



FORT LEE JOINT LAND USE STUDY



MARCH 2014

CITIES OF COLONIAL HEIGHTS - HOPEWELL - PETERSBURG
COUNTIES OF CHESTERFIELD - DINWIDDIE - PRINCE GEORGE





FOREWORD

This Joint Land Use Study was prepared under contract with the Crater Planning District Commission, with financial support from the Department of Defense's Office of Economic Adjustment and matching funds from the participating local governments. The content of the plan reflects the views of the participating entities and does not necessarily reflect the views of the Office of Economic Adjustment.

The primary partners involved in the process included Chesterfield, Dinwiddie and Prince George counties and the cities of Colonial Heights, Hopewell and Petersburg, the Crater Planning District Commission, and Fort Lee. In addition to these key partners, many stakeholders from across the region were involved, participating in interviews, serving on the JLUS Policy and Technical Committees, and providing oversight during the process.

The successful implementation of the strategies contained in this study will help to improve land use compatibility between Fort Lee and the surrounding communities, helping to sustain the military missions and economic well-being of the entire region for years to come.







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SECTION ONE: INTRODUCTION

1.1 Introduction

The preparation of this study is the latest expression of the region's long history of working together as a community to support the sustainment and growth of the military missions at Fort Lee. This strong base of regional support for the military and the partnerships that it has fostered helped Fort Lee expand its mission during the 2005 Base Realignment and Closure (BRAC) process. In an effort to help maintain the viability of Fort Lee's military missions into the future, the installation, along with the cities of Petersburg, Hopewell and Colonial Heights, the counties of Prince George, Chesterfield and Dinwiddie, and the Crater Planning District Commission, have partnered together to prepare this Joint Land Use Study (JLUS). The JLUS identifies ways that the military and civilian communities surrounding Fort Lee can work together in a cooperative effort to help ensure that Fort Lee can continue its military missions, while helping the region's economy continue to move forward and prosper from Fort Lee's presence. The JLUS was funded by a matching grant from the Department of Defense's Office of Economic Adjustment and was administered by the Crater Planning District Commission (CPDC).

1.2 Study Purpose

The purpose of this Joint Land Use Study (JLUS) is to help identify ways that Fort Lee and the neighboring communities can work together to promote land use compatibility and improve communication on matters of mutual interest.

1.3 Study Goals

While many important goals and objectives are incorporated into the JLUS process, the primary guiding goals are to:

- Encourage cooperative land use planning between the military installation and the neighboring jurisdictions so that future civilian growth and development are compatible with the training and operational missions of the installation.
- Identify strategies to reduce the operational impacts of military training activities on adjacent lands, including environmental impacts of those operations.
- Promote communication and cooperation between the civilian population and the military.
- Protect the health and safety of the civilian population living around the post.

- Promote the sustainment of the military missions.

1.4 Study Process and Citizen Participation

A committee formed by the Crater Planning District Commission selected a local government planning consulting firm through a request for proposal and interview process. The consulting team selected had experience preparing similar studies and projects across the country, as well as in Virginia. Staff members from participating organizations were assembled to help guide the project and the consultant's work as part of the JLUS Technical Committee, while senior officials and elected leaders were brought together to guide the overall direction of the project as part of the JLUS Policy Committee.

The initial step in preparing the Fort Lee Joint Land Use Study involved a project initiation meeting with the JLUS Project Team on November 30, 2012. The project team included key Crater Planning District staff, Fort Lee staff and the consultant team. At this meeting, key dates were established for the project schedule, regional stakeholders were identified and the basic study process was discussed in more detail. The project team developed a communication and public involvement strategy that was designed to encourage stakeholder and public participation in the Joint Land Use Study process. Following the project initiation meeting, the project team met with the JLUS Technical and Policy Committees on January 10, 2013 to receive their feedback and input into the identification of stakeholders and future meeting locations.

In order to coordinate the meetings with the multiple organizations and individuals involved in the planning process, the project team established a schedule of events, which included meeting dates for stakeholder interviews, public meetings, technical review meetings, and presentations of the final study. The first JLUS Policy and Technical Committee meetings were held on January 10, 2013 to discuss the three day series of stakeholder meetings scheduled for February 5 – 7, and the public kick-off meeting that was scheduled for the evening of February 7 at the Union Train Station in Petersburg. The Policy and Technical committees met again on March 7 to review the initial background research and make plans for the first public meeting on April 24, 2013 at the Prince George County Library. On June 22, the land use compatibility analysis was presented to the policy and technical committees. On August 22, the committees met again to review the first draft of the JLUS. The first draft of the JLUS was presented to the public on September 30, 2013 at the Hopewell Library. Final meetings were held on October 17, with the Policy and Technical committees endorsing the final draft of the JLUS. From November 2013 through February 2014, the JLUS was presented to each participating local government that requested a presentation.

Figure 1-1: Schedule of Events

Dates	Meeting	Location
2012		
November 30 , 2012	Project Team Meeting	Crater PDC Offices
January 10, 2013	Policy and Technical Committee Meetings	Crater PDC Offices
February 5 – 7, 2013	Stakeholder Interviews	Various locations
February 7, 2013	Public Kick-off Meeting	Union Train Station - Petersburg
2013		
March 7, 2013	Background Research Review - Policy and Technical Committee Meetings	Crater PDC Offices
April 24, 2013	Public Input Meeting	Prince George County Library
June 22, 2013	Compatibility Analysis Review – Policy and Technical Committee Meetings	Crater PDC Offices
August 22, 2013	Draft Study Review - Policy and Technical Committees	Crater PDC Offices
September 30, 2013	Public Review of Draft Study	Hopewell Library
October 17, 2013	Final Draft Review – Policy and Technical Committees	Crater PDC Offices
November 2013 - February 2014	Local Government Presentations	Participating Jurisdictions
February 2014	Final Document Prepared	N/A

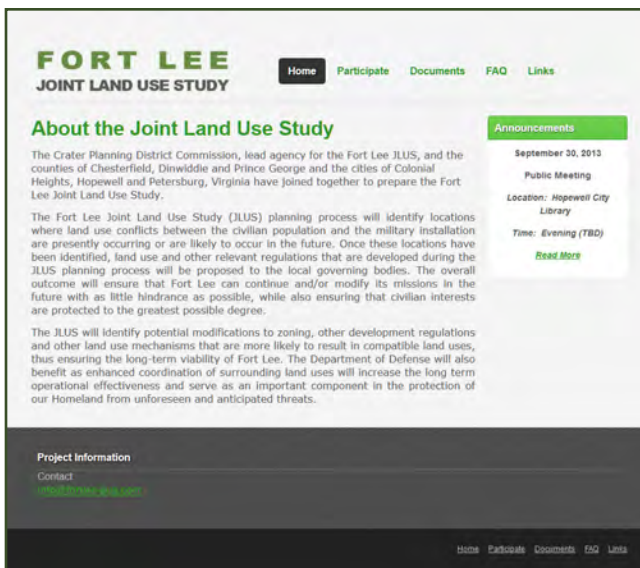


Figure 1-2: JLUS Project Website

Public Outreach

A key factor in the success of the project was the development of an outreach strategy that encouraged public input as a meaningful part of the process. In furtherance of this effort, centralized meeting locations were selected and methods of public notification were identified to inform stakeholders and the general public of meeting dates and times. In addition, a project website was established to host information regarding the JLUS for those seeking additional details. The website was accessible by visiting: www.FortLee-JLUS.com. The actions carried out as part of the public outreach strategy are discussed below.

February 5 – 7, 2013 – Stakeholder Interviews

This series of meetings involved extensive coordination between the project team and CPDC staff. A schedule of available interview time blocks was prepared and the project stakeholders were contacted and scheduled for interviews by the CPDC staff. Meetings were held in various locations throughout the region over a three day period to interview stakeholders, including both individual and group interview sessions. Phone interviews and follow-up face-to-face interviews with those that could not attend the initial stakeholder meetings were held by the project team as the stakeholders' schedules allowed. Altogether, over 50 individuals were interviewed for the study.

The following list details the affiliations of the individuals and groups that were included in the interview process:

- Fort Lee Officials & Staff
- Chesterfield County
- City of Colonial Heights
- Dinwiddie County
- City of Hopewell
- City of Petersburg
- Prince George County
- Crater Planning District
- Commission
- Petersburg National Battlefield
- Virginia's Gateway Region
- Virginia DOT
- Homebuilders
- Federal Corrections Complex
- Hopewell Regional Wastewater
- Office of Senator Mark R. Warner
- Colonial Heights Chamber of Commerce
- Hopewell -Prince George Area Chamber of Commerce
- Petersburg Chamber of Commerce
- Office of Congressman J. Randy Forbes
- Office of the Secretary of Veteran Affairs & Homeland Security
- Business leaders, major land owners/developers
- Friends of the Lower Appomattox River
- Economic Development Directors
- Southside Board of Realtors

February 7, 2013 - Public Kick-Off Meeting

At the conclusion of the stakeholder meetings, a public kick-off meeting was held in Petersburg at the Union Train Station at 6:30 pm on February 7, 2013. Over 30 community leaders participated in the meeting, which included a brief presentation and discussion among the meeting participants regarding the process, timeline and overall Joint Land Use Study purpose and program.

March 24, 2013 – Public Presentation of Background Research

As the background research phase was nearing completion, the first public input

meeting in the region was held on March 24, 2013 at the Prince George County Library. The meeting was advertised well in advance through the local news media, email lists, websites and social media. At the meeting, the JLUS purpose and process was presented along with the initial results of the background research phase of the project. Approximately 20 people attended the first public meeting, providing feedback on the process and background information to the project team. The JLUS Policy and Technical Committees decided that future public meetings should move to different locations around the region as the project moved forward.

September 30, 2013 – Public Presentation of Draft JLUS

After the draft study was reviewed by the Policy and Technical Committees in August, a meeting was held on September 30, 2013 at the Hopewell Library to review the draft with the public. Comments on the draft study were reviewed and considered by the Policy and Technical Committees prior to moving forward with the final study.

JLUS Technical and Policy Committee Review Meetings

The project team met at five key points in the process with the JLUS Technical and Policy Committees at the CPDC offices. The first meeting was held on January 10, 2013, and included an overview of the JLUS process. After the first meeting, review meetings were held on March 7, June 22 and August 22, to review the initial background research, the compatibility analysis and the first draft of the JLUS. The fifth and final Technical and Policy committee meetings were held on October 17, 2013, to review the study prior to the final public review. The Policy Committee members endorsed the final study at that meeting.

Presentation of the Completed Joint Land Use Study

Once the Technical Committee completed its review and the Policy Committee endorsed the final study, a public presentation of the JLUS was given to each participating jurisdiction in the region. After the final presentations, the final study was delivered to the CPDC for distribution to the participating jurisdictions so that they could each begin implementation of the study's recommended strategies and actions steps.

1.5 JLUS Document Summary

Included in this study are seven sections that contain greater detail regarding the elements considered, with recommendations and implementation. The seven sections include:

- Introduction
- Background
- Military Operational Impacts and Hazards

- Land Use Compatibility Assessment
- Overview of Compatibility Efforts
- Implementation
- Appendices

The background section summarizes the regional context, history, military operations, economy, environmental and other relevant information and trends. The military operational impacts section discusses the identifiable operational impacts and hazards associated with military training activities. The section on compatibility examines existing or potential land use conflicts between the surrounding communities and identifiable military training impacts. Included in the compatibility efforts section is a review of existing actions that have been taken or are underway to preserve the military missions through compatible land use policies. The implementation section focuses on establishing a sound framework for achieving the study's recommendations; while the final section, the technical appendices, includes a "toolkit" of examples that the region can employ to activate many of the study's recommendations in a timely manner as each jurisdiction deems appropriate.



SECTION TWO: BACKGROUND

2.1 Regional Context

The communities surrounding Fort Lee are geographically positioned in the heart of what is known as the Tri-Cities Region of Central Virginia along Interstate I-95, approximately 25 miles south of Richmond. The Tri-Cities include the independent cities of Colonial Heights, Hopewell and Petersburg, which are located respectively northwest, northeast and southeast of Fort Lee. The nearly 6,000 acre installation is geographically positioned entirely within Prince George County, with Chesterfield County to the north and Dinwiddie County to the southwest, past Petersburg (see Figure 2-1). The total population of the region was 452,384 according to the 2010 Census.

In recent years, the daily population at Fort Lee has grown from approximately 32,000 to nearly 45,000, with an estimated 70,000 troops passing through training programs annually. With the growth at Fort Lee, the region as a whole will need to work closely with the installation to achieve land use compatibility, protecting the civilian population around the Fort, in an effort to sustain the military missions into the future.

2.2 Brief History of Fort Lee

Originally known as Camp Lee, the installation was established in the spring of 1917 shortly after the United States declared war on Germany. The Camp was established by a War Department acquisition of a large amount of farmland in Prince George County between Petersburg and Hopewell. The original Camp Lee included more than 1,500 buildings and just over 15 miles of on-post travel ways. The first troops trained there were from Pennsylvania, Virginia and West Virginia, serving as the 80th "Blue Ridge" Division. Camp Lee eventually became one of the largest concentrated areas of population in Virginia with more than 60,000 soldiers being trained. Following the end of the First World War, Camp Lee became an out-processing center for demobilizing troops and was officially closed in 1921.

In 1940 as World War II was underway, the War Department issued orders for the rebuilding of Camp Lee at the same location. The Camp became home to the Quartermaster School, which was relocated from Philadelphia. The installation trained over 300,000 Quartermaster Soldiers during the World War II period, with over 50,000

attending Quartermaster Officer Candidate School. Other important activities at Camp Lee included the Army Services Forces Training Center, the Quartermaster (Research & Development) Board, a large contingent of Women's Army Corps Soldiers, and for a while, a prisoner of war camp and the Medical Replacement Training Center. Also during this period, a regional hospital was established that was capable of caring for over 2,000 patients. In 1945, troops strengths at the installation were rapidly decreasing; however, Camp Lee did not shut down as it did at the end of World War I. The Camp continued to function as the primary Quartermaster field installation and as an out-processing center.

In 1947, Camp Lee began to see additional training arrive, including the Adjutant General's School, which remained until 1951. The Women's Army Corps also established its premier training center at the Camp from 1948 to 1954 and the first permanent brick and mortar structure – the Post Theater – was constructed in 1948.

On April 15, 1950 the War Department made Camp Lee a permanent training facility, renaming it to Fort Lee. More activity and training arrived at the Fort including the Quartermaster School, and airborne delivery specialists (“riggers”) began training at Fort Lee. Between 1950 and 1953, the Korean War brought through tens of thousands of soldiers again to receive logistics training. For two decades, between 1950 – 1970, many of the wooden barracks and temporary training facilities became permanent brick and cinderblock structures. The facilities included multi-story barracks and small neighborhood type housing. Mifflin Hall, the three-story Quartermaster School classroom building was established in 1961, while Kenner Army Hospital opened in 1962. Closing out those two decades, the rapid logistics buildup in Vietnam after 1965 increased the need for more Quartermaster Soldiers, which resulted in round-the-clock training at Fort Lee. A Quartermaster Officer Candidate School opened again in 1966 and a mock Vietnamese “village” was created on the post to familiarize soldiers with guerrilla tactics and simulated fighting conditions in the jungles of Southeast Asia.

From the 1970s to 1990s, Fort Lee experienced growth in tenant units on the post, including the Army Logistics Management Center (ALMC), Readiness Group Lee, Materiel Systems Analysis Activity, Gerow U.S. Army Reserve Center, Defense Commissary Agency (DECA), USAR 80th Division, and several other Department of Army and Department of Defense activities. The U.S. Army Logistics Center was created in the 1970s to serve as an “integrating center” for the Quartermaster, Transportation, Ordnance, and Missile and Munitions centers and schools at Fort Lee. And by the 1990s, the Logistics Center, which had only been a tenant activity, was re-designated as the U.S. Army Combined Arms Support Command (CASCOM). Other activities included

the Enlisted Supply and Subsistence and Food Services department training facilities and new petroleum and water field training sites. New facilities, including barracks and training areas were constructed and the Quartermaster School consistently graduated 20,000 to 25,000 students annually, with another 10,000 to 12,000 graduating from ALMC.

By 2000, additional facilities were constructed for the Quartermaster schools – Petroleum and Water, and Aerial Delivery and Field Services. Fort Lee was frequently called upon during the early part of the 21st Century to train soldiers for contingency operations at home and abroad related to 9/11 and the Global War on Terrorism. Fort Lee also erected permanent fencing to completely enclose the installation as a result of heightened levels of concern for security.

Moving forward, Fort Lee was assigned an important new mission during the 2005 BRAC – the Sustainment Center of Excellence, which serves as a focused training base for military supply, services, maintenance, munitions and transportation. Another round of construction resulted and preparation was made for the U.S. Army Ordnance Center and School from Aberdeen Proving Ground, Maryland, and the headquarters of the U.S. Army Transportation Center and School from Fort Eustis, Virginia. The Air Force and Navy Culinary Schools and the Defense Contract Management Agency also moved to Fort Lee with the last BRAC round. The Sustainment Center of Excellence, a \$50 million facility, was formally dedicated in January 2009 and now houses the Combined Arms Support Command, logistics training and combat doctrine developers, and command groups for the Quartermaster, Ordnance and Transportation Corps. The CASCOM headquarters was dedicated as the new “Mifflin Hall.” The Army Logistics University opened in July 2009. This 400,000-square-foot building offers more than 200 courses and trains upwards of 2,300 military and civilian students daily. In 2011, the new Ordnance Campus was dedicated, formally bringing the Ordnance School to Fort Lee. In 2012 the 49th Quartermaster Group was inactivated, leaving Fort Lee without a major FORSCOM unit on the installation.

Recently, as part of an announced drawdown of the Army, Fort Lee was considered for a major reduction in personnel which was analyzed in the Programmatic Environmental Assessment for Army 2020 Force Structure and Realignment. The April 2013 Annex to the Finding of No Significant Impact (FONSI) for the Programmatic EA stated that Fort Lee would experience significant negative socioeconomic impacts if the proposed reduction were implemented. An Army force structure announcement released June 25, 2013 stated that Fort Lee would not experience reductions in active duty strength beyond previously announced reductions associated with the inactivation of the

49th Group and its subordinate units. The reductions announced June 25, 2013 are consistent with fiscal constraints resulting from the Budget Control Act of 2011 and Defense Planning Guidance issued in 2012, but do not reflect additional reductions that will be required if sequestration-driven funding constraints remain unmitigated.

2.3. Fort Lee’s Military Missions

The current mission of Fort Lee is related primarily to its role as a component of the US Army Training and Doctrine Command (TRADOC). Put simply, the mission of the installation is to train Soldiers, Sailors, Airmen, Marines and civilians. With the inactivation of the last of its FORSCOM units in 2012, the recent BRAC related mission expansions, and the lack of end strength drawdowns as part of the Army 2020 plan, the installation’s future is firmly rooted in its role as a post that provides high quality education and training to soldiers at all levels from Advanced Individual Training (AIT) through higher level course for NCOs and officers from all branches of the military, as well as foreign military students.

Fort Lee’s military missions are accomplished through the US Army Quartermaster School, the US Army Ordnance School, the US Army Transportation School and the Army Logistics University, all of which are part of the US Army Combined Arms Support Command (CASCOM), a major subordinate unit of TRADOC that is headquartered at Fort Lee. Together, these schools function as the Army’s Sustainment Center of Excellence (SCoE). In combining these sustainment oriented military specialties in a single location through the BRAC process, the Army has essentially “rebranded” Fort Lee as the premier logistics center in the Department of Defense.

2.3.1 Tenant Units

As mentioned previously, the major tenant units at Fort Lee are TRADOC units that support the installation’s military missions. These include the US Army Combined Arms Support Command, the US Army Sustainment Center of Excellence, the US Army Quartermaster School, the US Army Ordnance School and the US Army Transportation School. The 23rd Quartermaster Brigade and 59th Ordnance Brigade conduct Advanced Individual Training through their subordinate battalions, while the 71st Student Transportation Battalion is responsible for supporting training at the Army Logistics University. Other units and organizations located at Fort Lee include:

- 94th Division (Training) US Army Reserve
- 392nd Army Band
- 217th Military Police Detachment
- 12th Military Police Detachment (CID)
- USAF 345th Training Squadron
- USMC Detachment Fort Lee

- 54th Quartermaster Company
- 111th Quartermaster Company
- Defense Contract Management Agency
- Global Combat Support System – Army
- Defense Military Pay Office
- Military Entrance Processing Center
- Kenner Army Health Clinic
- Software Engineering Center Lee
- Defense Commissary Agency

2.3.2 Training Resources

Fort Lee has significant training resources at its disposal, from classroom and technical training facilities to tactical training areas and weapons ranges that support the installation’s TRADOC mission as well as the training needs of tenant units on the post. The ability of soldiers to train in both the classroom and the field, putting their acquired knowledge to practical use, is critical to the success and sustainment of the installation’s overall mission.

Training Areas

Fort Lee maintains 33 training areas on the installation (see Figure 2-2). These include sites that accommodate training for individual military occupational specialties, such as petroleum distribution or water supply, to general maneuver areas that can be used for tactical field training exercises. The following table provides a list of the training sites that are currently in use at Fort Lee:

Figure 2-2: Fort Lee Training Areas

Training Area	Description	Training Area	Description
TA-01	Maneuver / Training Area	TA-19	Water Supply Training Area
TA-02	Maneuver / Training Area	TA-20	Fire Fighting Training Facility
TA-03	Maneuver / Training Area	TA-21	NBC Chamber
TA-04	Maneuver / Training Area	TA-23	Maneuver Training Area
TA-06	Maneuver / Training Area	TA-24	Military in the Field Training Area
TA-07	Urban Operations Site	TA-26	Land Navigation Course
TA-08	Rappel Tower	TA-26E	Temporary ASP Training Area
TA-09	Maneuver / Training Area	TA-26W	Recovery Training Area
TA-10	Mockup Training Site	TA-27	Field Training Area
TA-11	Maneuver / Training Area	TA-27A	Field Training Area
TA-14	Mortuary Affairs Training Area	TA-28	Water Supply Training Area
TA-15	Field Training Area	TA-29	Maneuver / Training Area
TA-16	Field Training Area	TA-29A	Water Supply Training Area
TA-17	Personnel / Equipment Drop Zone	TA-30	Water Supply Training Area
TA-17A	Sling Load Training Area	TA-31	Cook Site Training Area
TA-17P	Petroleum Hot Refuel Site	TA-42	Maneuver / Training Area
TA-18	Confidence Course		

Weapons Ranges

Fort Lee's range complex hosts a variety of weapons ranges that provide a significant amount of the weapons training that is required by the units and activities on the installation (see Figure 2-3). Given the limited amount of land resources, however, the range complex is unable to accommodate some small arms weapons systems with longer ranges, particularly crew served weapons that use ammunition larger than 5.56mm. The table to the right lists the weapons ranges that are available on-post.

Figure 2-3: Fort Lee Weapons Ranges

Range	Description
1	25 Meter Zero Range
2	25 Meter Zero Range
4	Qualification Training Range
4A	Grenade Launcher
5	Combat Pistol Qualification
6	MP Pistol Qualification
7	Nonstandard Small Arms
8	Nonstandard Small Arms

Aircraft Operations Training

While Fort Lee does not have any assigned aircraft, it does conduct training activities involving aircraft, particularly helicopters that support sling load training requirements. Facilities on Fort Lee that support aircraft operations training include McLaney Drop Zone (TA-17) and the alternate sling load training area (TA-17A). In addition to training related aircraft operations, the installation also maintains a helipad, which is primarily used for VIP transport and medical evacuations. These areas are shown on the map in Figure 2-4.

Vehicle Recovery Training

A recently acquired mission at Fort Lee is the Vehicle Recovery Course, which was consolidated at the post from sites at Fort Jackson, SC and Aberdeen Proving Ground, MD. The Vehicle Recovery Training Center occupies over 200 acres of land on the northern boundary of the installation (see Figure 2-5). The center contains a full range of training facilities for vehicle recovery operations and includes training capability for the recovery of both wheeled and tracked vehicles.

Off-Post Training Sites

In addition to the training facilities located on Fort Lee, the installation makes regular use of the training facilities at nearby Fort Pickett and A.P. Hill. Fort Pickett is used primarily to support airborne operations, while Fort A.P. Hill is used for Explosive Ordnance Disposal training.

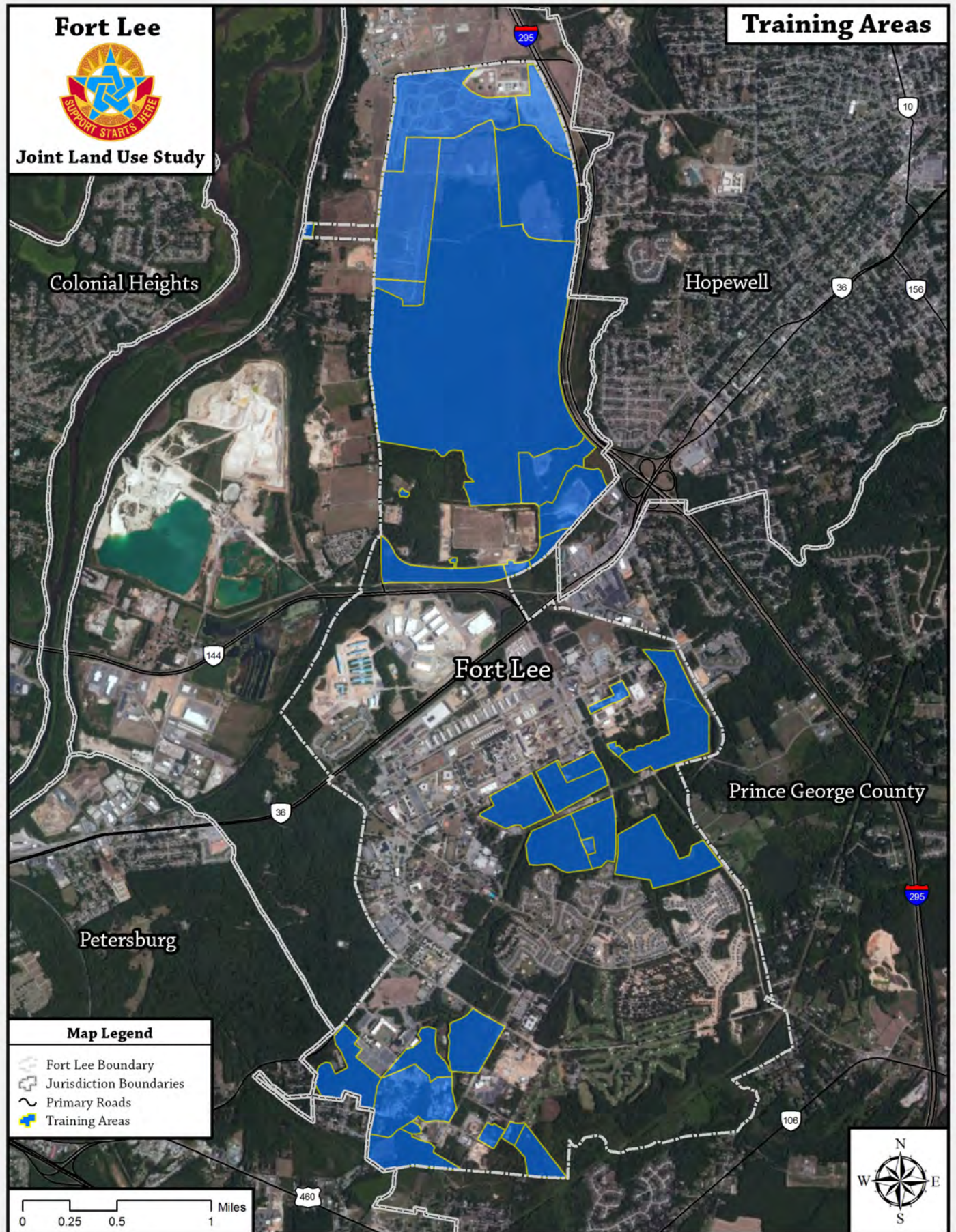


Figure 2-2: Training Areas

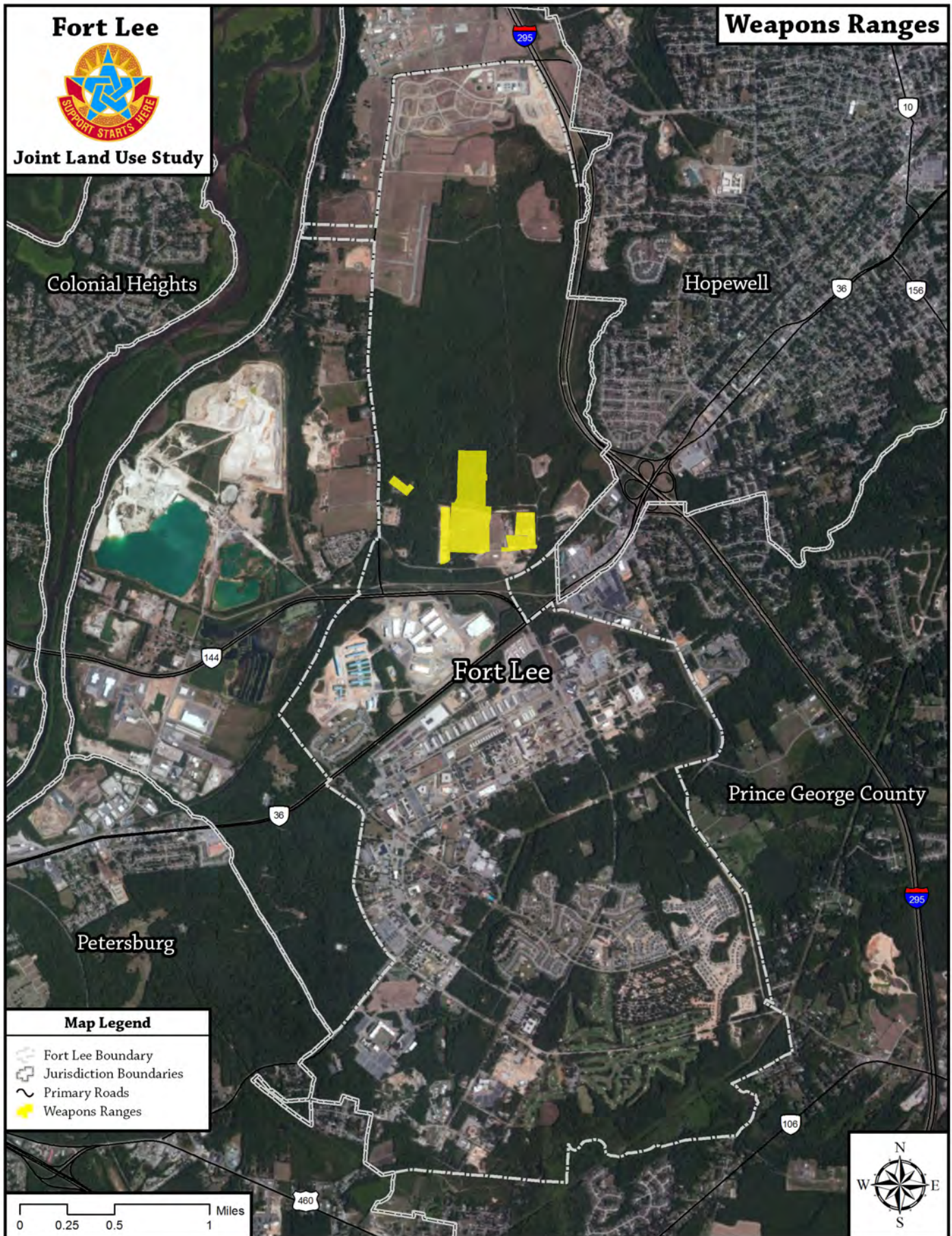


Figure 2-3: Weapons Ranges

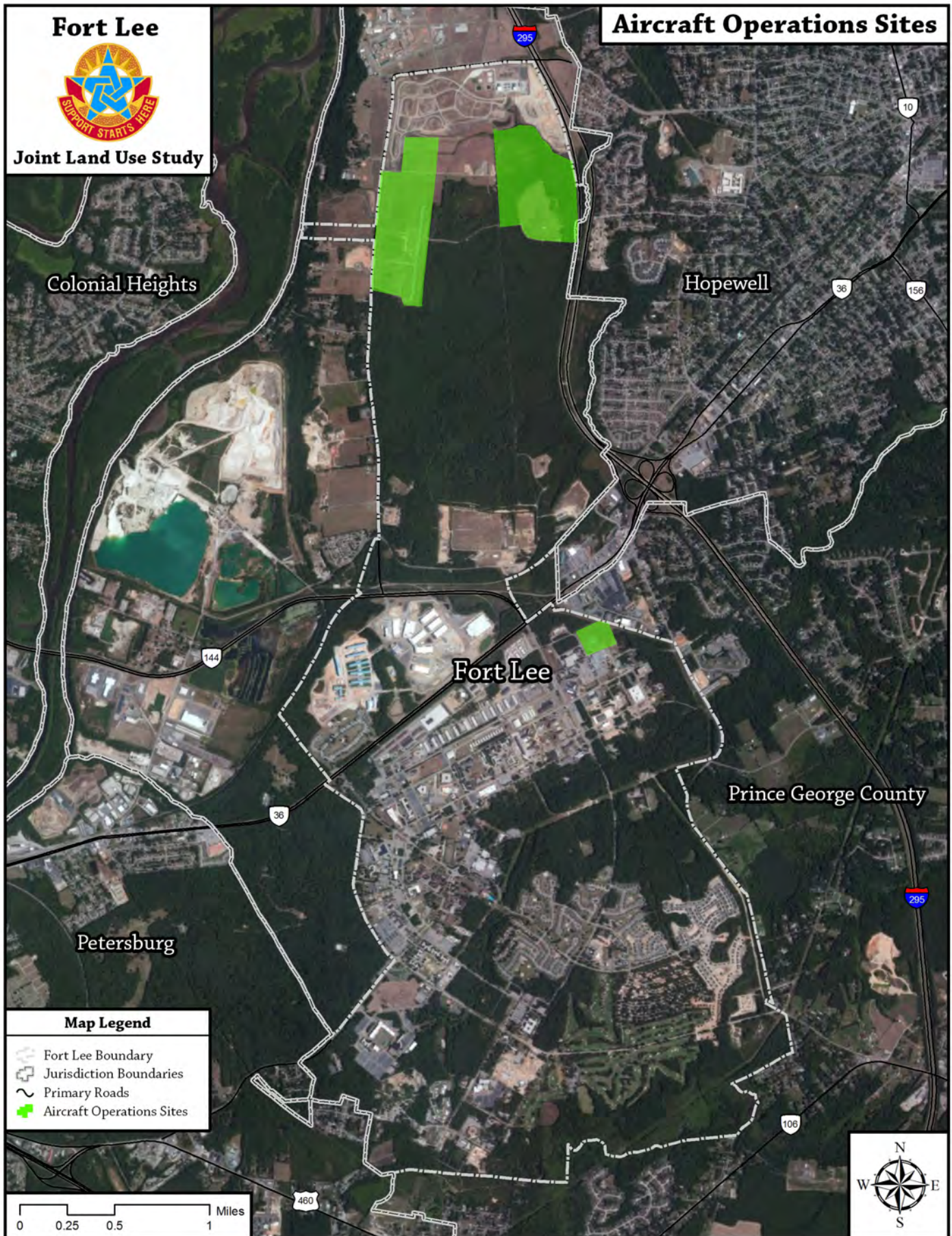


Figure 2-4: Aircraft Operations Sites

2.4. Regional Demographic Trends

The region surrounding Fort Lee is comprised of the independent cities of Petersburg, Hopewell and Colonial Heights, and the counties of Prince George, Chesterfield and Dinwiddie. As of the 2010 Census, the region contained a total population of 452,384 residents. The current population of the region is over 25% larger than 1990, when only slightly more than 335,000 residents lived in the region. When combined, the three independent cities in the region have actually experienced a negative growth rate over this time period, with the majority of the population loss occurring in the City of Petersburg, which has seen a nearly 20% decline in its population since 1990. With the cities experiencing nearly flat, or negative growth over this period, the population growth in the region has been occurring almost exclusively in the counties, with Chesterfield County, which is north of Fort Lee, accounting for the majority of the region's growth over this period.

