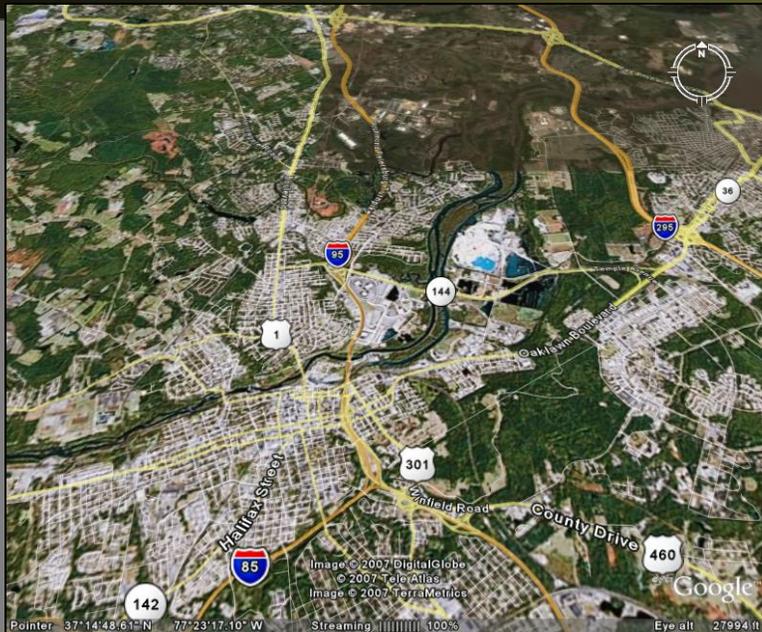


Fort Lee Military Reservation



Fort Lee Growth Management Plan 2008

**Prepared for:
Crater Planning
District Commission**



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**Fort Lee
Growth Management Plan
Crater Region**

February 2008

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EXECUTIVE SUMMARY

A. INTRODUCTION

1. BRAC Order

On September 8, 2005, the Defense Base Realignment and Closure Commission (BRAC Commission) recommended that certain realignment actions occur at Fort Lee, Virginia. These recommendations were approved by the President on September 15, 2005, and forwarded to Congress. Upon expiration of the statutory period for Congress to enact a joint resolution of disapproval on November 9, 2005, the BRAC Commission's recommendations became law.

In accordance with BRAC Commission recommendations, the following actions will be implemented at Fort Lee and shall be completed by September of 2011.

- Establish a Sustainment Center of Excellence (SCOE) at Fort Lee - Activities that would relocate to Fort Lee and be incorporated into the SCOE are portions of the Transportation Center and School from Fort Eustis, Virginia; the Ordnance Maintenance Mechanical School of the Ordnance Center and School from Aberdeen Proving Ground, Maryland; and the Ordnance Munitions and Electronics Maintenance School (OMEMS) of the Missile and Munitions Center from Redstone Arsenal, Alabama. The Transportation Center and School and the Ordnance Center and School would be consolidated with the Quartermaster Center & School, the Army Logistics Management College, and the Combined Arms Support Command to form the SCOE.
- Establish a Joint Center for Consolidated Transportation Management Training - Transportation Management Training from Lackland Air Force Base, Texas, would relocate to Fort Lee, Virginia, to accomplish this.
- Establish a Joint Center of Excellence for Culinary Training - Culinary Training from Lackland Air Force Base, Texas would relocate to Fort Lee.
- Co-locate Miscellaneous Department of Defense, Defense Agency, and Field Activity Leased Locations - Close Metro Park III and IV (6350 and 6359 Walker Lane), a leased

installation in Alexandria, Virginia, by relocating the Defense Contract Management Agency (DCMA) Headquarters to Fort Lee, Virginia.

- Relocate all components of the Defense Commissary Agency (DeCA) to Fort Lee - Defense Commissary Agency Eastern, Midwestern Regional, and Hopewell, Virginia, Offices would be consolidated at Fort Lee. Leased facilities at 300 AFCOMS Way in San Antonio, Texas; 5258 Oaklawn Boulevard in Hopewell, Virginia; and 5151 Bonney Road in Virginia Beach, Virginia, would be closed.
- Relocation of Mobilization Processing Functions - In addition to the five actions above, through which Fort Lee would gain functions, facilities, and personnel, the BRAC Commission recommended the creation of Joint Mobilization Sites that would result in a loss at Fort Lee. Under this recommendation, all mobilization processing functions at Fort Lee, Virginia; Fort Eustis, Virginia; and Fort Jackson, South Carolina would be relocated to Fort Bragg, North Carolina, and Fort Bragg would be designated Joint Pre-Deployment/Mobilization Site Bragg/Pope.

Under the BRAC law, the Army must initiate all realignments not later than September 14, 2007, and complete all realignments not later than September 14, 2011. Implementation of the proposed action would occur over a span of approximately 5 years. Facilities renovations and new construction would be synchronized to meet the needs, on a priority basis, of units and activities proposed for relocation to Fort Lee.¹ According to Fort Lee's BRAC Synchronization Office, approximately 8,870 new personnel are expected to arrive at Fort Lee by the year 2013.

2. Project Oversight

The Fort Lee Growth Management Plan (2007) covers a variety of topics related to the above described expansion of Fort Lee over the period 2006-2013. The plan's analyses were conducted by RKG Associates, Inc. of Alexandria, VA, Vanasse Hangen & Brustlin, Inc. of Richmond, VA and Regional Economic Models, Inc. of Amherst, MA during 2007 and utilized the best available information. However, it should be noted that the modeling projections contained in this report were based on literally hundreds of assumptions about the future operation of Fort Lee. The consultants relied on reasonable and conservative assumptions so as not to overstate or understate the true impacts to the region. These assumptions were reviewed at every stage of the planning process with several task force committees organized around housing, education, child care/workforce development, and transportation issues. In addition, a 15-person steering committee was assembled by the Crater PDC to oversee the plan's development and to review its findings and conclusions. The steering committee utilized the members of the Fort Lee BRAC Task Force, which was assembled prior to the BRAC decision to expand Fort Lee. This core group was broadened to include public officials from each of the region's jurisdictions.

3. Plan Assumptions and Contents

During the course of preparing this analysis, many facts and data assumptions either changed or came into focus. In some cases, the rapidly changing conditions on the ground

¹ Draft Environmental Impact Statement, Implementation of Base Closure and Realignment (BRAC) to recommendations and other Army actions at Fort Lee, Virginia and Fort A.P., Virginia, U.S. Army Corp. of Engineers, Mobile District., pp. ES1-2, September 20056.

could not be incorporated into this analysis. As such, it is recommended that the Crater Planning District Commission revisit the research assumptions in this report annually in order to monitor and plan for Fort Lee's expansion.

The growth management plan consists of nine chapters that cover the following topics:

- Chapter 1 - Executive Summary
- Chapter 2 - Demographic Characteristics
- Chapter 3 - Housing Analysis
- Chapter 4 - Growth Impact
- Chapter 5 - Education Analysis
- Chapter 6 - Workforce Development
- Chapter 7 - Transportation Impacts
- Chapter 8 - Child Care Services
- Chapter 9 - Health Care Services

B. SUMMARY OF MAJOR FINDINGS

1. Demographic Characteristics

Population Trends

- The study area communities exhibit significant diversity in a number of characteristics that may influence the potential degree of impact related to Fort Lee's eminent expansion. One aspect of this diversity is reflected in the designation of city versus county and the transition from urban to rural environments. Other marked differences are associated with the amount of developable land area in each jurisdiction, total size of the population and historic growth rates, capacity to accommodate growth, and long-term planning goals and policies.
- Since 1970, Chesterfield County has had rapid and sustained high rates of growth while, prior to 1990, the remainder of the study area had flat or negative population growth. The average annual growth rate for the study area as a whole has ranged from 1.5% to 2.8% over the last 30 years (1970-2000).
- Between 1990 and 2000, Dinwiddie and Prince George Counties experienced accelerated growth rates while Chesterfield's rate of growth slowed somewhat. As of 2000, the three cities of Colonial Heights, Hopewell and Petersburg had not experienced any significant reversal of the negative or flat growth rates exhibited over the previous 30 years; however, as of 2005 some change is evident based on census population estimates.

Population Projections

- Projected population growth rates for the study area over the next 30 years (2000-2030) are expected to slow each decade with growth rates dropping from 14.6% (2000-2010), to 11.9% (2010-2020), and 9.9% (2020-2030) respectively. Overall population absorption for each of the three decades is projected to range between 53,000 and 57,000 for the study area as a whole. (*Note: these projections do not reflect growth associated with the Fort Lee expansion.*)

Military Population

- According to Census enumerations for 2000, notable concentrations of military personnel (not including spouses or dependents) residing in the study area were located in Chesterfield County, the City of Petersburg, and Prince George County. Outside the study area, higher percentages were also recorded in the City of Richmond and Henrico County.

Age Distribution Trends

- Changes in the age of the study area's population between 1990 and 2000 revealed that the largest increases were recorded in the 5-19, 35-49 and 50-64 age groups. These trends reflect increases in school-age children, middle-age households, and the portion of the population approaching retirement.
- Conversely, decreased population in the age groups of 20-34 and Under 5 reflects a lack of new household formation between 1990 and 2000. However, projections through 2010 anticipate renewed growth in both age cohorts. The largest projected growth rates over the next thirty years are anticipated in the 50 and over age groups that will impact demand for a variety of services, such as medical care and housing, geared toward seniors.

Household Income

- Household income for the study area increased by 34% between 1990 and 2000, which just kept pace with inflation rates for that period. Income estimates for 2006 suggest a slowing of the growth rate to 13% over the last six years. Highest household income levels are found in Chesterfield County, Prince George County and Colonial Heights.

2. Housing Analysis

Housing Inventory and Construction Trends

- The study area contained over 151,000 housing units as of 2000 and had added approximately 24,000 housing units between 1990 and 2000, or 2,400 annually, representing an average growth rate of 1.8%
- The largest portion of historical housing growth occurred in Chesterfield County, which added 2,038 units annually between 1990 and 2000. In comparison, average annual housing unit absorption for the remaining jurisdictions was as follows: Prince George County, 209 units; Dinwiddie County, 168 units; City of Colonial Heights, 75 units; City of Hopewell, 24 units. The City of Petersburg had a recorded net loss of 241 housing units over this ten-year period that is predominantly attributable to demolition of substandard structures.
- Single-family dwellings are the dominant type of housing found in the study area and a lack of new multi-family construction has placed pressure on this segment of the market to serve as rental housing. As of 2000, approximately 17,300 single-family homes, or 12% of all occupied units, were supporting the rental market. Use of single-family homes as rental properties can contribute to lack of investment and

pockets of neighborhood decline, which is evident in some portions of the study area.

- Despite the demand for rental housing noted above, rental vacancy rates were relatively high in 2000, at 8.3% for the study area as a whole, suggesting that there may be some issues related to the size, quality or location of portions of the existing rental supply. Conversely, these same characteristics of the single-family housing supply, combined with the availability of an adequate supply of new homes, may make some portion of the stock unattractive to the for-sale market resulting in conversion to rental occupancy.
- Since 2000, the annual rate of housing construction in the study area has exceeded the rate observed during the previous decade (1990 - 2000). On average, the annual number of housing units permitted over the last six years was approximately 3,440 as compared with 2,480 over the previous ten years. However, the annual number of residential building permits issued peaked in 2004, at which time they began to decline and do not yet appear to have reached a low point. Approximately 84% of all residential building permits issued in the study area since 2000 have been in Chesterfield County.

Fort Lee Housing

- As of FY08, Fort Lee is projected to have approximately 1,200 housing units on-post to house families permanently stationed at the garrison. This total is expected to increase to between 1,530 and 1,590 by FY11 - FY12.
- Existing barracks capacity on-post can presently accommodate 3,000 personnel. This capacity is planned to be increased by 1,248 in FY08 and 2,184 in FY09. Four (4) additional barracks facilities are programmed for construction in FY10, but the capacity of these facilities has yet to be determined.
- Short-term lodging facilities (i.e. hotel-style rooms) on Fort Lee presently total 574 rooms, which are located in multiple buildings. This room supply is presently inadequate to accommodate current demand requiring an additional 450 rooms per night, on average, to be secured at private lodging facilities off-post. The demand for this type of lodging is projected to increase dramatically between FY09 and FY11.

Residential Pricing

- Average home sales prices within the study area, for 2006, were highest in Chesterfield and Prince George Counties, and Colonial Heights, with respective average sales prices of \$282,000, \$225,000, and \$192,000. The City of Petersburg had the most affordable average sale price of \$103,000 and steadily increasing sales that suggests speculative investment related to renovations of its historic housing stock.
- Average annual sales prices in study area communities have risen by 9% to 12% over the last six years. However, the total number of sales entered a period of decline in 2005-06 with prices reportedly beginning to fall as well.
- Rental housing costs rose by an average of 3.2% annually between 1990 and 2000 within the study area as a whole. A recent survey of rental properties in the Fort Lee area suggests annual rents had increased by 2.3% annually between 2002 and 2007.

However, over the last two years rents appear to have increased more rapidly at 4.9% annually suggesting the market may be anticipating increased demand related to Fort Lee.

Regional Development Potential

- There is a significant amount of housing development potential within the study area based on the number housing units that have been approved but are not yet built. As of February 2007, over 13,000 housing units/lots had been approved for development but had not had building permits issued. However, the vast majority of these approved units are single-family dwellings and over 80% are located in Chesterfield County.
- Build-out of the total approved units could take 4 to 10 years based on historical absorption levels. However, some of these units represent older subdivisions that may no longer be viable under current development regulations.
- Further regional development potential is reflected by the additional 20,500 housing units tentatively approved (i.e., rezoning has been approved) within the study area although these units could take several years before final approval is obtained. Rezoning requests and/or conceptual plan reviews have also been requested by developers for an additional 14,300 units within the study area. Potential approval and development of these units would represent a longer-term and more speculative supply of housing for the region.

Housing Affordability

- Housing is generally affordable in the for-sale and for-rent markets for households directly associated with the growth at Fort Lee. The housing allowance for military households and income levels of both military and civilian workers are adequate, based on recent sales data compiled for both existing housing and newly built housing in the region.
- Housing affordability is not as strong for those households locating in the region not directly related to the expansion at Fort Lee. Affordability for homeownership units ranges from 50% to 60% for those households seeking homeownership utilizing average incomes and values. The rental market is relatively more affordable for those new households projected as renters. Affordability ranged from 70% to 85% in the different communities in the Fort Lee study area.
- It was reported that the cost of land and construction will continue to increase the disparity between the ability to pay and the pricing of housing. This is particularly true for the three cities, where there is very little affordable, vacant land to develop. As such, attention needs to be given to these communities to assist in removing barriers for market growth, particularly for homeownership.
- The pricing for housing marketed to the incoming households relocating to Fort Lee should be between \$200,000 and \$300,000. Almost all of the new households that would likely be interested in homeownership can afford a \$200,000 home. However, the ability to pay for housing drops significantly beyond the \$300,000 threshold.

- The upper-end housing market, or those priced over \$300,000, is much smaller. Between 320 and 400 households are projected to be able to afford a \$350,000 home. This number drops to between 60 and 220 households for a \$450,000 home, with the higher end requiring most of the military households to have a working cosigner within the household.

3. Growth Impacts

Population Impacts

- The REMI Model estimates that the primary impact area had a 2006 population of 433,589. Overall, the region's population is expected to grow by an average annual rate of 2.1% between 2006 and 2013, the period in which Fort Lee is expected to expand. This rapid growth rate is driven primarily by Chesterfield County, which accounts for more than 68% of the region's population, and is projected to grow at an average annual rate of 2.5% during this period. Adjusting for Chesterfield County's growth, the rest of the impacted communities are projected to grow by a more modest 1.2% annual rate until 2013.
- RKG estimates that approximately 64% of this new population growth (7,011 pop.) will be comprised of direct military, civilian and contractor personnel and their dependents. Extending the projections to 2035, the region's population will increase by 14,280 due to the expansion of Fort Lee.

Employment Impacts

- Nearly 88.2% of all new employment growth (67,077 new jobs) over the next three decades is expected to occur in the region's economic hub, Chesterfield County. The next largest job creator is projected to be Prince George County with 4,694 new jobs or roughly 6.2% of future employment growth.
- Total employment growth is expected to increase by nearly 12,000 jobs in the peak year of 2010. The rapid increase in jobs is largely due to the increased demand for construction workers at Fort Lee. In 2008, it is estimated that approximately 5,130 construction jobs will be created throughout the PIA and surrounding region in support of Fort Lee's massive construction program.
- Over the 30-year projection period, occupations such as: (1) management, (2) computer/math/architecture/engineering, (3) education and training, (4) healthcare, and (5) protective services are expected to experience sustained job growth.

Construction Spending

- The peak construction year is planned for 2008, when expenditures could exceed \$373 million. The next highest year is expected in 2009 when construction could exceed \$341 million. During these peak years, the REMI model simulation indicates that the region may experience a shortage of construction workers or companies within the region due Fort Lee and other spin-off development activity. The combination of large contracts and short completion schedules could result in the immigration of 500 to 700 construction workers from outside the region to complete the work before the 2011 BRAC deadline.

