. No structure or berm may be located within the buffer.
c. No civilian fence is permitted to connect to the fence located on Fort Eustis property.
2. Use restrictions. The following uses shall be restricted within the Main Gate MIA:
a. Residential developments that would increase density within the area
b. Uses that concentrate people in small areas

iii. Aquatic Training MIA. The Aquatic Training MIA shall be the area located on Map XX.

1. Review. All development applications proposing docks or structures protruding into the water, or other water based uses associated with upland development that are located within the Aquatic Training MIA as identified on Map X, shall submit a development review application to the City/County Planning and Zoning Division.

iv. Noise MIA. The Noise MIA shall be the area located on Map XX.

1. Noise Attenuation Standards. The following noise attenuation standards are optional techniques to be used on new or remodeled structures.

The noise attenuation standards area applicable to all habitable portions of structures occupied by noise sensitive uses shall be designed and constructed to achieve either: an outside to inside noise level reduction (NLR) of at least twenty-five (25) a-weighted decibels (dBA), or be built to the standards set forth in subsection (c)(1)B. below.

A. Options for Implementation. Compliance may be demonstrated using one of the following methods:

1. Use simultaneous noise readings of instantaneous outside and inside noise levels in accordance with ASTM E 966 to ensure the structure achieves an outside to inside NLR of at least twenty-five (25) dBA; or

2. Utilize construction materials with a minimum tested or isted sound transmission class (STC) rating of forty (40), in accordance with ASTM E 90, for walls and ceilings, and with a minimum tested or listed STC rating for doors and windows as specified below, in accordance with the following construction methods:

    a. Walls. The specific exterior wall assemblies listed below shall include the interior finishes set forth therein. Exception: Exterior wall assemblies or materials that have been tested or listed with a minimum STC rating of forty (40).

        i. Brick veneer. When exterior walls are constructed using brick veneer, a minimum of one-half (½) inch gypsum drywall shall be applied as the interior finish, or a minimum of three and one-half (3½) inches of foam insulation shall be sprayed in as allowed by the building and fire code.

        ii. Vinyl or cement sidings. When exterior walls are constructed using vinyl or cement sidings, a minimum of five-eighths (5/8) inch gypsum drywall shall be applied as the interior finish, or a minimum of three and one-half (3½) inches of foam insulation shall be sprayed in as allowed by the building and fire code.

        iii. Other assemblies and materials. All other exterior wall assemblies or materials shall have a tested or listed minimum STC rating of forty (40).

    b. Roof/Ceiling Assemblies. Roof/ceiling assemblies shall be constructed in accordance with the requirements of subsections a or b below. Exception: Roof/ceiling assemblies or materials that have been tested or listed with a minimum STC rating of forty (40).

        i. Ceilings with unconditioned attic space shall be insulated with a minimum of one-half (½) inch gypsum drywall on the interior ceiling side covered with a minimum of twelve (12) inches of blown in fiberglass insulation, or a minimum of three and one-half (3½) inches of spray foam insulation shall be applied to the underside of the roof deck as allowed by the building and fire code.

ii. Ceilings without attic space above shall be insulated with a minimum of five-eighths (5/8) inch gypsum drywall on the interior side filled with a minimum of nine (9) inches of fiberglass batt insulation with a one (1) inch air space between the roof sheathing and the fiberglass, or a minimum of three and one-half (3½) inches of spray foam insulation shall be applied to the underside of the roof deck as allowed by the building and fire code.

c. Windows. The cavity between the wood framing and the window frame shall be insulated with fiberglass insulation or foam insulation to the depth of the window frame.

i. If the exterior windows and doors together comprise no more than thirty (30) percent of the total exterior wall area, all windows shall have a minimum tested or listed STC rating of thirty (30).

ii. If the exterior windows and doors together comprise more than thirty (30) percent but no more than forty (40) percent of the total exterior wall area, all windows shall have a minimum tested or listed STC rating of thirty-two (32).

iii. If the exterior windows and doors together comprise more than forty (40) percent of the total exterior wall area, all windows shall have a minimum tested or listed STC rating of forty (40).

d. Doors.