During each of the preceding two decades, the region experienced nearly identical growth rates as a whole, with 14.2% population growth between 1990 and 2000 and 15.9% population growth between 2000 and 2010. This produced the previously mentioned overall growth rate of 25.9% during that time period. The highest growth rate during the period between 2000 and 2010 occurred in Chesterfield County, which had a 21.7% growth rate over that decade. The lowest growth rate in the region over a ten year period was experienced by the City of Petersburg, which saw a population decline of -13.8% between 1990 and 2000. Recently, the population decline that the City of Petersburg has seen over the past two decades has begun to reverse, with the City showing a population increase of 2.1% since 2010.

Figure 2-4: Regional Population Change

Jurisdiction	1990 Population	2000 Population	% Change 1990-2000	2010 Population	% Change 2000-2010	% Change 1990-2010
Prince George County	27,394	33,124	17.3%	35,725	7.9%	23.3%
Chesterfield County	209,274	259,903	19.5%	316,236	21.7%	33.8%
Dinwiddie County	20,960	24,533	14.6%	28,001	14.1%	25.1%
City of Petersburg	38,386	33,740	-13.8%	32,420	-3.9%	-18.4%
City of Hopewell	23,101	22,277	-3.7%	22,591	1.4%	-2.3%
City of Colonial Heights	16,064	16,897	4.9%	17,411	3.0%	7.7%
Region Total	335,179	390,474	14.2%	452,384	15.9%	25.9%

The maps on the following pages demonstrate the population density in the area immediately surrounding Fort Lee in 2000 and 2010 at the Census block level. In

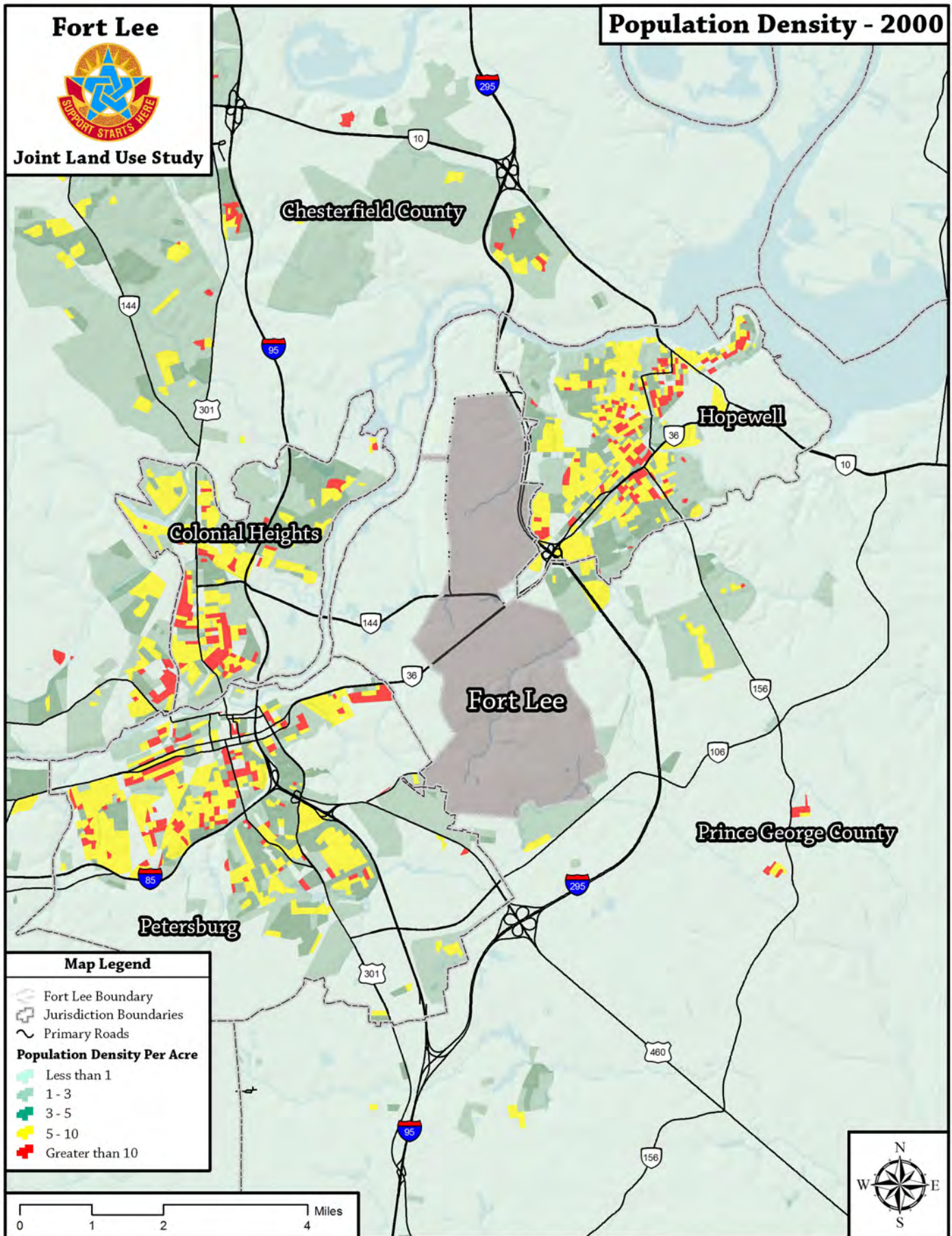


Figure 2-6: Block Level Population Density 2000

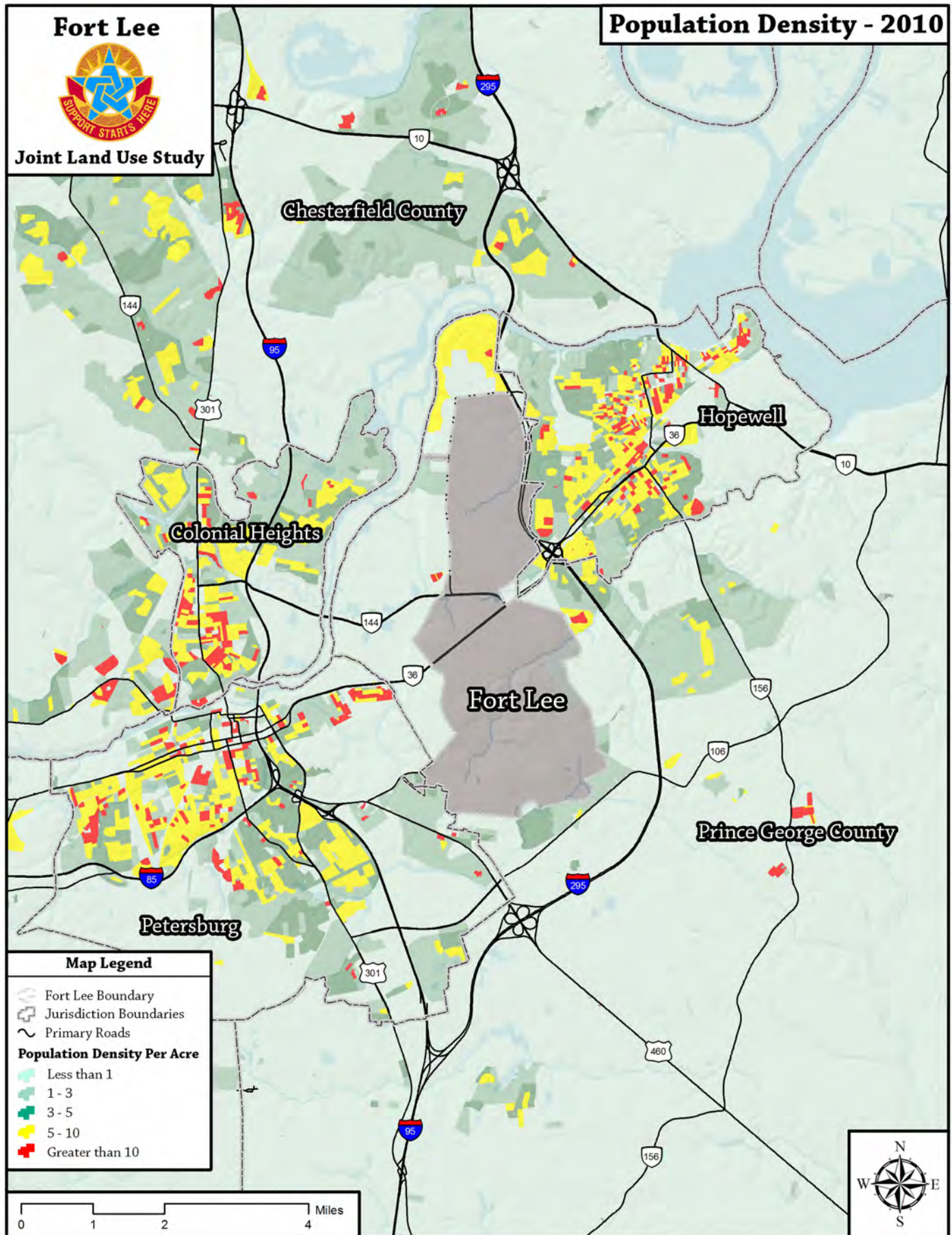


Figure 2-7: Block Level Population Density 2010

both years, the areas of significant population density are confined primarily to the cities, though there are scattered pockets of higher density development in both Prince George and Chesterfield County, particularly along major transportation routes and in areas that are in close proximity to one of the cities or Fort Lee.

2.5. Economic Impact

As outlined in the installation's 2012 economic impact study, *The Economic Impact of Fort Lee on the Petersburg Region*, Fort Lee is an important economic engine in the surrounding communities and the larger south-central Virginia region. As of 2012, Fort Lee employs 4,694 military personnel, 5,253 civilians, and 2,799 on- and off-base private sector contractors. As many as 70,000 military students train at Fort Lee annually, with an average daily military student population of approximately 10,000.

These personnel groups affect the regional economy in several ways. For example, some students that are temporarily stationed at Fort Lee rely on local hotels for lodging. These students, and to a lesser degree those billeted on-post, are likely to spend significant amounts of money throughout the Tri-Cities region. Military, civilian, and contract personnel contribute their earnings and Basic Allowance for Housing (BAH) to the local economy. Spousal earnings and expenditures further bolster these economic benefits.

Combining salary, BAH, and local spending, these personnel have a total economic impact of \$2,272,816,628 annually. In addition to personnel impacts, contracting and procurement have sizeable impacts on the local economy as well, adding \$128,970,603 annually to the regional economy. The total annual impact of Fort Lee is estimated at over \$2.4 billion in output and 28,000 direct and indirect jobs. This accounts for approximately 13.6% of the regional economy.

As can be expected, Fort Lee's regional economic impacts are uneven across various economic sectors. Government positions account for 70.8% of net employment impacts from the installation. Food and drinking services account for approximately 9.5% of net employment benefits, with the hospitality industry rounding out the top three sectors with 6% of induced job growth. In terms of monetary output impacts, government positions account for 62.5% of all impacts. Rental activity accounts for an additional 7.3%. Other major monetary impacts are seen in the food and drinking services, hospitality, real estate, health care, insurance, and wholesale trade sectors.

Fort Lee is the region's largest employer and economic driver by a significant margin. Local municipalities, distribution & retail, and health care are also major employers in the Tri-Cities region. In the period spanning 1996 – 2011, manufacturing jobs in the

region declined by 24%. Sizable losses were also seen in the Construction sector, which declined 28%. Service industry jobs saw substantial growth, as did the Mining, Health Care, Management, and Arts & Entertainment sectors. In 2011, Tourism continued to show strength as an economic driver when growth in the industry in the Crater Planning District (CPD) outpaced the state's rate of growth.

In the context of these mixed economic indicators, Fort Lee's economic impacts have grown in recent years as a result of the 2005 Base Realignment and Closure (BRAC) Commission's consolidation activities. Fort Lee was a major growth target during the 2005 BRAC process, with troop increases, higher levels of training throughput, new construction, and dependents' impacts benefiting the region's economy. It should be noted, however, that these changes have occurred in the context of a dynamic federal budgeting situation as well as rapidly changing international combat and deployment patterns. Future defense adjustments will likely affect Fort Lee's role in the overall national defense structure and could positively or negatively shape the installation's role in the regional economy.

2.6. Environmental Conditions

Fort Lee lies approximately four miles southwest of the confluence of the Appomattox and James rivers, immediately east of the fall line that separates Virginia's Tidewater geologic region from the Piedmont region to the west. The installation is located at the far eastern boundary of the 1,344 square mile Appomattox Basin, an agriculturally significant area that drains prime tobacco and cotton farmland southwest of the City of Richmond.

Due to its location in the Tidewater region and relative vicinity to the Chesapeake Bay, Fort Lee and surrounding communities face distinct environmental challenges and regulations aimed at protecting the water quality of the bay and its tributaries. Of greatest importance, Fort Lee complies with Virginia's Chesapeake Bay Preservation Act (CBPA) regulations. The CBPA mandates the establishment of construction-free vegetated buffers called Resource Protection Areas (RPA) around perennial streams and other permanent water bodies. These regulations are designed to minimize the amount of stormwater runoff and other discharges entering Chesapeake Bay tributaries and reduce the sediment and pollutant load of stormwater runoff.

Stormwater runoff is not only a regional environmental concern, but also a threat to water quality in the local area. Control and management of stormwater runoff is an ongoing process at Fort Lee. Threats to local water quality include contamination of source aquifers and increased flooding during storm events. On the installation,

vegetation removal and increased impervious surfaces associated with new construction have negatively impacted the Bailey Creek watershed. The integration of low impact development methods into the site planning process could help to mitigate baseflows into Bailey Creek and minimize the impacts of new development on local water quality.

Wetlands comprise approximately 14 percent of the area of the installation, creating a significant land use constraint but also providing critical ecosystem benefits. The Virginia Department of Conservation and Recreation's (DCR) Division of Natural Heritage has designated three of these wetlands as "wetland conservation zones." Due to historical occurrences of the state-listed black-banded sunfish, the Blackwater Swamp has been designated a Threatened and Endangered Species Water.

Fort Lee's Natural Resource Program is responsible for maintaining and implementing the Integrated Natural Resource Management Plan (INRMP) for the installation. The Natural Resource Program maintains environmental data for the installation to inform all planning, training, and development projects that have the potential to disrupt sensitive natural features on the post. The Program is further responsible for ensuring compliance with all state and federal environmental regulations, notably including the CBPA and federal Endangered Species Act.

2.7 Cultural Resources

The following is a brief description of the cultural resources identified at Fort Lee as part of the recent Army 2020 Programmatic Environmental Assessment. Fort Lee has undertaken 32 historic property inventories since 1982, covering both archaeological and architectural properties. Those inventories have resulted in the identification of a total of 119 archaeological sites. Subsequent evaluations have determined that 24 of these sites have enough historical significance to meet criteria establishing their eligibility for inclusion on the National Register of Historic Places. Architectural properties inventoried resulted in the identification of two historic properties eligible for list on the NRHP. Of these two buildings, Fort Lee maintains responsibility for one structure, Building 4300, the Fort Lee Theater. The other structure, Building 3206, is part of a nationwide agreement between the DoD and the Advisory Council on Historic Preservation. Under this agreement the Army has met responsibilities of Section 106 of the National Historic Preservation Act. Ninety-five (95) of the remaining identified archaeological sites have been investigated further for their overall archaeological and historical significance and 9 still require additional evaluation.

2.8 Petersburg National Battlefield

The Petersburg National Battlefield is located immediately adjacent to Fort Lee's southwestern boundary, and is situated between the installation and the City of Petersburg (see Figure 2-8). Operated by the National Park Service for the purpose of preserving the Civil War era battlefield and providing historic, educational and recreational experiences, the Battlefield serves approximately 150,000 visitors annually. The 2,740 acre park contains a wide range of facilities, including historic earthworks and structures dating to the Siege of Petersburg. The park also contains miles of trails for hiking, biking and equestrian use. With a goal of preserving the battlefield in as close of a condition as possible to how it appeared during the Civil War, the National Parks Service maintains the majority of the property in a natural wooded state, serving as a significant natural buffer between the installation and the dense urban core of Petersburg to the west. Since they share a long common boundary, the relationship between these two federal agencies is important for maintaining the viability of each of their missions. To that end, a number of cooperative agreements exist between the Battlefield and Fort Lee that enable them to work together toward achieving their respective missions.

2.9 Petersburg Federal Correctional Complex

The Petersburg Federal Correctional Complex is located immediately adjacent to Fort Lee's northern and northwestern boundaries, between the installation and the Appomattox River (see Figure 2-9). The complex is home to both a low security correctional institution and associated work camp, as well as a separate medium security correctional institution, with a combined population of approximately 3,400 inmates. In addition to the correctional institutions, the complex also contains a staff housing and recreation area, various support facilities, and a firing range that is used for weapons qualification by the guards assigned to the Correctional Institutions. Like the battlefield, the correctional complex shares a long common border with Fort Lee, making cooperation on issues of mutual importance critical to ensuring the success of each entity.

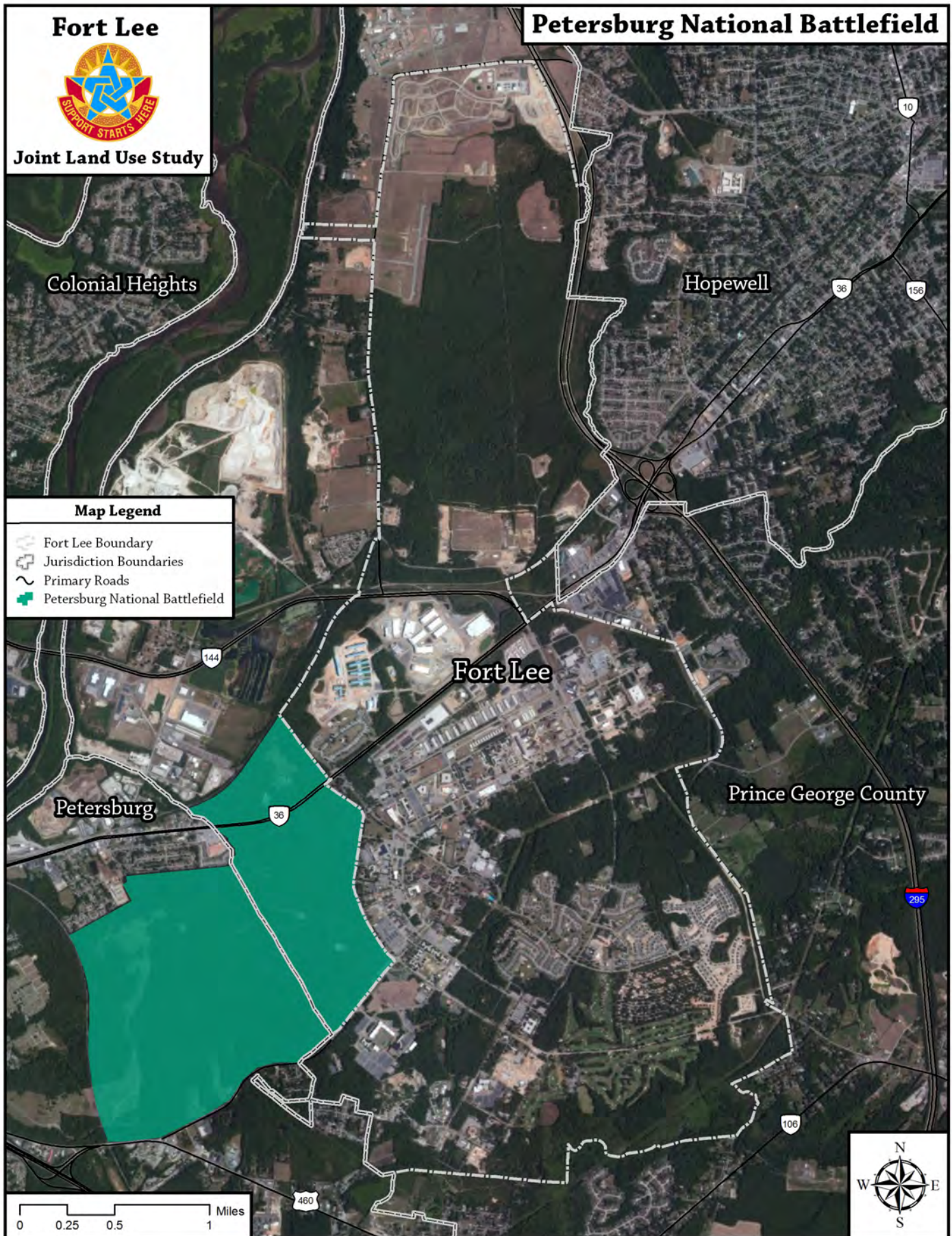


Figure 2-8: Petersburg National Battlefield



Figure 2-9: Petersburg Federal Correctional Complex



SECTION THREE: MILITARY OPERATIONAL IMPACTS AND HAZARDS

3.1 Overview of Military Operational Impacts & Hazards

Training activities at Fort Lee have been shown to create the potential for a variety of operational impacts and hazards, which, if not properly managed and mitigated, could negatively impact the health, safety or quality of life of the civilian population in the communities surrounding the installation. In the preparation of the Joint Land Use Study, the following potential impacts and hazards were identified, and are detailed in the following sections:

- Noise associated with small arms training.
- Noise associated with the use of artillery and grenade simulators.
- Noise from aircraft overflight.
- Aircraft accident potential.
- Noise associated with tracked vehicle operations.
- Small arms range surface danger zones.
- Unexploded ordnance in impact areas.

3.2 Operational Noise Impacts

The Fort Lee Installation Operational Noise Management Plan details the training and other operational activities that have the potential to negatively impact the surrounding civilian communities. These include small arms training, the use of artillery and grenade simulators, aircraft overflight and tracked vehicle operations. Through the development of an Installation Operational Noise Management Plan (IONMP), Fort Lee has identified the scope and extent of these potential impacts, and mapped them as appropriate. Where noise zones have been mapped, it should be emphasized that the contours shown on the maps for the various noise levels are not discrete lines that sharply divide high noise levels from areas that are not impacted by noise. Due to a variety of factors, including weather, vegetation, time of day, topography and background noise, peak sound levels may be perceived at greater distances than what is depicted on the maps. Conversely, changes in these conditions can also cause significant reductions in the area experiencing noise at the level indicated on the maps. These noise contours should be used as a planning tool to assess the general noise environment for compatibility with existing and proposed land use patterns.

3.2.1 Small Arms Noise Impacts

The Fort Lee IONMP identifies noise associated with small arms training to be a potential compatibility issue for the installation. Noise associated with the small arms ranges was modeled as part of the development of the IONMP and the results of that model were used to establish peak noise contours, expressed as “dB PK15(met)”. This measure of noise is the unweighted peak decibel (dB) level that is likely to be exceeded 15% of the time based on statistical variations in weather. In conformance with DoD land use planning guidelines these noise contours were then used to establish noise zones around the ranges (see Figure 3-1). The noise zones associated with the small arms ranges that are of the most concern are the areas defined as Noise Zone II, which has a peak noise level of 87-104 dB PK15(met) and Noise Zone III, which has a peak noise level of greater than 104 dB PK15(met).

As the map shows, Noise Zone III (over 104 dB) extends a small distance off of the installation along the eastern boundary in the vicinity of Oaklawn Boulevard, as well as crossing the western installation boundary along River Road. Noise Zone II (87-104 dB) extends an even greater distance east of the installation, covering a significant portion of southwestern Hopewell and areas in Prince George County adjacent to Hopewell in the vicinity of Oaklawn Boulevard.

3.2.2 Federal Correctional Complex Firing Range

Noise generated by the firing range at the Federal Correctional Complex (FCC), which is located just north of Fort Lee’s training area on the Appomattox River, is often mistaken for noise generated by activities on the installation. In an effort to provide better information to the public about this off-site noise generating activity, the US Army Public Health Command prepared noise contours for the FCC firing range for inclusion in this study (see Figure 3-2). As the map shows, noise generated by the firing range at the Noise Zone III level is contained on the property of the FCC, but Noise Zone II contours extend into residential areas in Prince George County to the south of the range and westward across the Appomattox River into the eastern portion of the City of Colonial Heights.

3.2.3 Impulsive Noise Impacts

The use of artillery and grenade simulators during training exercises creates what is known as “impulsive noise”, meaning that it occurs as a single brief event. While this noise is not sustained over a long period of time, as noise from a small arms range may be, the instantaneous noise event can carry a relatively high noise level over a significant distance. Like small arms noise, the decibel level for this type of noise is expressed as dB PK15(met), meaning that the associated noise levels are expected to be exceeded only