Projected Staff Changes

- Fort Lee's military and civilian population consists of two major categories of personnel: student soldiers attending professional schools and permanent party personnel. According to Fort Lee's BRAC Synchronization Office, approximately 8,870 new personnel are expected to arrive at Fort Lee by the year 2013. Approximately 65.2% of the new personnel will be students and Advanced Individualized Trainees (AITs).
- For purposes of this analysis, the incoming student and trainee population is treated differently than the permanent party personnel. Students and trainees will impact the community differently and will be housed in lodging units or barracks while stationed at Fort Lee. Permanent party military, civilians, and contractors will have longer-term assignments at Fort Lee and will either be housed on-base in family housing units, in the case of military personnel, or they will seek housing off base in the surrounding communities. In either case, these permanent staff will generate demand for local housing, will enroll their children in local schools, and will demand municipal services like other households in the region.
- Based on discussions with the Fort Lee BRAC Synchronization Office, it is estimated that as many as 81% (2,507 people) of the 3,090 permanent party personnel scheduled for reassignment will actually relocate to the region.

Payroll Impacts

- RKG estimates that by 2013, the annual payroll associated with the new personnel at Fort Lee will equal approximately \$216.6 million. Approximately 55% of that payroll will be attributable to 1,604 civilian employees, 38.5% to 1,321 military employees, and 6.1% to 165 contractor personnel.
- According to Fort Lee estimates, roughly 71.1% of incoming military personnel will be classified as either E7s or E8s. Enlisted personnel at these ranks make between \$33,000 and \$42,000 per year (in 2007 dollars), with housing and subsistence allowances of between \$13,000 and \$16,000. Relative to civilian personnel, it is estimated that roughly 63.6% will be between GS-9 and GS-12. Personnel at these pay grades make between \$47,000 and \$73,000 per year in 2007 dollars.
- Contrary to popular perceptions that military personnel are lower paid employees, RKG estimates that annual salaries for incoming military could exceed \$54,000 in 2009. Likewise, civilian and contractor salaries are expected to average roughly \$64,000/yr. and \$67,500 respectively.

Hotel Demand

- Based on RKG's projections of monthly room night demand, by 2011 Fort Lee's training operations could be generating demand for over 340,000 room nights per year. If no additional lodging units are constructed on-post, Fort Lee only may be able to accommodate 55.4% of this annual demand (188,752 room nights). This would result in over 151,000 unmet room nights, which would have to be accommodated by the private hotel market. This level of demand would be equivalent to 640 hotel rooms operating at 65% occupancy.

- Until additional lodging units are constructed on-post, Fort Lee will have a problem transporting students to and from private hotels. Most students do not have cars and are not authorized to rent cars. As such, they will have to rely on other means of transportation to get to Fort Lee. With no reliable public transit to serve this population, Fort Lee Garrison Commander and local officials must work cooperatively with local hotels/motels to solve this problem.

4. Education Analysis

Chesterfield County

- Current School Capacity - The elementary and high schools in Chesterfield are currently over-capacity (702 and 177, respectively). Trailers are in place at fourteen of the eighteen schools in the study area. However, the Matoaca Middle School has an excess capacity of 1,091 slots. Matoaca middle school is a large school with an East and West campus. According to interviews with school officials, Matoaca Middle School should have space beyond the 2012 to 2013 school year, barring any new large residential developments.
- Fort Lee Impacts - It is projected that the Fort Lee expansion could add as many as 535 to 555 students to the school district through 2013. The largest increase due to the Fort Lee expansion is in the elementary school cohort (215 to 235 new students). It is also projected that 120 to 131 middle school students and 174 to 189 high school students may be added to the school district.
- Future School Capacity - Though expansion of new schools are projected to come on-line throughout the study period, the impact of Fort Lee in addition to the current capacity over-load indicate that the elementary schools in the study area may have an overload capacity of 1,202 students in 2012-13. However, middle schools are projected to have an excess capacity throughout the study period (2,052 in 2012-13). The construction and expansion of the new middle schools will help ease capacity issues once the large amount of elementary students move up through the grades.

High schools are projected to have an overload of students throughout the study period (120 in 2012-13). However, the 1,750 slot new high school that will be located near the Branner Station development may help ease capacity issues in the Chesterfield study area into the future.

Dinwiddie County

- Current Capacity - the elementary schools are operating at an overload of slots (309). The exception is Dinwiddie Elementary School and Midway Elementary School, which have a combined excess capacity of 33 slots. The middle school and high schools are both operating at an overload by 210 and 180 students, respectively.
- Fort Lee Impacts - Fort Lee may add 80 to 87 students in Dinwiddie through 2013. Students are projected to arrive in the 2009-10 through 2011-12 school years. Elementary students are projected to experience the largest enrollment increase due to Fort Lee (34 to 37 students). Enrollment for middle schools is projected to increase by 19 to 21 students, and high school enrollment is projected to increase by 28 to 29 students.

- Future School Capacity - The Dinwiddie Public Schools enrollment projections were far more aggressive than the Weldon Cooper Center projections. As such, overload capacity estimates are more severe. According to the Dinwiddie projections, elementary, middle and high schools will all have capacity issues through 2013. Specifically, elementary schools are projected to have an overload of 723 students in 2013, and high schools could have an overload capacity of 333 students in 2013. However, similar to Cooper Center projections, the additional slots that will be added to the middle school cohort level results in excess capacity (695 in 2012-13).

Prince George County

- Current School Capacity - The children of all military personnel who live on Fort Lee will attend schools in Prince George County in addition to those military, civilian, and contractor personnel who choose to live off-base in the County. Elementary schools were 186 slots over-capacity in 2006-07. There were 14 trailers to accommodate the excess students. However, the middle schools have an excess capacity of 457 slots. There are 278 slots at Moore Middle School and 179 slots at Clements middle school. There is one public high school in the area that is over-capacity by 15 slots.
- Fort Lee Impacts - The projections indicate that schools in Prince George may increase by 1,134 students through 2010-11. The high rate of growth reflects new military housing that is projected to come on-line throughout the study period. Combined Fort Lee and local projections indicate that elementary schools may increase by 701 to 705 students, middle schools by 453 to 455 students and high schools by 384 to 386 students. Though Prince George projections were not available past the 2010-11 school year, the Fort Lee expansion may add another 239 to 245 students may enter the school system through 2012-13.
- Future School Capacity - Elementary schools may remain at an overload capacity throughout the study period. A new elementary school helps to alleviate some of the overload, however the large amount of projected Fort Lee students and natural enrollment growth indicate that elementary schools may reach an overload capacity of 225 to 226 students in 2010-11.

In contrast, the middle schools are projected to have excess capacity throughout the study period. Currently, the Prince George middle schools have an excess capacity of 457 slots. However, the excess number of slots is projected to decrease as more Fort Lee students arrive to the base. In 2010-11, there may only be an excess capacity of 59 to 60 slots. It should be noted that another 52 to 53 middle school students may arrive through the 2011-12 school year, which could create overload issues for the middle schools into the future.

High schools are also operating at an overload capacity. The new students arriving from Fort Lee will put a further strain on the functional capacity of the high schools, which are projected to have an overload capacity of 316 to 317 slots in 2010-11. Fort Lee impacts may add another 77 to 79 students in the 2011-12 academic year.

City of Hopewell

- Current School Capacity - Most of the schools in Hopewell have excess capacity. The exception is Dupont Elementary, which is currently at programmable capacity.

There are a total of 70 excess slots in the other two elementary schools, 101 excess slots in the middle school, and 207 excess slots in the high school. The City of Hopewell is also the only school district in the study area that did not need trailers in the 2006-07 school year.

- Fort Lee Impacts - Fort Lee may add 46 to 52 elementary students, 23 to 26 middle school students, and 33 to 36 high school students to the City. Similar to the other jurisdictions in the study area, the largest increase is in elementary school students.
- Future School Capacity - Elementary schools will have excess capacity if the two elementary schools are expanded in the 2009-10 and 2010-11 school years. There may be an excess capacity of 235 to 238 slots by 2012-13. The Table also indicates an excess capacity of middle and high school student slots through 2012-13 (106 and 220, respectively). However, the middle schools may experience an overload of six students in the 2010-11 academic year.

City of Petersburg

- Current School Capacity - Elementary schools were 71 slots over capacity in the 2006-07 school year (Table 5-6). Though elementary schools are currently over-capacity, two elementary schools closed at the start of the 2007-08 academic year. Westview Elementary was converted to an early childhood center and Blandford elementary was converted to an alternative education center. Unlike most of the elementary schools, the middle and high schools have excess capacity. The middle schools had an excess capacity of 606 students and the high school had an excess capacity of 79 slots in the 2006-07 school year.
- Fort Lee Impacts - Petersburg public school membership declined 810 students from 2002 to 2006. However, the Fort Lee expansion has the potential to reverse this trend. It is projected that Fort Lee could add 110 to 178 students to the school district through 2013. Specifically, elementary school enrollment is projected to increase by 51 to 81 students; middle schools are projected to increase by 23 to 36 students and high schools by 36 to 59 students.
- Future School Capacity - Elementary schools may have excess capacity through the 2009-10 academic year. Though the arrival of Fort Lee students through 2009 to 2012 will add enrollment to the school district, the expansion of the elementary schools helps to ease this increase. In fact, there may be an excess capacity in elementary schools of 149 slots in the 2012-13 academic year. Middle schools are also projected to have excess capacity through the study period (51 slots in 2012-13). High school enrollment is projected to have a large natural decline in enrollment. As such, there may be excess capacity of 452 slots through 2012-13.

City of Colonial Heights

- Current School Capacity - The schools in Colonial Heights, except for North Elementary currently are at capacity or have an overload of students (Table 5-7). There was an overload of nine elementary students in the 2006-07 school year. Both the middle school and high school are currently operating at physical capacity.
- Fort Lee Impact - Fort Lee may add 52 to 54 elementary students to the Colonial Heights school district from 2009 to 2012. There may be an additional 27 to 28

middle school students and 37 to 40 high school students added to the school district during the study period.

- Future School Capacity - Elementary schools may have minor capacity issues even with the expansion of Tussing Elementary School (151 slots) which will be completed in August of 2008. Local projections indicate elementary schools may have an overload capacity of 19 students in 2012-13. However, the overload capacity may reach 40 students in 2011-12. The middle schools are currently operating at capacity and are projected to have excess capacity until the arrival of the Fort Lee students beginning in 2009-10. The additional students may cause middle schools to operate at an overload capacity through 2012-13 (-79 students). The high school is currently operating at capacity; however the expansion may help ease capacity issues. In fact, the high schools may have an excess capacity of 31 slots in 2012-13.

5. Workforce Development

Trailing Spouses

- Based on this analysis, the consultant estimates that there will be 1,836 trailing spouses of military, civilian, and contractor personnel that will relocate to Fort Lee as part of the BRAC expansion. Approximately 39.6% of the personnel are projected to arrive in 2009. Another 18.9% are projected to relocate to the base in 2010, and the remaining 41.5% are projected to arrive in 2011.

Outreach to Incoming Personnel

- In the spring of 2008, a local contingent from Fort Lee will visit the realigning installations to survey prospective personnel, discuss their relocation issues, and to gauge the needs of trailing spouses. In subsequent visits during 2008 and 2009, additional contingents may be deployed to these installations to conduct job fairs and employment networking with incoming personnel and their spouses.

Occupational Demand

- It is projected that high-skilled white collar workers and low-skilled white collar workers will drive future occupational employment growth in the Crater Region. According to VEC, the number of white-collar workers will increase by 3,495, or 18.2%, through 2014. Low-skilled white collar workers are projected to increase by 2,750, or 15.0% through 2014.
- In contrast, blue-collar workers are projected to grow at a slower rate and add fewer workers than white collar occupations. Of the blue-skilled positions, low-skilled blue collar workers are projected to have the largest increase (12.9%). High-skilled blue collar occupations are projected to grow by only 1.6% (21 workers) through 2014.
- The fastest growth occupations, in terms of percentage growth, are generally white collar positions, with all but one of the top 25 fastest growing occupations falling into this category. In fact, high-skilled white collar occupations account for 13 of these fast growing occupations. Specifically, health, education and service related occupations account for the majority of top growth industries.

- There are a few more blue-collar occupations, such as material moving workers and motor vehicle operators that are projected to add a comparatively large amount of jobs through 2014. Construction trade workers are also projected to see a large amount of growth (287 new jobs). Other occupations that are projected to grow in jobs in terms of net gain include retail sales workers, health related professions, and management occupations.

Occupational Shortages

- According to the U.S. Army Corps of Engineers, small business liaison for the construction efforts at Fort Lee, there has been a historic shortage of mechanical field, concrete finishing and electrical subcontractors. It is possible that there could be a future problem finding subcontractors to fill these positions.

Construction Employment

- Currently, nearly \$268 million on construction contracts have been awarded at Fort Lee and by the end of 2007, \$351 million in construction projects will be under contract.
- Discussions with representatives from the prime contractors indicate that they are having no issues finding subcontractors. Construction firms have also indicated they do not foresee any problems or issues filling subcontracting work in the future. However, it is too early in the process and there could be a need for more construction workers, especially in the mechanical, concrete finishing and electrical fields in the future.

Workforce Training Programs

- NEXT is a program that was developed to provide a resource to professional senior-level executives and managers that are relocating to the Greater Richmond region to directly connect with the business community at an appropriate level. The NEXT program is currently open to military spouses; however interviews with representatives from the Greater Richmond Chamber indicate that they are currently working with the Crater Planning District Commission to help devise a NEXT program that would better fit this population.
- The Military Spouse Training Grant primarily targets spouses of military personnel, particularly entry-level military spouses that are unemployed or under-employed. The grant was funded by the WIA in July of 2007 and will continue to be funded until June 2008.

6. Childcare Analysis

Types of Child Care

- Child care is an umbrella term that is typically applied to a variety of services or programs geared for children ranging from infants to those under 13 years of age. The Virginia Department of Social Services (DSS) is the primary public agency responsible for monitoring child care facilities throughout the state.

- There are six primary types of child care facilities recognized by the DSS, however, only two, child day centers (CDC) and family day homes (FDH), require licensing. The licensing standards address a number of areas including staff qualifications and training, building standards, staffing levels (staff-to-child ratios), daily program activities, food services, and health/medical requirements. Child care programs permitted to operate as registered but unlicensed facilities include religiously exempt faith-based establishments (CCE), voluntary registered family day homes (VR), and certified preschools (CNS).
- The total number of child care slots in the six study area communities is approximately 20,000 which are based at roughly 300 child care centers or in-home providers. The greatest concentration of child care slots is located in Chesterfield County which has over 15,000, or 75%. Total child care slots in the remaining communities are as follows: Petersburg, 1,460; Colonial Heights, 1,244; Hopewell, 1,108; Prince George, 815; and Dinwiddie, 358. Of the total facilities, 66% operate under the licensing program administered by the state while 34% are exempt or voluntary participants.

Child Care Availability

- The utilization rate, or the current amount of available space for existing child care slots, is estimated to range between 10%-15%. This suggests that total slots, which may be available at any given time, is approximately 2,000 to 2,500. However, demand for child care is a very fluid situation that can readily shift on a daily or seasonal basis.
- Availability of child care is limited by facilities operating on a part-day versus full-day basis, with full-day consisting of hours that generally bracket a typical workday. Of the total child care slots in the study area only 14,280 are estimated to be full-day facilities. This reduces the available slots to a range of approximately 1,430 to 2,142.
- Other limitations within the area's child care supply include insufficient slots for infants and toddlers (under two years of age), lack of early morning and extended day coverage, and very limited weekend care. The latter two items are particular issues with regard to active duty military personnel whose job requirements often necessitate child care services during these times.
- Fort Lee provides on-post child care at its Child Development Center which has a capacity of 198 slots for children between ages six weeks and 5 years. The facility is operating at capacity and also maintains a waiting list with the highest demand in the infant and toddler age groups. Approximately 75% of the children served at this facility reside on-post while 25% reside in communities outside the installation. Services at the Center are available to active duty personnel, as well as civilian employees and contractors who work on-post. Additional on-post child care is available in homes on the installation that presently accommodate an additional 80 children.

Future Child Care Demand

- Future demand for child care related to projected growth at Fort Lee is anticipated to be approximately 385 additional slots. This increase represents only the direct growth associated with active duty personnel, civilians and contractors employed at the post. Estimates of available full-day child care slots within 15 miles of the post range between 657 and 985. Approximately 100 of these available slots will be on-post as part of an expanded Child Development Center that is expected to be under construction in 2007.
- Outside the post, a comparison of child care projections to estimated available capacity suggests that four of the six study area communities will be able to reasonably absorb expected demand, even when compared to the lower end of the range of available slots. These include Chesterfield County, Colonial Heights, Hopewell, and Petersburg. However, estimates suggest that Dinwiddie and Prince George Counties will have a much tighter demand-to-capacity scenario that may result a redistribution of this demand to other communities within the study area.

Regional Cost of Services

- Cost of child care at Fort Lee is established on a sliding scale that is determined by family income. The monthly costs range from \$196 to \$550 for full-day care, from 5:15 a.m. to 6 p.m., Monday through Friday. Families with incomes under \$28,000 receive a considerably higher discounted rate than other income brackets with the top bracket having incomes of \$70,000 or greater.
- Off-post child care costs are not provided on a sliding scale but vary by the age of the child, with infant care being the most costly and decreasing for older children. Overall, costs in Chester tend to be anywhere from 20% to 40% higher than other communities in the study area. Rates can vary significantly between in-home providers and child care centers with the former having rates at the lower end of the range. Lower costs are also typically charged by religiously exempt facilities.
- Comparison of the regional child care rates to those established for Fort Lee reveals, from an average cost perspective, the rates charged in Chester exceed the on-post rates for all income categories except those making in excess of \$70,000. However, the comparison between on- and off-post child care rates indicates that average costs are similar between the two except for the lowest income categories (those making less than \$34,000) that are subsidized by the military. Aside from these, other income categories do have opportunity to find child care at generally comparably prices in the adjoining communities. What cannot be determined from the available data is how many child care slots may exist in total at the more affordable rates.