i. If the exterior windows and doors together comprise no more than thirty (30) percent of the total exterior wall area, all exterior doors shall have a minimum tested or listed STC rating of thirty (30).

ii. If the exterior windows and doors together comprise more than thirty (30) percent but no more than forty (40) percent of the total exterior wall area, all exterior doors shall have a minimum tested or listed STC rating of thirty-two (32).

iii. If the exterior windows and doors together comprise more than forty (40) percent of the total exterior wall area, all exterior doors shall have a minimum tested or listed STC rating of forty (40). Exception: An exterior door may have a tested or listed STC rating of less than forty (40) when installed with a storm door which when combined, achieve a minimum tested or listed STC rating of forty (40).

e. Mechanical Systems. Mechanical ventilation systems (HVAC) shall provide minimum air circulation and fresh air requirements for various uses in occupied rooms without the need to open any windows, doors, or other openings to the exterior.

i. In-window, through-wall, or through-floor air conditioning, ventilating, or heating units may be used if:

a the above insulation requirements for walls, ceilings, windows and doors are implemented, or

b. walls, ceilings, windows and doors have a minimum tested or listed STC rating of forty (40).

ii. Evaporative coolers may be installed if the following is implemented to reduce sound entering through the unit:

a. Insert a duct extension with at least two (2) ninety degree (90º) "elbows" between the structure and the unit.

b. Add acoustically designed "upducts" in the ceiling of each room to allow proper circulation of air while windows are closed.

B. Certification.

1. Certification is optional.

2. The following is required for the optional issuance of a certificate

a. Prior to approval of final inspection or issuance of a certificate of occupancy, all project applicants shall submit to the planning and development services department a signed statement certifying compliance with this section. This may require a qualified professional to design the structure, and may require a third party test to ensure that the structure was built to meet noise reduction standards prior to occupancy.

b. A single certification statement for multiple structures in the same development may be used as long as the structures implement the same floor plans and construction methods.

2. Use restrictions. The following uses shall be restricted within the Noise MIA:

a. Residential developments that would increase density within the area without proper noise attenuation techniques

v. Airspace MIA. The Airspace MIA shall be the area located on Map XX.

1. Alternative Energy Development within the Airspace MIA
    a. Solar Energy System Requirements.
        i. All solar energy facilities shall be considered a special use in all areas of the city/county covered by the Airspace MIA. Approval as a special use must be from the City/County Board of Adjustments.
        ii. The design and construction of solar energy facilities shall not produce light emissions, either direct or indirect (reflective), that would interfere with pilot vision and/or traffic control operations.
    b. Commercial Wind Energy Conversion Systems.
        i. Definition. A single Wind Energy Conversion System exceeding 100 kW or exceeding 120 feet in height above grade, or more than one Wind Energy Conversion System of any size proposed and/or constructed by the same person or group of persons on the same or adjoining parcels or as a unified or single generating system.
        ii. Commercial Wind Energy Conversion Systems shall be considered a special use in all areas of the city/county covered by the Airspace MIA. Approval as a special use must be from the City/County Board of Adjustments.
    c. Review and approval for large-scale alternative energy projects shall include a letter of consent issued by a Fort Eustis representative. The letter of consent shall be requested at the time of application submittal.
2. Vertical Obstructions.
    a. Joint Review. All development applications proposing vertical obstructions that exceed the height of xx feet and are located within the Airspace MIA as identified on Map XX, must submit an application to the City/County Planning and Zoning Division as part of the Development Order Application. As part of the review process, the application will be forwarded to Fort Eustis for review and comment.
    b. New and substantially rehabilitated structures, as defined in the Land Development Code, must comply with FAA Part 77 requirements.
3. Outdoor Lighting.
    a. Purpose and intent. The purpose of this section is to set outdoor lighting standards that will minimize glare, light trespass, and skyglow; conserve energy while maintaining nighttime safety,

security and productivity; protect the privacy of residents; minimize disturbance of wildlife; and enhance the ambiance of the community.

It is the intent of this section that all luminaires in the city/county be brought into compliance with the standards of this section in accordance with the timetable established in subsection (e).

To encourage the replacement of nonconforming outdoor lights, the issuance of a development permit, solely for outdoor lights, does not trigger compliance with code requirements unrelated to outdoor lighting.