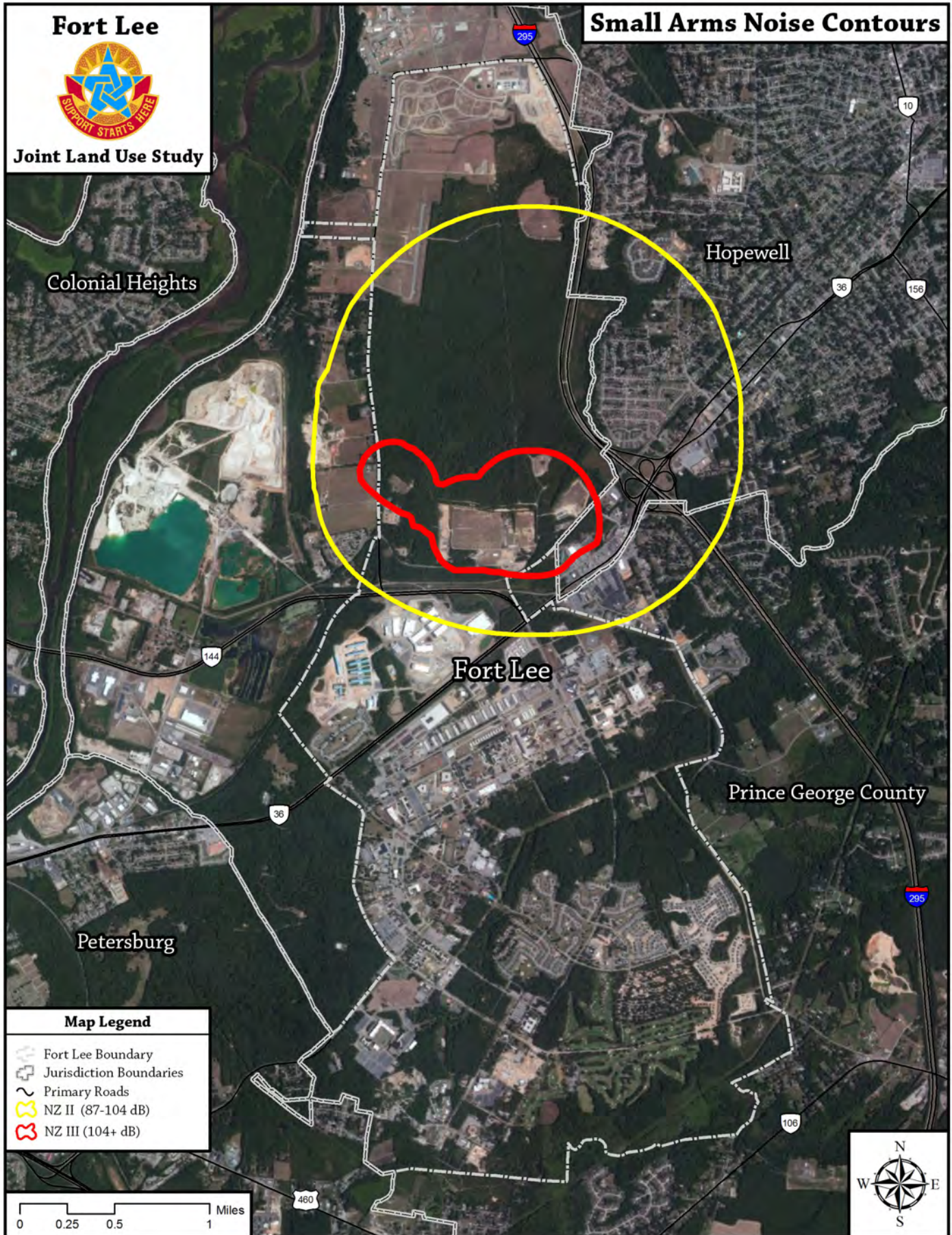


Figure 3-1: Small Arms Peak Noise Contours

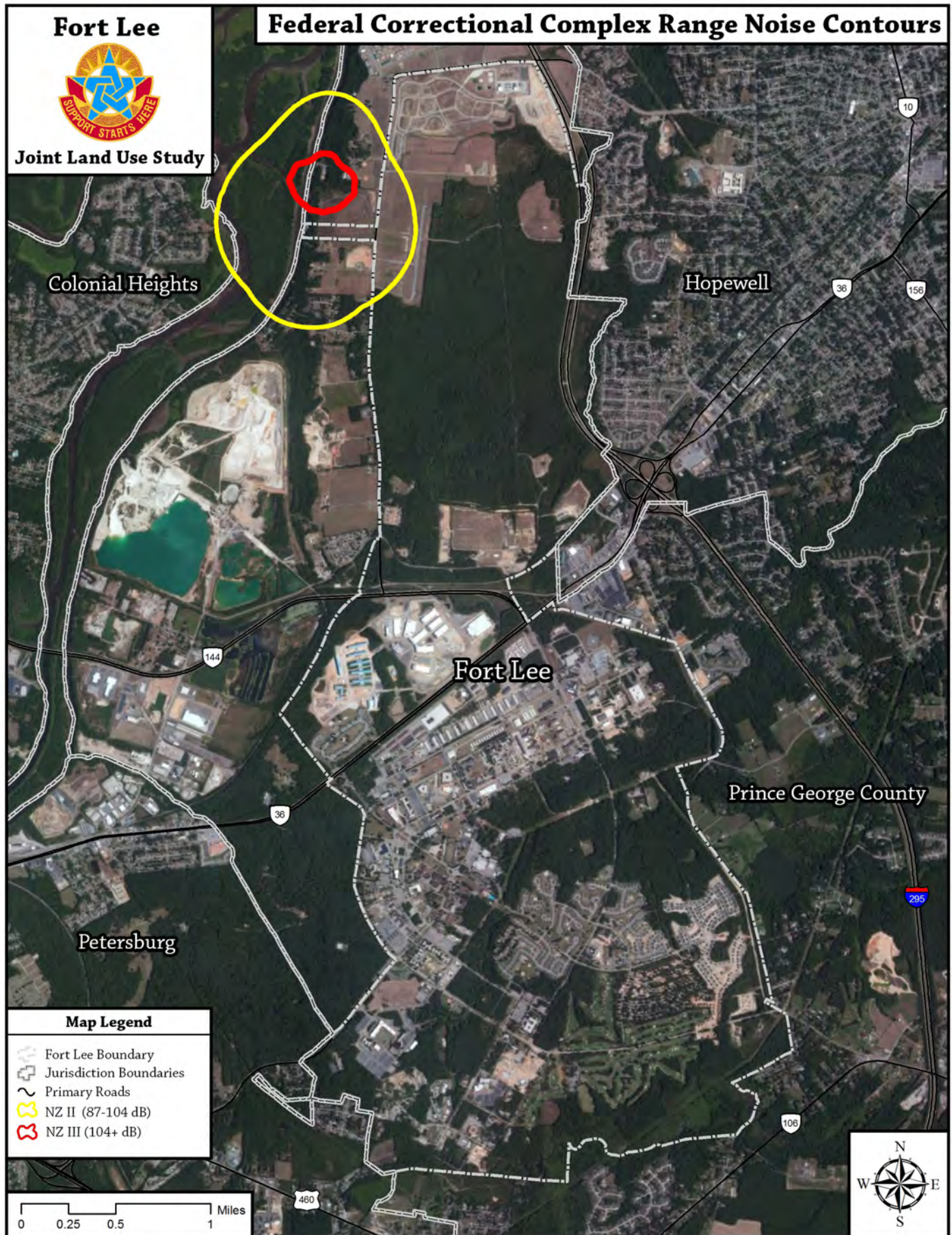


Figure 3-2: Federal Correctional Complex Firing Range Noise Contours

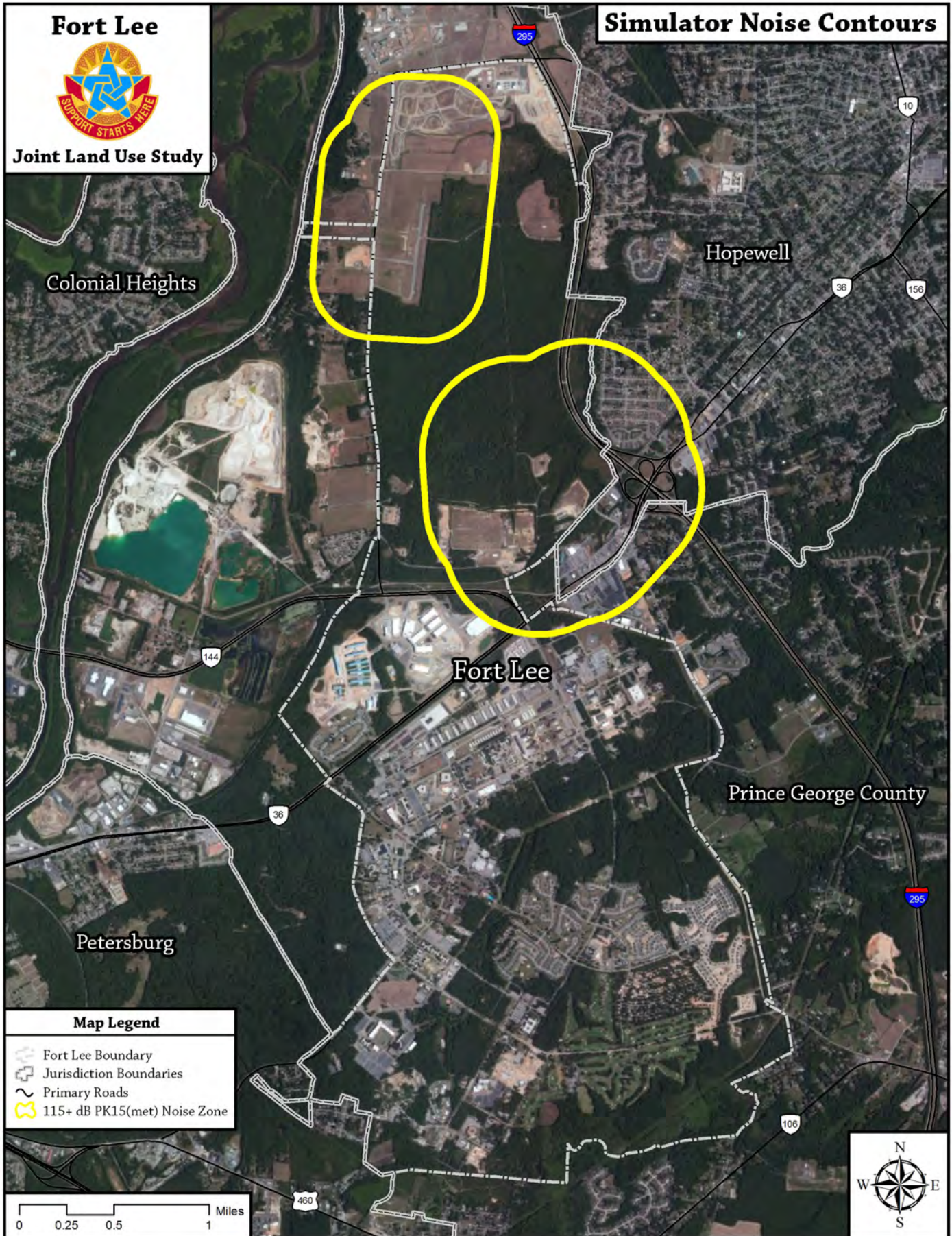


Figure 3-3: Impulsive Noise Contours for Artillery and Grenade Simulators

15% of the time. The IONMP identifies two areas on the installation where impulsive noise events are generated. The anticipated peak noise levels from these two areas are mapped in the plan, with the outer extent of the 115 dB PK15(met) contour used to establish those areas where there is a moderate or greater risk of noise complaints from impulsive noise events. These areas are shown on the map in Figure 3-2. It should be noted that areas closer to the source of the impulsive noise event are likely to experience higher noise levels than those areas that are a greater distance from the event. This translates into an even greater risk of complaints from areas near the point of origin for impulsive noise in those situations where land use patterns are less compatible with high impulsive noise levels.

As shown in Figure 3-3, the noise contours indicating a moderate or higher complaint risk associated with impulsive noise events extend off of the installation in two locations. On the east side of Fort Lee, the 115 dB peak noise contour covers an area that is similar to the Noise Zone II contour associated with the small arms ranges. On the west side of the installation, the 115 dB peak noise contour extends west of River Road from just south of McLaney Drop Zone to the northern installation boundary.

3.2.4 Aviation Noise Impacts

While single events of aircraft overflight can negatively affect noise sensitive land uses, the assessment of aviation related noise in the IONMP determined that the frequency of aviation operations at Fort Lee does not rise to the level at which the average noise level would exceed the minimum necessary to establish an aviation noise contour. Aircraft operations at Fort Lee are exclusively conducted with rotary wing aircraft (helicopters). The mission profile for helicopter operations has aircraft enter the installation at or above 1,000 feet above ground level before descending to their tactical mission altitude, which can be anywhere from ground level to 700 feet. When operating at lower altitudes, aircraft are typically over parts of the installation that are away from heavy concentrations of population, further reducing the likelihood of negative impacts from aviation noise.

3.2.5 Tracked Vehicle Noise Impacts

In general, noise generated by the operation of tracked vehicles, such as tanks, infantry fighting vehicles, self-propelled artillery and similar military equipment, has a greater potential to create noise that can create negative impacts than the operation of wheeled vehicles. While large scale maneuvers with tracked vehicles are not conducted at Fort Lee, the Vehicle Recovery Training Center does operate tracked vehicles on a regular basis as part of its training program. Given the nature of the training, recovery vehicles are often operating with high engine speeds for long periods of time as they perform

recovery training exercises. The IONMP assessed the potential impact from noise related to this training and found that the noise generated from this type of training was unlikely to cause any significant impacts on the surrounding civilian community, and therefore no noise contours were developed for this type of operation. Elsewhere on the installation, the operation of tracked vehicles is unlikely to occur given the nature of Fort Lee's mission.

3.3 Operational Hazards

The hazards associated with military operations at Fort Lee that were identified during the preparation of the study include aircraft accident potential, surface danger zones associated with weapons ranges, and unexploded ordnance in impact areas. While the hazards posed by each of these to the off-post civilian community is likely very low, it is necessary to detail them to ensure that the community is aware that these potential hazards exist.

3.3.1 Small Arms Range Surface Danger Zones

The map shown in Figure 3-4 details the extent of the surface danger zones associated with the small arms ranges on Fort Lee. This area is the theoretical extent of danger from small arms fire from the ranges. While the surface danger zones are contained entirely on the installation, the short distance to the western installation boundary and lack of strong access control into the impact area presents a potential hazard to the civilian community, but only in situations where a person wandered unintentionally into one of these areas, which is unlikely, but still possible.

3.3.2 Unexploded Ordnance

The map shown in Figure 3-5 details the location of the dudded impact area. This area is assumed to contain unexploded ordnance of various types that is left over from when the ranges on Fort Lee were used for more intensive weapons training. This area, like the surface danger zones, is located entirely on the post, but in a location that is in close proximity to adjacent civilian development across the relatively open western installation boundary. While the slight risk of danger is likely limited to scenarios in which a person either inadvertently wanders into or purposefully trespasses in the area, the chance for an accident remains.

3.3.3 Aircraft Accident Potential

Areas with higher levels of aircraft accident potential are generally associated with fixed runway facilities, as most aircraft accidents occur on takeoff or landing. Since Fort Lee does not have an active fixed wing aircraft runway, DoD has not established any accident potential zones on the installation. Despite this, the risk for aircraft accident exists

wherever operations occur, particularly low level tactical training operations by rotary-wing aircraft. Given the frequency of operations at Fort Lee, the risk, particularly to off-post areas, remains very low. Potential factors that could increase accident potential risk off of the installation include the establishment of vertical flight obstructions, such as wireless communication towers, in areas that are frequently used by aircraft in transit to Fort Lee, or in areas that are necessary to use for off-post maneuvering during tactical flight operations training.

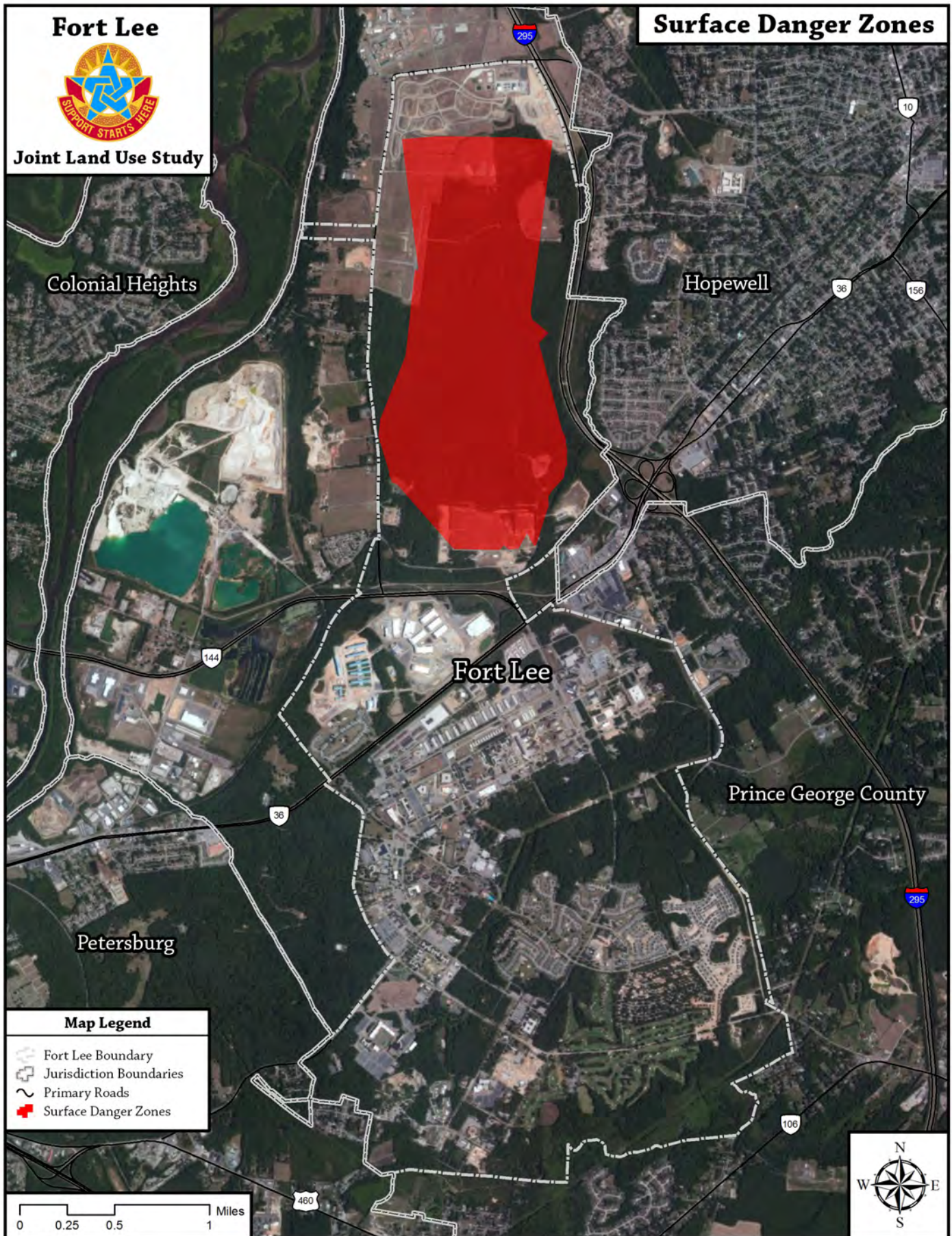


Figure 3-4: Small Arms Range Complex Surface Danger Zone



Figure 3-5: Duded Impact Areas with Unexploded Ordnance Potential



SECTION FOUR: LAND USE COMPATIBILITY ANALYSIS

4.1 Introduction

The Land Use Compatibility Assessment merges the military operational impacts (discussed in Section 3 of the JLUS) that were identified during the background research phase of the study with an analysis of the existing land use patterns around Fort Lee. This merger of information is intended to provide Fort Lee and the surrounding communities with a greater understanding of whether, and the degree to which, the existing land use patterns and training activities are compatible. To accomplish this task, a “Land Use Focus Area” was established, in consultation with Fort Lee Staff and the Technical and Policy Committees, to further orient the Study’s analysis to the area of the greatest concern within the broader region.

The Land Use Focus Area (see Figure 4-1) covers an area of approximately 18,750 acres (29.3 square miles) on and around Fort Lee and extends into Prince George County, the Cities of Petersburg, Hopewell and Colonial Heights, as well as a small portion of Chesterfield County along the Appomattox River. The Land Use Focus Area boundary was drawn to generally encompass all lands within 1 mile of Fort Lee’s installation boundary, with some slight variations to follow physical features, political boundaries or transportation routes where necessary. Excluding the area inside of Fort Lee’s installation boundary, the Focus Area covers just over 13,000 acres (20.3 square miles) of land in the communities surrounding the installation. These off-post lands are the primary focus of the overall compatibility assessment. As shown in the following table, the majority of the Land Use Focus Area falls within the jurisdiction of Prince George County, which also shares the longest boundary with Fort Lee.

Figure 4-1: Jurisdictional Distribution of Land Use Focus Area (Off-Post)

Jurisdiction	Acres	Square Miles	% of Focus Area
Prince George County	7,229	11.3	55.5%
City of Petersburg	2,453	3.8	18.8%
City of Hopewell	2,169	3.4	16.7%
Chesterfield County	847	1.3	6.5%
City of Colonial Heights	318	0.5	2.4%
Total	13,016	20.3	100%

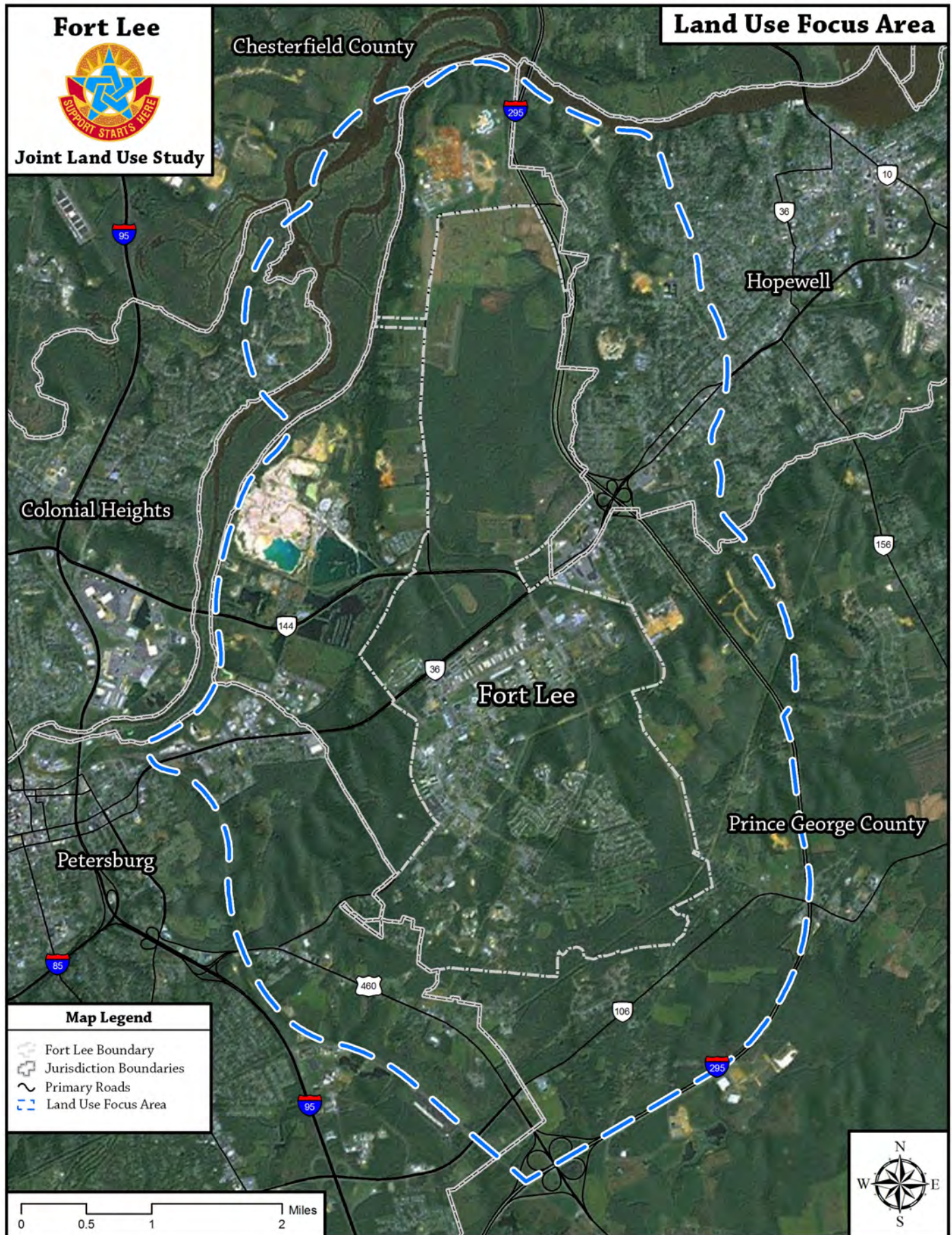


Figure 4-1: Land Use Focus Area

4.2 Land Use Classification

Following the establishment of the Land Use Focus Area, the existing land use pattern, both on and off-post, was digitized in a Geographic Information System (GIS) database for analysis. Land uses were identified through the use of a combination of City and County tax parcel data, state and federal data, aerial photography, and windshield surveys of the area. Land uses in the communities surrounding the installation were classified into four general “developed” categories, residential, commercial, institutional and industrial as well as a fifth specialized land use classification for land owned by the National Park Service. Lands that are forested, used for agricultural purpose or are otherwise vacant were not included in the overall classification, and are generally classified as “undeveloped” for the purposes of this study. The spatial distribution of the “developed” land uses in the Focus Area is shown in the map in Figure 4-2 and the following table provides a breakdown of the amount of land that is included in each category:

Figure 4-2: Land Use Classification (Off-Post)

Land Use	Acres	Square Miles	% of Focus Area
Residential	3,768	5.9	29.0%
Commercial	429	0.7	3.3%
Institutional	1,068	1.7	8.2%
Industrial	1,198	1.9	9.2%
National Park	1,332	2.1	10.2%
Developed	7,795	12.2	59.9%
Undeveloped	5,221	8.1	40.1%
Total	13,016	20.3	100%

In addition to the off-post land use classification, the general land use pattern on Fort Lee was examined and classified for inclusion in the overall compatibility analysis. By including the general on-post land use classification in the study, a better picture emerged of how the installation interacts with the surrounding community from a land use perspective. For the purposes of this study, three general land use classes were used for land on-post. These general land use classes are:

- **Cantonment** – the area of Fort Lee that contains the administrative, educational, group quarters and logistical support functions of the post, including classrooms and other low impact training sites.
- **General Training Area** – areas of the post used for military field training purposes, excluding areas used for intensive tactical training or live fire weapons training.
- **Heavy Training Area** – areas of the post used for tactical training, weapons ranges, aircraft operation, tracked vehicle operations and similar high intensity training activities that have the greatest likelihood of producing off-post impacts, or being negatively affected by incompatible land use patterns in the surrounding community.

In addition to the three on-post land use classes that are described above, post housing areas that are similar to residential neighborhoods off-post were classified as “residential” instead of being included as part of the cantonment land use area. This was done to ensure that these areas could be more accurately assessed for any potential negative impacts from off-post land uses, just as similarly used and situated lands outside of Fort Lee are analyzed.

4.2.1 Off-Post Land Use Pattern

The generalized land use pattern in the off-post portion of the Focus Area (see Figure 4-2) reveals a degree of development intensity where approximately 60% of the land has been developed, or is otherwise in use for one of the five “developed” purposes listed previously and detailed in Table 4-2. With such a high degree of urbanization and development in the immediate area around the post, understanding the types of land uses that are present and how they interact with, and are impacted by, land uses and military operations at Fort Lee is critical to the overall compatibility analysis. The following is a general discussion of the development pattern in the Land Use Focus Area as it currently exists, beginning at the northern boundary of the post and describing each area moving clockwise around the post.

Northern Land Use Focus Area

Located immediately north of Fort Lee’s boundary along River Road, west of I-295, are the Petersburg Federal Correctional Complex and the Riverside Regional Jail. These institutional land uses occupy approximately 750 acres of land between Fort Lee and the Appomattox River to the west and north, and extend to I-295 on the eastern boundary of the complex.

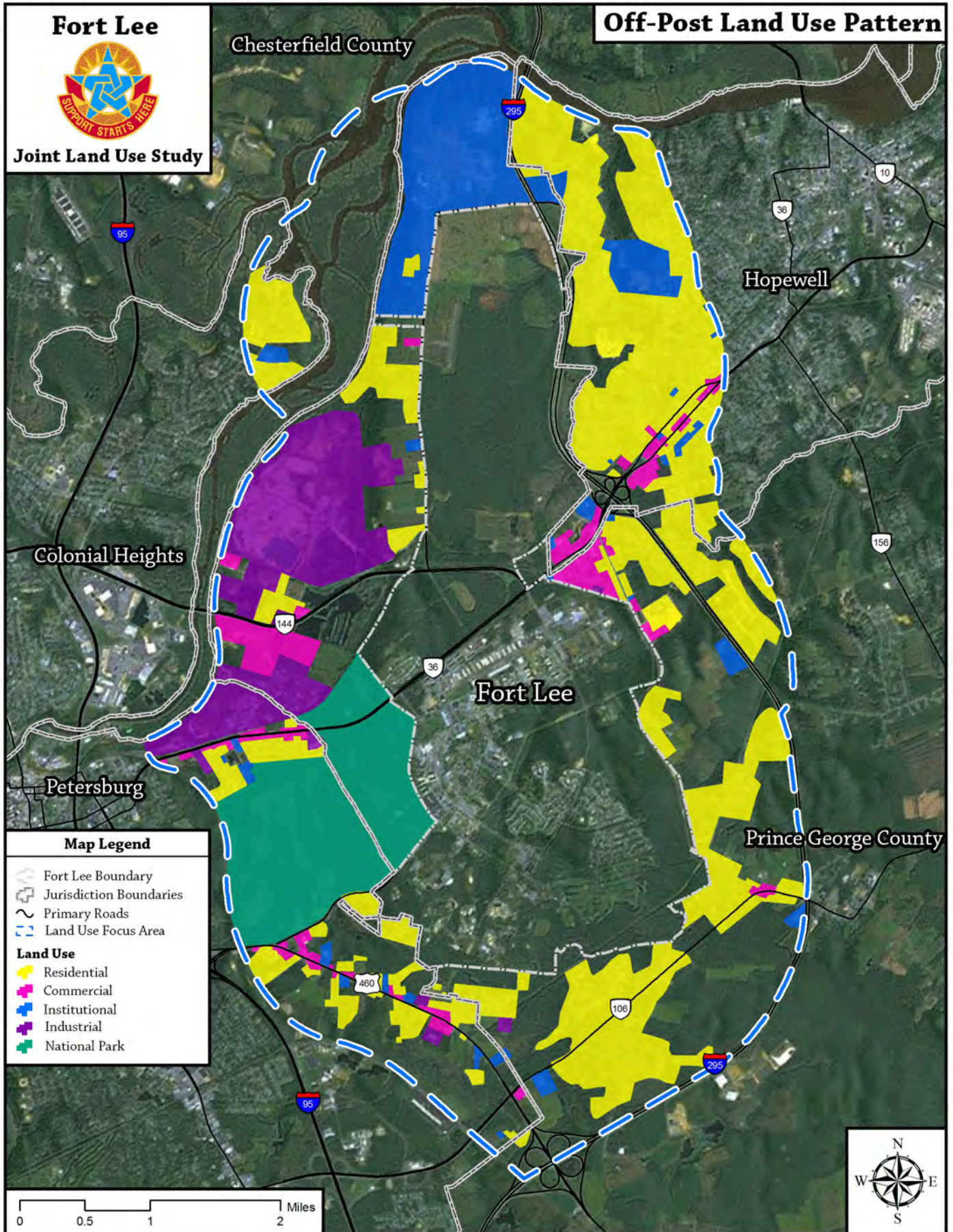


Figure 4-2: Off-Post Land Use Pattern

Eastern Land Use Focus Area

Moving clockwise from the correctional complex, I-295 forms the majority of the eastern boundary of the post. East of I-295 is the City of Hopewell, where a primarily residential land use pattern (majority single-family residential) extends from the Appomattox River in the north, to SR 36/Oaklawn Boulevard along the City's southern boundary. The land use pattern along Oaklawn Boulevard is primarily commercial in nature from the Fort Lee installation boundary eastward to where the corridor leaves the Land Use Focus Area, with lower intensity land uses located farther east, north and south of the central portion of the corridor. Moving south from Hopewell back into Prince George County, there is a large concentration of mixed commercial and industrial development immediately adjacent to Fort Lee's eastern boundary south of Oaklawn Boulevard. The intensity of development in this area decreases as you move eastward through the Focus Area toward and across I-295. Going south through the Land Use Focus Area toward SR 106, development becomes more sparse, with hundreds of acres of undeveloped land in this area. Suburban development reemerges close to SR 106 in the vicinity of the Prince George County government complex, with a mix of rural/suburban residential and commercial land uses along the primary roads in this area.

Southern Land Use Focus Area

Moving along to the southern portion of the Focus Area, there is another large area of undeveloped land between SR 106 and I-295 and a comparable amount of suburban/rural residential development that extends from the southern boundary of Fort Lee to the edge of the Land Use Focus Area / I-295. Immediately west of this residentially developed area is US Highway 460, which has a major interchange with I-295 at the southern point of the Focus Area. Development in the immediate vicinity of the interchange is sparse, with some scattered residential and nonresidential uses in the area. Moving northwest along US 460 from the I-295 interchange, the highway crosses SR 106 inside of the City of Petersburg. Development in this area, though still scattered, becomes more intensive as it gets closer to I-95, with a mixture of residential, commercial, institutional and industrial uses along the highway. In addition to the development centered on the US 460 corridor, there are also several concentrations of residential development in this portion of the Focus Area that are either nearby, or adjacent to, Fort Lee's southern boundary.

Western Land Use Focus Area

At the point where US 460 leaves the Focus Area to meet I-95, the Petersburg National Battlefield begins. The Battlefield, which is owned and operated by the National Park Service, occupies over 1,300 acres in the southwestern portion of the Focus Area. The Battlefield extends from the installation boundary through Prince George County into

Petersburg and to the western edge of the Focus Area from US 460 in the south to the SR 36 corridor in Petersburg to the north, and across SR 36 in Prince George County along the western edge of the post. Just north of the Battlefield in Petersburg is a mixed commercial and residential area along SR 36, with the majority of development in the area located south of the highway corridor due to the adjacent railroad which parallels SR 36.

Immediately north of the SR 36 corridor, a large swath of industrial development begins, extending along Puddledock Road / SR 645 to the Temple Avenue / SR 144 corridor in Prince George County. Intensive commercial development has occurred along the Temple Avenue corridor, but this development has been limited to the extreme western portion of the Focus Area, with the eastern portion (closest to the installation boundary) remaining undeveloped. North of Temple Avenue, industrial development reemerges along the banks of the Appomattox River.

East of the industrial area there is scattered residential development along River Road, with a large manufactured home park located at the southern end of River Road, just north of its intersection with Temple Avenue. Residential density in this area is generally very low, with large lot rural development being the norm. The area also contains a number of larger undeveloped tracts of land, as well as a number of platted residential lots that have not been developed. The installation boundary goes across River Road in this area toward the Appomattox River, forming a finger of land that the installation uses to access a training area that is located adjacent to the river. A rural residential subdivision, which extends from River Road to the Appomattox River is adjacent to the southern boundary of this finger of land. The Land Use Focus Area extends westward across the Appomattox in this area, and includes a small portion of a larger residentially developed area in Colonial Heights on the western bank of the Appomattox.

4.2.2 On-Post Land Use Pattern

The generalized land use pattern on Fort Lee (see Figure 4-3) is included as part of the analysis to assist in determining the general compatibility of on-post land uses with the surrounding off-post land use pattern, as well as to identify any potential off-post impacts that may have a generally negative impact or influence on land uses on-post. For the purposes of this study, the installation has been classified into the four land use categories described previously. The northernmost portion of the installation is classified as a “heavy training” area, with the majority of the intensive tactical training, live fire weapons training, aircraft operations and tracked vehicle operations occurring in this part of the post. This area extends from SR 144 northward to the northern post boundary, and includes all of the land on-post between River Road and I-295. This

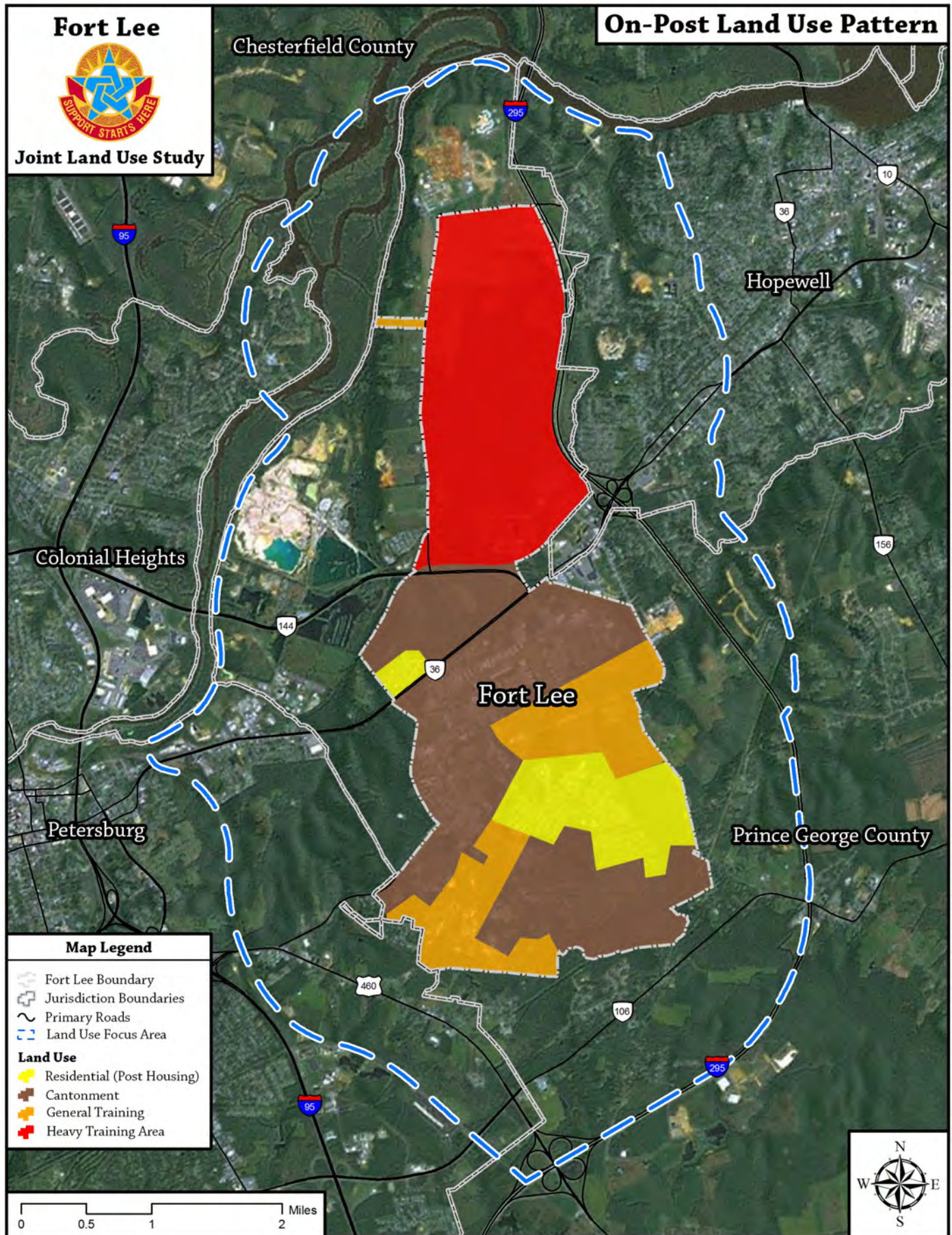


Figure 4-3: On-Post Land Use Pattern

northern section of the post also contains a small area designated as “general training area” which is located on the west side of River Road, extending down to the banks of the Appomattox between the correctional complex and the rural subdivision accessed through Irwin Road. The area generally classified as Fort Lee’s “cantonment area” begins on the south side of SR 144 and encompasses the majority of the central portion of Fort Lee from the eastern installation boundary to the western installation boundary. Land classified as “general training areas” are located along the post’s eastern and southwestern boundaries, which, along with a large area of post housing (designated as residential) separates the primary cantonment area from the southern cantonment area. A second smaller area of post housing is located just north of SR 36 along Fort Lee’s western boundary.