Child Care Quality

- The state licensing standards for child care facilities, regarding the provision of a quality child care or early learning environment, are generally considered to be minimum operational requirements. Higher standards established by the NAEYC, a national education and accreditation organization, are generally considered the desirable industry standard. Only several child care providers in the Fort Lee study area have such accreditation. There are subsidies available through the Department of Defense (DoD) to assist off-post active duty personnel with child care costs.

However, in order to qualify for such assistance child care must be provided by an accredited facility which significantly limits the usefulness of this program in the Fort Lee area.

- At the state level efforts are underway to improve child care quality which is being spearheaded through the Governor's Working Group for Early Childhood Initiatives. The Governor's Office, in conjunction with a consortium of state agencies and child care professionals, has established standards and a rating system, the *Star Quality Rating Initiative*, that will form the cornerstone for the improved quality of care. These standards are presently being tested in a pilot program of some 200 communities throughout the state with requests for funding expected to be forthcoming in the next legislative session.

7. Health Care Services

Fort Lee Medical Facilities

- Fort Lee's on-post medical services are administered at the Kenner Army Health Clinic (KAHC). This facility services all permanent party, active duty personnel and their dependents, as well as retirees and their dependents, within a 20-mile radius of the facility. The facility also services Advanced Individual Trainees (AIT) students stationed at the post.
- The KAHC functions as an outpatient treatment facility only. Therefore, acute care, specialty services, and long-term medical needs for military families enrolled in the clinic's health care network are referred to off-post civilian (or military) hospitals and practitioners.
- The Army has invested (or approved funding) for over \$35 million in improvements to the KAHC since 2004. This includes renovation and reconfiguration of the existing facility, as well as construction of a new Troop Medical Clinic (TMC) to serve in-coming AIT personnel. However, construction of the new TMC will not be complete until 2011 and funding for a temporary pre-fabricated structure is still pending final approval.

Fort Lee Medical Staff

- Staff at the KAHC will be expanded by over 100 as of 2011 to address anticipated increase in demand. This additional staff will include 25 medical professionals comprised of physicians (or physicians' assistants/nurse practitioners), nurses and technicians. Despite these increases, the need for further support is still expected in the areas of dermatology, orthopedics, behavioral health, and dentistry due to high levels of demand.
- The Army's actions to upgrade and staff the on-post medical facility as an outpatient clinic only, illustrates a calculated decision to rely on civilian hospital facilities in the area in order to obtain a cost-effective, high quality of service. In addition, no changes have been instituted at the KAHC to address the needs of retirees and their dependents within the region, which may also lead to increased demand for services at civilian facilities.

Demand for Off-post Medical Services

- Primary demand for off-post medical services related to Fort Lee personnel are focused in the areas of emergency/urgent care, orthopedics, behavioral health, obstetrics, and dermatology. Both local hospital providers, John Randolph Medical Center in Hopewell and Southside Regional Medical Center in Petersburg, believe their facilities have adequate capacity to absorb increased demand generated locally by Fort Lee. However, the emergency departments of both facilities are cited as service bottlenecks that are likely to be exacerbated by the post's expansion.
- The Fort Lee study area, like the country in general, is struggling with the need to both attract and retain an adequate supply of doctors and nurses. This situation will be exacerbated to some degree by an increase in demand related to Fort Lee.
- Obstetrics and pediatric care are areas of relatively high demand for Fort Lee's families. John Randolph Medical Center no longer provides this obstetrical service (as of 2006). However, the Southside Regional Medical Center's new facility (anticipated to open in 2008) will have expanded obstetrical services and is expected to have ample capacity to absorb any increased demand.

Medical Reimbursement

The TRICARE medical payment system was identified as being viewed by the private sector as problematic due to lower levels of reimbursement. This factor, combined with a continued shortage of health care professionals throughout the region and state, could result in a diminished level of available services for military families who rely on TRICARE.

Future Demand for Services

- Population concentration and growth to the north of Fort Lee seems to be attracting more new medical facilities to that area. This may result in the southern part of the study area being underserved and requiring longer travel by residents for medical services.
- Fort Lee officials have indicated that on-post growth of housing and non-residential development will result in higher demands on the facility's emergency medical services such as fire, police, and ambulance. These circumstances are also expected to strain existing mutual aid agreements with area communities.

2

DEMOGRAPHIC CHARACTERISTICS

A. INTRODUCTION

This section provides an historical perspective on changes in demographic conditions within the Fort Lee study area, as well as estimates of future growth potential within the region. The study area includes six jurisdictions that encompass Fort Lee including the counties of Chesterfield, Prince George and Dinwiddie, and the cities of Colonial Heights, Hopewell and Petersburg. In addition to these six jurisdictions, which are considered to represent the primary impact area for future growth related to the Fort, information is also presented, for comparison purposes, for the Crater Planning District Commission (CPDC) region, which encompasses a slightly broader geographic area¹ (Map 2-1).

The demographic analysis examines historic growth trends for the last several decades, as well as projected growth levels through the year 2030. It also provides an overview of the age and racial composition of the population along with changes in household and income characteristics. The housing analysis first presents a perspective on the change between 1990 and 2000 with regard to types of units, occupancy characteristics and values. These historic trends are supplemented with current information regarding recent absorption of new housing units, sales prices of single-family homes, and rental rates for properties near Fort Lee. The section concludes with an estimate of short- and long-term housing construction potential based on developments that are either approved or proposed.

B. SUMMARY OF MAJOR FINDINGS AND CONCLUSIONS

Population Trends

- The study area communities exhibit significant diversity in a number of characteristics that may influence the potential degree of impact related to Fort Lee's eminent expansion. One aspect of this diversity is reflected in the designation of city versus county and the transition from urban to rural environments. Other marked differences are associated with the amount of developable land area in each

¹ In addition to the six jurisdictions in the primary impact area, the CPDC region also includes Greenville County, Surry County, Sussex County, and the City of Emporia.

jurisdiction, total size of the population and historic growth rates, capacity to accommodate growth, and long-term planning goals and policies.

- Since 1970, Chesterfield County has had rapid and sustained high rates of growth while, prior to 1990, the remainder of the study area had flat or negative population growth. The average annual growth rate for the study area as a whole has ranged from 1.5% to 2.8% over the last 30 years (1970-2000).
- Between 1990 and 2000, Dinwiddie and Prince George Counties experienced accelerated growth rates while Chesterfield's rate of growth slowed somewhat. As of 2000, the three cities of Colonial Heights, Hopewell and Petersburg had not experienced any significant reversal of the negative or flat growth rates exhibited over the previous 30 years; however, as of 2005 some change is evident based on census population estimates.

Population Projections

- Projected population growth rates for the study area over the next 30 years (2000-2030) are expected to slow each decade with growth rates dropping from 14.6% (2000-2010), to 11.9% (2010-2020), and 9.9% (2020-2030) respectively. Overall population absorption for each of the three decades is projected to range between 53,000 and 57,000 for the study area as a whole. *(Note: these projections do not reflect growth associated with the Fort Lee expansion).*

Military Population

- According to Census enumerations for 2000, notable concentrations of military personnel (not including spouses or dependents) residing in the study area were located in Chesterfield County, the City of Petersburg, and Prince George County. Outside the study area, higher percentages were also recorded in the City of Richmond and Henrico County.

Age Distribution Trends

- Changes in the age of the study area's population between 1990 and 2000 revealed that the largest increases were recorded in the 5-19, 35-49 and 50-64 age groups. These trends reflect increases in school-age children, middle-age households, and the portion of the population approaching retirement.
- Conversely, decreased population in the age groups of 20-34 and Under 5 reflects a lack of new household formation between 1990 and 2000. However, projections through 2010 anticipate renewed growth in both age cohorts. The largest projected growth rates over the next thirty years are anticipated in the 50 and over age groups that will impact demand for a variety of services, such as medical care and housing, geared toward seniors.

Household Income

- Household income for the study area increased by 34% between 1990 and 2000, which just kept pace with inflation during that period. Income estimates for 2006 suggest a slowing of the growth rate to 13% over the last six years. Highest household income levels are found in Chesterfield County, Prince George County and Colonial Heights.

Map 2-1 - Regional Map with Jurisdiction

C. CHARACTERISTICS OF THE POPULATION

1. Population Trends

The long-term population trends in the Fort Lee area illustrate some considerable differences in how growth rates have varied within the six jurisdictions that comprise the study area. It is important to note when examining growth trends in these individual jurisdictions that substantially different levels of growth are to be expected when comparing the three counties to the three cities. This is because the counties have vastly larger amounts of land area available for potential development than do the cities. Therefore, growth within the cities, both past and projected, is confined to a relatively limited amount of land area. The source of historical and current (2005) population data examined in this section is the U.S. Census Bureau with population projections for 2010-2030 prepared by the Virginia Employment Commission in 2003.

The change in total population within the study area and CPDC over the last fifty years is presented in Table 2-1 and illustrated in Figure 2-1. Naturally, over the course of five decades, it is expected that marked variations in the rate of growth will be observed; variations that are linked to fluctuations in economic cycles and other socio-economic factors that have influenced regional growth throughout the course of this time period. Between 1950 and 2000 the overall growth rate per decade within the study area decreased from approximately 37% to 16%, as illustrated in Table 2-1. In addition to this fact, there are several key observations presented in the data that are worth noting. Perhaps the most significant of these is that the growth in Chesterfield County began to diverge sharply from the remainder of the region during this period. During the first two decades considered (1950-1970), almost all of the six jurisdictions, with the exception of Petersburg, experienced positive population growth, many with relatively high, double-digit rates of increase. However, beginning in 1970, Chesterfield County's population began to increase at a very rapid rate of growth and had almost tripled by 1990. In contrast, during this same period, the five remaining jurisdictions began to experience population losses or very moderate increases at most. Figure 1 illustrates this divergence in growth between Chesterfield County and the study area as a whole during that period. It is important to note that population losses in Prince George and Dinwiddie Counties during the 1970s were directly attributable to annexation by the City of Petersburg of land and housing units that were originally located in these two jurisdictions. According to the City's comprehensive plan, approximately 9,000 persons were added to Petersburg's population because of this annexation resulting in the city's only growth recorded over the last several decades.

The impacts of the 1970s annexation appear to have spilled over into the subsequent decade (the 1980s) where population continued to decline in Dinwiddie County and the City of Petersburg. It was not until the 1990s that a reversal of the aforementioned negative or flat rates of growth in other portions of the study area started to become evident, primarily in Dinwiddie and Prince George Counties. Between 1990 and 2000, these two counties experienced population growth rates of 17% and 20.6% respectively, rates that more closely mirrored the 24.2% growth that occurred in Chesterfield during that decade. However, this reversal of population loss was less evident in the three cities and in fact; Petersburg is reported to have experienced one of its largest population losses during that time with a decrease of approximately 12%.

Table 2-1 Historic and Projected Population – Fort Lee Study Area

| | Total Population | | | | | | | | | |
|--------------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | Census Counts | | | | | | Estimate | Projections | | |
| | 1950 | 1960 | 1970 | 1980 | 1990 | 2000 | | 2005 | 2010 | 2020 |
| Chesterfield County [1] | 40,400 | 71,197 | 76,855 | 141,372 | 209,274 | 259,903 | 288,876 | 315,998 | 366,000 | 412,000 |
| Dinwiddie County | 18,839 | 22,183 | 25,046 | 22,602 | 20,960 | 24,533 | 25,391 | 26,300 | 27,698 | 28,799 |
| Prince George County | 19,679 | 20,270 | 29,092 | 25,733 | 27,394 | 33,047 | 36,725 | 36,000 | 38,999 | 41,802 |
| City of Colonial Heights | 6,077 | 9,587 | 15,097 | 16,509 | 16,064 | 16,897 | 17,567 | 17,198 | 17,299 | 17,400 |
| City of Hopewell | 10,219 | 17,895 | 23,471 | 23,397 | 23,101 | 22,354 | 22,690 | 21,700 | 21,400 | 21,301 |
| City of Petersburg | 35,054 | 36,750 | 36,103 | 41,055 | 38,386 | 33,740 | 32,604 | 30,399 | 29,398 | 28,901 |
| Total Study Area | 130,268 | 177,882 | 205,664 | 270,668 | 335,179 | 390,474 | 423,853 | 447,595 | 500,794 | 550,203 |
| Crater PDC [2] | 165,592 | 218,203 | 237,914 | 303,331 | 365,731 | 427,032 | 459,612 | 484,695 | 538,496 | 588,704 |

| | Percent Change | | | | | | | | | |
|--------------------------|----------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|-------------|--|
| | 1950-1960 | 1960-1970 | 1970-1980 | 1980-1990 | 1990-2000 | 2000-2005 | 2000-2010 | 2010-2020 | 2020-2030 | |
| Chesterfield County | 76.2% | 7.9% | 83.9% | 48.0% | 24.2% | 11.1% | 21.6% | 15.8% | 12.6% | |
| Dinwiddie County | 17.8% | 12.9% | -9.8% | -7.3% | 17.0% | 3.5% | 7.2% | 5.3% | 4.0% | |
| Prince George County | 3.0% | 43.5% | -11.5% | 6.5% | 20.6% | 11.1% | 8.9% | 8.3% | 7.2% | |
| City of Colonial Heights | 57.8% | 57.5% | 9.4% | -2.7% | 5.2% | 4.0% | 1.8% | 0.6% | 0.6% | |
| City of Hopewell | 75.1% | 31.2% | -0.3% | -1.3% | -3.2% | 1.5% | -2.9% | -1.4% | -0.5% | |
| City of Petersburg | 4.8% | -1.8% | 13.7% | -6.5% | -12.1% | -3.4% | -9.9% | -3.3% | -1.7% | |
| Total Study Area | 36.6% | 15.6% | 31.6% | 23.8% | 16.5% | 8.5% | 14.6% | 11.9% | 9.9% | |
| Crater PDC [1] | 31.8% | 9.0% | 27.5% | 20.6% | 16.8% | 7.6% | 13.5% | 11.1% | 9.3% | |

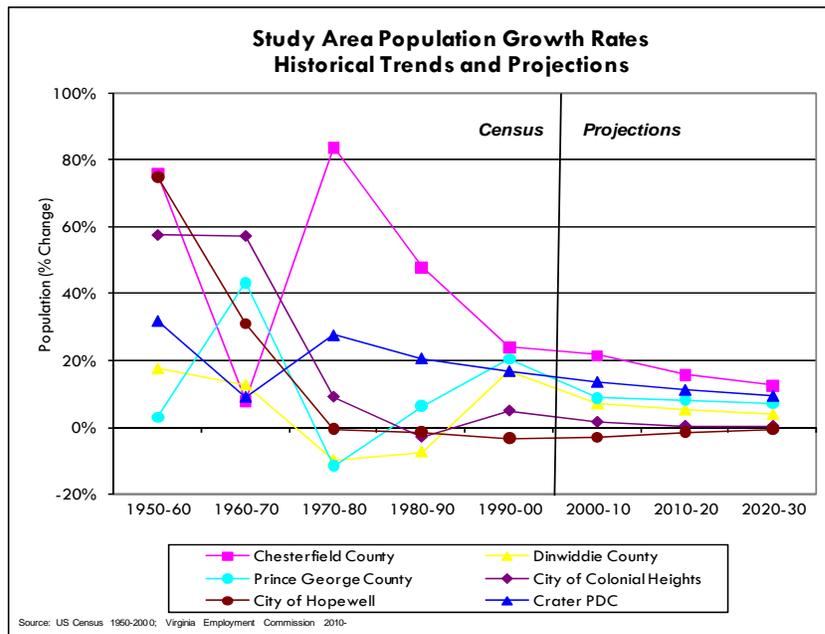
| | Average Annual Change | | | | | | | | | |
|--------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
| | 1950-1960 | 1960-1970 | 1970-1980 | 1980-1990 | 1990-2000 | 2000-2005 | 2000-2010 | 2010-2020 | 2020-2030 | |
| Chesterfield County | 5.8% | 0.8% | 6.3% | 4.0% | 2.2% | 2.1% | 2.0% | 1.5% | 1.2% | |
| Dinwiddie County | 1.6% | 1.2% | -1.0% | -0.8% | 1.6% | 0.7% | 0.7% | 0.5% | 0.4% | |
| Prince George County | 0.3% | 3.7% | -1.2% | 0.6% | 1.9% | 2.1% | 0.9% | 0.8% | 0.7% | |
| City of Colonial Heights | 4.7% | 4.6% | 0.9% | -0.3% | 0.5% | 0.8% | 0.2% | 0.1% | 0.1% | |
| City of Hopewell | 5.8% | 2.7% | 0.0% | -0.1% | -0.3% | 0.3% | -0.3% | -0.1% | 0.0% | |
| City of Petersburg | 0.5% | -0.2% | 1.3% | -0.7% | -1.3% | -0.7% | -1.0% | -0.3% | -0.2% | |
| Total Study Area | 3.2% | 1.5% | 2.8% | 2.2% | 1.5% | 1.7% | 1.4% | 1.1% | 0.9% | |
| Crater PDC [1] | 2.8% | 0.9% | 2.5% | 1.9% | 1.6% | 1.5% | 1.3% | 1.1% | 0.9% | |

Source: US Census 1950-2005; 2003 Virginia Employment Commission 2010-2030.