Further, the issuance of a development permit for any purpose other than outdoor lighting will not require the replacement or removal of existing nonconforming outdoor lighting as a condition of authorizing such development permit, except in accordance with the timetable in subsection (e).

b. Applicability. New or replacement luminaires and new construction must comply with the standards of subsection xxx (c). Existing luminaires shall comply with the timetable in subsection xxx (e).
    i. All land uses. A development permit is required to add or replace outdoor lights in the Airspace MIA.
c. New or replacement luminaires and new construction standards.
    i. All exterior lighting shall be designed and installed to prevent glare and light trespass. Light shall not be allowed to cause glare affecting motorists, bicyclists, or other users of roads, driveways and bicycle paths. Light shall not trespass over property lines.
    ii. Full cutoff fixtures must be used. All outdoor lighting, including display, sign, building, parking lot, and aesthetic lighting, must use full cutoff fixtures, which shine light downward.
    iii. Functional equivalents allowed. Lights that are properly installed within or under an architectural space or feature (such as under a porch roof or a roof overhang) shall be considered a functional equivalant to a full cutoff fixture and need not use full cutoff fixtures.

iv. The illustrations contained in Appendix A to this section are intended to provide examples of fixtures and fixture positioning that comply (and that do not comply) with these standards, and are part of these regulations.

v. Mercury vapor lighting is prohibited. High or low pressure sodium lighting or other energy efficient and less environmentally-hazardous types of lighting are permitted and encouraged. County Commission / City council may approve, by resolution, new lighting technologies as they become available.

vi. In residential settings, motion-detecting security lighting is permitted and encouraged in order to maximize safety, minimize overall illumination, and conserve energy.

vii. Parking lot lights for nonresidential land uses shall, individually and in aggregation with other outdoor lights, not exceed a maximum site illumination of ten foot-candles, measured at two feet above ground level.

viii. Unshielded pole-mounted lighting is prohibited.

ix. Uplighting is prohibited.

d. Exemptions. The following are exempt from the requirements of this section:

i. All temporary emergency lighting needed by the police or fire departments or other emergency services, as well as all vehicular luminaires.

ii. Lighting for public streets, roads, and rights-of-way.

iii. All hazard warning luminaires required by federal or state regulatory agencies are exempt from the requirements of this subsection. Unless otherwise mandated, all luminaires used must be yellow/amber and must be shown to be as close as possible to the federally or state required minimum lumen output requirement for the specific task.

iv. Holiday lighting.

v. Landscaping and pathway lighting, three feet or less in height. Solar or other low wattage landscape and pathway lighting shall not project light skyward; full cutoff fixtures are encouraged, but not required.

e. Existing nonconforming luminaires.

i. Any lawfully existing luminaire, with the exception of unshielded pole lighting (except as described in subsection iv below) and uplighting, that currently exists

at the time of this division that is not in conformance with the standards set forth in subsection 126-997(c) shall be permitted to remain after January 1, 2018 until such time as they are either replaced or relocated. Lights that are properly installed within or under an architectural space or feature (such as a porch roof, roof overhang, eave or similar architectural feature) shall be permitted to remain after January 1, 2019 until such time as they are either replaced or relocated (and such lights shall not be considered uplighting even where such architectural feature is not the functional equivalent of a full cutoff feature).

ii. Any luminaire that replaces a lawfully existing luminaire, or any lawfully existing luminaire that is moved, must meet the standards of subsection xxx(c) at the time of its replacement or relocation.