4.2.3 Regional Land Use Pattern

Combined, the on and off-post land use patterns come together in Figure 4-4 to give an overall view of the general land use pattern in the entire Land Use Focus Area. While this high-level overview of the land use pattern on Fort Lee and in the surrounding communities can give a sense of the general degree of compatibility between on and off-post land uses, a more thorough examination of specific military operational impacts and the land uses included in those influence areas is necessary to accurately determine whether, and the extent to which, land use compatibility issues exist. This more detailed analysis follows the generalized assessment discussed below.

From the regional overview of the land use pattern in the Focus Area, several key trends emerge that require further analysis. First, the area designated generally as the “heavy training area” on Fort Lee adjoins, and is in close proximity to, a large residential area in Hopewell that is located across I-295 from Fort Lee. Generally speaking, intensive tactical training, weapons training, low-level aircraft operations and other potential impact generators that are normally associated with this type of training activity are not highly compatible with residential land uses. The presence of the interstate highway along the post’s eastern boundary, which separates the training area from these residential neighborhoods, provides a certain degree of protection, first by distance, and second by inserting a “civilian” noise generating use (heavy traffic) that anecdotally has been described to generate a background noise level that equals or exceeds training activities on Fort Lee. This is enhanced to a certain degree by the presence of noise walls along portions of the interstate, which provide the potential to baffle both traffic noise as well as noise generated from military training activities.

A second potential area of concern is located along the western margin of the “heavy training area” in the off-post areas on the west side of River Road. A number of individual

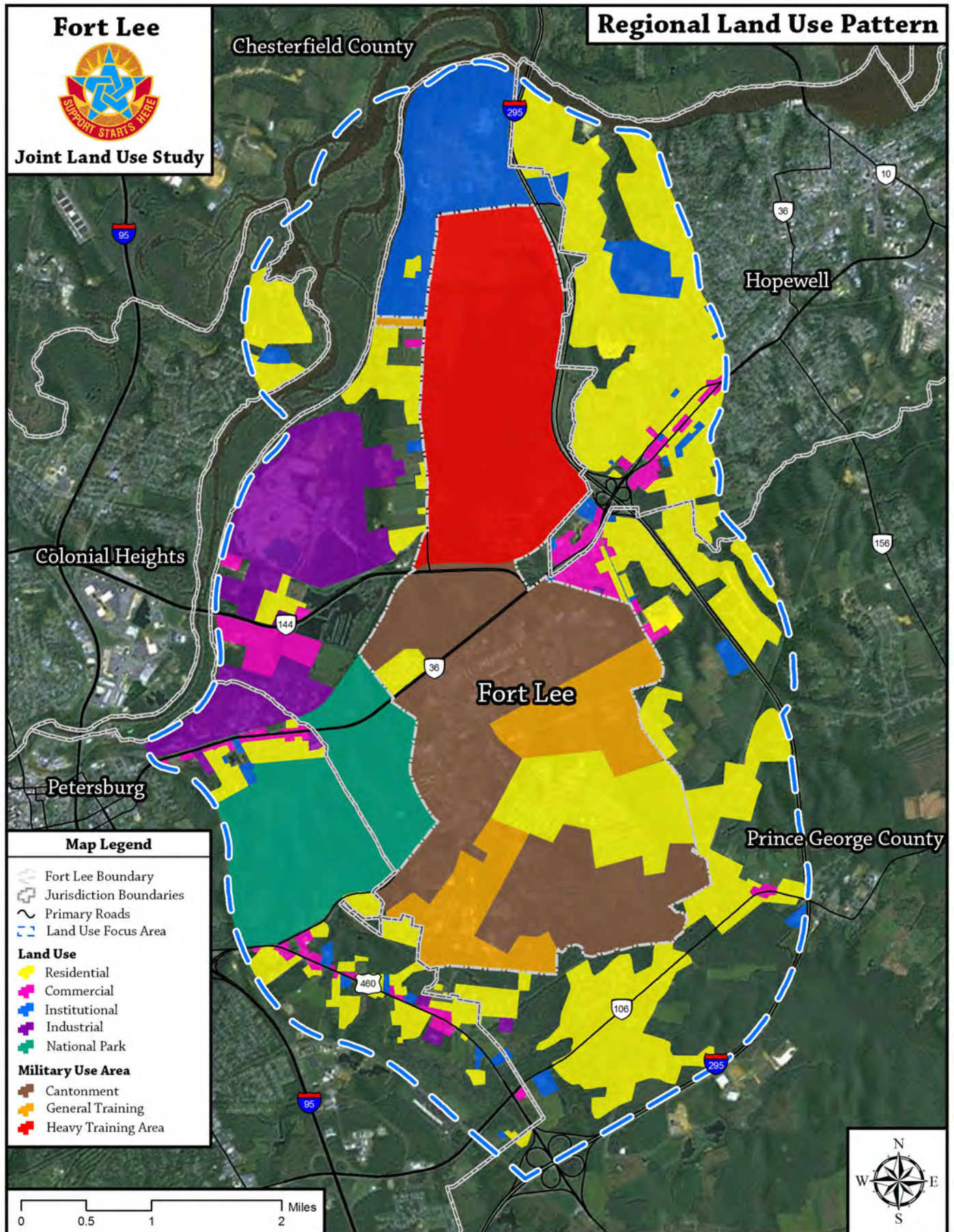


Figure 4-4: Regional Land Use Pattern

residences, several small subdivisions and a manufactured home park are located in this area. This area also contains several large, and potentially developable, tracts of land. Areas of high noise impacts in this area present potential compatibility issues with the existing land use pattern. Unfortunately, unlike the east side of the post, this area does not benefit from the presence of either a physical barrier or background noise generation source to mask or otherwise obscure potential military training impacts.

A third, and potentially less obvious area of concern relates to the shared boundary between the Petersburg National Battlefield and Fort Lee in the southwestern quadrant of the Land Use Focus Area. While heavy military training activities are not conducted in this area, a number of potential concerns related to maintaining the historical character of the area exist. These include potential physical construction on Fort Lee that could interfere with viewsheds on the Battlefield, maintaining reasonable access to the Battlefield and ensuring the physical security of the post along their common border while retaining a sense of the historic character of the Battlefield.

Based on a high-level overview of the remainder of the focus area, there do not appear to be a significant number of areas of potential concern outside of those that were previously identified. Overall, the existing land use pattern in the majority of the Land Use focus area appears to be compatible with the existing military land use pattern on Fort Lee. While there does appear to be a high degree of compatibility throughout most of the Land Use Focus Area, the high level view of the general land use pattern does not reveal the extent of any potential impacts with a high enough degree of specificity to validate the overall level of compatibility in the region. Therefore, the following section of the Compatibility Assessment makes a more detailed examination of the impacts generated by training activities at Fort Lee to identify the specific degree to which any areas of potential incompatibility exist.

4.2.4 Installation Boundary Status

In addition to identifying and classifying land uses on and off-post, it is also helpful when conducting a compatibility assessment to understand the status of an installation's external boundary. To achieve this, the external boundary of Fort Lee has been coded with one of three descriptive identifiers based on the use and ownership of the lands off-post that are immediately adjacent to the installation. While a certain status does not correlate directly to the degree of compatibility, it is helpful in identifying where the potential for future incompatibility may exist, due to the nature of the ownership or use of the off-post lands. The three status identifiers used in this portion of the analysis are:

- **Protected** – the installation boundary is adjacent to land in federal or state ownership, including navigable waterways.

- **Developed** – the installation boundary is adjacent to land that has been developed and is in use for either residential or nonresidential purposes.
- **Undeveloped** – the installation boundary is adjacent to land that is either forested, used for agricultural purposes, or is otherwise vacant.

The determination of the status of the installation boundary, when coupled with the overall land use classification study, provides a greater degree of insight into the future potential of immediately adjacent areas to transition from undeveloped land use classifications to uses which may, or may not, be compatible with the post's military missions. It also provides insight into the location of portions of the installation boundary, that, by their "protected" nature, may be more suited for the proximate location of military training activities that could otherwise negatively impact civilian communities off-post, though a careful analysis of the use of the adjacent "protected" lands is necessary prior to making this type of final land use compatibility determination.

The installation boundary status analysis, which is graphically displayed in Figure 4-5, revealed that the installation boundary, which is approximately 20 miles in length, was comprised of 6.3 miles of "protected" boundary (31.5%), 6.6 miles of "undeveloped" boundary (33.0%) and 7.1 miles of "developed" boundary (33.5%). These statistics are detailed in Table 4-3 below:

Table 4-3: Installation Boundary Status Summary

Boundary Status	Miles	Percent of Boundary
Protected	6.3	31.5%
Undeveloped	6.6	33.0%
Developed	7.1	33.5%
Total	20	100%

An additional piece of information that is related to the status of the installation boundary is its relationship to the local governments that are adjacent to Fort Lee. A summary of the percentage of the installation boundary that is coterminous with each adjoining jurisdiction is detailed Table 4-4 below:

Table 4-4: Coterminous Boundary by Jurisdiction

Jurisdiction	Percent of Boundary
Prince George County	75.7%
City of Hopewell	12.4%
City of Petersburg	11.5%
Chesterfield County	0.4%

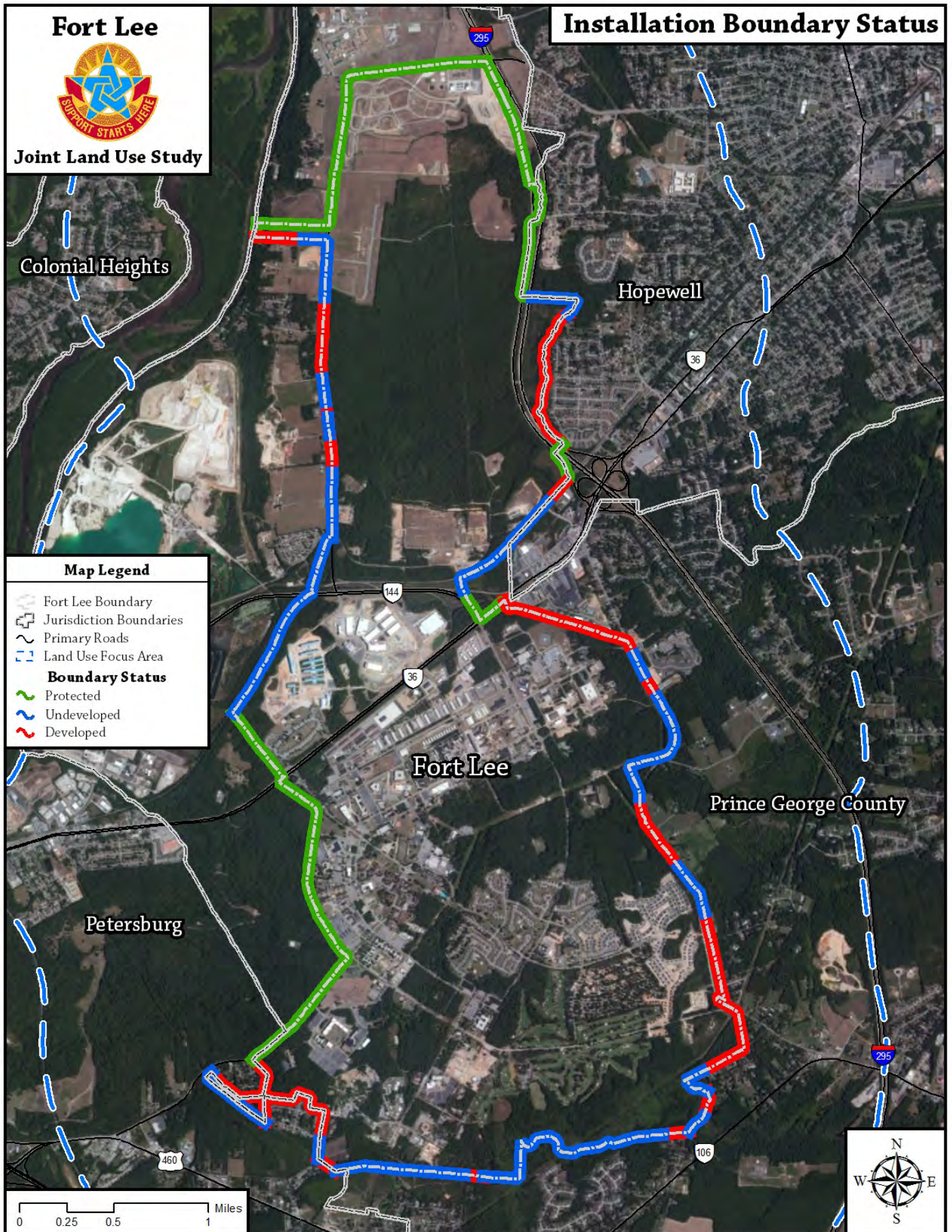


Figure 4-5: Installation Boundary Status

4.3 Military Operational Impact Compatibility Analysis

The following is an analysis of the discreet and identifiable military operational impacts that are created by the training and other operational activities currently occurring on Fort Lee. This analysis provides a finer degree of detail to accompany the more generalized land use compatibility assessment. The results and conclusions contained in this analysis are based upon the best and most current data available, and the findings are based upon generally accepted best practices that are propagated by DoD for use in such analyses. Local experience and anecdotal evidence may lead to conclusions that are different than the findings detailed below, and should be considered, along with all other evidence, during the formulation of land use and operational policies by Fort Lee and the potentially impacted communities.

4.3.1 Small Arms Range Noise Zone Analysis

The Installation Operational Noise Management Plan (IONMP) details the potential impact from noise that is associated with the small arms firing ranges located in the southern portion of the “heavy training area” just north of SR 144. Based upon the operational characteristics of the ranges, noise contours have been established for the ranges that express the anticipated peak noise levels produced by the operation of the ranges in weather conditions that would generate the highest potential noise impact. These noise contours, designated as Noise Zone III and Noise Zone II correspond to a peak decibel level of greater than 104 dB in Noise Zone III and between 87-104 dB in Noise Zone II. (A detailed explanation of the small arms noise zones and how they are determined is located in Section 3 of the JLUS.) These noise zones are used in conjunction with DoD guidelines that establish the general degree of compatibility for different civilian land uses with the varying levels of noise generated by military operations. The following is a discussion of the small arms noise zones and their potential impacts and compatibility implications for off-post land uses.

Noise Zone III (East)

The map shown in Figure 4-6 details the extent of the small arms range complex Noise Zone III (NZ III) area that extends from Fort Lee into the adjacent civilian community off-post. As the map shows, Noise Zone III (104+ dB) extends off-post into the area northwest of SR 36 / Oaklawn Boulevard, which is part of the highway commercial corridor. The total land area within NZ III in this location is 35.3 acres. Of the total impacted area, the general land use classification identifies 4 acres of institutional land use and 6.6 acres of commercial land use, with the remaining 24.7 acres currently undeveloped. Among the specific uses contained in this area that are potentially impacted by NZ III are an assisted living facility, a hotel and a retail shopping center. The DoD land use planning noise guidelines indicate that both assisted living facilities

and hotels are generally incompatible with the noise levels that are typically generated within a Noise Zone III contour. Retail trade and service uses, such as those found in the shopping center may be defined as potentially incompatible if the structures housing the uses do not sufficiently mitigate noise to a level that would achieve a 30 dB reduction in indoor noise levels versus the exterior noise environment. Based on the presence of these uses within this noise sensitive area, it is recommended that the uses allowed by local development regulations be examined to ensure that the remaining undeveloped land within this area will be compatible with the NZ III land use guidance if it is developed in the future.

Noise Zone III (West)

The map shown in Figure 4-7 details the extent of the small arms related Noise Zone III area that extends west of the installation boundary across River Road into the adjacent community. The NZ III area extending into the adjacent community in this location encompasses 11.5 acres of land off-post. Of the total acreage potentially impacted by the NZ III contour, 6.5 acres are in residential use and 5 acres remain undeveloped at the present time. While residential uses are generally incompatible with the typical noise levels found in an NZ III area, the number of potentially impacted individual dwellings is low in comparison to the impacted acreage given the rural nature of the area. Based on the presence of these noise sensitive uses within the NZ III area it is recommended that Prince George County examine its land use regulations in this area to ensure that any future development in this area is compatible with the high noise potential from military operations.

Noise Zone II (East)

Noise Zone II (East), shown in Figure 4-8, details the extent of the 87-104 dB noise contour that extends east of Fort Lee. The area within this NZ II contour contains a large number of residences, including both single family dwellings and multi-family dwellings. A large concentration of commercial development, centered on the SR 36 / Oaklawn Road corridor, is within the NZ II contour as well. The total off-post land area within the NZ II contour is 882 acres. Of the total acreage, 470 acres are in residential use, 134 are in commercial use, 19 are in institutional use, and less than 1 acre is used for industrial purposes, with the remaining 258 acres remaining undeveloped (a large portion of which is VDOT right-of-way associated with I-295).

Residential uses, while not highly compatible with the potential noise levels in NZ II, are deemed to be generally compatible when they are constructed in a manner that achieves a 25-30 dB noise level reduction versus the expected outdoor noise levels. As discussed previously in the general compatibility assessment, the presence of I-295,

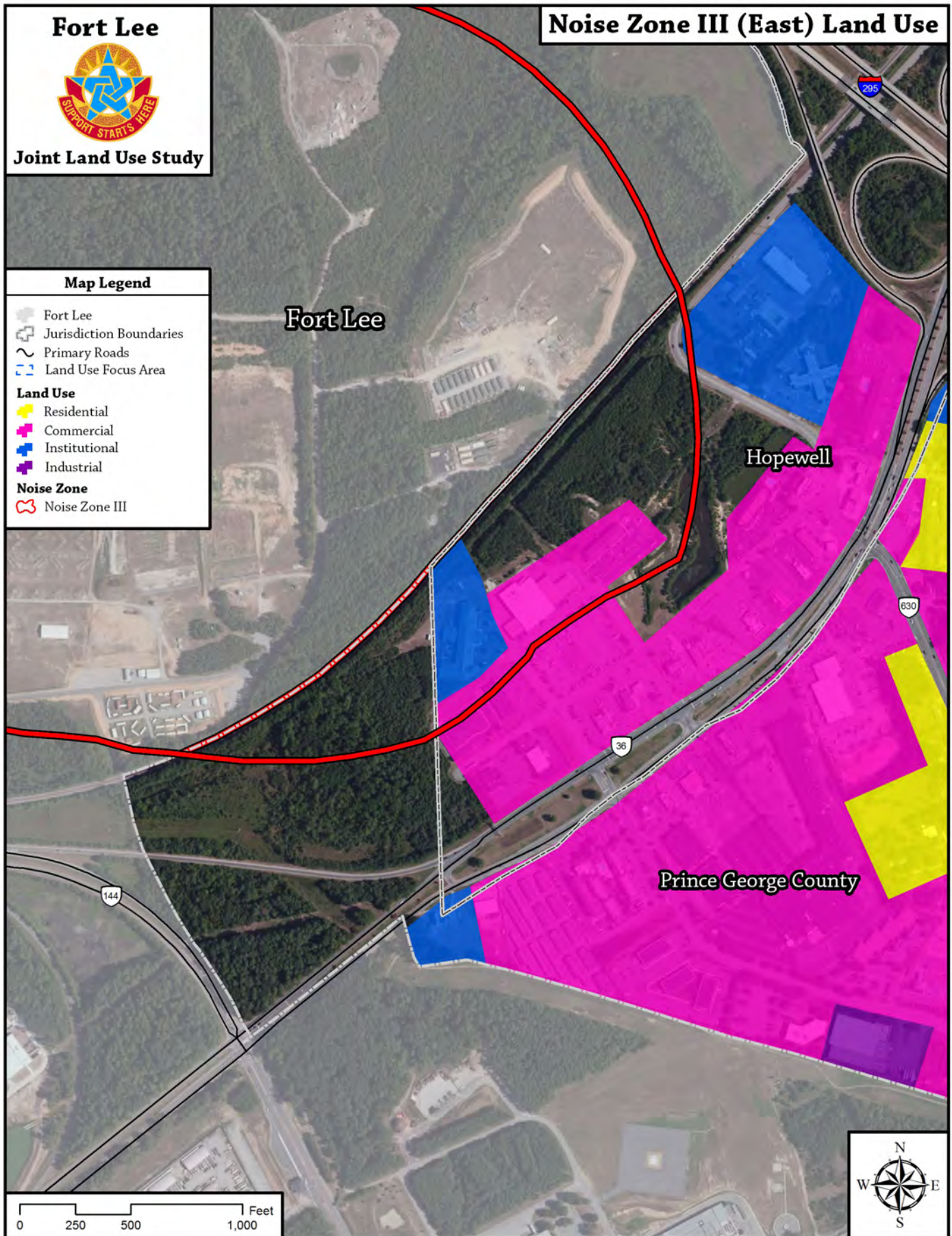


Figure 4-6: Small Arms Noise Zone III East

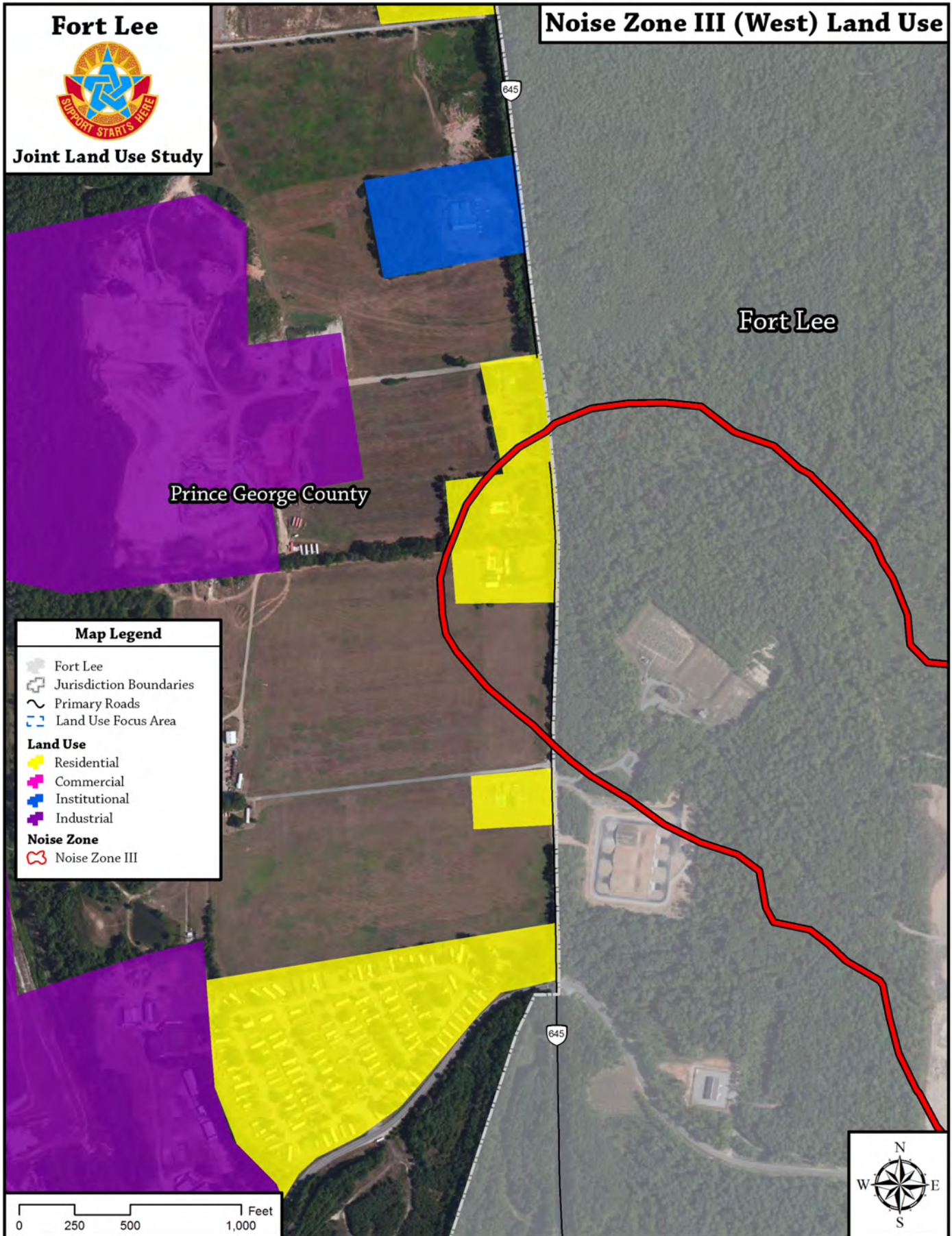


Figure 4-7: Small Arms Noise Zone III West

and the associated background traffic noise levels that are generated on the interstate, may serve to mitigate some of the operational noise impacts from Fort Lee that could possibly cause a negative impact on standard residential dwellings in an otherwise “quiet” environment. The presence of sound walls along the interstate may also serve to mitigate noise impacts in the residential areas along the interstate where such facilities are currently in place. The majority of the nonresidential (commercial) development in this NZ II area is likely compatible with the operational noise impacts, though in certain instances it is recommended that noise susceptible retail and service uses be housed in structures that achieve a 25-30 dB noise level reduction, particularly in areas that are located in close proximity to the NZ III contour, or are located in closer proximity to the point of noise generation in order to achieve the highest degree of compatibility.

While there does appear to be a general degree of compatibility in this area, there are some potential areas of concern. Specifically, the western quadrant of the I-295 / SR 36 interchange is home to an outdoor recreational facility (Moose Lodge), an assisted living facility and two hotels. Without sufficient noise mitigation, these uses have the potential to be incompatible with the noise generation levels in that area based on their proximity to the NZ III contour and the generation points associated with the NZ II contour. This may cause this area to be exposed to sound levels that are more closely approximated with the NZ III noise levels. Like the NZ III areas discussed previously, it is recommended that the affected jurisdictions examine their land use policies to ensure that future development in these areas achieves the maximum degree of compatibility possible. When examining residential development standards in this area, the presence of I-295 and the potential noise mitigation that it provides through background noise generation should be considered during policy formulation.

Noise Zone II (West)

The map shown in Figure 4-9 details the off-post extent of the small arms Noise Zone II contour on the west side of Fort Lee. This area, located generally west of River Road contains 222 acres of land, with 56 acres in residential use, 7 acres in institutional use and 24 acres in industrial use, while the remaining 135 acres remain undeveloped. This NZ II area is much more rural in nature compared to the urban area impacted by NZ II on the east side of Fort Lee. As stated previously, residential uses can be compatible with the noise levels in NZ II if certain noise mitigation measures are used to reduce interior sound levels. Like residential uses, the institutional use in this area (a church located on River Road) may be considered to be compatible with NZ II sound levels if noise level reduction techniques are used to mitigate interior noise penetration by 30 dB. The distance to the point of noise generation for this specific use, however may heighten its potential incompatibility with high noise levels. Conversely, the nature of

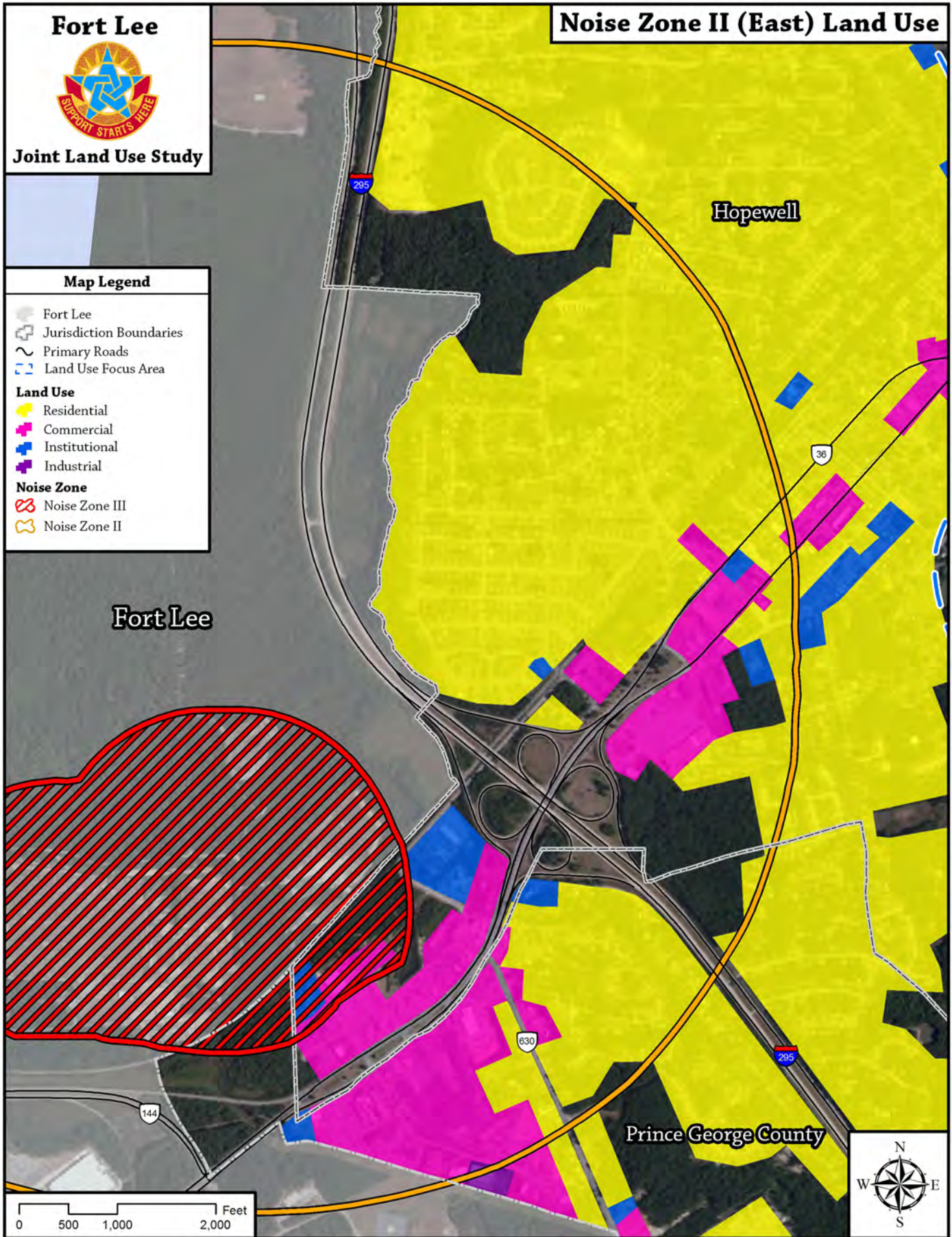


Figure 4-8: Small Arms Noise Zone II East

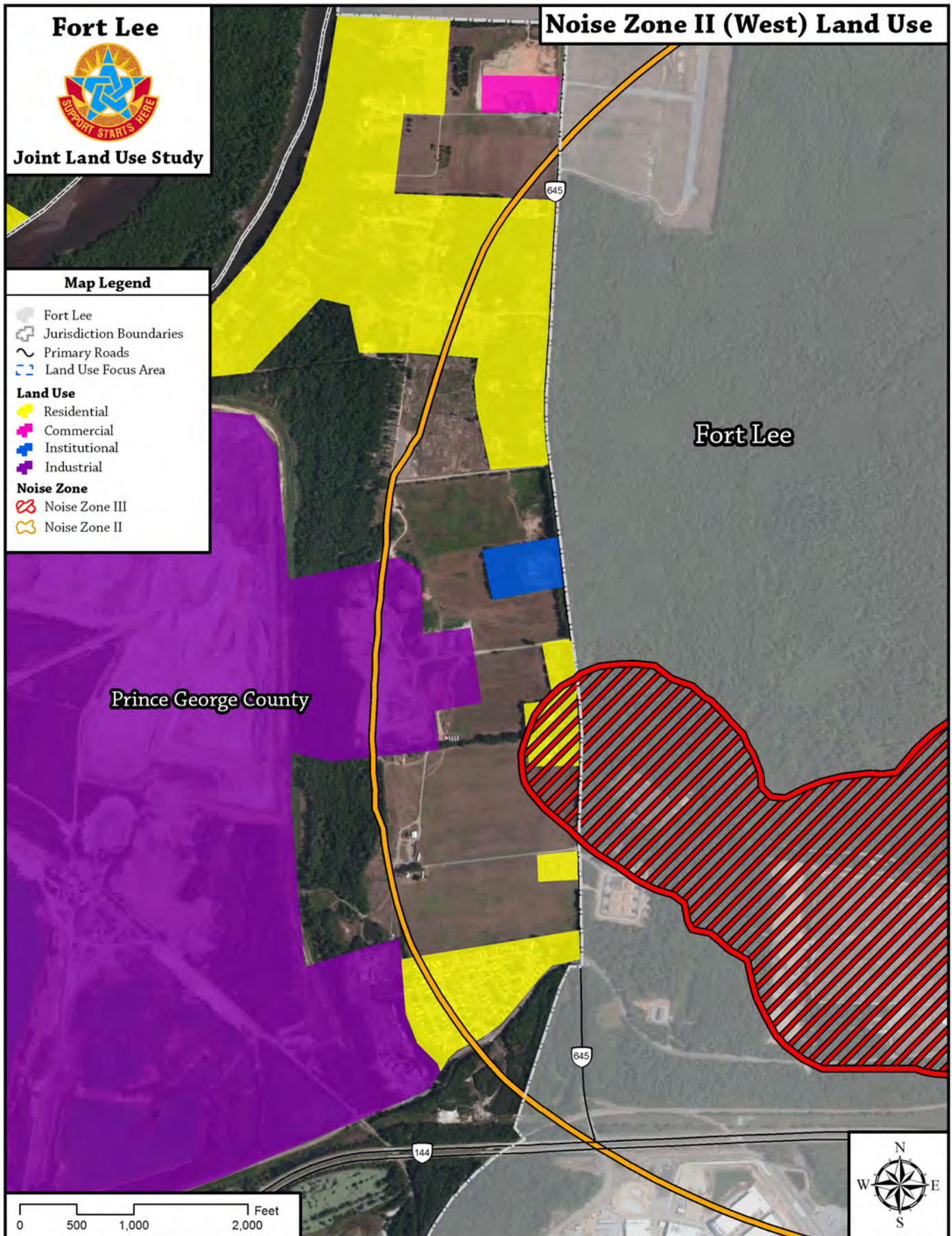


Figure 4-9: Small Arms Noise Zone II West

the use (likely used infrequently and at times when weapons firing is not taking place) may balance its potential locational disadvantage and increase its compatibility. While residential uses can generally be considered compatible in an NZ II environment, there is a degree of concern related to the potential compatibility of the manufactured home park that is located west of River Road in the southern portion of the NZ II area, and in fairly close proximity to the NZ III area and noise generation points. Manufactured home parks are generally considered to be incompatible with the noise levels in a Noise Zone II area. While traditional site-built single family dwellings can easily have noise mitigation techniques used in their construction, or even be retrofitted with materials to enhance their compatibility with high noise environments, such techniques are generally unavailable or cost-prohibitive when dealing with manufactured housing. In addition to the lack of available or affordable noise reduction methods for manufactured homes, manufactured home parks are specifically identified as having a low degree of compatibility in high noise potential areas. This is due to the concentration of potentially impacted residents given the high density of dwelling units that is seen in a typical manufactured home park. In light of these concerns, it is recommended that land use policies be examined for this area to ensure that they align with best practices and recommendations for uses that are compatible with high noise potential areas.