[1] Richmond annexed 23 square miles of Chesterfield County during the 1960s resulting in the loss of 47,262 population.

[2] Crater PDC includes Chesterfield, Dinwiddie, Greensville, Prince George, Surry and Sussex Counties; and the cities of Colonial Heights, Emporia, Hopewell and Petersburg.

Figure 2-1 Study Area Population Growth Rates



Population projections for 2010 indicate that growth rates for the current decade (2000-10) are expected to be comparable to those of the 1990s. Overall, the study area's growth rate is projected to be approximately 15% throughout this decade in comparison to approximately 16% for the previous decade. Population estimates for 2005 suggest that all six jurisdictions appear to be on track to either equal or exceed their respective projected growth rates through 2010. For example, as of 2005, Prince George County's 2.1% annual growth rate is more than double the 0.9% rate of growth projected for the entire decade. Similarly, growth rates in the cities of Colonial Heights and Hopewell are exceeding the 2010 projected growth rates although actual population gains will be relatively small. Chesterfield County's 2000-2005 estimated growth rate of 2.1% is equivalent to its projected 2% growth for the entire decade, and although Petersburg is projected to continue losing population, the 2005 estimated rate of decline appears to be slightly less than the projected rate for 2010. Projected growth rates for the study area beyond 2010 are expected to decrease by approximately 2%-3% per decade with 10-year growth rates of 14.6%, 11.9% and 9.9% respectively, for each decade between 2000 and 2030.

Note: It is important to note that the population projections presented here represent growth forecasts that do not reflect the planned expansion of Fort Lee. The forecasts presented in this section should be interpreted as the normal or background rate of growth expected to occur without the addition of military and non-military personnel, as well as their dependents, that are expected to be relocated to the installation.

2. Military Population

One of the key factors in evaluating and managing the potential growth impacts related to the Fort Lee expansion will be to determine how much of this growth will be absorbed by individual jurisdictions within the region. Although the distribution of existing military personnel currently posted at Fort Lee will be discussed in greater detail in other sections of this report, a brief summary of available census data regarding this segment of the population is presented here. Table 2-2 illustrates the number of people over age 18 who identified themselves as being active members of the armed forces as of the 2000 census. Several caveats should be noted regarding this data. First, the total population identified as being in the armed forces may not be affiliated with

Table 2-2 Study Area Population in Armed Forces - 2000

| | Total Pop Over 18 | In Armed Forces | % of Armed Forces |
|----------------------------|------------------------------|----------------------------|------------------------------|
| Chesterfield County | 186,648 | 646 | 12.6% |
| Dinwiddie County | 18,655 | 78 | 1.5% |
| Prince George County | 24,722 | 283 | 5.5% |
| Fort Lee CDP | 5,254 | 3,598 | 69.9% |
| Colonial Heights City | 13,087 | 96 | 1.9% |
| Hopewell City | 16,358 | 94 | 1.8% |
| Petersburg City | 25,352 | 351 | 6.8% |
| Study Area Total | 290,076 | 5,146 | 100.0% |
| Surry County | 5,105 | 2 | |
| Sussex County | 10,042 | 4 | |
| Emporia City | 4,231 | 9 | |
| CPDC Total | 309,454 | 5,161 | |
| Richmond City | 154,543 | 321 | 47.3% |
| Charles City County | 5,407 | 7 | 1.0% |
| Goochland County | 13,283 | 0 | 0.0% |
| Greensville County | 9,463 | 5 | 0.7% |
| Hanover County | 62,927 | 66 | 9.7% |
| Henrico County | 197,664 | 222 | 32.7% |
| New Kent County | 10,106 | 57 | 8.4% |
| Powhatan County | 17,026 | 0 | 0.0% |
| Total Other Regions | 470,419 | 678 | 100.0% |

Source: US Census

Fort Lee. Second, there are likely to be additional military dependents (e.g. spouses and children) associated with some of these personnel who are not reflected in the data. Third, troop levels presently posted at the installation will have changed from when the census was taken. Finally, the census data may not reflect all personnel who were posted at the Fort on a temporary basis, such as trainees with permanent addresses in other locations.

However, given these limitations, the data still offers some insights into the distribution of military personnel, as well as their associated households, and illustrates which jurisdictions

have historically attracted larger proportions of this population. As shown in Table 2-2, there were 5,146 military personnel within the study area in 2000, according to the Census Bureau. The vast majority of these people resided on Fort Lee itself, which is referred to as a Census Designated Place (CDP) by the Census Bureau, but is technically considered to be part of Prince George County. As illustrated, almost 3,600 people, or 70% of the study area's total military personnel, were reported as residing on the post. The total population reported by the census as residing on the post as of 2000, was 7,269, a figure that *would* include military dependents and possibly some civilian personnel as well. Off the post, the largest concentrations of military personnel were located in Chesterfield County (646 residents), the City of Petersburg (351 residents), and Prince George County (283 residents). The number of military personnel residing in the three remaining jurisdictions, as well as outlying portions of the CPDC, drops off considerably to less than 100 in each location. Outside the study area, significant concentrations of military personnel were also reported to reside in the City of Richmond (321) and Henrico County (222).

3. Age Structure of the Population

Table 2-3 and Figure 2-2 provides a breakdown of the change in population by age structure for the study area as a whole between 1990 and 2030. As illustrated by this data, there were a number of dramatic shifts that occurred during the previous decade of 1990-2000 within several age cohorts. Relatively large increases were recorded in the 5-19, 35-49 and 50-64 age groups, which represent a significant expansion of the school age population and a corresponding increase of middle-aged adults, as well as the segment of the population approaching retirement age. These three cohorts experienced growth rates of 20%, 22.5% and 51.5% respectively, with actual increases of approximately 15,240, 18,348 and 21,218. This

increase in the middle-aged population is typically representative of households with older children that would create greater school impacts in the middle and high school grades, as opposed to the elementary grade levels. This growth in school-age children is expected to moderate over the course of the current decade (2000-2010) with a projected decline of over 5,900 children in the 5-19 cohort. This decrease is largely attributable to the prior decline during the 1990s of people in the 20-34 age group, the segment of the population where new households are formed. It should be noted, however, that an overall decline in total school-

Table 2-3 Age Distribution of Study Area Population 1990-2030

| Age Group | Total Population | | | | |
|--------------|------------------|----------------|----------------|----------------|----------------|
| | Census | | Projections | | |
| | 1990 | 2000 | 2010 | 2020 | 2030 |
| Under 5 | 25,991 | 25,586 | 27,682 | 31,403 | 32,576 |
| 5 to 19 | 76,195 | 91,435 | 85,527 | 88,133 | 100,641 |
| 20 to 34 | 81,982 | 73,149 | 88,906 | 92,060 | 87,524 |
| 35 to 49 | 81,478 | 99,826 | 94,334 | 103,152 | 119,401 |
| 50 to 64 | 41,208 | 62,426 | 96,717 | 99,169 | 95,290 |
| 65+ | 28,325 | 38,054 | 54,429 | 86,877 | 114,771 |
| Total | 335,179 | 390,476 | 447,595 | 500,794 | 550,203 |

| Age Group | Population Change | | | |
|--------------|-------------------|---------------|---------------|---------------|
| | 1990-2000 | 2000-2010 | 2010-2020 | 2020-2030 |
| Under 5 | (405) | 2,096 | 3,721 | 1,173 |
| 5 to 19 | 15,240 | (5,908) | 2,606 | 12,508 |
| 20 to 34 | (8,833) | 15,757 | 3,154 | (4,536) |
| 35 to 49 | 18,348 | (5,492) | 8,818 | 16,249 |
| 50 to 64 | 21,218 | 34,291 | 2,452 | (3,879) |
| 65+ | 9,729 | 16,375 | 32,448 | 27,894 |
| Total | 55,297 | 57,119 | 53,199 | 49,409 |

| Age Group | Percent Change | | | |
|--------------|----------------|--------------|--------------|-------------|
| | 1990-2000 | 2000-2010 | 2010-2020 | 2020-2030 |
| Under 5 | -1.6% | 8.2% | 13.4% | 3.7% |
| 5 to 19 | 20.0% | -6.5% | 3.0% | 14.2% |
| 20 to 34 | -10.8% | 21.5% | 3.5% | -4.9% |
| 35 to 49 | 22.5% | -5.5% | 9.3% | 15.8% |
| 50 to 64 | 51.5% | 54.9% | 2.5% | -3.9% |
| 65+ | 34.3% | 43.0% | 59.6% | 32.1% |
| Total | 16.5% | 14.6% | 11.9% | 9.9% |

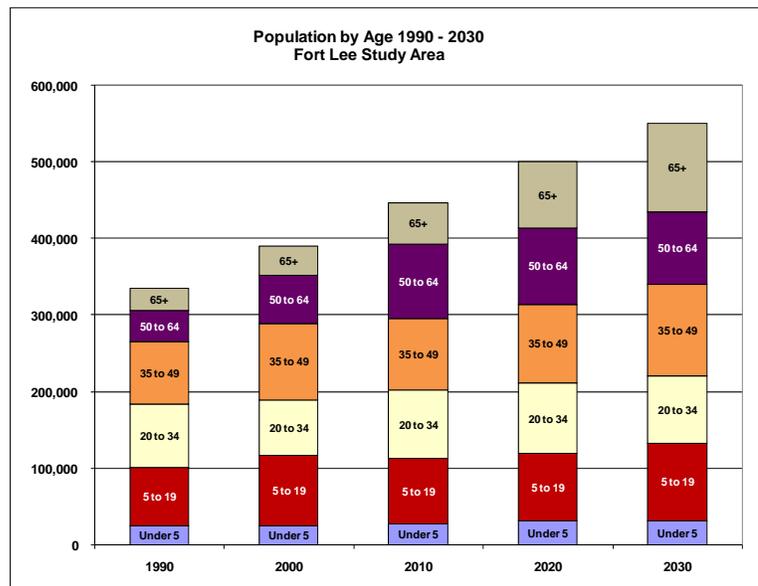
Source: US Census and Virginia Economic Labor Market Access.

age population does not mean that individual school districts, as well as particular grade levels, will not experience capacity issues during this time period. The cycle of growth in the school-age population is projected to return between 2010 and 2020, although at a much reduced rate (3% versus 20%) in comparison to the 1990s.

Growth in the pre-school cohort under the age of five is reported to have declined between 1990 and 2000, according to the Census Bureau. However, beginning in 2000 this age group is projected to increase steadily, in terms of actual population, over the three subsequent decades ending in 2030. The projected growth in this cohort could result in a considerable increased demand on childcare providers and facilities within the study area.

Other significant percentage growth rates were recorded in the two oldest age groups of 55-64 and 65 and older, which both increased by approximately 34% between 1990 and 2000. Over the next two decades (2000-2020), these two cohorts are projected to encompass the study area's largest overall population gains as baby-boomers move into their retirement years. This trend is likely to result in a substantial increased demand for geriatric services and facilities, such as health care and retirement housing, to support this segment of the population.

Figure 2-2 Study Area Age Groups



4. Racial Composition

The change in racial diversity of the study area's population between 1990 and 2000 is illustrated in Table 2-4. Overall, the majority of the region's population is distributed between White and Black/African American with approximately 69% and 26% respectively, in these two categories. Between the last two census enumerations, the increase in the Black/African American population was significantly greater, with a 31% rate of growth, than the White population's 7% rate of growth. These growth rates represented an increase of approximately 23,000 Black/African American residents and 18,800 White residents throughout the study area as a whole (data not shown in Table).

While the trends noted above represent the overall changes within the study area, there are some noteworthy differences that exist at the sub-regional level with regard to racial distribution. For example, Dinwiddie and Prince George Counties, as well as the City of Hopewell, tend to have a slightly more equivalent White to Black/African American ratio within the population with average percentages of approximately 62% and 33% respectively. In contrast, the City of Petersburg's population is more predominantly Black/African

American with 78.3% in this category, while Chesterfield County and the City of Colonial Heights have somewhat higher concentrations of White residents than the study area as a whole (76.5% and 89.6% respectively). However, both of these jurisdictions also saw marked increases in their Black/ African American populations between 1990 and 2000.

The remaining racial categories illustrated in Table 2-4 represent relatively small components of the overall population with most accounting for less than 2% of the total. However, one minor change of note in the study area’s racial composition was an increase of the Asian, Hawaiian, Pacific Islander population that was particularly evident in Chesterfield County. Between 1990 and 2000, the County’s population in this category increased by 2.5% which represented an actual increase of approximately 2,600 residents. Other jurisdictions in the study area recorded large percentage increases in other racial categories; however, actual change in population was generally insignificant in relationship to total population. It should also be noted that the Census Bureau added the category of “Two or more races” as a response between the 1990 and 2000 Censuses, which means that no direct comparison can be made for this racial designation. It may also mean that the 6,560 residents in the study area who selected this new category had previously been included in another category, which would affect the growth rates reported for other races.

Table 2-4 Racial Characteristics of the Study Area Population - 2000

| | Chesterfield County | Dinwiddie County | Prince George County | Colonial Heights City | Hopewell City | Petersburg City | Study Area Total | Crater PDC Total |
|--|---------------------|------------------|----------------------|-----------------------|---------------|-----------------|------------------|------------------|
| 2000 | | | | | | | | |
| White Alone | 198,872 | 15,913 | 20,020 | 15,148 | 14,011 | 6,212 | 270,176 | 284,858 |
| Black or African American Alone | 46,134 | 8,216 | 10,712 | 1,019 | 7,365 | 26,419 | 99,865 | 121,261 |
| American Indian and Alaska Native Alone | 832 | 66 | 151 | 72 | 51 | 51 | 1,223 | 1,247 |
| Asian, Native Hawaiian, Pacific Islander | 6,460 | 63 | 615 | 368 | 158 | 275 | 7,939 | 8,002 |
| Other Race | 3,141 | 164 | 695 | 183 | 198 | 330 | 4,711 | 5,104 |
| Two or more races | 4,464 | 111 | 854 | 107 | 571 | 453 | 6,560 | 6,560 |
| Total | 259,903 | 24,533 | 33,047 | 16,897 | 22,354 | 33,740 | 390,474 | 427,032 |
| Percent of Total - 2000 | | | | | | | | |
| White Alone | 76.5% | 64.9% | 60.6% | 89.6% | 62.7% | 18.4% | 69.2% | 66.7% |
| Black or African American Alone | 17.8% | 33.5% | 32.4% | 6.0% | 32.9% | 78.3% | 25.6% | 28.4% |
| American Indian and Alaska Native Alone | 0.3% | 0.3% | 0.5% | 0.4% | 0.2% | 0.2% | 0.3% | 0.3% |
| Asian, Native Hawaiian, Pacific Islander | 2.5% | 0.3% | 1.9% | 2.2% | 0.7% | 0.8% | 2.0% | 1.9% |
| Other Race | 1.2% | 0.7% | 2.1% | 1.1% | 0.9% | 1.0% | 1.2% | 1.2% |
| Two or more races | 1.7% | 0.5% | 2.6% | 0.6% | 2.6% | 1.3% | 1.7% | 1.5% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Percent Change 1990-2000 | | | | | | | | |
| White Alone | 12% | 19% | 9% | -3% | -16% | -39% | 7% | 7% |
| Black or African American Alone | 70% | 10% | 34% | 1657% | 24% | -5% | 31% | 30% |
| American Indian and Alaska Native Alone | 54% | 843% | 30% | 0% | 183% | -50% | 56% | 57% |
| Asian, Native Hawaiian, Pacific Islander | 67% | -22% | 7% | 3% | -39% | -11% | 45% | 45% |
| Other Race | 502% | 134% | 62% | 161% | 15% | 182% | 241% | 267% |
| Two or more races [1] | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Total | 24% | 17% | 21% | 5% | -3% | -12% | 16% | 17% |

Source: US Census

[1] Data related to Two or more races was not collected in the 1990 census.

D. HOUSEHOLD CHARACTERISTICS

Table 2-5 illustrates the change in households and household size for study area jurisdictions over the course of the previous decade. Overall, the 19.7% rate of new household formation between 1990 and 2000 represented an additional 23,481 households within the study area. The rate of household formation exceeded population growth, which increased by 16.5% during that time period, by approximately 3%. This divergence in the rates of population and household growth by roughly 2%-3% was observed in all three counties; however, the three cities exhibited greater variation with household growth rates exceeding population

growth by approximately 5%-6%. Estimates of total households for 2006 compiled by DemographicsNow, a national data firm, place the study areas total at 156,215. This represents an increase of approximately 13,300 households in six years and a slowing growth rate, in comparison to the previous decade, of 9.3%.

One of the primary reasons for the faster rate of household growth noted above is the decline in average household size that occurred between 1990 and 2000, a general trend that is occurring throughout the country. Overall, the study area's average household size dropped from 2.74 in 1990 to 2.65 in 2000, a decrease of 3.3%. Such a decrease is indicative of households having fewer children despite the fact that the number of school-age children increased considerably during this time period, as noted previously in this section. It may also be reflective of an increase in empty-nester and retiree households that is a precursor of the much greater increase projected in these types of households over the next two decades. Estimates of household size for 2006 from DemographicsNow suggest a continuation of decreasing household size albeit at a somewhat slower rate.