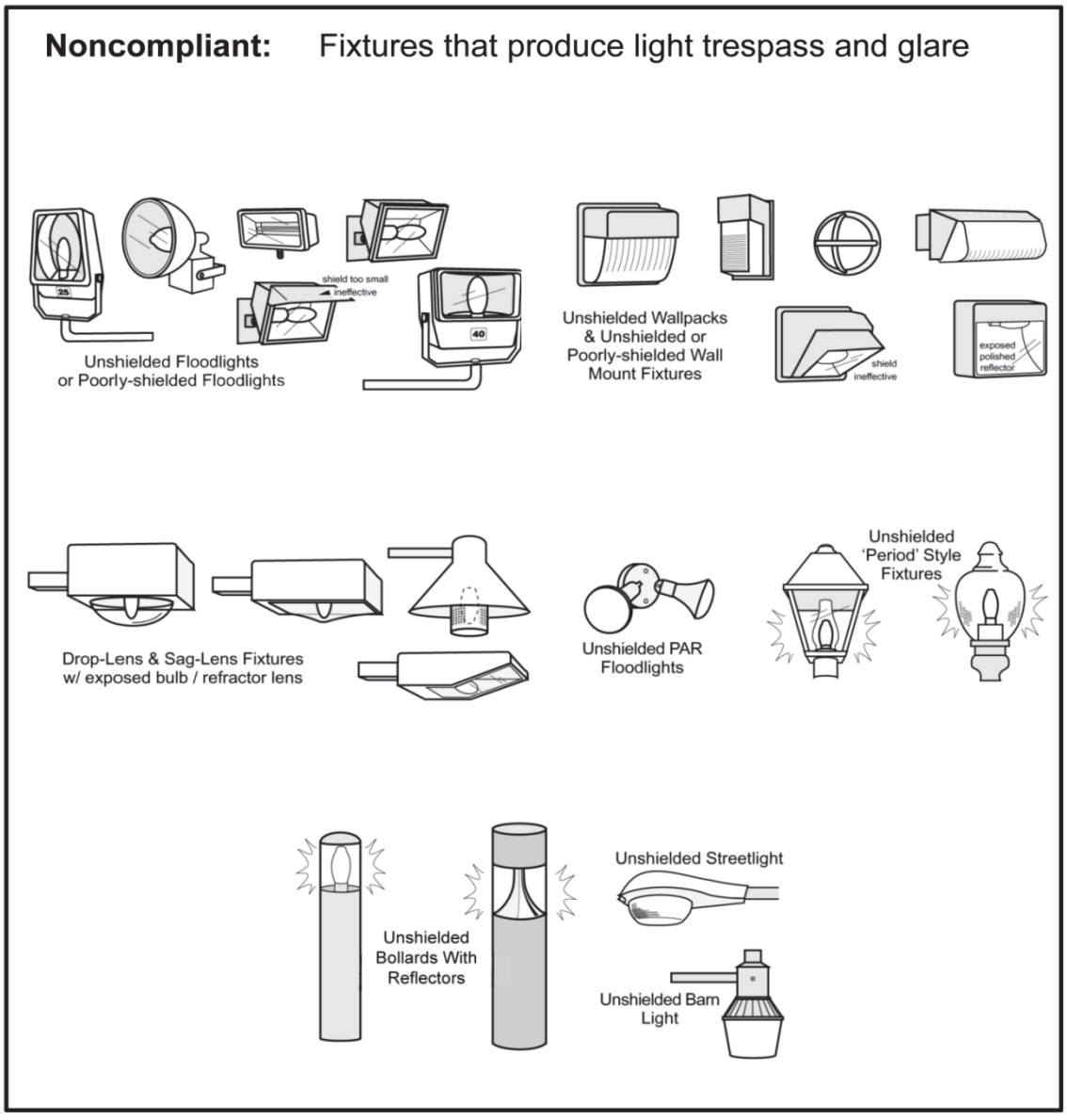
iii. All lawfully existing unshielded pole-mounted lighting (except as described in subsection (e)(iv) below), and uplighting shall be strictly prohibited as of January 1, 2019.

iv. Notwithstanding the above provisions of this section, a pole light where the fixture has an opaque cover, cap or top constructed as part of the fixture assembly shall be permitted to remain after January 1, 2019 until such time as it is replaced or relocated.

f. Prohibition on luminaires causing glare to motorists, cyclists and adjacent properties. Notwithstanding any other provision of this division of the Code, all luminaires that direct light toward streets, shared use paths or parking lots that cause glare to motorists or cyclists, or that direct light towards adjacent properties that cause glare to the occupants of such properties, shall be either shielded or redirected so that the luminaires do not continue to cause a potential hazard.

Appendix A – Example Light Fixtures

Dark Sky Light Fixture Guide



Dark Sky Light Fixture Guide