4.3.2 Impulsive Noise Analysis

Unlike many Army installations, Fort Lee does not have any artillery or demolitions ranges that are typically associated with impulsive noise events. The Installation Operational Noise Management Plan does, however, identify the use of grenade and artillery simulators (devices designed to replicate the noise generated from hand grenade and artillery shell detonations) as a potential concern due to the high noise generation potential associated with these devices. Specifically, it identifies the use of both artillery and grenade simulators in Training Areas 27/27A and the use of grenade simulators in Training Area 17 as having the potential to generate noise complaints in certain situations (discussed previously in Section 3 of the JLUS). The following is a discussion of the potential noise impacts created by the use of such devices at each of the two areas identified in the IONMP.

TA-27/27A Impulsive Noise Impact

The potential noise impact from the use of artillery and grenade simulators within these training areas is defined in the IONMP as 115 dB or greater at a distance of up to 800 meters given “poor” weather conditions (meaning more conducive to sound travelling a long distance). At the 115 dB level, impulsive noise, such as that generated by these devices, is assumed to have a moderate or higher risk of generating a noise complaint. Figure 4-10 details the potential extent of the 115 dB noise contour for these areas during

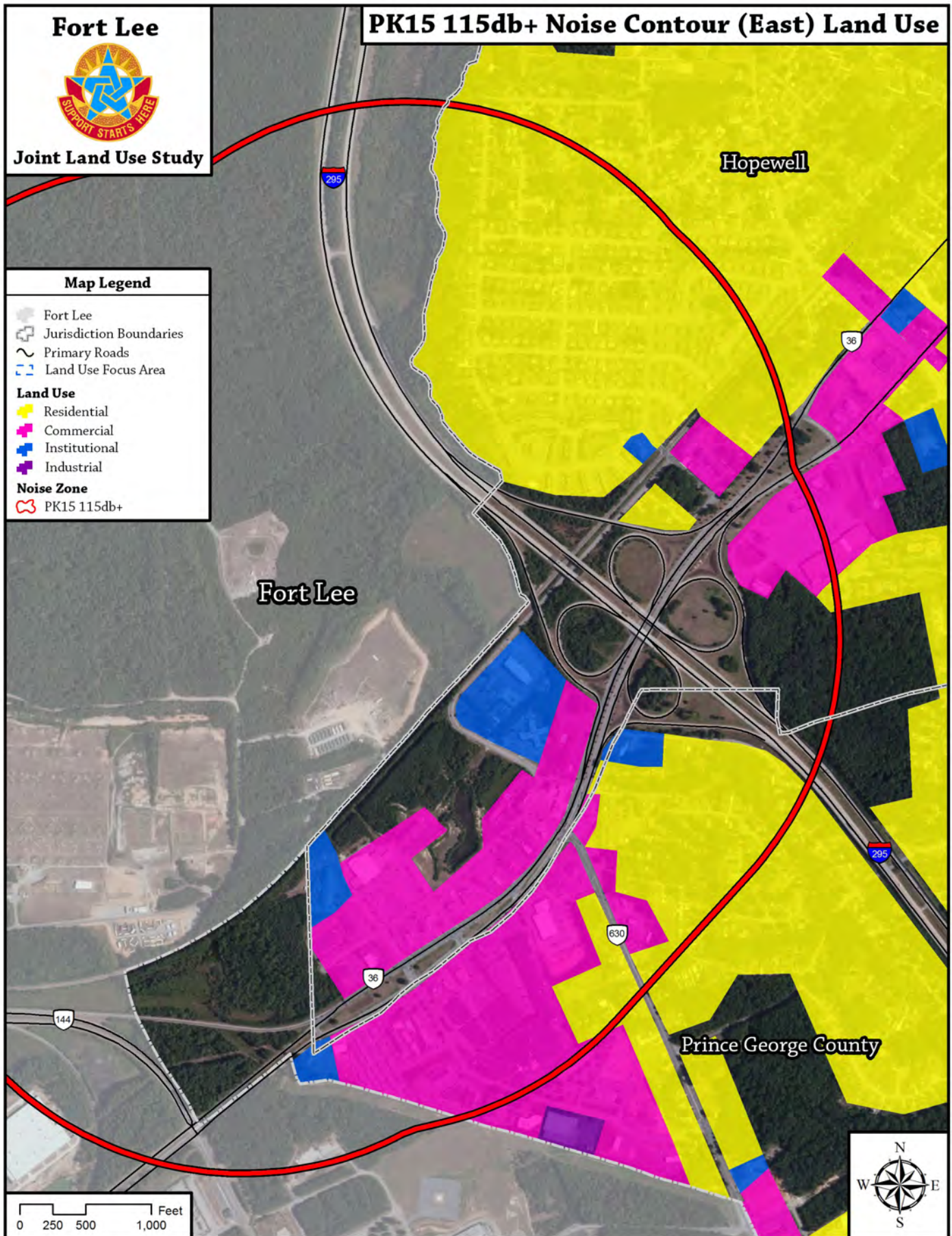


Figure 4-10: TA 27/27A 115 dB Impulsive Noise

more conducive weather conditions. The potential noise level increases with a decrease in distance from the point of detonation of the simulator device. Consequently, areas that are closer to the point of generation can be assumed to have a higher potential noise exposure, meaning that a greater complaint risk may exist in such areas.

The area within the assumed 115 dB noise contour is approximately 467 acres in size, with 173 acres currently used for residential purposes, 103 acres in use for commercial purposes and 20 acres in use for institutional purposes, with the remaining 171 acres remaining undeveloped at the present time. While land use may not directly correlate to complaint risk, it can be assumed that residential uses would likely have a higher likelihood of generating a complaint. Given that the 115 dB maximum contour for this area lies completely within the NZ II small arms contour, any land use policies designed to enhance compatibility with the small arms noise impact will likely have the effect of increasing compatibility for impulsive noise sensitive uses as well. Due to the nature of impulsive noise, it may be more difficult to fully mitigate potential impacts given that it is generally of a lower sound frequency and can therefore carry through materials that may block higher frequency noise.

TA-17 Impulsive Noise Impact

Impulsive noise impacts generated at this location has a smaller maximum effective distance for the 115 dB noise level since only grenade simulators were identified as being used at this site. These devices have a maximum distance of 300 meters where they are assumed to generate a 115 dB noise level during “poor” weather conditions. The spatial extent of the potential noise impact from these devices is shown in Figure 4-11. The off-post area covered by the potential 115 dB noise contour for grenade simulator use at this site is 218 acres. Of that total area, 57 acres are in residential use, 5 acres are in commercial use and 118 acres are in institutional use. As discussed previously, residential uses have the highest potential to generate noise complaints when exposed to impulsive noise events of this level. Institutional uses, which, by their nature, are typically incompatible with high noise levels, are of a much lower concern in this particular situation since the institutional land use identified in the area is part of the correctional complex, and therefore less likely to generate noise complaints. Since only a portion of NZ II covers the 115 dB noise potential contour in this area, it is recommended that land use policies for this area be examined to ensure that they align with best practices for land use and noise mitigation in high noise potential areas.

4.3.3 Aviation Operations Analysis

Aviation operations typically generate two types of impacts, noise and accident potential. Due to the nature and frequency of aviation operations at Fort Lee, noise contours for

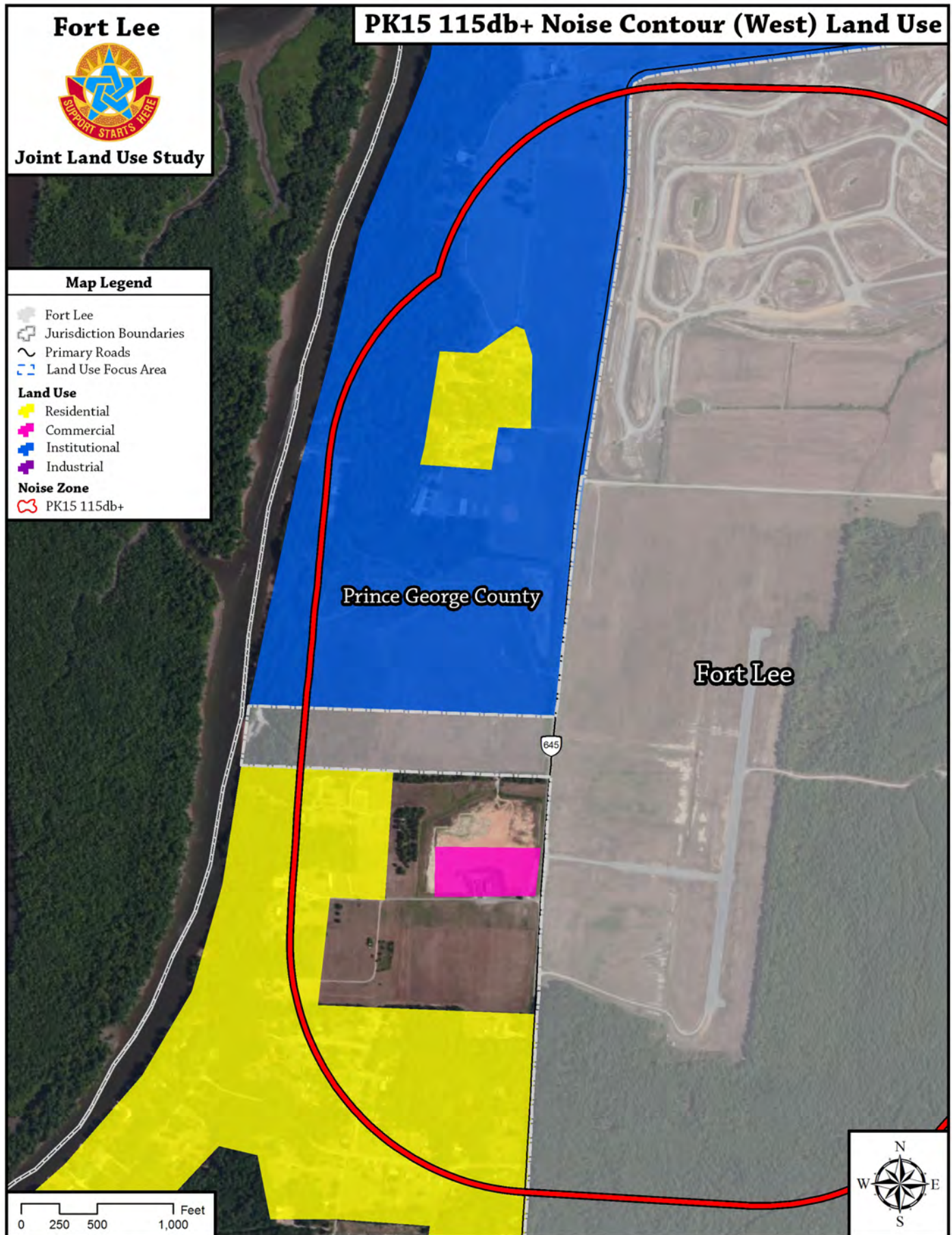


Figure 4-11: TA 17 115 dB Impulsive Noise

aircraft operations have not been established and accident potential zones do not apply anywhere on the post. Aviation operations at Fort Lee generally involve only rotary wing operations in support of the post's military missions. While these are typically low level operations, these are generally confined to on-post areas in order to reduce the potential negative impact that may be associated with low level aircraft overflight.

Aviation operations that have occurred in the past at Fort Lee that it has the facilities in place to potentially accommodate in the future include personnel and equipment drops at McLaney Drop Zone (from rotary wing aircraft). Figure 4-12 details the location of McLaney Drop Zone, which is also used for helicopter sling load operations training. The use of this facility for aviation operations is currently limited to sling load operations due to safety concerns at the Drop Zone. The number of aircraft operations occurring annually at this location does not, according to the IONMP, generate a sufficient average noise level over the course of a year to generate an aircraft Noise Zone II contour, which would take approximately 500 operations per year to reach. While noise does not appear to be a compatibility factor for this facility, it should be noted that the establishment of vertical obstructions in the vicinity of the operations area could lead to a degradation in mission capability. Based on this factor, it is recommended that land use policies in this general area be examined to ensure that vertical obstructions are not introduced in such number or in such locations as to impede the future use of this training site.

Fort Lee has a second aviation facility on post that serves rotary wing aircraft, and while not used exclusively for its military missions, the helipad facility, shown in Figure 4-13, provides the post with a critical transportation link for personnel transport and medical evacuation. Again, noise was not determined to be a factor in the ongoing compatibility of this facility, but since it is a fixed facility it is important to understand its operational characteristics. In particular, the approach zones that are used by aircraft traveling to and from the facility are of concern since vertical obstructions or low level overflight patterns could either degrade capability or impose other limits on operations at the facility. As Figure 4-13 demonstrates, the approach zones used for takeoff and landing at the helipad are located entirely on-post, and therefore should be compatible with surrounding off-post land uses, which are generally nonresidential in nature in the area closest to the facility. As with the McLaney Drop Zone area, it is recommended that land use policies for the areas close to the helipad be examined to ensure that potential vertical obstructions are properly regulated in order to minimize any potential future compatibility issues.

The locations of known vertical obstructions, as contained in the FCC Antenna Registration database, were plotted on a map of the area to determine the overall density

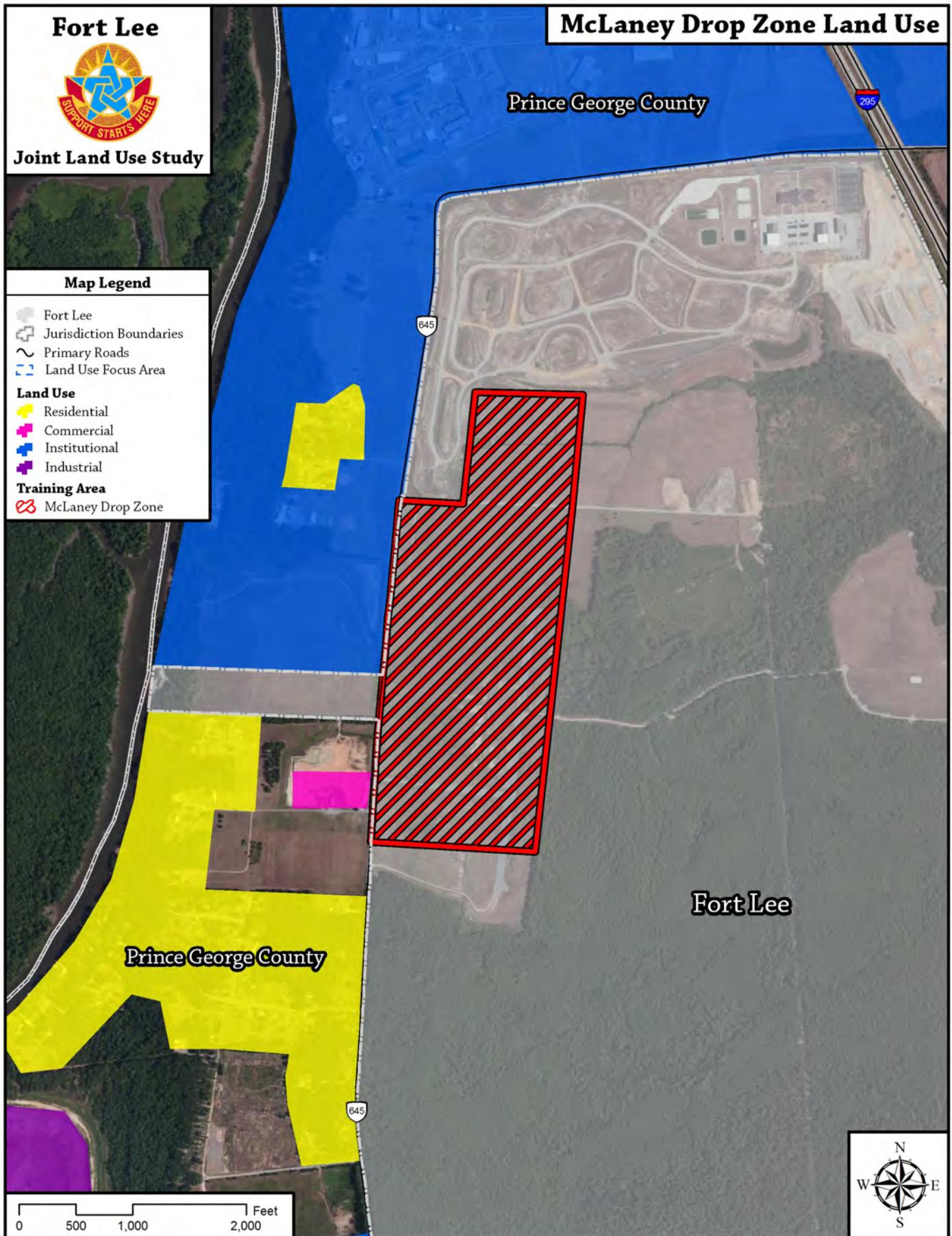


Figure 4-12: McLaney Drop Zone

of such structures in the region. Figure 4-14 shows the location of these structures in relation to those areas of the post that are used most frequently for aviation operations. As the map demonstrates, the current conditions do not appear to pose any significant compatibility issues with the operational needs of Fort Lee. While the helipad on post is located close to two towers, the approach routes and nature of the use of the helipad should not be negatively impacted by these structures as they are located on-post and are outside of any areas where aircraft operations training activities would take place. McLaney Drop Zone and TA-17A, which is also used for helicopter sling load training, are both located more than 1 mile from any registered towers. The distance of any known obstructions to these aircraft operations areas is a positive indication of their compatibility with the current air operations environment.

4.3.4 Tracked Vehicle Operations Analysis

While the Installation Operational Noise Management Plan does not presume that tracked vehicle operations at Fort Lee will lead to any widespread compatibility issues, it does note that the type of tracked vehicle training occurring at the vehicle recovery training site on the northern edge of the installation will generate a greater amount of noise than is typically associated with “normal” tracked vehicle operations. This is due to the need to operate the vehicles in stationary positions and at high engine RPMs during recovery training operations (thus generating higher than typical noise levels). As Figure 4-15 demonstrates, the predominant land use adjacent to the vehicle recovery training area is institutional, and associated with the correctional complex. There is a small amount of employee housing located in relatively close proximity to a portion of the training site, but no operational impacts of the level and degree necessary to generate complaints have been identified or are anticipated.

4.3.5 Night Operations Analysis

While many military installations enjoy a rural setting, at least around their training areas, Fort Lee is somewhat encumbered from a night training perspective by its location in an urban area, surrounded almost entirely by off-post light generating uses. National Oceanic and Atmospheric Administration data related to visible light levels in the region was analyzed, and as expected, the average visible light level on Fort Lee was equal to the average visible light level throughout the urbanized area. These high light levels can impact the utility of night training operations, particularly with regard to the use of night vision devices. While there may be areas on the post that, due to tree canopy or other factors, are appropriate for night vision aided training activities, the overall light level in the region hampers the use of such devices. Solutions to this type of widespread and distributed issue could include measures such as local ordinances that address light shielding and direction for light generating uses in areas that are immediately adjacent

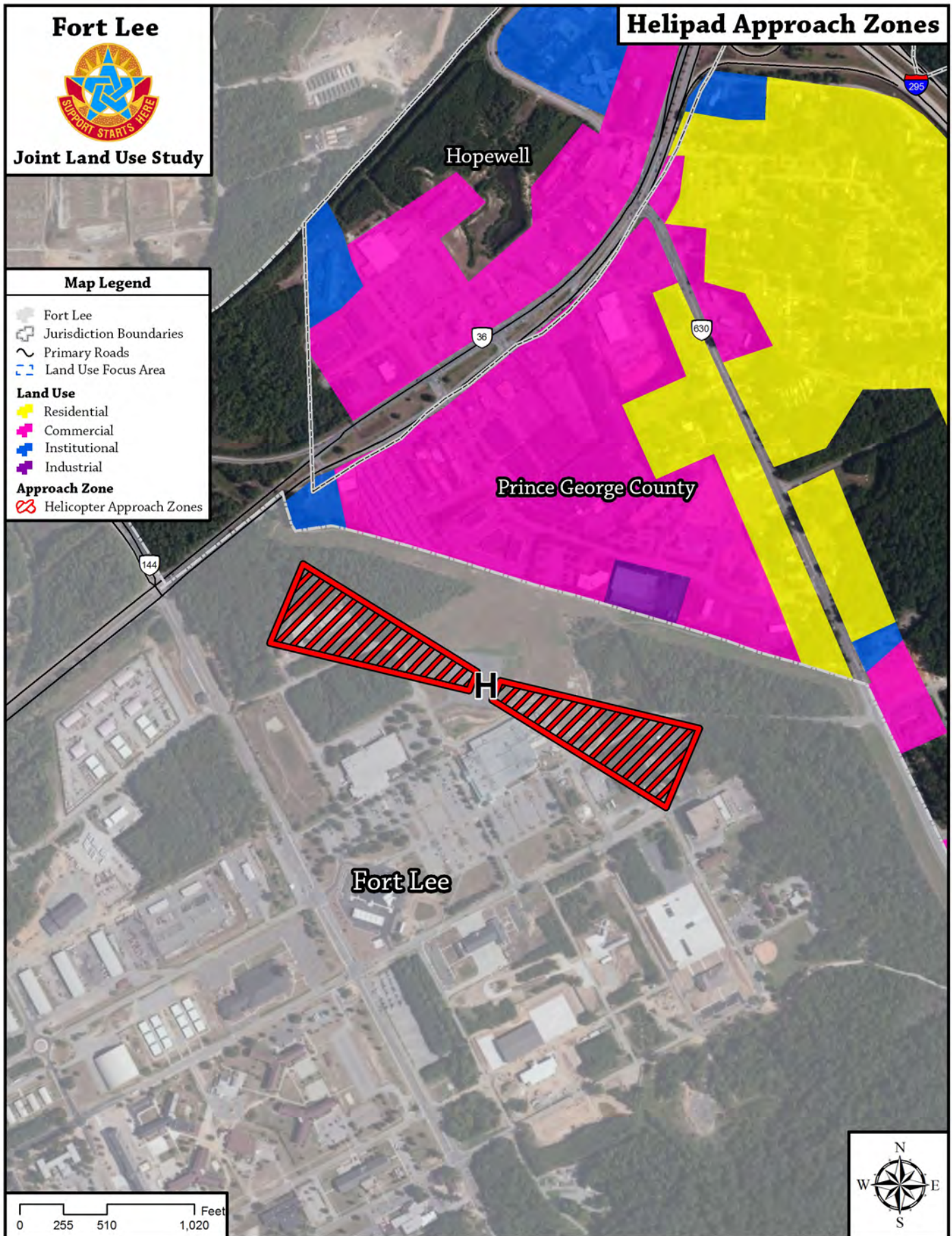


Figure 4-13: Helipad Approach Zones

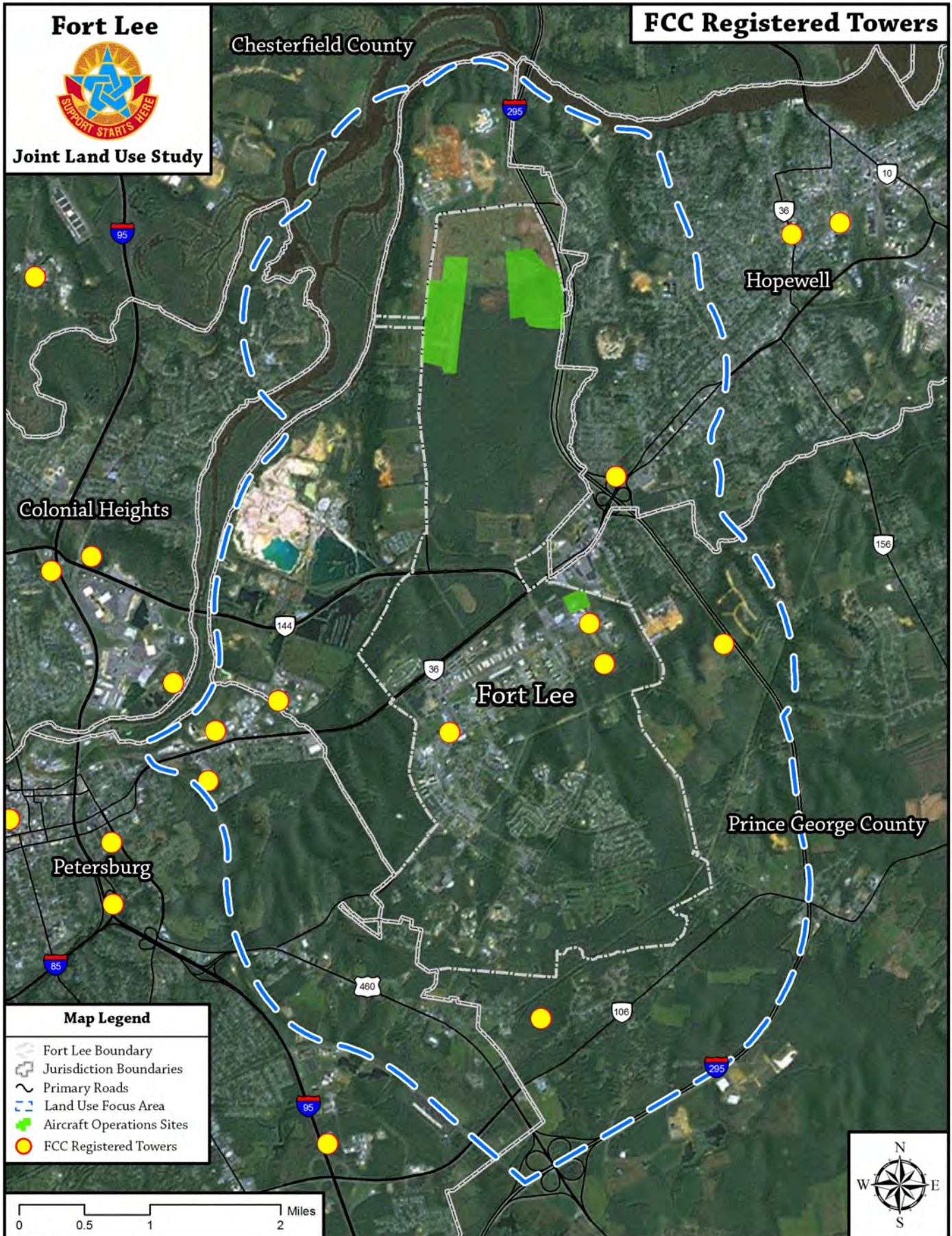


Figure 4-14: Known Vertical Flight Obstructions

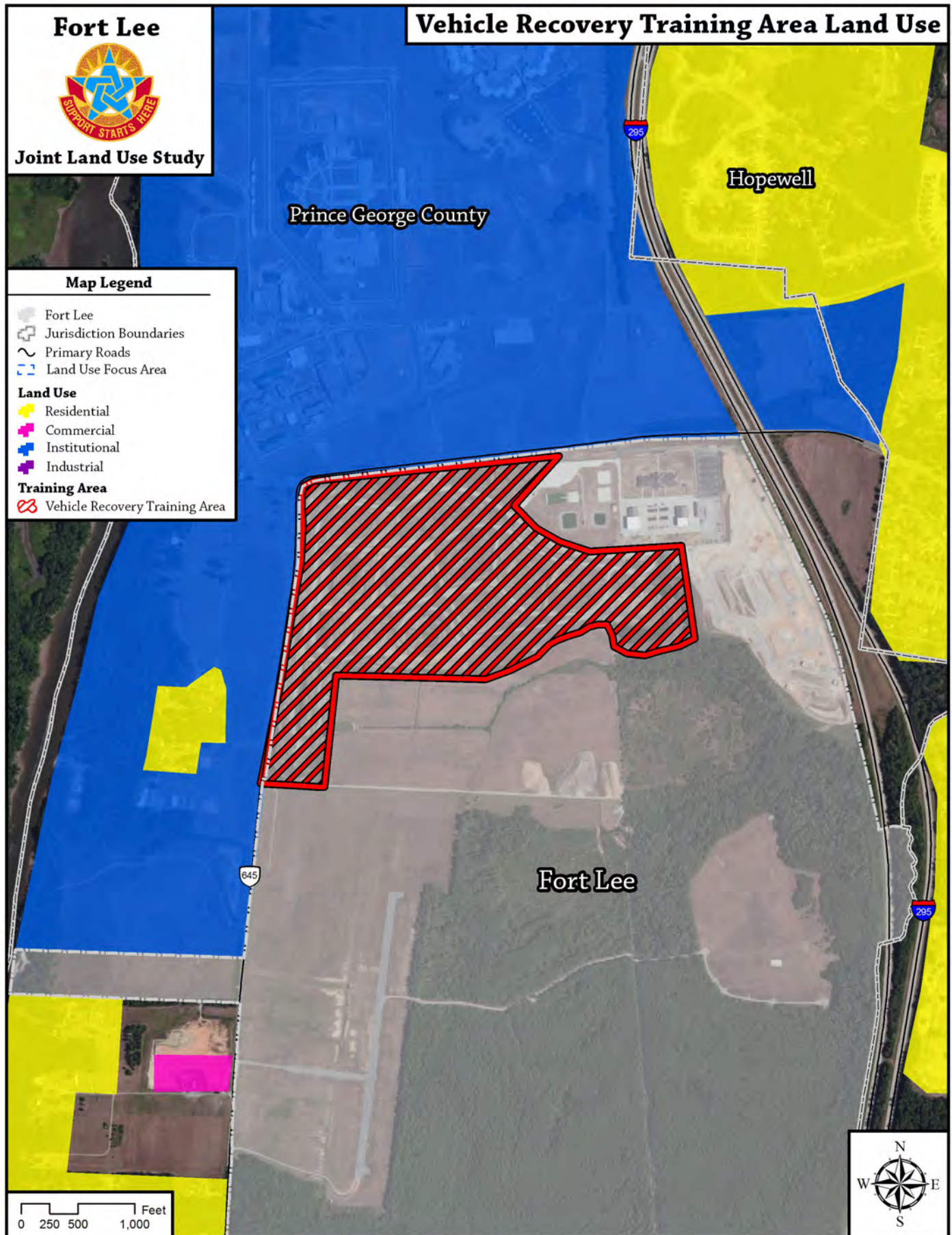


Figure 4-15: Tracked Vehicle Operations

to the post. Given the regional nature of the issue, a larger “dark-sky” oriented effort throughout the adjacent communities may also improve the quality of night training activities by reducing the overall degree of ambient background lighting over time. Each community in the region should consider adopting such measures, particularly for those areas that are immediately adjacent to the post to help mitigate any negative effects of night lighting on nighttime training activities.

4.3.6 Cultural Resources Compatibility Analysis

As noted previously as an area of potential concern in the general land use analysis, Fort Lee’s neighbor to the southwest, the Petersburg National Battlefield, presents a range of opportunities for the installation, but also demands that care be taken in ensuring that on-post activities and construction do not degrade the historic nature of the site, particularly related to viewsheds, access and measures that Fort Lee takes to ensure the integrity of the installation boundary. To ensure ongoing compatibility, it is recommended that both entities continue the relationship established in the adopted Programmatic Agreement to ensure that the activities of each party are compatible with each other’s mission.

4.4 Future Land Use Compatibility Assessment

In addition to the analysis of the compatibility of the existing land use pattern with the identified operational impacts, the future land use plans (comprehensive plans) of each of the surrounding jurisdictions were analyzed to identify any potential issues related to how the local governments have planned for future growth within the Land Use Focus Area. To accomplish this, each local government’s land use plan was added into the GIS database for analysis. Prince George County provided a parcel based GIS data layer containing future land use designations, while the land use maps from Petersburg, Colonial Heights and Hopewell were digitized into GIS data layers from digital copies of those maps. As each jurisdiction has slight variations in the number of future land use classifications, as well as nomenclature for those classifications, the various local land use classes were generalized into five broad categories for regional consistency. These general classifications are Residential, Commercial, Industrial, Public / Institutional, and Parks / Open Space. Figure 4-16 on the following page shows the result of the consolidation of the various local land use plans into an overall regional future land use map within the Land Use Focus Area.