Table 2-5 Total Households and Average Household Size for Study Area 1990-2006

| | Chesterfield County | Dinwiddie County | Prince George County | Colonial Heights City | Hopewell City | Petersburg City | Study Area Total | Crater PDC Total |
|-------------------------|------------------------|---------------------|-------------------------|--------------------------|------------------|--------------------|---------------------|---------------------|
| Total Households | | | | | | | | |
| 2006 estimate | 105,743 | 9,568 | 10,881 | 7,444 | 9,201 | 13,378 | 156,215 | 168,409 |
| 2000 census | 93,772 | 9,107 | 10,159 | 7,027 | 9,055 | 13,799 | 142,919 | 155,265 |
| 1990 census | 73,665 | 7,519 | 8,315 | 6,332 | 8,943 | 14,664 | 119,438 | 130,686 |
| Change 00-06 | 11,971 | 461 | 722 | 417 | 146 | (421) | 13,296 | 13,144 |
| % Change | 12.8% | 5.1% | 7.1% | 5.9% | 1.6% | -3.1% | 9.3% | 8.5% |
| Change 90-00 | 20,107 | 1,588 | 1,844 | 695 | 112 | (865) | 23,481 | 24,579 |
| % Change | 27.3% | 21.1% | 22.2% | 11.0% | 1.3% | -5.9% | 19.7% | 18.8% |
| Average HH Size | | | | | | | | |
| 2006 estimate | 2.73 | 2.56 | 2.73 | 2.34 | 2.4 | 2.33 | 2.65 | 2.64 |
| 2000 census | 2.73 | 2.58 | 2.76 | 2.37 | 2.43 | 2.38 | 2.65 | 2.64 |
| 1990 census | 2.82 | 2.76 | 2.93 | 2.49 | 2.53 | 2.46 | 2.74 | 2.73 |
| Change 00-06 | - | (0.0) | (0.0) | (0.0) | (0.0) | (0.0) | - | - |
| % Change | 0.0% | -0.8% | -1.1% | -1.3% | -1.2% | -2.1% | 0.0% | 0.0% |
| Change 90-00 | (0.09) | (0.18) | (0.17) | (0.12) | (0.10) | (0.08) | (0.09) | (0.09) |
| % Change | -3.2% | -6.5% | -5.8% | -4.8% | -4.0% | -3.3% | -3.3% | -3.3% |

Source: US Census and DemographicsNOW

E. HOUSEHOLD AND PER CAPITA INCOME

Table 2-6 presents the change in median household and per capita income levels for study area jurisdictions between 1990 and 2000. As the table illustrates, the median household income for the study area as a whole increased by 34%, from approximately \$31,755 to \$42,545, during this time period. The study area average income presented in the table represents a calculation based on the median income levels for the six jurisdictions as reported by the census. Median household incomes in Dinwiddie and Prince George Counties increased at rates that exceeded the study area average by approximately 7%-9% while the cities of Colonial Heights and Hopewell experienced median income changes that were 9%-11% below the average. In Chesterfield County and the City of Petersburg the change in median household income levels were generally equivalent to the 34% overall average rate of growth throughout the study area as a whole.

Also illustrated in Table 2-6 is a comparison of the change in median household income to the general rate of inflation as measured by the Consumer Price Index (CPI). The CPI provides a measure of change in the cost of selective goods and services for the country as a

whole, which is calculated each year by the U. S. Bureau of Labor Statistics. When the CPI is compared to the change in median household income, it provides an indication of what might be termed “real growth” in income levels beyond what was required to keep up with rising costs. Between 1989 and 1999, the CPI increased by 34.4%, which was almost identical to the study area’s increase in income levels, indicating that on average, income levels were just keeping pace with the increase in goods and services within the region. However, as illustrated in the table, income growth in individual jurisdictions did not keep pace with inflation, suggesting an adverse relationship between costs and incomes for residents in these communities.

Estimates of income change for 2006 from DemographicsNow suggest there is a slowing in the rate of growth throughout the study area. Between 1999 and 2006, the average increase in median household income for study area jurisdictions is approximately 13%, which is less than half the rate of growth for the previous decade.

Table 2-6 Median Household and Per Capita Income in Study Area 1989-2006

| Median Household Income | | | | | | | | |
|--------------------------------|----------------------------|-------------------------|-----------------------------|------------------------------|----------------------|------------------------|---------------------------|-------------------------|
| | Chesterfield County | Dinwiddie County | Prince George County | Colonial Heights City | Hopewell City | Petersburg City | Study Area Average | Crater PDC Total |
| 2006 estimate | \$66,913 | \$47,506 | \$56,067 | \$48,701 | \$36,810 | \$32,648 | \$48,108 | \$43,451 |
| 1999 census | \$58,537 | \$41,582 | \$49,877 | \$43,224 | \$33,196 | \$28,851 | \$42,545 | \$38,617 |
| 1989 census | \$43,604 | \$29,388 | \$34,825 | \$34,472 | \$26,934 | \$21,309 | \$31,755 | \$27,952 |
| Change 99-06 | \$8,376 | \$5,924 | \$6,190 | \$5,477 | \$3,614 | \$3,797 | \$5,563 | \$4,834 |
| Percent Change | 14.3% | 14.2% | 12.4% | 12.7% | 10.9% | 13.2% | 13.1% | 12.5% |
| Change 89-99 | \$14,933 | \$12,194 | \$15,052 | \$8,752 | \$6,262 | \$7,542 | \$10,789 | \$10,665 |
| Percent Change | 34.2% | 41.5% | 43.2% | 25.4% | 23.2% | 35.4% | 34.0% | 38.2% |
| CPI Real Growth[1] | -0.1% | 7.1% | 8.9% | -9.0% | -11.1% | 1.0% | -0.4% | 3.8% |

| Per Capita Income | | | | | | | | |
|--------------------------|----------------------------|-------------------------|-----------------------------|------------------------------|----------------------|------------------------|---------------------------|-------------|
| | Chesterfield County | Dinwiddie County | Prince George County | Colonial Heights City | Hopewell City | Petersburg City | Study Area Average | CPDC |
| 2006 estimate | \$28,653 | \$21,883 | \$22,463 | \$27,171 | \$18,694 | \$18,408 | \$22,879 | \$20,622 |
| 1999 census | \$25,286 | \$19,122 | \$20,196 | \$23,659 | \$16,338 | \$15,989 | \$20,098 | \$18,195 |
| 1989 census | \$17,423 | \$12,212 | \$12,714 | \$15,639 | \$11,897 | \$10,547 | \$13,405 | \$12,177 |
| Change 99-06 | \$3,367 | \$2,761 | \$2,267 | \$3,512 | \$2,356 | \$2,419 | \$2,780 | \$2,427 |
| Percent Change | 13.3% | 14.4% | 11.2% | 14.8% | 14.4% | 15.1% | 13.8% | 13.3% |
| Change 89-99 | \$7,863 | \$6,910 | \$7,482 | \$8,020 | \$4,441 | \$5,442 | \$6,693 | \$6,019 |
| Percent Change | 45.1% | 56.6% | 58.8% | 51.3% | 37.3% | 51.6% | 49.9% | 49.4% |

Source: US Census and DemographicsNOW
[1] Compares percent change in income to percent change in consumer price index during this time period

Per capita income levels experienced generally higher growth rates when compared to changes in median household income within the study area. On average, per capita income rose by almost 50% between 1989 and 1999, according to the Census Bureau, as compared to the household income increase of only 34%. This higher rate of per capita income is largely reflective of the decline in average household size noted previously in this section. Estimates of change in per capita income for 2006 suggest a significant decrease in comparison to the rate of growth over the previous decade. Between 1999 and 2006, per capita income in the study area increased, on average, by 13.8%, which represents an estimated decline of almost 75% of the growth during the previous ten years.

3

HOUSING ANALYSIS

A. INTRODUCTION

This chapter provides an analysis of the historical changes in the housing supply as well as more recent development trends within the study area. The information presented below includes an assessment of total changes in the housing supply between 1990 and 2006 along with an overview of other characteristics such as composition of the stock, tenure/occupancy rates, and changes in housing costs. A discussion is also presented regarding the future development potential within the market as it relates to housing construction within the Fort Lee area.

B. SUMMARY OF MAJOR FINDINGS AND CONCLUSIONS

Housing Inventory and Construction Trends

- The study area contained over 151,000 housing units as of 2000 and had added approximately 24,000 housing units between 1990 and 2000, or 2,400 annually, representing an average growth rate of 1.8%
- The largest portion of historical housing growth occurred in Chesterfield County, which added 2,038 units annually between 1990 and 2000. In comparison, average annual housing unit absorption for the remaining jurisdictions was as follows: Prince George County, 209 units; Dinwiddie County, 168 units; City of Colonial Heights, 75 units; City of Hopewell, 24 units. The City of Petersburg had a recorded net loss of 241 housing units over this ten-year period that is predominantly attributable to demolition of substandard structures.
- Single-family dwellings are the dominant type of housing found in the study area and a lack of new multi-family construction has placed pressure on this segment of the market to serve as rental housing. As of 2000, approximately 17,300 single-family homes, or 12% of all occupied units, were supporting the rental market. Use of single-family homes as rental properties can contribute to lack of investment and pockets of neighborhood decline, which is evident in some portions of the study area.
- Despite the demand for rental housing noted above, rental vacancy rates were relatively high in 2000, at 8.3% for the study area as a whole, suggesting that there

may be some issues related to the size, quality or location of portions of the existing rental supply. Conversely, these same characteristics of the single-family housing supply, combined with the availability of an adequate supply of new homes, may make some portion of the stock unattractive to the for-sale market resulting in conversion to rental occupancy.

- Since 2000, the annual rate of housing construction in the study area has exceeded the rate observed during the previous decade (1990 - 2000). On average, the annual number of housing units permitted over the last six years was approximately 3,440 as compared with 2,480 over the previous ten years. However, the annual number of residential building permits issued peaked in 2004, at which time they began to decline and do not yet appear to have reached a low point. Approximately 84% of all residential building permits issued in the study area since 2000 have been in Chesterfield County.

Fort Lee Housing

- As of FY08, Fort Lee is projected to have approximately 1,200 housing units on-post to house families permanently stationed at the garrison. This total is expected to increase to between 1,530 and 1,590 by FY11 - FY12.
- Existing barracks capacity on-post can presently accommodate 3,000 personnel. This capacity is planned to be increased by 1,248 in FY08 and 2,184 in FY09. Four (4) additional barracks facilities are programmed for construction in FY10, but the capacity of these facilities has yet to be determined.
- Short-term lodging facilities (i.e. hotel-style rooms) on Fort Lee presently total 574 rooms, which are located in multiple buildings. This room supply is presently inadequate to accommodate current demand requiring an additional 450 rooms per night, on average, to be secured at private lodging facilities off-post. The demand for this type of lodging is projected to increase dramatically between FY09 and FY11.

Residential Pricing

- Average home sales prices within the study area, for 2006, were highest in Chesterfield and Prince George Counties, and Colonial Heights, with respective average sales prices of \$282,000, \$225,000, and \$192,000. The City of Petersburg had the most affordable average sale price of \$103,000 and steadily increasing sales that suggests speculative investment related to renovations of its historic housing stock.
- Average annual sales prices in study area communities have risen by 9% to 12% over the last six years. However, the total number of sales entered a period of decline in 2005-06 with prices reportedly beginning to fall as well in many communities.
- Rental housing costs rose by an average of 3.2% annually between 1990 and 2000 within the study area as a whole. A recent survey of rental properties in the Fort Lee area suggests annual rents had increased by 2.3% annually between 2002 and 2007. However, over the last two years rents appear to have increased more rapidly at 4.9% annually suggesting the market may be anticipating increased demand related to Fort Lee.

Regional Development Potential

- There is a significant amount of housing development potential within the study area based on the number housing units that have been approved but are not yet built. As of February 2007, over 13,000 housing units/lots had been approved for development but had not had building permits issued. However, the vast majority of these approved units are single-family dwellings and over 80% are located in Chesterfield County.
- Build-out of the total approved units could take 4 to 10 years based on historical absorption levels. However, some of these units represent older subdivisions that may no longer be viable under current development regulations.
- Further regional development potential is reflected by the additional 20,500 housing units tentatively approved (i.e., rezoning has been approved) within the study area although these units could take several years before final approval is obtained. Rezoning requests and/or conceptual plan reviews have also been requested by developers for an additional 14,300 units within the study area. Potential approval and development of these units would represent a longer-term and more speculative supply of housing for the region.

Housing Affordability

- Housing is generally affordable in the for-sale and for-rent markets for households directly associated with the growth at Fort Lee. The housing allowance for military households and income levels of both military and civilian workers are adequate, based on recent sales data compiled for both existing housing and newly built housing in the region.
- Housing affordability is not as strong for those households locating in the region not directly related to the expansion at Fort Lee. Affordability for homeownership units ranges from 50% to 60% for those households seeking homeownership utilizing average incomes and values. The rental market is relatively more affordable for those new households projected as renters. Affordability ranged from 70% to 85% in the different communities in the Fort Lee study area.
- It was reported that the cost of land and construction will continue to increase the disparity between the ability to pay and the pricing of housing. This is particularly true for the three cities, where there is very little affordable, vacant land to develop. As such, attention needs to be given to these communities to assist in removing barriers for market growth, particularly for homeownership.
- The pricing for housing marketed to the incoming households relocating to Fort Lee should be between \$200,000 and \$300,000. Almost all of the new households that would likely be interested in homeownership can afford a \$200,000 home. However, the ability to pay for housing drops significantly beyond the \$300,000 threshold.
- The upper-end housing market, or those priced over \$300,000, is much smaller. Between 320 and 400 households are projected to be able to afford a \$350,000 home. This number drops to between 60 and 220 households for a \$450,000 home, with the higher end requiring most of the military households to have a working cosigner within the household.

C. HOUSING SUPPLY CHARACTERISTICS

Between 1990 and 2000, the study area experienced a significant expansion of the housing supply with the addition of 24,779 total units resulting in total growth of almost 20%. This represents an average annual absorption of approximately 2,480 units over the course of the decade, or a 1.8% annual rate of growth. As illustrated in Table 3-1, the vast majority of the added housing units, approximately 22,000, were single-family detached dwellings. An additional 1,088 single-family attached units, such as townhouses or condominiums, were also constructed during this time. In comparison, only 2,051 multi-family dwelling units (including structures with 3 or more units) were added to the housing supply, along with approximately 550 mobile homes (also referred to as manufactured housing). Increases in total housing were offset somewhat by a decrease in the number of duplex units as well as units categorized as "other" by the Census Bureau. These decreases may be the result of housing conversions (e.g. combining units), demolition, or the reclassification of unit types between the two census enumerations. Overall, as of 2000, the study area had a total housing supply of over 151,000 units that was comprised of approximately 86% single-family dwellings (detached, attached and mobile homes), 2% duplex units, and 12% multi-family units. Approximately 1,200 of the study area's total dwelling units represent military housing located on Fort Lee. With regard to census enumerations presented in this chapter, these units would be included as part of Prince George County's housing stock since the base is located within that county.

The rate of housing unit absorption varied considerably among the individual study area jurisdictions over the previous decade. As illustrated in Table 3-1, Chesterfield County contained approximately 65% of the total housing supply as of 2000, with the remaining 35% being distributed with roughly 5% to 10% in each of the other five communities. Chesterfield County far outdistanced the remainder of the study area in terms of both the total size of its housing supply and total growth. However, significant rates of growth were also recorded in Dinwiddie and Prince George Counties and to a lesser degree, in the City of Colonial Heights. These two counties had respective growth rates of 21% and 24% from 1990 to 2000, with a combined increase of approximately 3,770 dwelling units. As noted previously, growth rates in the three cities are not expected to be commensurate with the counties due to their level of build out and limited land areas; however, modest growth of approximately 750 units occurred in Colonial Heights while Hopewell saw an increase of only 124 units over the decade. In Petersburg, the census indicates that there was an overall loss of 241 housing units in ten years, although 360 single-family, 121 multi-family, and 10 mobile homes were added during that time as well. According to city officials, the majority of this reported decline in total housing is attributable to demolition of substandard properties; however, the exact number of units demolished could not be readily identified from historical records. In addition to the loss related to demolition, it is likely that some of this decrease in certain housing types is the result of conversions or the combining of multi-family units. However, it is also possible that some structures were considered uninhabitable at the time of the census enumeration and therefore, were not reflected as part of the city's total housing supply.