Once combined into the regional map, the future land use classifications were analyzed for compatibility with the identified operational impacts. Operational noise is the primary impact of potential concern as it is the most likely impact to have an effect on the surrounding community if land uses that are not compatible with operational noise

levels are established. The following is a discussion of the results of that analysis for each area where a known impact currently exists.

4.4.1 Small Arms Noise Future Land Use Compatibility

The designated future land use classifications for each of the areas that are subject to small arms noise levels that the IONMP has identified as generating potential land use compatibility issues were analyzed to determine the compatibility of the local governments' development plans for those areas with the current level of impact. As these impact levels may change in the future, this analysis cannot predict whether the same level of potential impact will exist when future development takes place, but it does serve as an indicator of the degree to which future plans are compatible with the current noise environment. The following discussion details the current plans of each local government for these potentially impacted areas and the compatibility of those plans with the current noise environment.

Noise Zone III East

On the east side of the installation, the Noise Zone III contour (104+dB PK15(met)) extends into a portion of the jurisdictions of the City of Hopewell and Prince George County, as shown in Figure 4-16. The City of Hopewell's Future Land Use Map designates the entire area within the Noise Zone III contour in its jurisdiction for commercial development. While some of this area designated for commercial land use has been developed, there is still some land within the NZ III area in Hopewell that remains vacant and could be developed in the future. Although most commercial uses are generally compatible with this level of potential noise impact, if noise mitigation techniques are used, there may be some more sensitive uses that are typically allowed in a commercially designated land use area, such as a church or hotel, that may not be as compatible with high noise potential. While a commercial land use designation is generally compatible, it is recommended that care be taken in crafting development regulations in a manner that ensures that any potential compatibility issues with noise sensitive uses are mitigated to the greatest extent possible, including noise mitigation for commercial uses, as appropriate.

The portion of the NZ III area that lies within the jurisdiction of Price George County is designated on the Future Land Use Map for public / institutional land use. All of the land within the County's jurisdiction within this NZ III area is currently vacant, leaving the possibility for future development with some type of public or institutional land use. It is recommended that the County closely examine the appropriate types of uses that can be developed in this area, since many public and institutional uses, such as schools, churches, assisted living facilities and similar uses, can be negatively impacted

by noise. This should not be an impediment to the productive use of the land in this area since there are a number of uses that fit well within this broader use classification that are compatible with the potential impacts in a high noise environment, particularly when noise mitigation is required for those uses that could benefit from it.

Noise Zone III West

The portion of the small arms related Noise Zone III contour that extends outside of the boundaries of Fort Lee on the west side of the installation is entirely within the jurisdiction of Prince George County (see Figure 4-17). The County's Future Land Use map designates a portion of this area for commercial development and the remainder for industrial development. As mentioned in the discussion above, most commercial uses are generally compatible with the type of noise potential that exists in this environment, while the industrial land use classification would be highly compatible with the noise potential in an NZ III area. It is recommended that the County encourage the transition from the current residential use of this area to commercial or industrial since this would enhance the compatibility of the off-post land use pattern with the current noise environment.

Noise Zone II East

Like Noise Zone III, the contour for Noise Zone II (87-104 dB PK15(met)) area on the east side of the installation extends into portions of the jurisdictions of both the City of Hopewell and Prince George County (see Figure 4-18). The City of Hopewell's future land use map designates the Highway 36 (Oaklawn Boulevard) corridor with a commercial land use classification. This land use classification is applied to areas that have been developed for commercial use already, as well as areas farther from the primary commercial corridor that are currently developed with residential land uses. The commercial designation applied to this area is generally compatible with land use planning guidelines for this type of potential noise impact, particularly when coupled with suggested noise mitigation standards. Additionally, the proposed transitions from residential to commercial use in this area will enhance the compatibility of the area with the current noise environment.

The remainder of the City's jurisdiction within the NZ II area is designated as residential on the future land use map, reflecting the development pattern that exists in this area at the present time. Planning guidelines provide for residential use within this noise environment, however noise mitigation techniques are recommended to enhance compatibility. Given the established residential development pattern in this area, any other type of future land use designation would likely be infeasible, and so it is expected that the residential land uses in this area will remain in place. With the presence of I-295

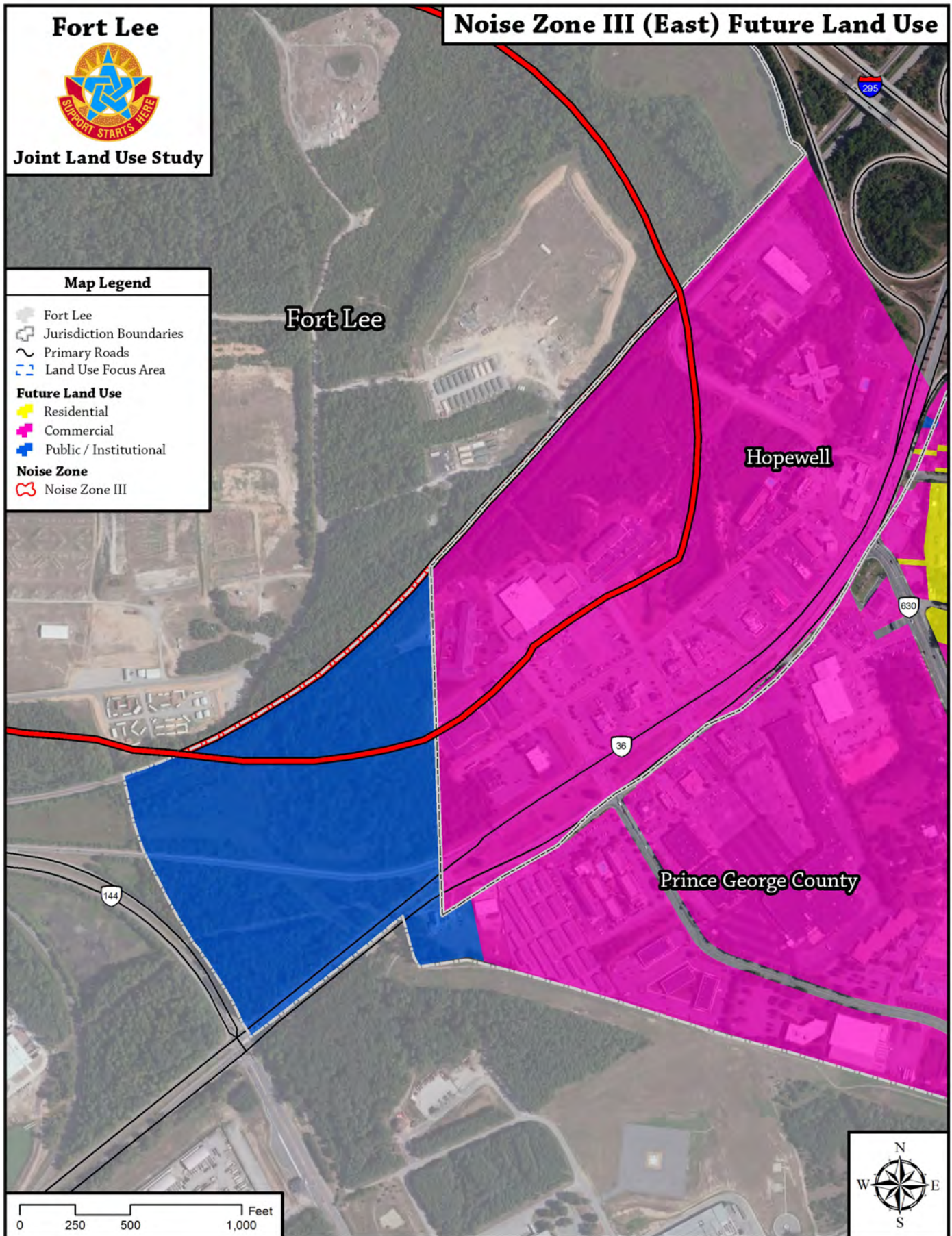


Figure 4-16: Noise Zone III (East) Future Land Use

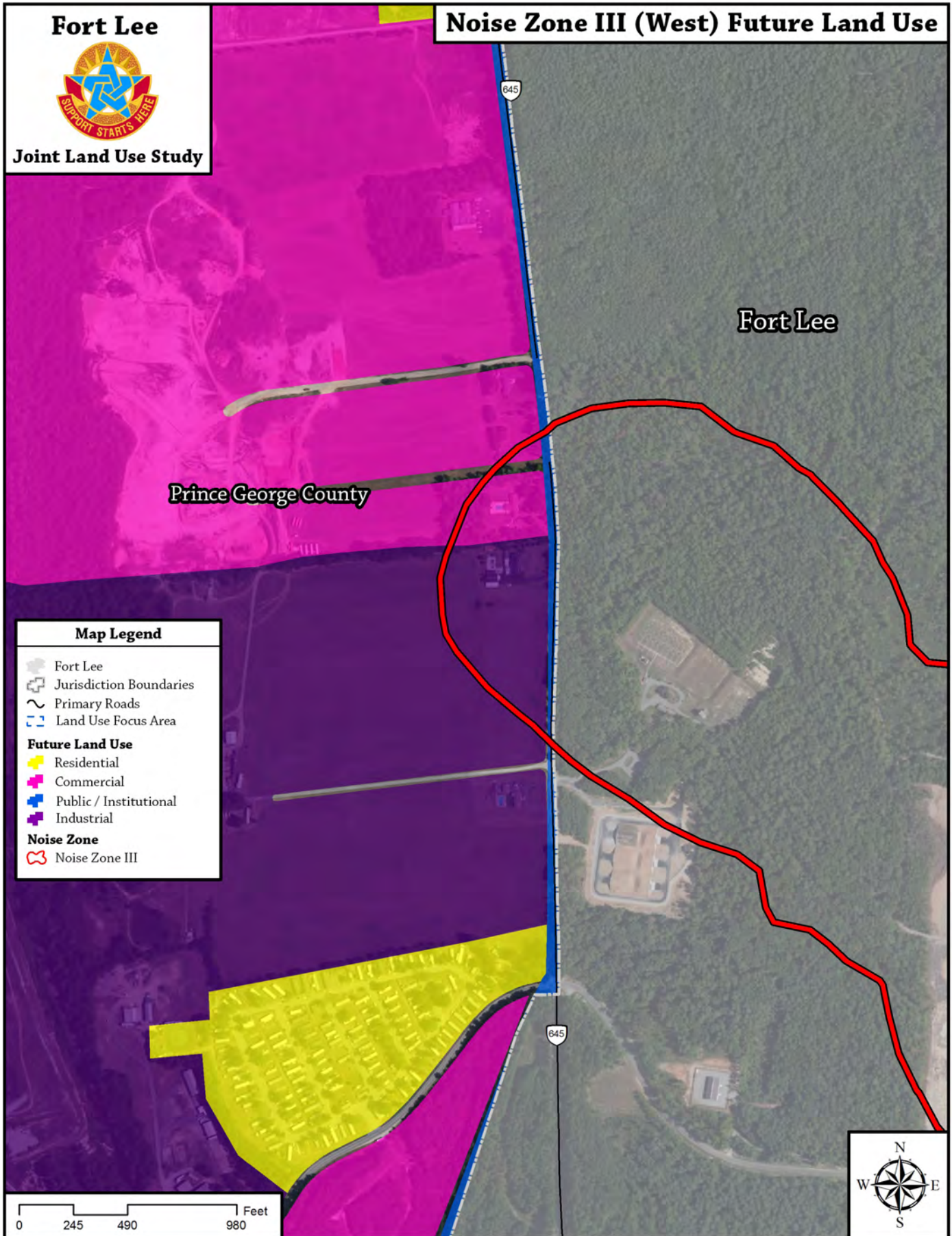


Figure 4-17: Noise Zone III (West) Future Land Use

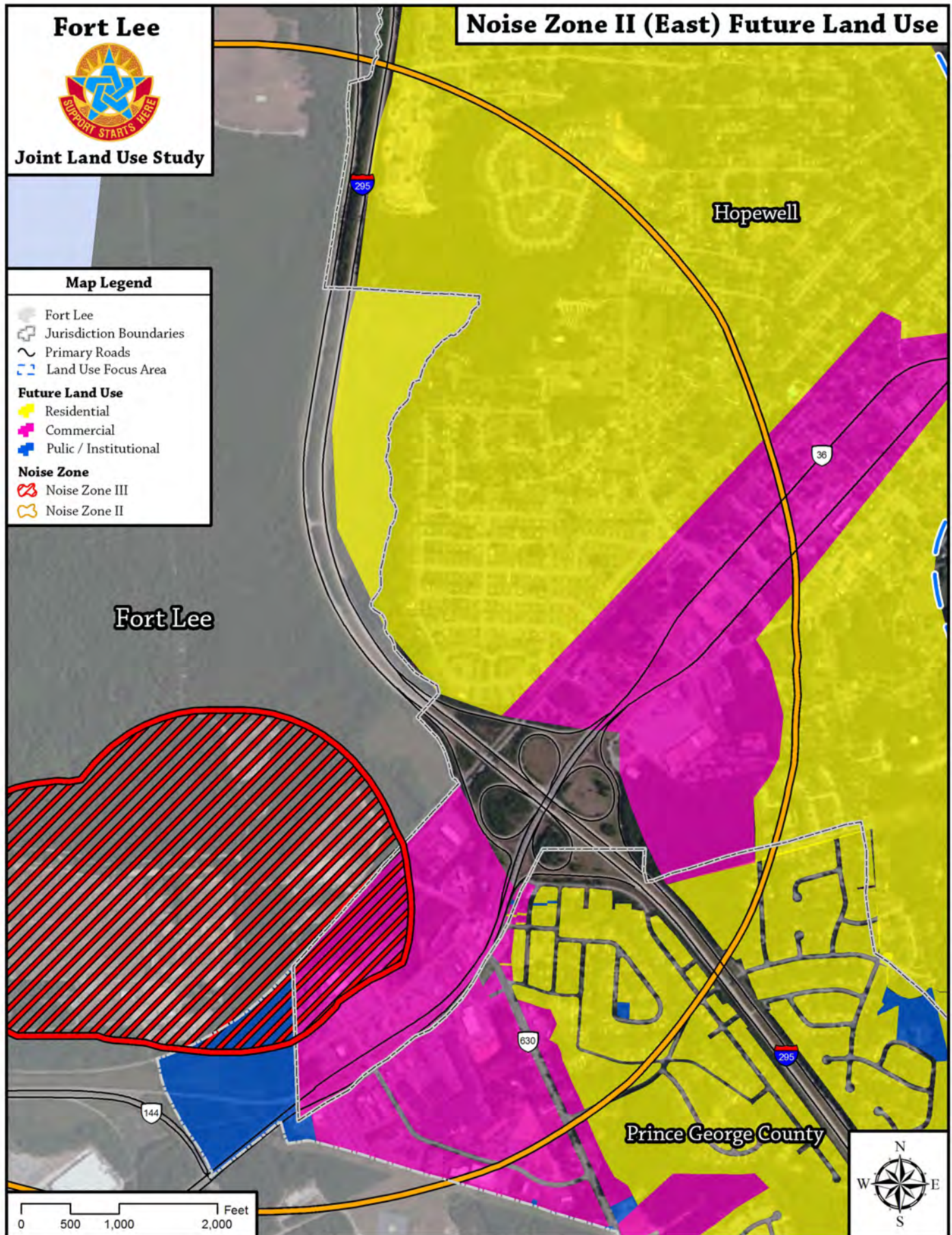


Figure 4-18: Noise Zone II (East) Future Land Use

between the points of noise generation on Fort Lee and these neighborhoods, as well as the presence of sound walls along the interstate, it is likely that background noise levels and mitigation provided by the sound walls helps to cancel out some of the noise from Fort Lee that would potentially impact the area if it were in an otherwise quiet noise environment. In any case, given the expected continuation of the residential pattern in this area, the City is encouraged to explore whether additional noise mitigation requirements would be appropriate given the land use planning guidelines for this noise zone.

In Prince George County's jurisdiction, the future land use map designates the wedge between Fort Lee and Jefferson Park Road that is located south and east of Oaklawn Boulevard for future commercial use. This is in recognition of the existing development pattern in the area, which is nearly built-out with commercial development. As discussed previously, most commercial land uses would be appropriate for this area within NZ II, particularly if noise mitigation techniques are used in conjunction with new development for those uses that would benefit from them.

The remainder of Prince George County's jurisdiction in NZ II is designated for residential use on the County's future land use map, again in recognition of the current development pattern in this area, which is nearly built-out with residential uses. While residential uses can be compatible with the noise potential in this zone, it is recommended that noise mitigation techniques be used in new construction to enhance compatibility. Like the residential areas in Hopewell within NZ II, this area is located in close proximity to I-295. Background noise generated from the highway likely has the effect of cancelling some of the potential noise from Fort Lee that could otherwise impact the area if it were in a quiet noise environment. Given the current noise environment and the high likelihood of the continuation of this land use pattern well into the future, the County is encouraged to explore options for noise mitigation requirements for residential development in this area, as appropriate.

Noise Zone II West

On the west side of the installation, the small arms related Noise Zone II area extends into the jurisdiction of Prince George County. The County's future land use map designates the NZ II area for a mixture of commercial, industrial and residential land uses. Within the NZ II contour, the commercially designated area consists of primarily vacant/agriculturally used land. As discussed previously, a commercial land use designation will generally be compatible with the noise potential within NZ II, provided that noise mitigation techniques are used for those commercial uses that can benefit from them and noise sensitive uses that may be allowed in a commercially zoned area are not

developed. Those areas designated on the County's future land use map for industrial land use in NZ II are, like the commercially designated areas, primarily vacant or used for agriculture. The establishment of industrial land uses in this area will be highly compatible with the current noise environment. Given the high degree of compatibility that is associated with industrial land use and the current noise environment, it is recommended that the County consider the expansion of the area covered by this land use classification to encompass more of the vacant land in this area.

Two distinct areas are designated with residential land use classifications in this portion of NZ II on Prince George County's future land use map, reflecting the existing land use pattern of these areas. The first area is on the north side of the commercially designated area, and it contains a developed single family residential neighborhood. The second area is on the south side of the industrially designated area, and it contains a relatively dense manufactured home park. While traditional single family residential development can be compatible with the potential noise levels in NZ II when noise mitigation techniques are used, the DoD land use planning guidelines indicate that manufactured home parks are incompatible with these potential noise levels. Given that the single family neighborhood in this area is unlikely to transition from residential use, Prince George County should give consideration to the implementation of noise mitigation regulations for single family homes within NZ II areas to enhance the compatibility of any new development or redevelopment that occurs. With respect to the residentially designated area that contains the manufactured home park, the incompatibility of this specific use with the land use planning guidelines and the greater susceptibility to change that is associated with this type of use gives the County the opportunity to examine its designation of this area and give consideration to an alternate land use classification, such as commercial or industrial, that would have an inherently higher degree of compatibility than the existing use.

4.4.2 Impulsive Noise Future Land Use Compatibility

The following is a discussion of the local government future land use plans in relation to areas that are currently subject to potential impacts from impulsive noise events generated on Fort Lee. Unlike small arms noise, impulsive noise events are of a short duration and occur relatively infrequently, but can still generate complaints from the surrounding community if land uses that are generally incompatible with high noise potential are established in close proximity to the source of the noise. Like the discussion of potential compatibility issues with small arms related noise, the noise environment related to impulsive noise may change in the future. Therefore, it is important to give consideration to any changes when updates are made to a local government's future land use map.

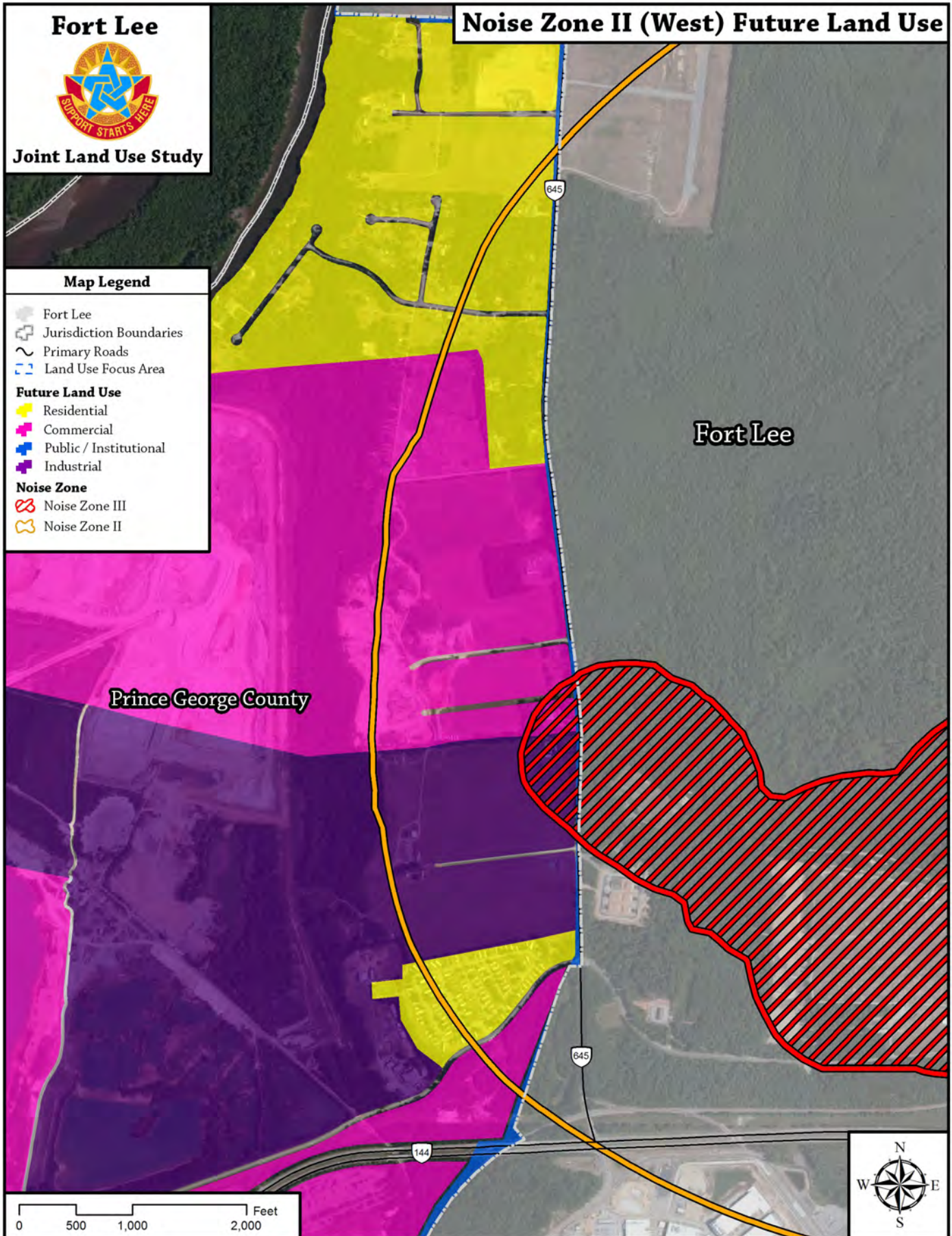


Figure 4-19: Noise Zone II (West) Future Land Use

TA-27/27A Noise Contour Future Land Use

The outer extent of the 115 dB PK15(met) impulsive noise potential area extends east of Fort Lee into the jurisdictions of the City of Hopewell and Prince George County (see figure 4-20). In the City of Hopewell, areas within this 115dB contour are designated for a mixture of commercial and residential use. Prince George County has designated this area as a mixture of commercial, public / institutional and residential land use classifications. The existing development patterns in each jurisdiction that are designated for residential land use are unlikely to transition, and this fact is reflected on their respective future land use maps. While residential land uses are more susceptible to impulsive noise, and therefore carry a higher risk of complaint, the absence of an opportunity to transition to land uses that are more compatible means that noise generating activities on Fort Lee associated with high impulsive noise levels will have to be managed in a way that decreases the risk of complaint, such as by limiting the hours in which impulsive noise is generated and limiting the number of events that occur.

Commercial land use classifications are generally more compatible with impulsive noise than residential development, however care should be taken to ensure that specific uses allowed in the area of potential impact are not incompatible with impulsive noise, or noise mitigation techniques are required for such uses to enhance their compatibility. The same is true for the area designated by Prince George County for public / institutional use, though this designation within the impulsive noise contour may have a greater potential to generate complaints if a use or uses that are particularly susceptible to high levels of impulsive noise are developed in the future. Therefore, each jurisdiction should examine allowed land uses in these areas to ensure that they are compatible with impulsive noise events.

TA-17 Noise Contour Future Land Use

The peak impulsive noise contour associated with a moderate complaint risk that has been determined for the area around TA-17 extends west of Fort Lee into the jurisdiction of Prince George County (see Figure 4-21). The County's future land use map designates a portion of this area for public / institutional use, while the remainder is designated for residential use. The area within the peak noise potential contour that is designated for public / institutional use is part of the Petersburg Federal Correctional Complex. Some of this area is used for employee housing and recreation, but the majority of the land is currently vacant. Given the overall use of the site, a range of uses could be developed on the property in the future, including additional housing, which may lead to a higher risk of complaints. The public / institutional designation does leave the potential in place for a range of more compatible uses, such as administrative or support facilities for the correctional complex, which would be generally compatible

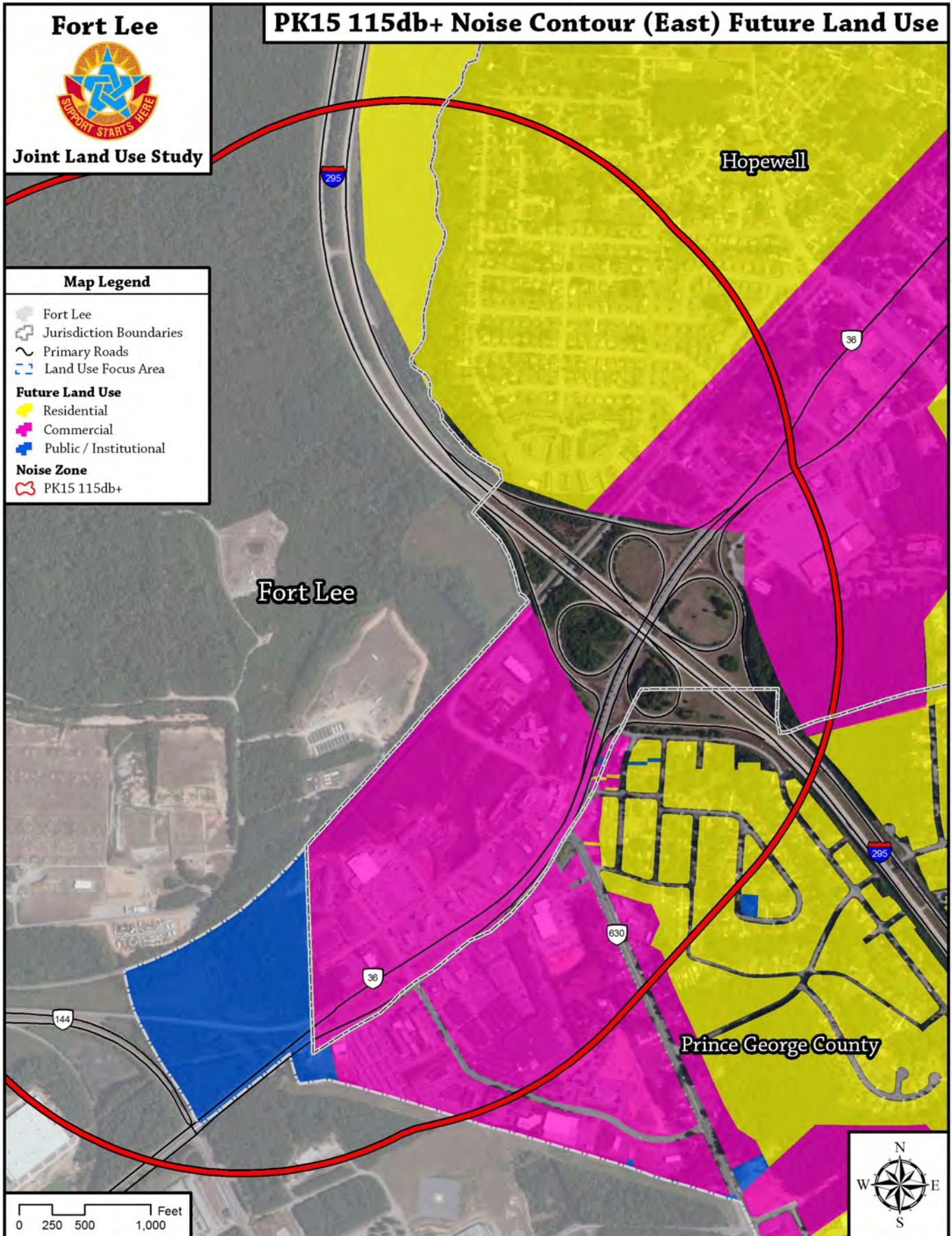


Figure 4-20: TA 27/27A 115 dB Impulsive Noise Contour Future Land Use

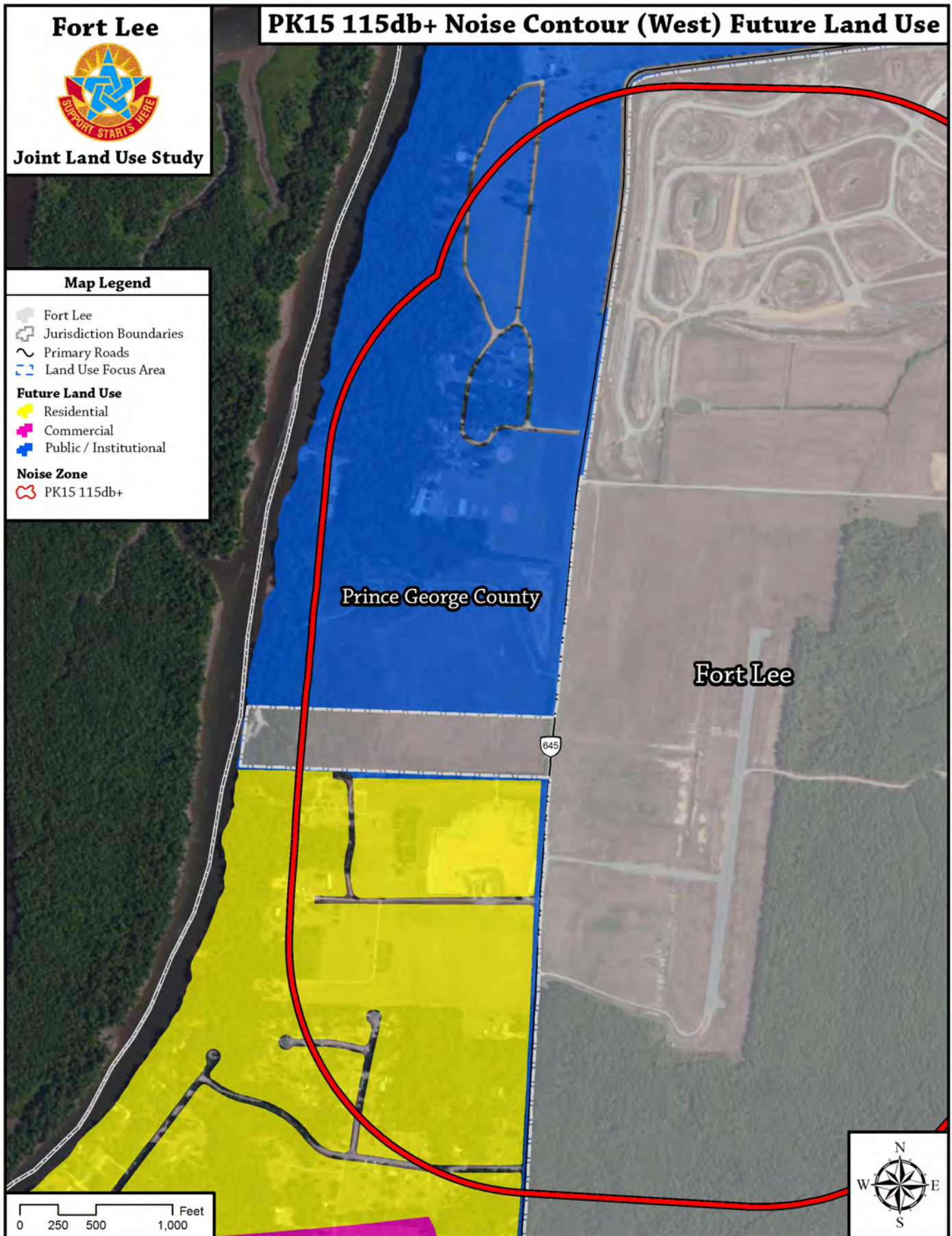


Figure 4-21: TA 17 115 dB Impulsive Noise Contour Future Land Use

with the potential peak noise levels in this area. The County is encouraged to work with the Federal Correctional Complex to ensure that future land uses developed within this area enhance its compatibility with the potential for high noise levels associated with the use of simulator devices.

The portion of the high peak noise potential area that is designated for residential use lies south of Fort Lee's access to the Appomattox River. This area consists of both established single family residences and vacant land, which is in close proximity to TA-17. Given that the risk of complaint is greater with residential land uses, the County is encouraged to examine the designation of the vacant land to determine whether an alternate land use classification may enhance compatibility in the future by reducing the number of uses that are more susceptible to impulsive noise.