Table 3-1 Total Housing Units by Units in Structure for the Study Area 1990 - 2000

| Units in Structure | Total Units - 2000 | | | | | | | Study Area Total | Crater PDC Total |
|---|------------------------|---------------------|-------------------------|--------------------------|------------------|--------------------|----------------|---------------------|---------------------|
| | Chesterfield County | Dinwiddie County | Prince George County | Colonial Heights City | Hopewell City | Petersburg City | | | |
| 1, detached | 79,931 | 7,725 | 7,694 | 5,775 | 6,746 | 9,735 | 117,606 | 127,721 | |
| 1, attached | 3,595 | 118 | 723 | 160 | 424 | 1,037 | 6,057 | 6,180 | |
| 2 | 780 | 53 | 207 | 301 | 558 | 1,016 | 2,915 | 3,058 | |
| 3 to 9 | 5,129 | 96 | 647 | 559 | 1001 | 2,427 | 9,859 | 10,340 | |
| 10 to 49 | 4,596 | 171 | 164 | 363 | 600 | 545 | 6,439 | 6,621 | |
| 50 or more | 1,079 | 14 | 109 | 130 | 201 | 798 | 2,331 | 2,457 | |
| Mobile home | 2,586 | 1,524 | 1,175 | 52 | 213 | 387 | 5,937 | 8,891 | |
| Other | 11 | 6 | 7 | 0 | 6 | 10 | 40 | 40 | |
| Total | 97,707 | 9,707 | 10,726 | 7,340 | 9,749 | 15,955 | 151,184 | 165,308 | |
| Percent Total | 64.6% | 6.4% | 7.1% | 4.9% | 6.4% | 10.6% | 100.0% | n/a | |
| Change in Total Units 1990-2000 | | | | | | | | | |
| 1, detached | 17,997 | 1,293 | 1,892 | 375 | 125 | 360 | 22,042 | 22,965 | |
| 1, attached | 615 | 54 | 225 | 28 | 168 | -2 | 1,088 | 1,110 | |
| 2 | 157 | -51 | -21 | 16 | -96 | -192 | -187 | -176 | |
| 3 to 9 | 203 | 74 | -279 | 140 | -63 | -52 | 23 | 20 | |
| 10 to 49 | 768 | 165 | 147 | 47 | -37 | -361 | 729 | 761 | |
| 50 or more | 911 | 14 | 109 | 130 | 14 | 121 | 1,299 | 1,425 | |
| Mobile home | 118 | 215 | 77 | 47 | 85 | 10 | 552 | 886 | |
| Other | -391 | -80 | -64 | -35 | -72 | -125 | -767 | -893 | |
| Total | 20,378 | 1,684 | 2,086 | 748 | 124 | -241 | 24,779 | 26,098 | |
| Percent Total | 82.2% | 6.8% | 8.4% | 3.0% | 0.5% | -1.0% | 100.0% | n/a | |
| Percent Change in Total Units 1990-2000 | | | | | | | | | |
| 1, detached | 29.1% | 20.1% | 32.6% | 6.9% | 1.9% | 3.8% | 23.1% | 21.9% | |
| 1, attached | 20.6% | 84.4% | 45.2% | 21.2% | 65.6% | -0.2% | 21.9% | 21.9% | |
| 2 | 25.2% | -49.0% | -9.2% | 5.6% | -14.7% | -15.9% | -6.0% | -5.4% | |
| 3 to 9 | 4.1% | 336.4% | -30.1% | 33.4% | -5.9% | -2.1% | 0.2% | 0.2% | |
| 10 to 49 | 20.1% | NA | 864.7% | 14.9% | -5.8% | -39.8% | 12.8% | 13.0% | |
| 50 or more | 542.3% | NA | NA | NA | 7.5% | 17.9% | 125.9% | 138.1% | |
| Mobile home | 4.8% | 16.4% | 7.0% | 940.0% | 66.4% | 2.7% | 10.3% | 11.1% | |
| Other | -97.3% | -93.0% | -90.1% | -100.0% | -92.3% | -92.6% | -95.0% | -95.7% | |
| Total | 26.4% | 21.0% | 24.1% | 11.3% | 1.3% | -1.5% | 19.6% | 18.7% | |
| Change in Total Housing 1990 - 2000 | | | | | | | | | |
| % Change 90-00 | 26.4% | 21.0% | 24.1% | 11.3% | 1.3% | -1.5% | 19.6% | 18.7% | |
| Avg Annual Units | 2,038 | 168 | 209 | 75 | 12 | -24 | 2,478 | 2,610 | |
| Avg Annual Rate | 2.4% | 1.9% | 2.2% | 1.1% | 0.1% | -0.1% | 1.8% | 1.7% | |

Source: US Census

D. RECENT RESIDENTIAL DEVELOPMENT TRENDS

Since 2000, the rate of housing construction within the study area, as determined by the number of residential building permits issued, has almost equaled the total number of units added over the prior decade. As illustrated in Table 3-2, the average annual rate of growth between 2000 and 2006 was 2.1%, with 24,070 permits issued, as compared with a growth rate of 1.7% for the previous decade and the addition of 24,779 units. Single-family homes continue to be the dominant housing type in the marketplace, accounting for almost 21,000 of the total permitted dwellings. In comparison, just over 3,000 multi-family units were permitted, which exceeds the 2,051 multi-family units constructed during the previous decade.

It should be noted that the issuance of a building permit does not guarantee that all units will ultimately be constructed, nor is there any certainty regarding the time frame for actual build out of the total units approved. This is particularly relevant in Chesterfield County where a large number of units are being permitted, but in some locations build out has not been achieved even over a very long period of time. This brings into question the viability of some of the approved units that may no longer be possible to construct under current zoning and design standards. However, the number of units that would fall into this category is

believed to be a relatively small percentage of the total units approved but not built, as discussed in a subsequent section of this chapter.

**Table 3-2 Annual Residential Building Permits 2000-2006
Fort Lee Study Area**

| Residential Dwelling Units Permitted | | | | | | | | | | |
|--------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------------|-------------|
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Total | Avg. Annual | Rate |
| Chesterfield County | | | | | | | | | | |
| Single Family | 1,976 | 2,423 | 2,491 | 2,498 | 2,798 | 2,750 | 2,148 | 17,084 | 2,441 | |
| Multifamily | 0 | 25 | 834 | 719 | 1,114 | 322 | 0 | 3,014 | 431 | |
| Total | 1,976 | 2,448 | 3,325 | 3,217 | 3,912 | 3,072 | 2,148 | 20,098 | 2,871 | 2.7% |
| Dinwiddie County | | | | | | | | | | |
| Single Family | 140 | 192 | 171 | 213 | 227 | 174 | 162 | 1,279 | 183 | |
| Multifamily | 6 | 0 | 2 | 0 | 0 | 0 | 0 | 8 | 1 | |
| Total | 146 | 192 | 173 | 213 | 227 | 174 | 162 | 1,287 | 184 | 1.8% |
| Prince George County | | | | | | | | | | |
| Single Family | 181 | 202 | 244 | 222 | 245 | 238 | 240 | 1,572 | 225 | |
| Multifamily | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | |
| Total | 181 | 202 | 244 | 222 | 245 | 238 | 240 | 1,572 | 225 | 2.0% |
| City of Colonial Heights | | | | | | | | | | |
| Single Family | 43 | 63 | 54 | 57 | 46 | 54 | 34 | 351 | 50 | |
| Multifamily | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 2 | |
| Total | 54 | 63 | 54 | 57 | 46 | 54 | 34 | 362 | 52 | 0.7% |
| City of Hopewell | | | | | | | | | | |
| Single Family | 66 | 56 | 51 | 44 | 48 | 152 | 159 | 576 | 82 | |
| Multifamily | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | |
| Total | 66 | 58 | 51 | 44 | 48 | 152 | 159 | 578 | 83 | 0.8% |
| City of Petersburg | | | | | | | | | | |
| Single Family | 11 | 16 | 8 | 10 | 20 | 21 | 51 | 137 | 20 | |
| Multifamily | 0 | 0 | 0 | 0 | 36 | 0 | 0 | 36 | 5 | |
| Total | 11 | 16 | 8 | 10 | 56 | 21 | 51 | 173 | 25 | 0.2% |
| Study Area Total | | | | | | | | | | |
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Total | Avg. Annual | |
| Single Family | 2,417 | 2,952 | 3,019 | 3,044 | 3,384 | 3,389 | 2,794 | 20,999 | 3,000 | |
| Multifamily | 17 | 27 | 836 | 719 | 1,150 | 322 | - | 3,071 | 439 | |
| Total | 2,434 | 2,979 | 3,855 | 3,763 | 4,534 | 3,711 | 2,794 | 24,070 | 3,439 | 2.1% |

Source: US Census Bureau and Local Jurisdictions

Over the course of the last six years (2000 - 2006), the rate of housing construction has fluctuated. It reached a peak in 2004 where apparent demand led to the issuance of permits for over 4,500 dwelling units. However, since 2004 the number of permits issued has declined steadily or remained flat for all study area jurisdictions. There is no clear indication at present that the current housing market slump is expected to end in the immediate future, which may lead to a continuation of the decline in construction activity illustrated in the table. This reduction in housing construction rates at the time of expected expansion at Fort Lee could result in strains on the study area housing market. However, there may be sufficient capacity in the potential future housing supply (a condition that is discussed later in this chapter) that could help mitigate increases in demand resulting from expansion of this military installation.

E. FORT LEE HOUSING SUPPLY

Fort Lee's on-post housing can be grouped into three primary categories that include family housing, short-term lodging, and billeting/barracks. Family housing units are typically reserved for permanent party military personnel and their dependents for which a long-term posting is anticipated at the facility. Lodging rooms are used for short-term stays, generally two to six weeks, by mid-grade, or higher, soldiers who are on-post for training or other

activities. Barracks space is reserved for Advanced Individual Trainee (AIT) personnel and other students/trainees, as well as a limited amount of permanent party single soldiers.

It should be noted that, due to the on-going housing privatization program related to the post's realignment and expansion, the housing and lodging inventory data presented in this section are presently in a state of flux and subject to change. The statistics noted below were the most current estimates available as of mid-2007.

Family housing units are comprised of single-family, duplex and quadraplex-style dwellings that contain between two and five bedrooms. According to information provided by the Fort Lee Housing Office, there is currently (as of May 2007) a waiting list for on-post family housing that ranges between 6 months and two years, depending on the type of unit and number of bedrooms. Prior to the on-going construction program, there were 1,125 family housing units on the post. The initial phases of construction call for the demolition of 148 units and the construction of approximately 230 new units so that, as of FY08, there will be a total of 1,206 family units available for occupancy. Future rounds of family housing construction in FY11 or FY12 will add between 320 - 380 units resulting in a total inventory of approximately 1,530 to 1,590 units. As of September 2007, the Fort Lee Housing Office reported that a reduction in the housing allowance would reduce the end state to 1,493 family units on-post. However, if the housing allowance increases in the future, Fort Lee estimates that the end state could increase 1,668 units. A final determination regarding the number and timing of this additional construction will be made once funding certainty can be achieved.

There are presently a total of 574 on-post lodging rooms at Fort Lee. These rooms are located in multiple buildings and are generally intended for single occupancy use, although a small percentage are suites that allow for double occupancy. The supply of on-post lodging is reportedly insufficient to meet present demand, requiring the military to secure additional hotel rooms off-post that, on average, total approximately 457 per night. This off-post demand can range from a high of 802 in the peak summer months to a low of zero in the winter due to fluctuations in garrison operations. In addition to the insufficient supply of on-post lodging, a substantial portion of the existing rooms, possibly as much as 80% to 90%, are considered to need extensive renovation. This may affect their long-term viability to support future demand for this type of housing on the post.

Estimates provided by the BRAC Synchronization Office at Fort Lee anticipate a significant increase in future off-post demand for lodging facilities beginning in FY09 when approximately 212 additional rooms will be required on an average daily basis, with peak demand exceeding 1,500 rooms per day. This will be followed by subsequent increases in FY10 and FY11 of approximately 102 and 162 average daily rooms, respectively. If recent news holds true, funding for Fort Lee's lodging could be appropriated in FY09-10, with construction occurring by 2012. Presently, there are no approved plans to address the existing or near-term shortage of short-term lodging rooms directly within the garrison property. It should also be noted that the lodging estimates noted above do not include the additional demand generated for these types of accommodations by other activities related to the post such as conferences, seminars, meetings, etc.

Lastly, existing billeting/barracks space at Fort Lee, which is rated by the bed capacity of the facilities, can accommodate approximately 3,000 personnel. Approximately 290 of the total

barracks capacity are presently located in temporary modular structures.¹ In order to accommodate future demand for these types of facilities, several successive rounds of construction are anticipated beginning in FY08 when two barracks will be added with space for an additional 1,284 personnel. This will be followed in FY09 with the construction of four additional barracks that will have capacity for 2,184 personnel. A third year of barracks construction is planned for FY10, but the capacity of these facilities is yet to be determined.

F. HOUSING TENURE AND VACANCY RATES

Table 3-3 presents the change in tenure, which denotes owner- versus renter-occupied housing, for the study area jurisdictions over the last decade. It also identifies vacancy rates for both segments of the housing market during that time period. As of 2000, the study area had approximately 107,550 owner-occupied units and 35,370 renter-occupied units, which represent 75% and 25%, respectively, of the total occupied dwellings. In general, the three counties tend to have a higher percentage of owner-occupied units than do the cities. In fact, Hopewell and Petersburg are both approaching a 50/50 split between owner- and renter-occupied units. However, Colonial Heights has a distribution more representative of the counties' percentages.

Table 3-3 Tenure and Vacancy Rates for the Study Area 1990 - 2000

| | Chesterfield County | Dinwiddie County | Prince George County | Colonial Heights City | Hopewell City | Petersburg City | Study Area Total | Crater PDC Total |
|--------------------------------------|------------------------|---------------------|-------------------------|--------------------------|------------------|--------------------|---------------------|---------------------|
| Total Housing Units 2000 | 97,707 | 9,707 | 10,726 | 7,340 | 9,749 | 15,955 | 151,184 | 165,308 |
| Occupied | 93,772 | 9,107 | 10,159 | 7,027 | 9,055 | 13,799 | 142,919 | 155,265 |
| Owner occupied | 75,874 | 7,214 | 7,418 | 4,871 | 5,067 | 7,107 | 107,551 | 116,246 |
| Renter occupied | 17,898 | 1,893 | 2,741 | 2,156 | 3,988 | 6,692 | 35,368 | 39,019 |
| Vacant | 3,935 | 600 | 567 | 313 | 694 | 2,156 | 8,265 | 10,043 |
| Percent Occupied Housing 2000 | | | | | | | | |
| Occupied | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Owner occupied | 81% | 79% | 73% | 69% | 56% | 52% | 75% | 75% |
| Renter occupied | 19% | 21% | 27% | 31% | 44% | 48% | 25% | 25% |
| Change 90-00 | | | | | | | | |
| Total Housing Units | 20,378 | 1,684 | 2,086 | 748 | 124 | (241) | 24,779 | 26,098 |
| Occupied | 20,331 | 1,615 | 1,909 | 664 | 41 | (931) | 23,629 | 24,716 |
| Owner occupied | 17,489 | 1,212 | 1,739 | 280 | (65) | (384) | 20,271 | 20,964 |
| Renter occupied | 2,842 | 403 | 170 | 384 | 106 | (547) | 3,358 | 3,752 |
| Vacant | 47 | 69 | 177 | 84 | 83 | 690 | 1,150 | 1,382 |
| Percent Change 90-00 | | | | | | | | |
| Total Housing Units | 26.4% | 21.0% | 24.1% | 11.3% | 1.3% | -1.5% | 19.6% | 18.7% |
| Occupied | 27.7% | 21.6% | 23.1% | 10.4% | 0.5% | -6.3% | 19.8% | 18.9% |
| Owner occupied | 30.0% | 20.2% | 30.6% | 6.1% | -1.3% | -5.1% | 23.2% | 22.0% |
| Renter occupied | 18.9% | 27.0% | 6.6% | 21.7% | 2.7% | -7.6% | 10.5% | 10.6% |
| Vacant | 1.2% | 13.0% | 45.4% | 36.7% | 13.6% | 47.1% | 16.2% | 16.0% |
| Vacancy Rate 2000 | | | | | | | | |
| Total Housing Units Rate | 4.0% | 6.2% | 5.3% | 4.3% | 7.1% | 13.5% | 5.5% | 6.1% |
| Available Housing Vacancy Rate | 2.7% | 2.3% | 2.2% | 2.7% | 4.4% | 7.9% | 3.3% | 3.2% |
| Homeowner Vacancy Rate | 1.3% | 1.1% | 1.3% | 1.2% | 3.5% | 3.4% | 1.5% | 1.5% |
| Rental Vacancy Rate | 8.3% | 6.7% | 4.3% | 6.0% | 5.7% | 12.4% | 8.3% | 8.1% |
| Change 90-00 | | | | | | | | |
| Total Housing Units Rate | -1.0% | -0.4% | 0.8% | 0.8% | 0.8% | 4.5% | -0.2% | -0.1% |
| Available Housing Vacancy Rate | -1.2% | 0.0% | 0.3% | 0.2% | 0.1% | 2.7% | -0.5% | -0.4% |
| Homeowner Vacancy Rate | -1.0% | -0.2% | 0.0% | 0.3% | 2.0% | 0.8% | -0.6% | -0.5% |
| Rental Vacancy Rate | -1.1% | 0.3% | 1.5% | -0.3% | -2.2% | 4.4% | 0.2% | 0.1% |

Source: U.S. Census

The change in tenure between 1990 and 2000 is largely reflective of the types of additional housing units constructed during that time, which as noted previously, were predominantly single-family. Within the study area, owner-occupied units increased by approximately

¹ Draft Environmental Impact Statement, Implementation of Base Closure and Realignment (BRAC) Recommendations and Other Army Actions at Fort Lee, Virginia, and Fort A.P. Hill, Virginia, Department of the Army, September 2006

23% (20,271 households) while the number of renters increased by only 10.5% (3,358 households).

One fact that is revealed by comparing the number of owner-/renter-occupied units to the type of housing available in the study area is that there were an insufficient number of adequate multi-family dwellings in the marketplace to meet the demand for rental housing as of 2000. According to census estimates, approximately 17,320 housing units, or 12.1% of the total occupied single-family dwellings (including detached, attached, and mobile homes), were being used as rental units within the study area (See Table 3-4). The vast majority of these (approximately 13,000) were single-family detached dwellings. Chesterfield County had the largest number of units in this category; however, in comparison to other jurisdictions it had the lowest percentage. All other communities had in excess of 13% of single-family homes being used for rental properties with the cities of Hopewell and Petersburg exhibiting the largest concentrations of 21.2% and 20.3%, respectively. Percentages of this magnitude within the relatively confined geographic area encompassed by these two cities are reflective of, and probably contributing to, neighborhood decline that has been identified in various locations within these communities.