4.4.3 General Assessment of Future Land Use Compatibility

As a final step, the future land use maps for all of the jurisdictions within the Land Use Focus Area around Fort Lee were combined for a general regional assessment of the proposed future land use pattern (see Figure 4-22). Taken as a whole, the overall picture that emerges from the combined future land use plans for the subject jurisdictions indicate a land use pattern that is highly compatible with the military operations that occur at Fort Lee. Those minor compatibility issues that were identified in this Section of the study can be easily addressed by the participating jurisdictions, and should not present any obstacle to maintaining and enhancing the high degree of land use compatibility that exists today.

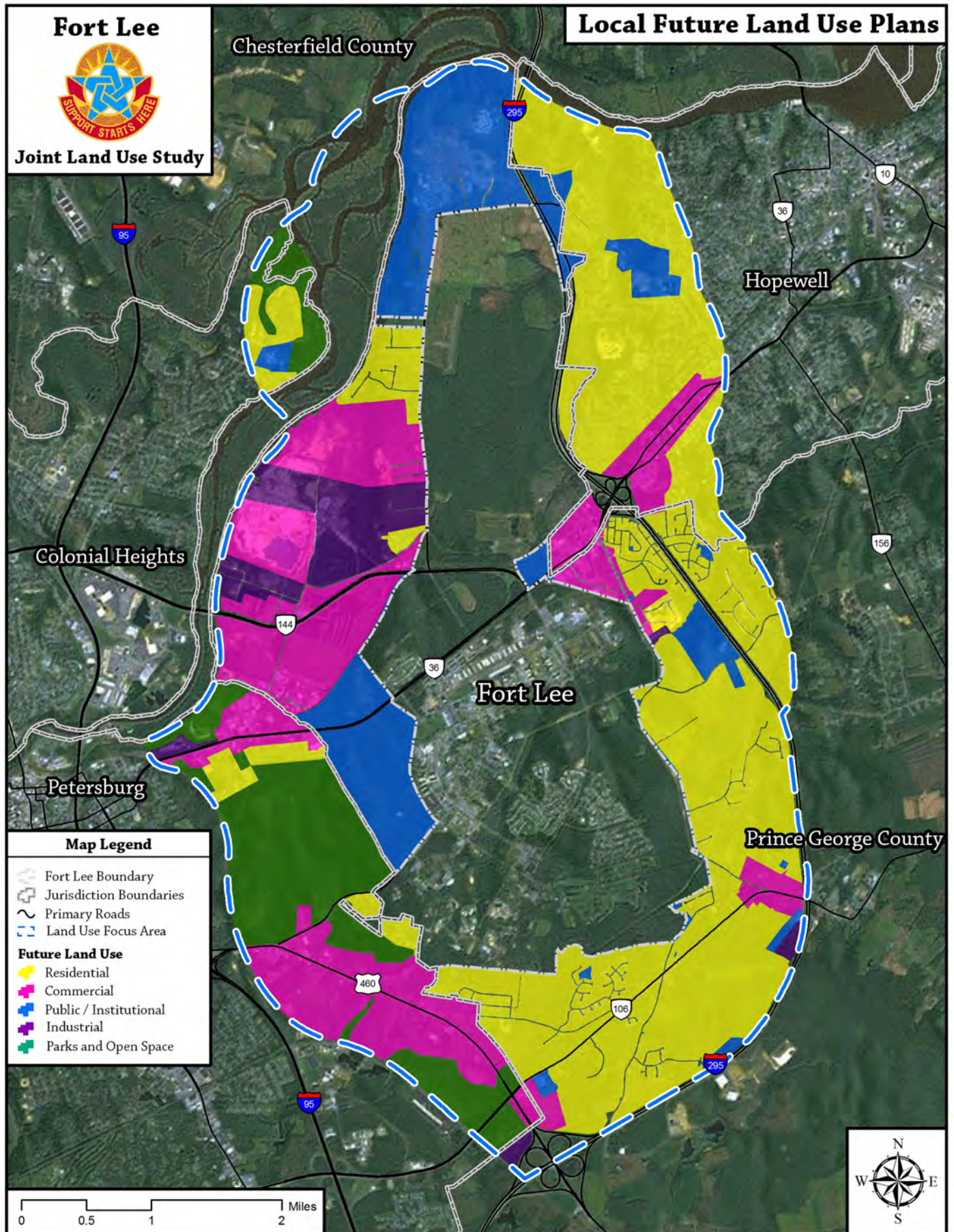


Figure 4-22: Local Future Land Use Plans



SECTION FIVE: OVERVIEW OF COMPATIBILITY EFFORTS

5.1 Introduction

This section of the study provides an overview of the land use compatibility efforts that have been implemented by the various entities having jurisdiction or responsibility for land use decisions on and around Fort Lee. The combined efforts of all of the involved federal, state, regional and local entities are necessary to support and sustain a compatible land use pattern as no one entity has full responsibility or authority for land use decision-making in the area of concern.

5.2 Federal Initiatives

5.2.1 Department of Defense Sustainable Range Program

The Department of Defense (DoD) developed the Sustainable Range Program (SRP) to give Army installations access to an array of planning, facilities management, environmental management, munitions management, and safety program tools. The SRP is a comprehensive approach to improve the way the Army plans, manages, and uses its ranges in support of long-term viability, more efficient and effective training, and reduced demands on scarce resources, such as land, air, water, and energy. The SRP includes several major efforts:

- The Range and Training Land Program (RTLTP) plans for the safe day-to-day management of range lands and enhanced training performance;
- The Integrated Training Area Management (ITAM) Program seeks to achieve the optimum use of lands for combat realistic training through planning, rehabilitation, maintenance, mapping, assessment, and monitoring; and
- The Readiness and Environmental Protection Initiative (REPI) is a collaborative effort to reduce the risk of encroachment from off-post activity as described below.

5.2.2 Readiness and Environmental Protection Initiative

Once almost exclusively sited in remote areas, military installations are now often in the path of advancing exurban development or have generated external growth through spin-off economic activities. Over the past decade, the DoD has increasingly recognized

encroachment as a major constraint in safely and effectively carrying out the training and readiness activities of the military.

In an effort to protect the future use of installations and training land, the FY2003 National Defense Authorization Act authorized the Military Services (Army, Navy, Marine Corps and Air Force) to enter into agreements with non-federal conservation organizations to acquire real estate (from willing sellers only) in the vicinity of military installations such as bases, posts and forts. The statutory authority can be found in the United States Code at 10 U.S.C. 2648a.

The Readiness and Environmental Protection Initiative (REPI) grants the military the ability to enter into agreements with eligible entities, such as local governments, non-governmental organizations, and willing land owners to secure conservation easements on property in the vicinity of, or ecologically related to, a military installation or military airspace. The Army implements REPI strategies through the Army Compatible Use Buffer. The agreements enable private organizations to acquire, on a cost-shared basis, development interests in the properties of voluntary sellers. The property owner typically continues to hold the title for the land, but receives monetary compensation and tax breaks to maintain the encumbered property in a highly limited use that preserves habitat and avoids interference with the operational procedures of the nearby installation. REPI is the fastest growing conservation based program in the federal government today.

The DoD has also formed a partnership with the United States Department of Agriculture (USDA) to conserve sensitive lands near military bases around the nation. Through the USDA, installation planners can now access the resources of existing easement programs, such as the Farm and Ranch Lands Protection Program, the Wetlands Reserve Program, and the Grassland Reserve Program. The DoD's promotion of conservation and integrated planning enhances the choice of encroachment reduction tools available to today's installations and defense communities and supplements smart growth land use strategies pursued by many local governments.

5.2.3 Operational Noise Management Plans

The DoD requires each installation to create an Operational Noise Management Plan (ONMP), which addresses noise from all military activities, including weapons / demolition noise, aircraft noise, vehicle noise and any other noise generating activity that has the potential to create negative impact both on and off-post. The ONMP is designed to:

- Control operational noise to protect the health and welfare of military personnel and their dependents, Army civilian employees, and members of the public on lands adjacent to Army installations; and
- Reduce community annoyance from operational noise, to the extent feasible, consistent with Army training and materiel testing activities.

5.2.4 Joint Land Use Studies

In 1985, the DoD initiated the Joint Land Use Study (JLUS) program to create a community-based framework for land use planning around military installations. The JLUS process encourages residents, local decision-makers, and installation representatives to examine current and foreseeable land use conflicts and develop collaborative solutions that balance military and civilian interests.

Participating communities initiated this JLUS effort for the region around Fort Lee. The Office of Economic Adjustment (OEA) within the DoD funded the majority of the study, while the communities supplemented the initiative with their resources.

5.2.5 Army Compatible Use Buffer (ACUB) Program

In 2003, the Army established the Army Compatible Use Buffer (ACUB) Program to meet the complementary goals of protecting military installations from encroachment, while preserving the valuable habitat surrounding these installations. The program allows installations to protect adjacent non-military land through partnerships with state and local governments or non-governmental organizations. The partners share the cost of purchasing conservation easements from willing sellers, thus preserving high-value wildlife habitat and limiting incompatible development around installations.

5.3 Commonwealth Initiatives

5.3.1 Planning Coordination with Military Installations

The Code of Virginia was recently amended, through Senate Bill 1029, to enhance the degree of coordination required between local governments and military installations within areas covered by their comprehensive plans and/or land use regulations. Specifically, Section 15.2-2200 was amended to add the following statement in the declaration of legislative intent regarding land use planning:

“...that the concerns of military installations be recognized and taken into account in consideration of future development of areas immediately surrounding installations and that where practical, installation commanders shall be consulted on such matters by local officials;...”

Senate Bill 1029 also added a mandate for local planning commissions to consult the military regarding potential development that could affect an installation with the following amendment to Section 15.2-2211 of the Code:

“The planning commission of any locality shall consult with the installation commander of any military installation that will be affected by potential development within the locality so as to reasonably protect the military installation against any adverse effects that might be caused by the development.”

Local governments in Virginia that exercise planning and zoning authority are required to coordinate with and consult military installations whenever a comprehensive plan amendment, zoning map amendment or an application for a special exception that would result in a change of use affects any parcel of land within 3,000 feet of a military installation. The area currently covered by this mandate are shown on the map in Figure 5-1 on the following page. The timeframe for providing notice of such actions was also increased by the adoption of Senate Bill 1029, which extended the notification period from 10 days to 30 days, giving military installation commanders a longer period of time in which to analyze proposed changes for potential negative effects on their operations.

5.3.2 Joint Exercise of Powers

Section 15.2-1300(A) of the Code of Virginia authorizes local governments to jointly exercise any power granted to it with any other local government having similar powers. This would extend to the joint exercise of land use planning and zoning authority around a military installation if such an effort were desired by local governments having authority over the area. This could theoretically allow the adoption and enforcement of a regionally uniform set of land use regulations, building codes and other compatibility measures in areas of concern to help enhance compatibility with a military installation.

5.3.3 Real Estate Disclosures

While only specifically authorized and required for use in conjunction with defined noise and accident potential areas around military air installations, the statutory framework does currently exist in Commonwealth law for the implementation of real estate disclosures for military operational impacts. Disclosures are currently required for both the sale (Section 55-519.1) and rental (55-248.12:1) of property that is potentially impacted by noise or safety concerns from an air installation.

5.3.4 Virginia Military Advisory Council

The Virginia Military Advisory Council is a statutorily constituted body comprised of

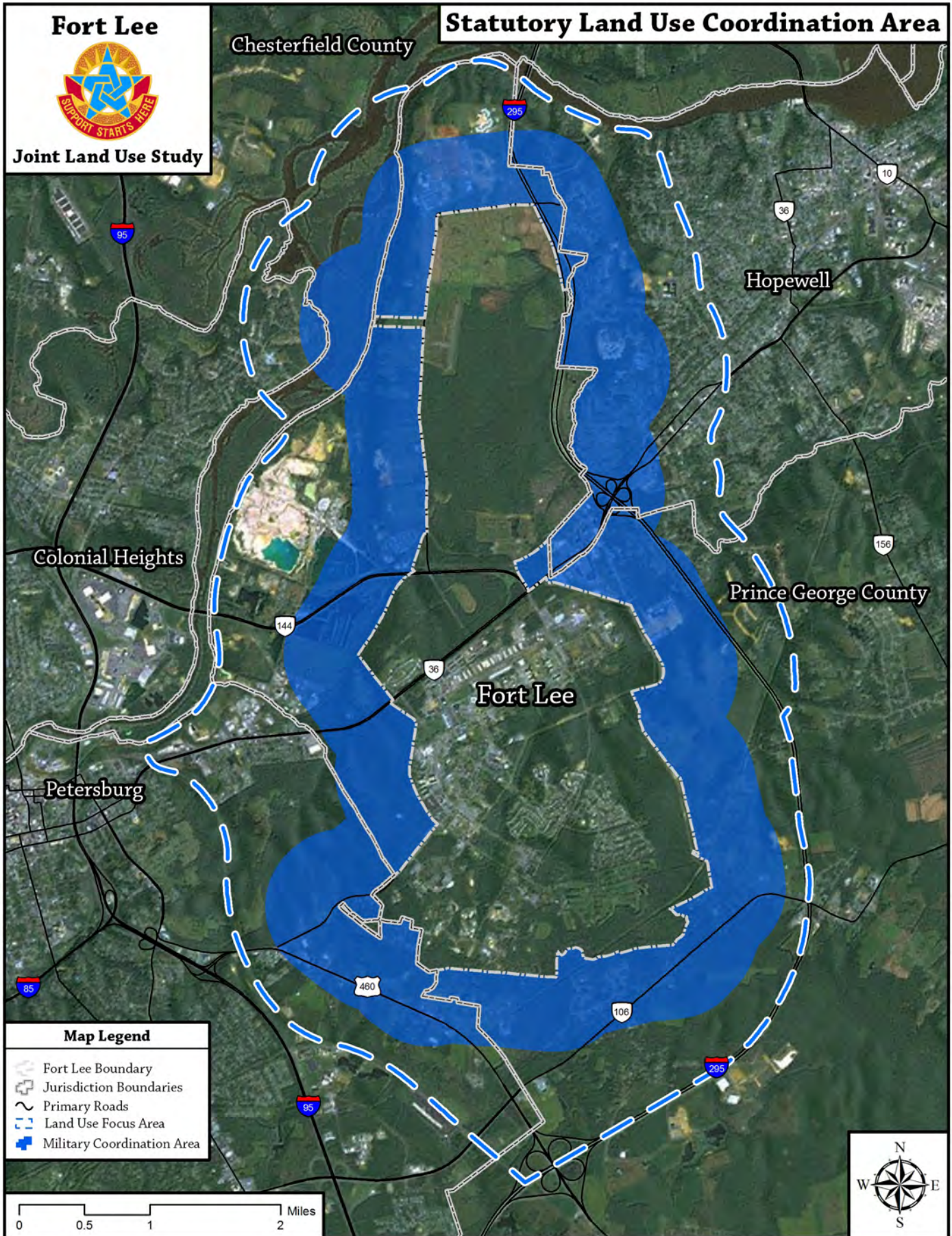


Figure 5-1: Statutory Military Land Use Coordination

military representatives from installations in the Commonwealth as well as several elected and appointed officials. The purpose of the Council is to encourage communication and cooperation on matters related to the sustainability of military installations, as well as other topics, such as economic development, public safety and security

5.4 Regional Initiatives

5.4.1 Crater Planning District Commission

The Crater Planning District Commission (CPDC) is a regional organization that is responsible for intergovernmental coordination between its 11 member governments. Activities of the Commission range from economic development to land use planning, to assistance with government procurement. The CPDC is the lead agency for the Joint Land Use Study, and has been heavily involved in regional planning for the sustainment of Fort Lee, particularly as it relates to past Base Realignment and Closure activities. As an established regional planning agency, CPDC has the capability, through its member governments to advance regional initiatives related to military compatibility.

5.4.2 Tri-Cities Metropolitan Planning Organization

The Tri-Cities MPO is a regional transportation planning organization that is sponsored and staffed by the Crater Planning District Commission. The MPO is responsible for developing long range transportation plans for the area covered by the cities of Petersburg, Hopewell and Colonial Heights, as well as the urbanized portions of Chesterfield, Dinwiddie and Prince George County that are located adjacent to those cities. The area covered by the MPO, includes Fort Lee, and all of the transportation assets surrounding the installation. This organization is a critical link in promoting compatible land use policies, as transportation plans have a significant influence on land use.

5.4.3 Friends of the Lower Appomattox River

The Friends of the Lower Appomattox River play an important role in the region by promoting and enhancing the environmental sustainability of the Appomattox River. As a neighbor to the river, Fort Lee is impacted by the health of the river, and coordination between the installation and FOLAR can enhance the sustainability of both the river and the installation.

5.5 Local Initiatives

Each of the local governments having jurisdiction in the area surrounding Fort Lee exercise planning and zoning regulations. In Virginia, local governments that exercise land use regulatory powers are required to adopt a comprehensive plan to guide the

decision-making of their locally appointed planning commissions and governing boards, which, respectively, review and decide on the adoption and amendment of local land use regulations and zoning map changes. As discussed previously, each local government having land use planning authority within 3,000 feet of a military installation is required to provide notice to, and consult with, the commander of the installation prior to considering any comprehensive plan amendments or zoning map amendments that could affect the installation. Local governments are also required to consult with military installations as they develop their comprehensive plans and consider any potential negative impacts on the installation in the development of the plan. A review of the existing land use regulations does not reveal any specific initiatives, beyond the required coordination activities, that are designed to directly address land use compatibility with military training and operational activities.





SECTION SIX: IMPLEMENTATION

6.1 Overview

This section of the Joint Land Use Study provides a framework for the sustainment of the military missions at Fort Lee through improved communication, coordination and compatible land use strategies. These focused strategies and action steps are intended to help the region work collaboratively as it plans for growth at Fort Lee and in the surrounding communities. The recommended implementation strategies were developed based on the results of the compatibility analysis, stakeholder interviews, and feedback from the Technical and Policy committees. These strategies, as proposed, are intended help the region ensure that Fort Lee is able to sustain its military missions well into the future.

6.2 Implementation Strategies

Strategy One:

Develop a formalized regional approach to enhance communication and land use coordination between Fort Lee and the surrounding communities.

Strategy One Context:

While the region has been very successful in the past with efforts to sustain Fort Lee as events and situations have warranted, there is a need for a more formalized framework for communication between the local governments and Fort Lee on a regular, ongoing basis. On a big picture, policy level, the region communicates well and has been successful in responding to situations such as the 2005 BRAC. However, at the technical level and community level, many of those connections and lines of communication may benefit from a better defined structure. A more formalized framework would provide for clear communication throughout the region from a policy, technical and community standpoint, providing for greater support and ability to effectively sustain the mission at Fort Lee. A formalized framework for regional cooperation would also serve as the venue for implementing the full set of strategies recommended by the JLUS across jurisdictional boundaries in a coordinated manner.

Strategy Two:

Pursue the development of a regional Geographic Information System (GIS) database for monitoring land use changes in the region around Fort Lee.

Strategy Two Context:

The Joint Land Use Study process has produced a spatial analysis and related GIS database for military impacts and land use within the six participating jurisdictions that make up the Fort Lee region. While the information contained in the Fort Lee JLUS GIS spatial database is valuable for the short-term, a long-term GIS database platform and system for collecting, distributing and maintaining relevant GIS information across the region is important: 1) to help communities understand where existing noise, safety and compatibility concerns exist, and 2) to assist in monitoring where land use changes are proposed over time and how they may impact land use compatibility.

The development of a Geographic Information System database will aid the region's planners, developers, real estate professionals, conservation groups and others in monitoring land use changes surrounding Fort Lee, while providing user friendly access to data layers related to the Joint Land Use Study findings for evaluation of potential impacts related to any planned or future development in the area. A user friendly, accessible standalone GIS database and website for the display of pertinent data on military operational impacts and compatible land use will help facilitate the distribution of this important information and help raise awareness of land use compatibility issues.

An example model for the region to consider is the online GIS created following 2002 Fort Bragg Joint Land Use Study that is hosted by the North Carolina Department of Commerce at www.sandhillsgis.com. This online GIS system used by developers and planners in the region to monitor land use changes, rezonings, subdivisions, cell tower proposals and other uses that may impact compatibility issues between the communities and Fort Bragg. The Fort Bragg Regional Land Use Advisory Commission has utilized the database to review over 500 rezoning, subdivision and cell tower review cases to ensure that land use compatibility is maintained between the training mission at Fort Bragg and civilian development in the communities surrounding the installation.

Strategy Three:

Participating local governments should make information available to the public regarding the location of noise, safety and other impacts related to Fort Lee's training and operational mission.

Strategy Three Context:

One of the most important results of this Joint Land Use Study is to increase awareness of possible compatibility issues. This study will serve as an educational resource for the residents of communities surrounding the military installation. To ensure that the results of the study reach a wide audience and achieve the goal of enhancing awareness of potential military impacts and land use compatibility issues, it is critical to deliver this information to as broad of an audience as possible through a comprehensive, coordinated and ongoing public outreach strategy that is designed to reach all parties that have an interest in land use compatibility, including property owners, developers, local government officials, real estate professionals, and others involved in land use decision-making at the local level. Implementation of this strategy can include direct outreach to property owners, public meetings, maintaining the JLUS on local and regional government websites, and other measures that are design to keep these stakeholders informed.

Strategy Four:

The participating local governments should consider the adoption of Comprehensive Plan amendments in support of the Joint Land Use Study findings and recommendations.

Strategy Four Context:

The study contains recommendations for local governments to consider for adoption, incorporating pertinent findings for inclusion in their existing comprehensive plans. The local government toolbox provides detailed recommendations for each participating jurisdiction to consider. Each jurisdiction in Virginia is required to have a comprehensive plan and each of the six jurisdictions participating in the Joint Land Use Study has an adopted plan. The Virginia Code sets out certain components that "must" be included in the comprehensive plan and other items that may be included at the local government's discretion. Among those items that "may" be included is the "location of military bases, military installations, and military airports and their adjacent safety areas." (see Va. Code § 15.2-2223(C)). As discussed in the previous section of the study, local governments must also endeavor to consult with military officials when developing plans or amending ordinances that can impact a military installation.

Under Virginia law, however, the plan does not supersede, replace, or even necessitate zoning. In fact, if a proposed development application is consistent with applicable zoning and code requirements, inconsistency with the plan cannot form the basis of a denial. Nonetheless, the comprehensive plan is regarded as perhaps the most important guide when discretionary approvals or rezonings are considered by the local government.

The extent to which a local military installation may impact, or be impacted by, local land use decisions is an important factor in the local planning process to ensure the sustainability of the installation and protect the health, safety and quality of life of residents in the community. Given the importance of considering these impacts, comprehensive plan amendments for each for the six Participating Jurisdictions will be included in the final JLUS based on input of the Policy and Technical Committees as to the initial policies proposed here and the draft military overlay zoning ordinances also presented.

Strategy Five:

The participating local governments should consider adoption of Zoning Ordinance amendments in support of the Joint Land Use Study findings and recommendations.

Strategy Five Context:

The study contains recommendations for local governments to consider for adoption, incorporating pertinent findings to each jurisdiction into their existing zoning ordinances. The local government toolbox provides detailed recommendations for each participating jurisdiction to consider. Specifically, each city and county in the region should consider zoning amendments that encourage military coordination and compatibility as they either fall within areas where coordination is statutorily required or may otherwise consider coordination appropriate. The City of Hopewell and Prince George County should also consider additional zoning amendments that address specific military impacts that have been identified to fall within their jurisdictions, particularly related to potential noise impacts.

Strategy Six:

Fort Lee should continue to develop regular updates to military operational impact assessments to enhance the sustainability of the military missions.

Strategy Six Context:

Regular updates to operational impact assessments are necessary to ensure that both Fort Lee and the local governments, property owners, developers and other stakeholders

in the region are well informed about the nature and extend of the potential impacts that exist. It is critical that these updates be prepared as mission changes occur, new range facilities are added, weapons systems are changed, or other changes occur that can cause a change in the existing level of impact. By keeping the communities in the region updated with the latest information on military impacts, local governments can ensure that their comprehensive plans and land use regulations reflect these impacts and deal with them appropriately to enhance compatible land use and help to sustain Fort Lee's military missions.

6.3 Implementation Matrix Overview

The goals and strategies outlined in the study were compiled into an implementation matrix to be used as a quick and easy reference for local government officials, state and federal partners, and other parties involved in the implementation of the Joint Land Use Study. The matrix assigns priorities, resources, timeframes and responsible parties to each implementation strategy, to help stakeholders understand the most effective approach to implementing the strategies.

The following are descriptions of each of the categories:

- 1. Implementation Strategies** – Each major strategy was derived through the research of current conditions and input from stakeholders. They are meant to provide overall direction for achieving land use compatibility and improved coordination between the civilian and military communities, sustaining the long-term viability of the military missions and the economic prosperity of the region.
- 2. Action Steps** – The action steps are more specific tasks listed to guide the achievement of each major strategy. Multiple action steps are included, all of which will contribute to reaching each objective.
- 3. Priority** – Due to the limited resources that are faced by all levels of government, priorities are identified for each strategy to help guide the region towards the most critical strategies. Priorities are indicated as high, medium, or low, with high being the most pressing or urgent. All recommendations that were described as “high” priority should be addressed by the region before recommendations described as “medium” or “low” priority. However, as time and resources allow, there may be cases where actions that have a “low” priority may be moved to a higher level of priority.

4. Resources – Resources are primarily related to monetary cost to complete the implementation strategies. The tables uses the “\$” symbol to represent monetary ranges. Actual resources could cost more or less depending on the assistance or consultant selected. The ranges are as follows:

- \$ - Less than \$10,000
- \$\$ - \$10,000-\$50,000
- \$\$\$ - \$50,000-\$100,000
- \$\$\$\$ - More than \$100,000
- Policy – Not outside of normal annual budget expenditures

5. Timeframe – Represents the timeframe in which each action step should be addressed. Generally, shorter timeframes infer a higher priority. Timeframes are indicated in the matrix as short-term, intermediate, or long-term. Below is a description of each timeframe.

- Short-term - should be achieved in less than two years.
- Intermediate - should be achieved in two to five years.
- Long-term - may take longer than five years.
- Ongoing - Some strategies are designated as “ongoing” due to need for constant efforts toward achieving the goal.

6. Partners – This category identifies partners associated with the Fort Lee region that should be responsible for the completion of each action step. The inclusion of a consultant or other outside party may be necessary to help implement and achieve certain objectives.

6.4 Implementation Matrices

Strategy One: Develop a formalized regional approach to enhance communication and land use coordination between Fort Lee and the surrounding communities.				
Action Steps	Priority	Resources	Timeframe	Partners
Designate Crater Planning District Commission (CPDC) as the regional organization to lead the implementation of the Joint Land Use Study recommendations.	High	Policy	Short-term	CPDC, Local Governments, Fort Lee
Review bylaws from the Fort Bragg Regional Land Use Advisory Commission (Appendix C.) to augment the existing organization's mission.	High	Policy	Short-term	CPDC, Local Governments, Fort Lee
Consider utilizing existing staff within the Crater Planning District Commission or create a new staff position to serve as a "director" of the JLUS implementation efforts.	Medium	\$\$\$ (May be less if existing staff can be utilized)	Short-term	CPDC, Local Governments, Fort Lee
Clearly establish the mission and working platform for the JLUS implementation efforts within the Crater Planning District Commission. Example tasks include organizing regional meetings, making presentations on behalf of the region on military and land use related issues, assisting communities with implementation, and ensuring property owners in the area are made aware of the training impacts.	Medium	Policy	Intermediate	CPDC, Local Governments, Fort Lee

Strategy Two: Pursue the development of a regional Geographic Information System (GIS) database for monitoring land use changes in the region around Fort Lee.				
Action Steps	Priority	Resources	Timeframe	Partners
Create user friendly, accessible, standalone GIS database and website for the display of pertinent data on military operational impacts and compatible land use (i.e. www.sandhillsgis.com)	High	\$\$ to \$\$\$\$ (Development of System)	Short-term	CPDC, Local Governments, Fort Lee
Identify an existing organization or work with the Crater Planning District Commission to host and maintain the site.	High	Policy	Short-term	CPDC, Local Governments, Fort Lee
Identify key partners to be involved in the creation of the regional GIS database, forming the basis of a regional GIS Coordinating Committee to help the region improve GIS for the entire region.	High	Policy	Short-term	CPDC, Local Governments, Fort Lee
Establish a framework and funding mechanism for maintaining the regional GIS system well into the future.	High	\$\$/Policy	Intermediate	CPDC, Local Governments, Fort Lee

Strategy Three: Participating local governments to make information available to the public regarding the location of noise, safety and other impacts related to Fort Lee’s training and operational mission.

Action Steps	Priority	Resources	Timeframe	Partners
Produce informational brochures that communicate the location and nature of noise and safety impacts for distribution to property owners and other stakeholders.	High	\$ (Printing costs)	Short-term	CPDC, Local Governments, Fort Lee
Post maps on local government websites regarding military operational impacts.	High	Policy	Short-term	CPDC, Local Governments
Post data layers on regional GIS system once completed.	Medium	Policy	Intermediate	CPDC, Local Governments
Develop outreach materials for property owners that explain opportunities for land use compatibility through conservation easements and similar financially beneficial arrangements.	Low	\$ (Printing costs)	Intermediate	CPDC, Local Governments, Fort Lee

Strategy Four: The participating local governments should consider the adoption of Comprehensive Plan amendments in support of the Joint Land Use Study findings and recommendations.

Action Steps	Priority	Resources	Timeframe	Partners
City of Colonial Heights to incorporate recommended JLUS Comprehensive Plan amendments as applicable.	High	Policy	Short-term	City of Colonial Heights
City of Hopewell to incorporate recommended JLUS Comprehensive Plan amendments as applicable.	High	Policy	Short-term	City of Hopewell
City of Petersburg to incorporate recommended JLUS Comprehensive Plan amendments as applicable.	High	Policy	Short-term	City of Petersburg
Chesterfield County to incorporate recommended JLUS Comprehensive Plan amendments as applicable.	High	Policy	Short-term	Chesterfield County
Dinwiddie County to incorporate recommended JLUS Comprehensive Plan amendments as applicable.	High	Policy	Short-term	Dinwiddie County
Prince George County to incorporate recommended JLUS Comprehensive Plan amendments as applicable.	High	Policy	Short-term	Prince George County

Strategy Five: The participating local governments should consider adoption of Zoning Ordinance amendments in support of the Joint Land Use Study findings and recommendations.

Action Steps	Priority	Resources	Timeframe	Partners
City of Colonial Heights to consider adoption of the model Military Overlay Ordinance #1 from Appendix B.	High	Policy	Short-term	City of Colonial Heights
City of Hopewell to consider adoption of the model Military Overlay Ordinance #2 from Appendix B.	High	Policy	Short-term	City of Hopewell
City of Petersburg to consider adoption of the model Military Overlay Ordinance #1 from Appendix B.	High	Policy	Short-term	City of Petersburg
Chesterfield County to consider adoption of the model Military Overlay Ordinance #1 from Appendix B.	High	Policy	Short-term	Chesterfield County
Dinwiddie County to consider adoption of the model Military Overlay Ordinance #1 from Appendix B.	Medium	Policy	Intermediate	Dinwiddie County
Prince George County to consider adoption of the model Military Overlay Ordinance #2 from Appendix B.	High	Policy	Short-term	Prince George County

Strategy Six: Fort Lee should continue to develop regular updates to military operational impact assessments to enhance the sustainability of the military missions.

Action Steps	Priority	Resources	Timeframe	Partners
Assess current operations on an annual basis to determine whether operational changes warrant the recalibration of defined impact areas.	High	\$\$	Ongoing	Fort Lee
Communicate changes in military operational impacts to local governments in surrounding jurisdictions as they occur.	Medium	Policy	Ongoing	CPDC, Local Governments, Fort Lee
Publish and maintain current data related to military operational impacts on Fort Lee's website, and make these materials available for local governments to host on their websites.	Medium	\$	Short-term	CPDC, Local Governments, Fort Lee
Involve local governments in the development of updates to operational impact assessments.	High	Policy	Ongoing	CPDC, Local Governments, Fort Lee





APPENDIX A: COMPREHENSIVE PLAN AMENDMENTS

Comprehensive Plan Amendments

Each jurisdiction in Virginia is required to have a comprehensive plan and each of the five jurisdictions participating in the Joint Land Use Study does. The Virginia Code sets out certain components that “must” be included in the comprehensive plan and other items that may be included at the local government’s discretion. Among those items that “may” be included is the “location of military bases, military installations, and military airports and their adjacent safety areas.” (*see* Va. Code § 15.2-2223(C)).

Under Virginia law, however, the plan does not supersede, replace, or even necessitate zoning. In fact, if a proposed development application is consistent with applicable zoning and code requirements, inconsistency with the plan cannot form the basis of a denial. Nonetheless, the comprehensive plan is regarded as perhaps the most important guide when discretionary approvals or rezonings are considered by the local government.

The extent to which a local military installation may impact local land use decisions (or the military installation may *be impacted by* local land use decisions) it is helpful to include adequate support in the plan with respect to the local community’s relationship with the military. Therefore, comprehensive plan amendments for the five Participating Jurisdictions is proposed for their individual consideration.

The following strategy statements include those aspects of the local government-military relationship that must or may be included in the local comprehensive plan, based on the JLUS.

The 2013 Joint Land Use Study

In 2013, the Crater Planning District Commission completed a Joint Land Use Study for Fort Lee and its surrounding communities, including the City/County.

City/County staff participated in the development of the 2013 JLUS through membership on the JLUS Technical Committee.

According to the 2013 JLUS, impacts of Fort Lee operations on the community

include noise generation from weapons training, transportation impacts, positive economic and employment impacts, minor aircraft operations, and some unexploded ordnance in designated impact areas on Fort Lee. Impacts of the off-fort community on Fort Lee include transportation impacts, national parks and resources proximate to the Fort, and some urban and suburban encroachment.¹

The 2013 JLUS designated a “Land Use Focus Area” within which the planning district evaluated potential impacts by and between surrounding local governments and Fort Lee. This area is shown in Figure 4-1² of the comprehensive plan.

The 2013 JLUS further indicated existing land uses on- and off-post (the “Regional Land Use Pattern”), which are shown in Figure 4-4³ of the comprehensive plan.

Based on the planning district’s evaluation, the 2013 JLUS sets out a number of implementation strategies and tools available to augment the City’s/County’s ongoing coordination with Fort Lee officials with respect to certain land uses changes, including amendments to this comprehensive plan. Those implementation strategies included, but were not limited to the following:

Strategy 1: Develop a formalized regional approach to enhance communication and land use coordination between Fort Lee and the surrounding communities.

Strategy 2: Pursue the development of a regional Geographic Information System (GIS) database for monitoring land use changes in the region around Fort Lee.

Strategy 3: Participating local governments to make information available to the public regarding the location of noise, safety and other impacts related to Fort Lee’s training and operational mission.

Strategy 4: The participating local governments should consider the adoption of Comprehensive Plan amendments in support of the Joint Land Use Study findings and recommendations.

Strategy 5: The participating local governments should consider adoption of Zoning Ordinance amendments in support of the Joint Land Use Study findings and recommendations.

Strategy 6: Fort Lee should continue to develop regular updates to military operational impact assessments to enhance sustainability of the military missions.

The tools for implementing these strategies are set forth in detail in the 2013 Joint Land Use Study.

1 These impacts will vary between the Participating Jurisdictions.

2 See Figure 4-1, 2013 Joint Land Use Study.

3 See Figure 4-4, 2013 Joint Land Use Study.

Although the City/County is not mandated to adopt these strategies, the City/County wishes to examine and evaluate their applicability and appropriateness within the City/County.

During plan implementation,⁴ City/County staff will make recommendations to the planning commission and/or the City Council/Board of Supervisors with respect to the implementation strategies and tools set forth in the 2013 JLUS and a recommendation of whether each is applicable and/or appropriate within the City/County.

Additional Statutorily-Driven Policies

Fort Lee is located in proximity to the City/County as shown on the map at Figure 5-1. Figures 3-1 and 3-3 indicate the noise contours associated with Fort Lee, as of 2013, including small arms and simulator noise, those within the boundaries of the City/County.

Pursuant to Va. Code § 15.2-2204, at least thirty (30) days before any hearing to amend this comprehensive plan in a manner affecting a parcel of land within 3,000 feet of the boundaries of Fort Lee, as shown in Figure 5-1, the City/County planning commission will give written notice to the Fort Lee commander, or the commander's designee, of the date, time, and location of the hearing and of the opportunity to submit comments or recommendations prior to or at the hearing.

⁴ According to the format of the applicable comprehensive plan, this implementation (or "policy") step may be keyed to a particular timeframe.





APPENDIX B: MODEL MILITARY ZONING OVERLAY DISTRICTS

Model Fort Lee Military Overlay Ordinances

Note: Based on the draft Comprehensive Plan amendments, two annotated ordinances are provided so that each Participating Jurisdiction can evaluate and determine, on its own, whether an ordinance similar to these may be appropriate for its jurisdiction.

Ordinance #1 (Military Coordination Only) would likely be considered by Petersburg, Colonial Heights, Dinwiddie County,¹ and Chesterfield County only since each of these localities either fall within the statutorily required area of coordination or may consider coordination otherwise appropriate,² but none of the four fall in any other impact contour identified in the Joint Land Use Study. Ordinance #1 starts on the following page.

1 Dinwiddie County does not fall within 3,000 feet of Fort Lee and none of its lands are within a designated noise zone. Nonetheless, Va. Code § 15.2-2200, as recently amended by SB No. 1029 (2013), notes that the intent of legislation authorizing planning and zoning is, among other things, “that the concerns of military installations be recognized and taken into account in consideration of future development of areas immediately surrounding installations and that where practical, installation commanders shall be consulted on such matters by local officials.” The statute does not define “immediately surrounding,” though, as noted, Va. Code § 15.2-2204(D) requires notice only for parcels within 3,000 feet of a military installation. Dinwiddie County’s authority is unclear in this regard, but consideration should be given to the extent development in Dinwiddie County impacts Fort Lee operations and to which Fort Lee operations impact Dinwiddie County lands.

2 Va. Code § 15.2-2204(D) reads as follows:

When (i) a proposed comprehensive plan or amendment thereto, (ii) a proposed change in zoning map classification, or (iii) an application for special exception for a change in use involves any parcel of land located within 3,000 feet of a boundary of a military base, military installation, military airport, excluding armories operated by the Virginia National Guard, or licensed public-use airport then, in addition to the advertising and written notification as required by this section, written notice shall also be given by the local commission, or its representative, at least 30 days before the hearing to the commander of the military base, military installation, military airport, or owner of such public-use airport, and the notice shall advise the military commander or owner of such public-use airport of the opportunity to submit comments or recommendations.

Ordinance #2 (Noise, Lighting, and Military Coordination) would likely be considered in Hopewell and Prince George County only, since noise zones identified in the Joint Land Use Study fall within these two localities and since measures to reduce lighting emissions would be most important here. The provisions related to ongoing coordination with Fort Lee, which are included in Ordinance #1 as well, also are included for Hopewell and Prince George County.

Inclusion of these sample ordinances in the Joint Land Use Study does not imply that particular provisions necessarily are appropriate for a particular jurisdiction or that an ordinance is the only way to implement JLUS recommendations. In fact, alternative mechanisms, like a Memorandum of Understanding, may sufficiently address critical needs at this time in some jurisdictions. These options are discussed in other sections of the Joint Land Use Study.

Ordinance #1 (Military Coordination Only)

Petersburg, Colonial Heights, Dinwiddie County, and Chesterfield County

Recitals

Whereas, the intent of Chapter 22 of Title 15.2 of the Virginia Code, “Planning, Subdivision of Land and Zoning,” is, among other applicable provisions:

- (a) to encourage localities to improve the public health, safety, convenience, and welfare of their citizens; and
- (b) that the concerns of military installations be recognized and taken into account in consideration of future development of areas immediately surrounding installations and that where practical, installation commanders shall be consulted on such matters by local officials; and
- (c) that residential areas be provided with healthy surroundings for family life; and

Whereas, pursuant to Va. Code § 15.2-2283, the general purpose of the zoning ordinance is, among other things, to provide reasonable protection against encroachment upon military bases, installations, and airports and their adjacent safety areas; and

Whereas, pursuant to Va. Code § 15.2-2223(C), the City of Petersburg/City of Colonial Heights/Dinwiddie County/Chesterfield County has included in its Comprehensive Plan the location of Fort Lee and its adjacent safety and/or noise areas; and

Whereas, Va. Code § 15.2-2204 requires the City/County to provide written notice to the commander of an affected military installation when a comprehensive plan amendment, zoning map classification change, or an application for a special exception for a change in use on a parcel of land within 3,000 feet of the installations boundary.

NOW, THEREFORE, be it ordained by the City Council/Board of Supervisors of the City of Petersburg/City of Colonial Heights/Dinwiddie County/Chesterfield County, Virginia:

SECTION 1. The City of Petersburg/City of Colonial Heights/Dinwiddie County/Chesterfield County Zoning Ordinance is hereby amended to add the following:

Fort Lee Military Overlay District

(a) Purpose and intent.

In accordance with the objectives of the Comprehensive Plan and the laws of the Commonwealth of Virginia, the purposes of the Fort Lee Military Overlay district regulations are to improve and protect the public health, safety, convenience, and welfare of the citizens of the City/County and ensure that the concerns of Fort Lee be recognized and taken into account in consideration of future development within the City/County in areas immediately surrounding the fort.

The intent of the Fort Lee Military Overlay regulations is to ensure that, as provided herein, City/County and Fort Lee officials coordinate on land use activities impacting or impacted by fort training activities. It is the further intent of these regulations to provide reasonable protection against incompatible land uses in the vicinity of Fort Lee.

(b) Applicability.

- (1) Nothing herein shall require a change or alteration to land uses or structures existing on the effective date of this Ordinance.³
- (2) The designation of any parcel of land lying in the military coordination zone is subject to both the requirements of this Ordinance, as well all other code and zoning regulations of the City/County.

(c) Definitions. The following terms shall have the following meanings for purposes of enforcing and interpreting this Ordinance.

³ Ordinances like these commonly exclude existing structures and land uses from its provisions; particularly in cases where existing structures and land uses are generally compatible with nearby military operations.

- (1) City means the City of Petersburg/Colonial Heights City Council or an administrative designee of the City Council.
- (2) City/County coordinating official means the director of the City's planning division/County's planning and zoning division or the director's designee.
- (3) County means the Dinwiddie County/Chesterfield County Board of Supervisors or an administrative designee of the Board of Supervisors.
- (4) Fort Lee coordinating official means the Fort Lee garrison commander or another official designated in writing by the commander for purposes of coordination under the provisions of this Ordinance, including notice required by Va. Code § 15.2-2204(D).
- (5) Military coordination zone means an area of the City/County within which coordination between the City/County and Fort Lee will occur pursuant to the terms of this Ordinance.

(d) Administration. The City's planning division/County's planning and zoning division is responsible for implementing the provisions of this Ordinance.

(e) Coordinating officials. At all times following the effective date of this ordinance, the City/County and Fort Lee will designate and maintain the following positions:

- (1) City/County coordinating official.
- (2) Fort Lee coordinating official.

(f) Designation military coordination zone.

- (1) Establishment of military coordination zone. There is hereby established a military coordination zone.⁴ Pursuant to Virginia Code § 15-2204(D), the military coordination zone represents the areas within which the City/County will coordinate with the Fort Lee coordinating official prior to approval of certain proposed land use changes as described in section (g) below.
- (2) Designation on official zoning map. The City planning division/County planning and zoning division will designate the military coordination zone on the City's/County's official zoning map.

(g) Coordination and notice.

⁴ The military coordination zone designates all parcels of land within 3,000 feet of the boundary of Fort Lee.

- (1) Mission changes.
 - a. The City/County coordinating official will meet on a regular basis with the Fort Lee coordinating official in order to remain abreast of any changes in mission or training operations that could have off-post impacts on the City/County, its residents, or businesses.
 - b. In the event that a change in mission or training operations necessitates amendments to this Ordinance, including the boundaries of the military coordination zone, the City/County coordinating official will prepare an amended ordinance for consideration of adoption by the City Council/Board of Supervisors.
- (2) Development impacts.
 - a. The City/County coordination official will notify the Fort Lee coordination official at least thirty (30) days prior to any hearing by the City/County to consider any of the following listed actions within the military coordination zone.
 - (i) a proposed amendment to the Comprehensive Plan;
 - (ii) a proposed change in zoning map classification; or
 - (iii) an application for special exception for a change in use.
 - b. Notice under this subsection will be in writing and will advise the Fort Lee coordinating official of the opportunity to submit comments or recommendations to the City/County coordinating official prior to the hearing.
- (3) No delegation of local authority. Nothing herein is intended, and should not be interpreted to, authorize or require approval by Fort Lee.⁵

(h) Notice to property owners. The City's planning division/County's planning and zoning division will coordinate to assure that the City's/County's geographic information systems (GIS) and property records include the military coordination area, clearly indicating whether a property in the City/County is located, in whole or in part, in the military coordination zone.

⁵ The Ordinance does not confer decision-making authority to Fort Lee. It simply creates a formal mechanism for coordinating and receiving comments related to military operations before new land uses or developments are established.

SECTION 3. SEVERABILITY. If any section, subsection, or clause of this ordinance shall be deemed unconstitutional or otherwise invalid, the validity of the remaining sections, subsections, and clauses, shall not be affected thereby.

SECTION 4. EFFECTIVE DATE. This ordinance shall be effective from and after _____, 20__.

Ordinance #2 (Noise and Military Coordination):
Hopewell and Prince George County

Recitals

Whereas, the intent of Chapter 22 of Title 15.2 of the Virginia Code, “Planning, Subdivision of Land and Zoning,” is, among other applicable provisions:

- (a) to encourage localities to improve the public health, safety, convenience, and welfare of their citizens; and
- (b) that the concerns of military installations be recognized and taken into account in consideration of future development of areas immediately surrounding installations and that where practical, installation commanders shall be consulted on such matters by local officials; and
- (c) that residential areas be provided with healthy surroundings for family life; and

Whereas, pursuant to Va. Code § 15.2-2283, the general purpose of the zoning ordinance is, among other things, to provide reasonable protection against encroachment upon military bases, installations, and airports and their adjacent safety areas; and

Whereas, pursuant to Va. Code § 15.2-2223(C), the City of Hopewell/Prince George County has included in its Comprehensive Plan the location of Fort Lee and its adjacent safety and/or noise areas; and

Whereas, Va. Code § 15.2-2204 requires the City/County to provide written notice to the commander of an affected military installation when a comprehensive plan amendment, zoning map classification change, or an application for a special exception for a change in use on a parcel of land within 3,000 feet of the installations boundary.

NOW, THEREFORE, be it ordained by the City Council/Board of Supervisors of the City of Hopewell/Prince George County, Virginia:

SECTION 1. The Hopewell City Code/Prince George County Zoning Ordinance is hereby amended to add the following:

Fort Lee Military Overlay District

(a) Purpose and intent.

In accordance with the objectives of the Comprehensive Plan and the laws of the Commonwealth of Virginia, the purposes of the Fort Lee Military Overlay district regulations are to improve and protect the public health, safety, convenience, and welfare of the citizens of the City/County and ensure that the concerns of Fort Lee be recognized and taken into account in consideration of future development within the City/County in areas immediately surrounding the fort.

The intent of the Fort Lee Military Overlay regulations is to ensure that, as provided herein, City/County and Fort Lee officials coordinate on land use activities impacting or impacted by fort training activities. It is the further intent of these regulations to provide reasonable protection against incompatible land uses in the vicinity of Fort Lee.

(b) Applicability.

- (1) Nothing herein shall require a change or alteration to land uses or structures existing on the effective date of this Ordinance.⁶
- (2) Section (g) of this Ordinance applies only to the following types of development:
 - a. new buildings or structures of at least <**to be determined locally**> square feet; and
 - b. establishment of a new land use after the effective date of this Ordinance or the reestablishment of a land use after its discontinuance of <**to be determined locally**> years or more.

⁶ Ordinances like these commonly exclude existing structures and land uses from its provisions; particularly in cases where existing structures and land uses are generally compatible with nearby military operations. Participating Jurisdictions will determine the level or amount of development that would trigger the provisions of the Ordinance as appropriate for the individual jurisdiction.

- (3) For purposes of implementing section (g) of this Ordinance, only the portion of the parcel within the military overlay zone 1 or 2 is subject to the requirements of the applicable military overlay zone.⁷
- (4) The designation of any parcel of land lying in a military overlay zone is subject to both the regulations included in this Ordinance, as well all other code and zoning regulations of the City/County.

(c) Definitions. The following terms shall have the following meanings for purposes of enforcing and interpreting this Ordinance.

- (1) City means the City of Petersburg/Colonial Heights City Council or an administrative designee of the City Council.
- (2) City/County coordinating official means the director of the City's planning division/County's planning and zoning division or the director's designee.
- (3) County means the Dinwiddie County/Chesterfield County Board of Supervisors or an administrative designee of the Board of Supervisors.
- (4) Fort Lee coordinating official means the Fort Lee Garrison Commander or another official designated in writing by the commander for purposes of coordination under the provisions of this Ordinance, including notice required by Va. Code § 15.2-2204(D).
- (5) Military coordination zone means an area of the City/County within which coordination between the City/County and Fort Lee will occur pursuant to the terms of this Ordinance.

(d) Administration. The City's planning division/County's planning and zoning division is responsible for implementing the provisions of this Ordinance.

(e) Coordinating officials. At all times following the effective date of this ordinance, the City/County and Fort Lee will designate and maintain the following positions:

- (1) City/County coordinating official.
- (2) Fort Lee coordinating official.

⁷ However, note that, in most cases, if a building is proposed either (a) only partially in a noise-based military overlay zone; or (b) in two separate military overlay zones, then the more restrictive noise requirements typically will apply to the entire building.

(f) Designation of military overlay zones. Establishment of military overlay zones. There are hereby established the following three (3) military overlay zones:

- a. Military overlay zone 1.⁸
- b. Military overlay zone 2.⁹
- c. Military overlay zone 3.¹⁰

(1) Designation on official zoning map. The City planning division/County planning and zoning division will designate the military overlay zones on the City's/County's official zoning map.

(2) Nature of military overlay zones.

- a. *Noise zones.* Based on the 2012 U.S. Army Combined Arms Support Command and Fort Lee Installation Operational Noise Management Plan, the following noise conditions are associated with military overlay zones (MOZ) 1 and 2.

	Small Arms PK15 (met)	Impulsive Noise PK15 (met)
MOZ 1	>104	N/A
MOZ 2	87-104	≥ 115 dB

- b. *Coordination areas.* Pursuant to Virginia Code § 15-2204(D), military overlay zone 3 represents the areas within which the City/County will coordinate with the Fort Lee coordinating official prior to approval of certain proposed land use changes as described in sections (h) and (i) below.

(g) Compatible use standards (military overlay zones 1 and 2). The following standards apply only within the areas designated as military overlay zone 1 and/or military overlay zone 2:

⁸ Military overlay zone 1 is associated with Noise Zone III as it is described in Figures 4-6, 4-8, and 4-9 of the JLUS.

⁹ Military overlay zone 2 is associated with Noise Zone II and the 115+ dB noise contours as they are described Figures 4-8, 4-9, and 4-10 of the JLUS.

¹⁰ Military overlay zone 3 designates all parcels of land within 3,000 feet of the boundary of Fort Lee.

- (1) *Military overlay zone 1 (MOZ 1).*¹¹ All land uses otherwise allowed by underlying zoning, except for the following noise-sensitive uses:
 - a. **<to be determined locally>;**
 - b. **<to be determined locally>;** and
 - c. **<to be determined locally>.**

- (2) *Military overlay zone 2 (MOZ 2).*¹² All land uses otherwise allowed, except that the following provisions apply to any noise-sensitive land uses and the structures and buildings associated with them:
 - a. **<to be determined locally>;**
 - b. **<to be determined locally>;** and
 - c. **<to be determined locally>.**

11 The U.S. Army Combined Arms Support Command and Fort Lee Installation Operational Noise Management Plan recommends that noise-sensitive land uses be prohibited in areas where the PK 15 (met) decibels can exceed 104 (*see* p. 14). Noise-sensitive land uses may include residences, schools, medical facilities, libraries, and places of assembly. The appropriateness of any land use restrictions on allowable uses, however, require evaluations and public discourse by each Participating Jurisdiction.

12 Although the 2012 U.S. Army Combined Arms Support Command and Fort Lee Installation Operational Noise Management Plan recommends that allowed land uses in this area be limited to manufacturing, warehousing, transportation, and resource protection (*see* p. 14), the nature of small arms and impulsive noise must be evaluated on a case-by-case basis. As noted in the JLUS, relevant factors include weather; existing sound barriers, intervening land uses, noise generators, infrastructure, vegetation, and development patterns; and the history of noise complaints, if any. The appropriateness of any land use restrictions like those illustrated here require local evaluations and public discourse.

Note as well that, while Va. Code § 15.2-2295 expressly authorizes localities within or adjacent to “military air facilities” to require noise attenuation for “noise levels from aircraft,” it is unclear whether that authority exists in this case, where off-fort noise contours at Fort Lee are generated by weapons and demolition training, not aircraft. Regardless, Participating Jurisdictions could *encourage* residential developers to include NLR features in their homes and/or otherwise encourage their use in MOZ 2. In any case, the local jurisdictions have the discretion of determining which land uses are appropriate in the military overlays, based on the noise impacts identified in the JLUS or, for example, in the Fort Lee Operational Noise Management Plan. Finally, it is important to recognize that the sound associated with military overlay zones 1 and 2 is created by weapons and demolition training, which is less responsive to sound deadening construction techniques than is noise from aircraft.

(h) Coordination and notice.

- (1) Mission changes.
 - a. The City/County coordinating official will meet on a regular basis with the Fort Lee coordinating official in order to remain abreast of any changes in mission or training operations that could have off-post impacts on the City/County, its residents, or businesses.
 - b. In the event that a change in mission or training operations necessitates amendments to this Ordinance, including the boundaries of one or more military overlay zone, the City/County coordinating official will prepare an amended ordinance for consideration of adoption by the City Council/Board of Supervisors.
- (2) Development impacts.
 - a. The City/County coordination official will notify the Fort Lee coordination official at least thirty (30) days prior to any hearing by the City/County to consider any of the following listed actions within military overlay zone 3.
 - (i) a proposed amendment to the Comprehensive Plan;
 - (ii) a proposed change in zoning map classification; or
 - (iii) an application for special exception for a change in use.
 - b. Notice under this subsection will be in writing and will advise the Fort Lee coordinating official of the opportunity to submit comments or recommendations to the City/County coordinating official prior to the hearing.
- (3) No delegation of local authority. Nothing herein is intended, and should not be interpreted to, authorize or require approval by Fort Lee.¹³

(i) Light emissions. No development shall be approved that produces light emissions that would interfere with night training at Fort Lee; therefore exterior lighting:

¹³ The Ordinance does not confer decision-making authority to Fort Lee. It simply creates a formal mechanism for coordinating and receiving comments related to military operations before new land uses or developments are established.

- (1) used in conjunction with street, parking, signs, or use of land and structures shall be arranged and operated in such manner that it is not misleading or dangerous to aircraft operating from Fort Lee;
- (2) except for lighting provided in association with single-family homes, mobile homes, and duplexes, exterior lighting, must be fully shielded so that all light emitted by the fixture projects below the horizontal direction and contain shielding permanently affixed to the fixture.¹⁴

(j) Notice to property owners. The City’s planning division/County’s planning and zoning division will coordinate to assure that the City’s/County’s geographic information systems (GIS) and property records include the military coordination area, clearly indicating whether a property in the City/County is located, in whole or in part, in the military coordination zone.

SECTION 3. SEVERABILITY. If any section, subsection, or clause of this ordinance shall be deemed unconstitutional or otherwise invalid, the validity of the remaining sections, subsections, and clauses, shall not be affected thereby.

SECTION 4. EFFECTIVE DATE. This ordinance shall be effective from and after _____, 20____.

¹⁴ It should be noted that the lighting analysis conducted during the Joint Land Use Study verified that off-Fort lighting impacts are regional in nature (*see* section 4.3.5). The language offered here may reduce the exacerbation of light sources nearest Fort Lee, but would not reduce existing levels in the region. As noted in the JLUS, if measures are adopted by all the communities in the region, long-term reductions in light-emissions may be possible.



APPENDIX C: EXAMPLE REGIONAL LAND USE BYLAWS

Regional Land Use Advisory Commission

The Regional Land Use Advisory Commission (RLUAC) is a non-profit 501(C)3 membership based organization located in the North Carolina Sandhills region around Fort Bragg. The organization's membership consists of twenty units of local government, including eight counties and twelve municipalities. The twenty year old organization was the first regional group established in the country to coordinate land use decisions between the military and the local governments. Today, the primary mission of RLUAC is to balance the three key objectives by facilitating regional planning and development reviews, as well as fostering ongoing communication and coordination between the installation and its member communities. Those three primary objectives are to:

- Protect the Civilian Population from negative military impacts;
- Protect the Long Leaf Pine Ecosystem from destruction; and
- Protect the Military Training Mission from incompatible development around the installation.

Regional Land Use Reviews

In late 2007 Fort Bragg entered into a contractual agreement with RLUAC to review and make recommendations concerning the appropriateness of zoning changes proposed for property located within five miles of its boundaries. In addition to reviewing the proposed zoning changes, RLUAC has also encouraged the local governments to submit for review plans for new subdivisions and telecom towers. Although this is not an immediate short-term need in the communities surrounding Fort Lee, this process provides transferability to coordination efforts in the Fort Lee region.

- Fort Bragg's contract with RLUAC stems from a 2004 mandate by the North Carolina General Assembly (Session Law 2004-75 -- NCGS Chapter 153A-323 & 160A-364) that requires local governments to notify the commanders of military bases regarding any proposed zoning changes within five miles of the fort's boundaries.
- With the ability of RLUAC to access detailed property parcel information from its extensive Geographic Information System (GIS) database, it is possible for

it to suggest whether the affected property is most suitable for “urban development”, “low-density urban development”, or that it is “important to conserve” and “critically important to conserve” due to negative military impacts or environmental concerns.

The GIS database is currently available, at no cost, for anyone interested in learning more about the best uses of property located anywhere within the eleven counties surrounding Fort Bragg. The address for this website is: www.sandhillsgis.com or www.rluac.com.

Since initiating the land use review service at the beginning of 2008, RLUAC has reviewed and made recommendations concerning more than **560 cases**.

Example Bylaws

The bylaws below are from the Fort Bragg/Pope Air Force Base Regional Land Use Advisory Commission, Inc. They are included as an illustrative example for consideration by the Fort Lee region. The specifics of the bylaws can be incorporated into an existing organization or utilized as a guide to develop a new organization tasked with this mission.

BYLAWS FT. BRAGG/POPE AIR FORCE BASE REGIONAL LAND USE ADVISORY COMMISSION, INC.

ARTICLE 1 – TITLE

The title shall be the Fort Bragg/Pope Air Force Base Regional Land Use Advisory Commission, Inc. (RLUAC).

ARTICLE 2 – MISSION

The purposes and duties of the Fort Bragg/Pope Air Force Base Regional Land Use Advisory Commission are as follows:

1. To promote a regional perspective on land use and environmental issues of mutual concern to the adjacent local communities and the military installations.
2. To provide a forum for discussing noise and accident potential problems relating to land use and deliberate and develop mitigation actions.
3. To foster compatible land uses impacted by civilian and military areas.
4. To foster increased local economic development opportunities, particularly as they relate to the military.

ARTICLE 3 – ESTABLISHMENT

The Fort Bragg/Pope Air Force Base Regional Land Use Advisory Commission is established through the authority of N.C.G.S. Chapters 160A-460 through 464 and 55A et. al.

ARTICLE 4 – MEMBERSHIP

1. Composition: Fort Bragg/Pope Air Force Base Regional Land Use Advisory Commission membership is limited to Fort Bragg, Pope Air Force Base, and all municipal / county governments within Cumberland, Harnett, Hoke, Moore, Richmond, Robeson, Sampson, and Scotland Counties.
2. Each member county and municipality shall appoint one voting member. Member governments are encouraged to appoint an elected official to be their voting member. They may also appoint as many non-voting members as they deem appropriate. Fort Bragg and Pope Air Force Base may appoint as many non-voting members as they deem appropriate.
3. Voting and non-voting members shall be appointed by the Boards of Commissioners from the Cities and Counties they represent. Military members / representatives shall be appointed by the Commanding Officer(s) from the military installations which they represent.
4. Voting and non-voting members should have a basic knowledge of the Fort Bragg/Pope Air Force Base region's physical, environmental, social, and economic makeup. In addition, a basic understanding of the planning process and land use planning, in particular, is recommended.
5. Terms of Voting and Non-Voting Members:
 - a. The length of term for a voting member shall be three (3) years. Non-voting members serve at the will of the appointing body and have no specified terms.
 - b. Voting members may be reappointed to successive terms.

ARTICLE 5 – MEETINGS

1. Meetings – Meetings will be held quarterly throughout the year, generally on the third Thursday of February, May, August, and November.
3. Attendance – Attendance is mandatory. If an appointee is absent from more than two (2) consecutive meetings or three (3) in a calendar year, and such absences are not caused by extraordinary events, the member is obligated to resign in writing.
4. Public – All regular and special meetings, hearings, records, and accounts of the Commission shall be open to the public.
5. Special Meetings – Special meetings shall be called at the request of the Chairman or a majority of members of the Commission. The Chairman may designate in advance regular or special meetings for the presentation of reports on the comprehensive plan, or on general planning discussions, deferring hearings and petitions to subsequent meetings.
6. Prayer – All Commissions meetings may be opened with prayer.
7. Written Material – All written material used for consideration in Commission meetings become part of the official records of that meeting and are to be kept on file in the office of the Executive Director.

ARTICLE 6 – OFFICERS/DUTIES

1. Chairman – The Chairman shall preside at all meetings, appoint members to committees, and perform such other duties as may be ordered by the Commission.
2. Vice-Chairman – The Vice-Chairman shall act in the capacity of the Chairman in his absence.
3. Secretary – The Secretary shall keep the minutes, execute such documents as authorized by the Commission, in the name of the Commission, and perform such other duties as the Commission shall determine or direct.
4. Executive Director – The position of Executive Director may be authorized by the Board of Directors and appointed or discharged by a vote of the Fort Bragg / Pope Air Force Base Regional Land Use Advisory Commission (RLUAC) membership. The employment of the Executive Director shall be an at-will employment. The responsibilities and job requirements of the Executive Director shall be as follows:

Responsibilities

- Make the logistical arrangements for and participate in RLUAC quarterly meetings (4 each year).
- Make the logistical arrangements for quarterly Board of Directors meetings (4 each year). He /she shall offer suggestions for topics and speakers for the RLUAC quarterly meetings.
- Serve as the “point of contact” / primary liaison for RLUAC information and public relations.
- Represent the RLUAC at public hearings, meetings, and conferences as directed by the Board of Directors.
- Contact and confirm speakers for the RLUAC quarterly meetings.
- Prepare agendas for RLUAC quarterly meetings and Board of Directors’ meetings (8 each year).
- Oversee the preparation of minutes for RLUAC quarterly and Board of Directors’ meetings (8 each year).
- Coordinate the mailing of minutes and meeting notices (by U.S. mail and e-mail) for RLUAC quarterly meetings and Board of Directors’ meetings (8 each year).
- Oversee the maintenance of accurate and up-to-date membership rolls and attendance records.
- Maintain current information regarding regional, state, and national legislative issues of interest.
- Complete various other tasks as assigned by the Board of Directors.
- Fund Raising - Coordinate efforts to raise funding to support RLUAC operations.

- Prepare and submit grant proposals to appropriate corporations and foundations.
 - Prepare and mail fund raising letters to potential financial supporters.
 - Make presentations to potential funding entities as opportunities arise.
- Incorporation – Facilitate the process of incorporating the RLUAC and securing tax exempt designation with the State of North Carolina and the federal government.

ARTICLE 7 BOARD OF DIRECTORS

1. The Board of Directors shall act as the Executive Committee and shall be elected from the membership for two year terms.
2. Composition
 - a. The Chairman, Vice Chairman, Secretary, one representative selected from each of the County delegations, and a representative from each of the military installations shall constitute the Board of Directors.
 - b. Non-voting members may be named to the Board of Directors by the officers as they deem necessary.
3. Meetings of the Executive Committee shall be called as necessary by the Chairman or Vice Chairman to plan agendas for the Advisory Commission and to provide decisions on matters of importance when it is impractical to convene a special meeting of the full Advisory Commission.
4. Meetings of the Board of Directors shall be open to the public.
5. A quorum must be present for the Board of Directors to vote. A quorum consists of a majority of the current membership.

ARTICLE 8 - ELECTIONS

1. The Chairman shall be elected at the first regular meeting in each odd numbered year. Terms of office shall be for two years beginning in the year 2007. The Commission shall elect the Chairman from its membership.
2. The Vice-Chairman shall be elected at the first regular meeting in each odd numbered year. Terms of office shall be for two years. The Commission shall elect the Vice-Chairman from its membership.
3. The Secretary shall be elected at the first regular meeting in each odd numbered year. Terms of office shall be for two years. The Secretary is not required to be a member of the Commission.

ARTICLE 9 - VOTING

1. Action – Transaction of business and the taking of official action shall require a concurring vote of a majority of the voting members of the Commission present at the meeting.

2. Motions – Motions shall be restated by the Chairman before a vote is taken. The name of the maker of the motion and that of the second shall be recorded.
3. Voting – Voting shall be by voice or by show of hands. In the event that a vote is not unanimous, the minutes shall show the names of how each voted on each issue.
4. Abstaining – When a Commission member wishes to abstain from consideration on any issue, he or she shall make a formal request to the Chairman, prior to action by the Commission. Notification of a request for abstention should be made as soon as the member is aware of such a possibility. At the meeting, the Chairman shall ask if there is any opposition to the request. Abstention will be allowed only with a consenting vote of a majority of the Commission present.
5. When a voting member of the Commission is unable to attend a meeting, he or she may assign their voting authority to another RLUAC non-voting member designated by that voting member in writing to the Corporation.

ARTICLE 10 REMUNERATION

Members of the Commission may be reimbursed for their expenses by their appointing body in accordance with that body's policies and procedures.

ARTICLE 11 – AMENDMENTS

1. These Bylaws may be amended by an affirmative vote of two-thirds of all voting members present, provided all amendments conform to established policies and law.
2. Two-thirds of the appointing bodies must approve the Bylaws and all changes. Two-thirds of the appointing bodies can amend or revise the Bylaws without approval of the Commission.

ARTICLE 12 – DISSOLUTION

Two-thirds of the appointing bodies, as appointing authority, can reorganize or dissolve the Commission without advance notice.

ARTICLE 13 – RULES

Robert's Rules of Order Revised shall govern meetings, unless modified by the voting members.

ARTICLE 14 – REPORTS

Minutes of meetings shall be provided in advance of the next regular meeting. Copies of the minutes of all meetings shall also be mailed to the appointing authority.



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