Table 3-4 Renter-Occupied Single-family Dwellings in the Study Area - 2000

| | Chesterfield County | Dinwiddie County | Prince George County | Colonial Heights City | Hopewell City | Petersburg City | Study Area Total | Crater PDC Total |
|---------------------------------------|---------------------|------------------|----------------------|-----------------------|---------------|-----------------|------------------|------------------|
| Renter Occup. Single Family Dwellings | 8,283 | 1,604 | 1,737 | 972 | 1,924 | 2,804 | 17,324 | 20,159 |
| % Total Occup. Units | 8.8% | 17.6% | 17.1% | 13.8% | 21.2% | 20.3% | 12.1% | 13.0% |

Source: US Census

This demand for single-family homes as rental housing in 2000 is somewhat incongruent with the fact that vacancy rates for rental units were relatively high at that time. As shown in Table 3-3, the overall rental vacancy rate for the study area was 8.3%, a figure that reportedly remained relatively unchanged over the course of the previous decade (1990-2000), according to the Census Bureau. This suggests there may be a significant portion of the rental stock that is inadequate within the market place to meet consumer needs, a condition that could be due to a number of factors including, size, quality, and location of the units. There were approximately 2,800 vacant rental units in the study area as of 2000.

A more recent survey conducted by RKG Associates, Inc. of rental properties within the study area suggests that vacancy rates have tightened somewhat since the 2000 Census. The survey, which was conducted by telephone in April 2007, included approximately 70 rental complexes that had been included in two previous surveys completed for properties in the vicinity of Fort Lee². The properties contained a mixture of apartments and townhouses but did not include any single-family dwellings. Overall, this recent survey found a vacancy rate of 4.3% within the study area with all jurisdictions appearing to have considerably lower vacancy rates than those reported in 2000 (refer to Table 3-8 located later in this section). Colonial Heights had the lowest vacancy rate at 2% followed by Chesterfield County at 2.6% and Prince George County at 3%. Hopewell and Petersburg reportedly had higher than average vacancy rates of 5% and 6.4%, respectively. (Note: Dinwiddie County was not included in either of the two previous surveys noted above and therefore, was not

² Strategic Housing Improvement Plan, Hopewell, Virginia, Bay Area Economics, November 11, 2003; and, Fort Lee Apartment Guide, Housing Services Office, Fort Lee, VA, August 2005

included in the follow-up survey conducted as part of this analysis). It cannot be stated with any certainty as to whether these apparent declines in vacancy rates are reflective of the entire study area or just the area near Fort Lee. It is very possible that demand for rental housing by personnel affiliated with the base creates a vacancy rate that is skewed lower than other portions of the study area due to its proximity to the installation. It may also be that the two previous studies on which the housing sample was based included a selection of rental properties that were not representative of the study area as a whole.

In contrast to the rental market, vacancy rates for homeowner units was 1.5% overall within the study area as of 2000. These rates were more than double, however, in the cities of Hopewell and Petersburg indicating that there may have been some quality issues within the owner-occupied portions of those housing supplies at that time. Two other vacancy rates are provided in Table 3-3, the total vacancy rate for all housing units and the available housing vacancy rate. The latter of these two represents the "true" vacancy rate of housing that is available either for sale or for rent. The former category includes some units that have already been rented or sold but not yet occupied, according to the U.S. Census Bureau.

G. HOUSING VALUES

A review of housing values and home sales was conducted to provide a perspective on housing affordability within the Fort Lee study area. This information is useful in determining how much housing costs are increasing, as well as the relationship between home prices and income of future residents related to Fort Lee's planned expansion. Information is also presented in this section regarding changes in the study area rental rates and current rates in the immediate area encompassing the post.

Table 3-5 illustrates the change in value of owner-occupied housing units between 1990 and 2000, based on census estimates. As of 2000, the median value of an owner-occupied dwelling in the study area was approximately \$111,725, based on a weighted average of the median values. This represents a 42% increase over the course of the decade with an actual increase of just over \$33,160 per dwelling.

Table 3-5 Median Housing Values in the Study Area 1990 - 2000

| Value Range | Occupied Dwelling Units | | | | | | | Study Area Total | Crater PDC Total |
|------------------------|-------------------------|------------------|----------------------|-----------------------|---------------|-----------------|---------------|------------------|------------------|
| | Chesterfield County | Dinwiddie County | Prince George County | Colonial Heights City | Hopewell City | Petersburg City | | | |
| Less than \$50,000 | 913 | 567 | 187 | 153 | 498 | 1,581 | 3,899 | 5,303 | |
| \$50,000 to \$99,999 | 23,407 | 2,662 | 1,854 | 2,432 | 3,242 | 4,148 | 37,745 | 40,780 | |
| \$100,000 to \$149,999 | 24,277 | 1,255 | 2,278 | 1,423 | 755 | 709 | 30,697 | 31,603 | |
| \$150,000 to \$199,999 | 11,360 | 365 | 980 | 513 | 113 | 190 | 13,521 | 13,806 | |
| \$200,000 to \$249,999 | 4,983 | 56 | 325 | 111 | 46 | 33 | 5,554 | 5,594 | |
| \$250,000 or more | 5,598 | 97 | 243 | 62 | 85 | 68 | 6,153 | 6,246 | |
| Total | 70,538 | 5,002 | 5,867 | 4,694 | 4,739 | 6,729 | 97,569 | 103,332 | |
| | Percent of Total | | | | | | | | |
| Less than \$50,000 | 1.3% | 11.3% | 3.2% | 3.3% | 10.5% | 23.5% | 4.0% | 5.1% | |
| \$50,000 to \$99,999 | 33.2% | 53.2% | 31.6% | 51.8% | 68.4% | 61.6% | 38.7% | 39.5% | |
| \$100,000 to \$149,999 | 34.4% | 25.1% | 38.8% | 30.3% | 15.9% | 10.5% | 31.5% | 30.6% | |
| \$150,000 to \$199,999 | 16.1% | 7.3% | 16.7% | 10.9% | 2.4% | 2.8% | 13.9% | 13.4% | |
| \$200,000 to \$249,999 | 7.1% | 1.1% | 5.5% | 2.4% | 1.0% | 0.5% | 5.7% | 5.4% | |
| \$250,000 or more | 7.9% | 1.9% | 4.1% | 1.3% | 1.8% | 1.0% | 6.3% | 6.0% | |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | |
| Median Value | | | | | | | | | |
| 1990 \$ | 86,900 | \$ 57,600 | \$ 75,900 | \$ 69,700 | \$ 54,500 | \$ 50,600 | \$ 78,560 | \$ 76,753 | |
| 2000 \$ | 120,500 | \$ 86,900 | \$ 118,200 | \$ 94,800 | \$ 77,300 | \$ 68,600 | \$ 111,725 | \$ 109,608 | |
| Change 90-00 | \$33,600 | \$29,300 | \$42,300 | \$25,100 | \$22,800 | \$18,000 | \$33,165 | \$32,855 | |
| % Change | 38.7% | 50.9% | 55.7% | 36.0% | 41.8% | 35.6% | 42.2% | 42.8% | |

Source: US Census

The highest home values within the study area were found in Chesterfield and Prince George Counties, which had median values of \$120,500 and \$118, 2000 respectively, as of 2000. In comparison, the remaining four jurisdictions had median home values that were approximately 20% to 40% below the median in the two aforementioned counties. Housing values in Prince George are estimated to have increased by almost 56% between 1990 and 2000, which was the most rapid rate of increase for all study area jurisdictions, although Dinwiddie's median home value increased by over 50%, which was also well above the study area average.

The majority of homes within the study area, approximately 39%, were valued between \$50,000 and \$100,000 as of 2000. However, there was a comparable distribution of units in the next highest price range of \$100,000 to \$150,000 that accounted for almost 32% of total owner-occupied housing values. Dinwiddie County, as well as the three cities, had considerably higher percentages of homes, generally in excess of 50%, in the lower of these two price ranges, emphasizing the comparative affordability of their housing stocks within the study area. However, despite having only 33% of its housing in this lower value range, Chesterfield County was still estimated to have approximately 23,407 units valued between \$50,000 and \$100,000, a figure that exceeded the combined total for all other study area jurisdictions.

H. RECENT HOUSING SALES

Trends for recent home sales have been used as a second measure to evaluate housing costs within the study area. Home sale prices can provide an indication of market trends that will often precede the values reflected in local assessment records that may not always represent full market value. Home sales were examined for the years between 2000 and 2006 based on recorded sales of arms-length transactions (i.e. valid sales) reported in the assessment records of each respective jurisdiction with the exception of Prince George County, where data was available back only as far as 2004. In addition, historical homes sales data for Dinwiddie County could not be obtained from assessment records, and therefore, sales information from the local Multiple Listing Service (MLS) was substituted. While MLS data is considered to provide a good representation of home sales activities, the average sales prices from this system tend to track somewhat higher because they do not include all sales or privately transacted sales.

Table 3-6 presents the history for average sales prices of single-family home within the study area jurisdictions over the last six years. Separate sales prices are noted for new construction versus resale of existing homes, as well as the number of sales recorded for each year. In most cases, these prices generally represent all types of single-family housing including detached units, attached units such as townhouses and condominiums, as well as mobile homes. There are a number of trends represented by the data in Table 3-6 that include the following.

Table 3-6 Average Home Sales Prices for the Study Area 2000 - 2006

| Chesterfield County | | | | | | | City of Colonial Heights | | | | | | |
|----------------------------|------------|------------|-----------------|--------|-------|--------------------|---------------------------------|------------|-----------------|------------|--------|--------|--------|
| Average Sale Price | | | Number of Sales | | | Average Sale Price | | | Number of Sales | | | | |
| New Const. | Resale | Total | New | Resale | Total | New Const. | Resale | Total | New | Resale | Total | | |
| 2000 | \$ 198,349 | \$ 148,987 | \$ 160,506 | 1,315 | 4,320 | 5,635 | 2000 | \$ 153,975 | \$ 107,606 | \$ 112,321 | 12 | 106 | 118 |
| 2001 | \$ 204,786 | \$ 152,011 | \$ 163,788 | 1,413 | 4,919 | 6,332 | 2001 | \$ 176,935 | \$ 114,727 | \$ 122,971 | 25 | 162 | 187 |
| 2002 | \$ 217,422 | \$ 159,025 | \$ 174,054 | 1,772 | 5,113 | 6,885 | 2002 | \$ 153,208 | \$ 117,914 | \$ 124,068 | 34 | 161 | 195 |
| 2003 | \$ 240,550 | \$ 174,421 | \$ 190,268 | 1,787 | 5,670 | 7,457 | 2003 | \$ 202,036 | \$ 123,748 | \$ 136,683 | 38 | 192 | 230 |
| 2004 | \$ 281,121 | \$ 192,148 | \$ 213,972 | 1,942 | 5,975 | 7,917 | 2004 | \$ 201,626 | \$ 137,850 | \$ 148,360 | 44 | 223 | 267 |
| 2005 | \$ 331,790 | \$ 220,279 | \$ 247,812 | 2,138 | 6,521 | 8,659 | 2005 | \$ 262,409 | \$ 156,931 | \$ 168,280 | 34 | 282 | 316 |
| 2006 | \$ 399,334 | \$ 250,318 | \$ 282,254 | 1,617 | 5,928 | 7,545 | 2006 | \$ 276,693 | \$ 181,660 | \$ 192,351 | 36 | 284 | 320 |
| Change | \$ 200,985 | \$ 101,331 | \$ 121,748 | 302 | 1,608 | 1,910 | Change | \$ 122,718 | \$ 74,054 | \$ 80,030 | 24 | 178 | 202 |
| % Change | 101.3% | 68.0% | 75.9% | 23.0% | 37.2% | 33.9% | % Change | 79.7% | 68.8% | 71.3% | 200.0% | 167.9% | 171.2% |
| Avg. Annual | 12.4% | 9.0% | 9.9% | 3.5% | 5.4% | 5.0% | Avg. Annual | 10.3% | 9.1% | 9.4% | 20.1% | 17.9% | 18.1% |

| Prince George County | | | | | | | City of Hopewell | | | | | | |
|-----------------------------|------------|------------|-----------------|--------|-------|--------------------|-------------------------|------------|-----------------|------------|--------|-------|-------|
| Average Sale Price | | | Number of Sales | | | Average Sale Price | | | Number of Sales | | | | |
| New Const. | Resale | Total | New | Resale | Total | New Const. | Resale | Total | New | Resale | Total | | |
| 2000 | n/a | n/a | n/a | n/a | n/a | n/a | 2000 | \$ 82,688 | \$ 78,231 | \$ 78,838 | 29 | 184 | 213 |
| 2001 | n/a | n/a | n/a | n/a | n/a | n/a | 2001 | \$ 85,114 | \$ 78,957 | \$ 79,979 | 39 | 196 | 235 |
| 2002 | n/a | n/a | n/a | n/a | n/a | n/a | 2002 | \$ 124,918 | \$ 86,300 | \$ 90,513 | 30 | 245 | 275 |
| 2003 | n/a | n/a | n/a | n/a | n/a | n/a | 2003 | \$ 123,976 | \$ 88,363 | \$ 90,848 | 18 | 240 | 258 |
| 2004 | \$ 177,854 | \$ 158,499 | \$ 165,239 | 187 | 350 | 537 | 2004 | \$ 115,428 | \$ 98,305 | \$ 98,862 | 8 | 238 | 246 |
| 2005 | \$ 207,321 | \$ 180,783 | \$ 189,613 | 188 | 377 | 565 | 2005 | \$ 164,850 | \$ 105,651 | \$ 114,173 | 56 | 333 | 389 |
| 2006 | \$ 264,893 | \$ 206,750 | \$ 225,724 | 171 | 353 | 524 | 2006 | \$ 142,358 | \$ 116,932 | \$ 117,841 | 13 | 348 | 361 |
| Change | \$ 87,039 | \$ 48,251 | \$ 60,485 | (16) | 3 | (13) | Change | \$ 59,670 | \$ 38,701 | \$ 39,003 | (16) | 164 | 148 |
| % Change | 48.9% | 30.4% | 36.6% | -8.6% | 0.9% | -2.4% | % Change | 72.2% | 49.5% | 49.5% | -55.2% | 89.1% | 69.5% |
| Avg. Annual | 14.2% | 9.3% | 11.0% | -2.9% | 0.3% | -0.8% | Avg. Annual | 9.5% | 6.9% | 6.9% | -12.5% | 11.2% | 9.2% |

| Dinwiddie County | | | | | | | City of Petersburg | | | | | | |
|-------------------------|--------|-----------|-----------------|--------|-------|--------------------|---------------------------|------------|-----------------|------------|----------|--------|--------|
| Average Sale Price | | | Number of Sales | | | Average Sale Price | | | Number of Sales | | | | |
| New Const. | Resale | Total (1) | New | Resale | Total | New Const. | Resale | Total | New | Resale | Total(2) | | |
| 2000 | n/a | n/a | n/a | n/a | n/a | 2000 | \$ 57,079 | \$ 78,070 | \$ 69,608 | 17 | 144 | 189 | |
| 2001 | n/a | n/a | n/a | n/a | n/a | 2001 | \$ 85,014 | \$ 74,801 | \$ 72,965 | 19 | 168 | 201 | |
| 2002 | n/a | n/a | n/a | n/a | n/a | 2002 | \$ 80,609 | \$ 83,578 | \$ 79,813 | 9 | 177 | 206 | |
| 2003 | n/a | n/a | \$ 121,682 | n/a | n/a | 281 | 2003 | \$ 155,113 | \$ 83,490 | \$ 81,564 | 3 | 196 | 221 |
| 2004 | n/a | n/a | \$ 130,633 | n/a | n/a | 375 | 2004 | \$ 120,075 | \$ 99,098 | \$ 97,389 | 16 | 221 | 266 |
| 2005 | n/a | n/a | \$ 148,005 | n/a | n/a | 366 | 2005 | \$ 116,042 | \$ 112,777 | \$ 107,787 | 14 | 353 | 410 |
| 2006 | n/a | n/a | \$ 171,225 | n/a | n/a | 349 | 2006 | \$ 148,720 | \$ 108,880 | \$ 103,230 | 21 | 441 | 539 |
| Change | n/a | n/a | \$ 49,543 | n/a | n/a | 68 | Change | \$ 91,641 | \$ 30,810 | \$ 33,622 | 4 | 297 | 350 |
| % Change | n/a | n/a | 40.7% | n/a | n/a | 18.1% | % Change | 160.6% | 39.5% | 48.3% | 23.5% | 206.3% | 185.2% |
| Avg. Annual | n/a | n/a | 12.1% | n/a | n/a | 7.5% | Avg. Annual | 17.3% | 5.7% | 6.8% | 3.6% | 20.5% | 19.1% |

(1) Based on MLS data
Source: Local Assessor's Offices and Central Virginia Regional MLS

(2) Total may not equal combined new construction and resale due to the fact that status (new or resale) of some sales could not be determined.

- The total sales recorded within the study area between 2000 and 2006 increased by approximately 38% from 6,900 to 9,600 indicating a strong market with sustained activity. Colonial Heights, Petersburg, and Dinwiddie County (2004 - 2006 only) experienced double-digit increases in average annual sales of approximately 18% to 19%. The City of Hopewell's average growth in sales was about half that rate at 9.2%, while Chesterfield County experienced the lowest increase in total sales of 5% over the six year time period. However, the total sales in this county alone exceeded by roughly 5,500 units the combined sales of the remaining five jurisdictions in 2006.
- Another indicator of the strength of the housing market is the length of time it takes to sell a listed property. As reported by the MLS, the average Days on the Market (DOM) in 2006 ranged between 40 - 50 days throughout the study area. This represents a decrease of approximately 10 - 15 days from the average DOM prevalent in 2003. (Note: data not presented in the table).
- The overall cost of housing has also risen steadily over the last six years. Generally, the cost to purchase a home in the study area has increased by 9% to 12% annually, although the higher end of the range is reflective of the communities that had only several years of data available. Chesterfield and Prince George Counties continue to

be the highest priced submarkets within the study area where average home prices in 2006 were approximately \$282,000 and \$225,000, respectively. Petersburg is the most affordably priced community with an average sale price of approximately \$103,000 and an average increase of only 6.8%.

- The increase in sale prices of new construction is trending higher than the cost to purchase an existing home. This is illustrated by the fact that the rate of increase in sales prices between 2000 and 2006 has ranged between 12% - 17% for new construction as compared to 6% - 9% for existing homes. This is an indication that economic conditions are generally not encouraging the construction of more affordable housing within the study area. One of the factors supporting this condition is likely linked to the fact that the existing housing stock is generally priced at more affordable levels and is adequately serving this segment of the market.
- Although the six-year growth trends in home sales have been strong, a decline in the most recent totals between 2005 and 2006 indicate a market shift occurred during that time, a fact that has been noted in the housing building permit data discussed previously in this section. The amount of decrease in sales varies considerably with the most dramatic drop of almost 13%, or approximately 1,100 units, occurring in Chesterfield County. Other areas experienced much more modest decreases in sales of 20 - 40 units, including Prince George and Dinwiddie, or a small increase, such as in Colonial Heights. From a percentage change, Prince George and Dinwiddie had a decrease in sales of 7.2% and 4.6% respectively, while Colonial Heights recorded a one-year increase of 1.2%.
- Sales data for Petersburg suggests the city is not feeling the effects of this general slowdown with an increase in properties sold of approximately 30%, or 129 units, over the last two years. It is possible that this variation in Petersburg represents an anomaly in the reporting of data between the two years. However, it may also illustrate that some speculative investment is occurring in the city that is not prevalent elsewhere in the market. Discussions with city officials has revealed that many of the older, historic properties, especially in the downtown area, have been receiving more attention for renovation and redevelopment to provide housing, particularly for professionals and empty-nesters. Petersburg is also the most affordably priced of the six jurisdictions, although followed closely by Hopewell, which is another factor that may be influencing the sustained sales in the city.
- Information recently released by the Virginia Associations of Realtors (VAR) suggests that from a statewide perspective, the residential real estate market may be rebounding somewhat. According to the VAR, closed home sales in Virginia are ahead of last year with a seven percent increase through February 2007 compared to the same time last year. Through February, 4,202 home sales closed in Virginia as compared to last year's 3,922 sales for that month (Note: data not presented in the table).

I. MONTHLY RENTAL HOUSING COSTS

The cost of rental housing in the study area, based on data gathered for the 2000 Census, is presented in Table 3-7. The data represent gross monthly rent and is segregated into five

major categories ranging from less than \$250 to \$1,000 or more. Overall, the median gross rent for the study area as of 2000 was \$629, based on a weighted average of all six jurisdictions. Between 1990 and 2000, this figure increased by approximately 36.9%, which is slightly faster than the inflationary rate of 34.4% (as measured by change in the CPI), experienced during that period. Annually, the average rate of increase in median rents for the study area was 3.2%.

The highest median rent of \$717 per month was reported in Chesterfield County, which, as noted previously, also has the highest value for owner-occupied housing in the study area. Dinwiddie County experienced the largest rate of increase in rental costs with almost a 61% increase in 10 years. However, this county also had the lowest median rent in 1990, thus this increase is partially a reflection of rents being brought into line with prevailing market conditions. It may also signify that Dinwiddie experienced a higher than average increase in demand for rental housing during that time period due to pressures on this segment of the region's housing supply as a whole.

The vast majority of rental housing had gross rents ranging between \$500 - \$750 per month, which accounted for almost 40% of total renter-occupied dwellings. As illustrate in the table, the two adjacent price categories of \$250 - \$499 and \$750 - \$999 each encompassed an equivalent 20% of the total renter-occupied units. The cities of Hopewell and Petersburg had considerably higher percentages of units available in the lower rent price category (\$250 - 499), with 30% and 37% respectively, illustrating that these communities offer a higher proportion of the study area's affordable rental housing. However, Chesterfield County also had approximately 2,000 units in this price range, which was the second highest total for all six jurisdictions.

Table 3-7 Gross Rental Rates for the Study Area 1990 - 2000

| Gross Rent - 2000 | Total Renter-Occupied Dwelling Units | | | | | | Study Area Total | Crater PDC Total |
|------------------------------|--------------------------------------|------------------|----------------------|-----------------------|---------------|-----------------|------------------|------------------|
| | Chesterfield County | Dinwiddie County | Prince George County | Colonial Heights City | Hopewell City | Petersburg City | | |
| Less than \$249 | 350 | 116 | 69 | 27 | 604 | 841 | 2,007 | 2,437 |
| \$250 to \$499 | 2,003 | 431 | 317 | 390 | 1,198 | 2,474 | 6,813 | 8,332 |
| \$500 to \$749 | 7,084 | 689 | 757 | 1,213 | 1,479 | 2,516 | 13,738 | 14,511 |
| \$750 to \$999 | 5,567 | 186 | 215 | 289 | 474 | 500 | 7,231 | 7,350 |
| \$1,000 or more | 2,064 | 60 | 55 | 91 | 34 | 155 | 2,459 | 2,472 |
| Total Cash Rent Units | 17,068 | 1,482 | 1,413 | 2,010 | 3,789 | 6,486 | 32,248 | 35,102 |
| No cash rent | 568 | 215 | 1,220 | 143 | 196 | 194 | 2,536 | 3,063 |
| Total Renter Occup. | 17,636 | 1,697 | 2,633 | 2,153 | 3,985 | 6,680 | 34,784 | 38,165 |
| | Percent of Total | | | | | | | |
| Less than \$249 | 2.0% | 6.8% | 2.6% | 1.3% | 15.2% | 12.6% | 5.8% | 6.4% |
| \$250 to \$499 | 11.4% | 25.4% | 12.0% | 18.1% | 30.1% | 37.0% | 19.6% | 21.8% |
| \$500 to \$749 | 40.2% | 40.6% | 28.8% | 56.3% | 37.1% | 37.7% | 39.5% | 38.0% |
| \$750 to \$999 | 31.6% | 11.0% | 8.2% | 13.4% | 11.9% | 7.5% | 20.8% | 19.3% |
| \$1,000 or more | 11.7% | 3.5% | 2.1% | 4.2% | 0.9% | 2.3% | 7.1% | 6.5% |
| Total Cash Rent Units | 96.8% | 87.3% | 53.7% | 93.4% | 95.1% | 97.1% | 92.7% | 92.0% |
| No cash rent | 3.2% | 12.7% | 46.3% | 6.6% | 4.9% | 2.9% | 7.3% | 8.0% |
| Total Renter Occup. | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Median Gross Rent [1] | | | | | | | | |
| 1990 | \$541 | \$352 | \$434 | \$458 | \$389 | \$360 | \$460 | \$445 |
| 2000 | \$717 | \$566 | \$609 | \$619 | \$512 | \$495 | \$629 | \$611 |
| Change 90-00 | \$176 | \$214 | \$175 | \$161 | \$123 | \$135 | \$170 | \$166 |
| % Change | 32.5% | 60.8% | 40.3% | 35.2% | 31.6% | 37.5% | 36.9% | 37.2% |
| Avg. Annual Rate | 2.9% | 4.9% | 3.4% | 3.1% | 2.8% | 3.2% | 3.2% | 3.2% |

[1] Total Gross Median Rent is a weighted average for the Study Area and the CPDC.

Source: US Census

One final note regarding the data in Table 3-7 is related to the fact that Prince George County was reported to contain a particularly high number (1,220) of renter-occupied units for which no cash rent was paid. It is presumed that the majority of these units are located on Fort Lee, since military personnel receive a housing allowance as part of their compensation that is apparently recorded as no cash rent by the census.

The cost of rental housing in the study area appears to have risen erratically since 2000, based on a sampling of rental properties in the area around Fort Lee. The data presented in Table 3-8 illustrates the change in average rents for three different years between 2000 and 2007. These rent levels are based on a survey of approximately 70 rental housing properties and complexes that were included in two previous reports, which included a housing improvement plan for the City of Hopewell and the Fort Lee Apartment Guide, that addressed housing costs and conditions in the Fort Lee area³. These two reports, which were completed in 2002 and 2005 respectively, included rents for apartments and townhouse units, but no single-family dwellings. A follow-up survey was conducted by RKG Associates, Inc. in 2007, at which time current rental rates were gathered for approximately 40 of the original sample properties.

As of 2007, rents within the Fort Lee area were found to average \$756 per month, which represents an average annual increase of 2.3% since 2002. However, the data also suggests that rent increases within the last two years (2005 - 2007) have risen at a higher rate of 4.9% in comparison to the estimated increase of 1.4% for the preceding three years (2002 - 2005). The more rapid escalation of rents over the last two years could be attributed to a number of reasons, including the fact that some of properties have undergone recent renovations that necessitated an increase in rates. It may also be attributed to the anticipation of increased demand that will be generated by the impending expansion of Fort Lee. However, the relatively low vacancy rates exhibited at the surveyed properties suggests that demand is already high in this part of the study area.

On an individual basis, rents for properties located in Chesterfield, Prince George, and Colonial Heights have generally increased between 4% and 5% annually over the last two years. Rental rates for survey properties in Hopewell and Petersburg appear to have escalated at rates of roughly 6% during that time. Dinwiddie County was not included in the previous surveys and therefore, no historical information was available for that jurisdiction.

Table 3-8 Change in Average Rental Rates for Fort Lee Area 2002 - 2007

| | Average Rent | | | Avg. Annual Change | | | Vacancy |
|--------------------------|--------------|--------------|--------------|--------------------|-------------|-------------|-------------|
| | 2002 | 2005 | 2007 | 02-05 | 05-07 | 02-07 | Rate 2007 |
| Chesterfield County | \$790 | \$816 | \$884 | 1.1% | 4.1% | 1.8% | 2.6% |
| Prince George County | \$696 | \$656 | \$699 | 1.4% | 4.8% | 3.1% | 3.0% |
| City of Colonial Heights | \$662 | \$655 | \$747 | 2.5% | 4.4% | 2.9% | 2.0% |
| City of Hopewell | \$483 | \$516 | \$629 | 0.9% | 6.2% | 2.4% | 5.0% |
| City of Petersburg | \$604 | \$625 | \$713 | 1.9% | 5.7% | 2.3% | 6.4% |
| Total | \$587 | \$685 | \$756 | 1.4% | 4.9% | 2.3% | 4.3% |

Source: Bay Area Economics; Housing Services Office, Fort Lee; and RKG Associates, Inc.

³ *Strategic Housing Improvement Plan, Hopewell, Virginia*, Bay Area Economics, November 11, 2003; and, *Fort Lee Apartment Guide*, Housing Services Office, Fort Lee, VA, August 2005

There are several caveats that should be noted regarding the rental rates previously discussed. One is that the inclusion of utilities within the base rents varied from one property to another, a fact that makes direct comparison more difficult. In addition, the sample size for each of the study area jurisdictions varied considerably and was relatively small in some instances, which tends to affect the calculation of averages. Finally, because the survey sample of rental properties was concentrated around the Fort Lee area, the findings may not represent changes in rental costs for the study area as whole.

J. FUTURE HOUSING DEVELOPMENT POTENTIAL

The analysis presented previously in this chapter has outlined historic development trends and current conditions related to the study area's housing market. Information in this section is intended to provide a perspective on the development potential anticipated in the immediate future as well in the long term. The purpose of this analysis is intended to offer a context regarding the potential supply of housing units in comparison to anticipated demand created by growth related to Fort Lee's expansion.

The housing development potential has been separated into three categories: approved housing units; tentatively approved housing; and proposed housing. Each of the three categories represents a more distant period for anticipated development in the following manner.

1. Approved Housing

Approved housing refers to units, and/or lots, that are part of developments presently under construction but have not yet been built. Construction of these units requires only the issuance of a building permit and therefore, they represent a supply of housing that is either soon to be available, or that could be brought to the market relatively easily if warranted by demand. As illustrated in Table 3-9, there were approximately 13,900 housing units approved but not built within the study area as of February 2007. Based on recent construction trends for the study area as a whole (which was approximately 3,400 units annually) this figure represents a build out period of roughly four years. However, individual jurisdictions, such as Hopewell and Petersburg could have somewhat longer build out periods of 6 to 10 years, based on historic trends. Single-family homes represent the largest potential addition to the housing supply with approximately 11,400, or 82% of the total approved units. There are also 1,366 attached single-family units (townhouses or condominiums), 1,032 apartments and 103 manufactured housing units with pre-existing development approvals within the study area jurisdictions.

The locations of approved housing projects for each of the study area's six jurisdictions are illustrated in Figure 1. Each circle in the Figure represents an approved subdivision or apartment complex, and the size of each circle is intended to provide a relative representation of the number of units in each development. This graphic clearly illustrates the magnitude of the number of approved units in Chesterfield County as opposed to the remainder of the study area. Chesterfield's future growth is planned to occur along the county's entire extent, from north to south, in the area adjacent to the City of Richmond and Henrico County. A significant number of the approved developments are located in the southern tier of the county, near the Route 1 corridor, which is also in proximity to Fort Lee.

However, some portion of these projects reportedly received approval many years ago and may require further regulatory review before development can take place.

The majority of approved housing developments in Prince George and Dinwiddie Counties are largely concentrated in the planned growth areas that include those portions of the counties that adjoin the Cities of Hopewell and Petersburg and the Fort Lee installation boundary. However, there are scattered subdivisions within both of these counties that are in more rural areas outside the planned growth districts.

2. Tentatively Approved Housing

The second category, *tentatively approved housing*, refers to projects that are presently moving through the development review process. Approximately 20,490 housing units are estimated to have this development status at this time. These projects have already received rezoning approval (if required), which means that the site has been accepted for the proposed density of development. These projects have also typically received tentative plat approval, although some may still have outstanding issues to address in this phase. Projects that have received tentative plat approval would then move into the construction plan review process to consider elements such as roads, infrastructure, and other site design features. Once construction plans have been approved, development can begin at the site. Based on these conditions, potential development represented by the tentatively approved status can have considerable variability with regard to the period for when these units could be available for occupancy within the study area. It is assumed that most of these projects will receive final approval; however, it is possible that some will not be brought to fruition for various regulatory or economic reasons. It is possible that final approval and issuance of building permits for these units could range between one to three years, although this time frame could vary depending on the characteristics and complexity of the project in question. Furthermore, this estimate does not imply that the total number of units identified as tentative could be constructed within this time frame, since there may not be sufficient demand to justify this level of development and/or sufficient capacity within the local construction industry to support such growth.

Table 3-9 Housing Development Potential in the Study Area – February 2007

| | Approved Housing Units | | | | | | Est. Buildout/Yrs |
|--------------------------|------------------------|--------------|-------------|-------------|---------------|---------------|-------------------|
| | Singe Family | TwnHse/Condo | Apartment | Manufactd | Total | % Total | |
| Chesterfield County | 9,428 | 480 | 918 | 103 | 10,929 | 82.0% | 3.8 |
| Dinwiddie County | 903 | 0 | 4 | 0 | 907 | 6.8% | 4.9 |
| Prince George County | 748 | 68 | 0 | 0 | 816 | 6.1% | 3.6 |
| City of Colonial Heights | 20 | 0 | 0 | 0 | 20 | 0.2% | 0.4 |
| City of Hopewell | 237 | 419 | 0 | 0 | 656 | 4.9% | 7.9 |
| City of Petersburg | 97 | 60 | 110 | 0 | 267 | 2.0% | 10.7 |
| Total | 11,336 | 967 | 922 | 103 | 13,328 | 100.0% | 3.9 |
| Percent Total | 85.1% | 7.3% | 6.9% | 0.8% | 100.0% | | |

| | Housing Units Tentatively Approved | | | | | |
|--------------------------|------------------------------------|--------------|--------------|-----------|---------------|---------------|
| | Singe Family | TwnHse/Condo | Apartment[1] | Manufactd | Total | % Total |
| Chesterfield County | 18,123 | 950 | 1,222 | 0 | 20,295 | 99.0% |
| Dinwiddie County | 0 | 0 | 0 | 0 | 0 | 0.0% |
| Prince George County | 171 | 0 | 0 | 0 | 171 | 0.8% |
| City of Colonial Heights | 25 | 0 | 0 | 0 | 25 | 0.1% |
| City of Hopewell | 0 | 0 | 0 | 0 | 0 | 0.0% |
| City of Petersburg | 130 | 0 | 256 | 0 | 386 | 1.9% |
| Total | 18,319 | 950 | 1,222 | 0 | 20,491 | 100.0% |

| | Proposed Housing Units [2] | | | | | |
|--------------------------|----------------------------|--------------|--------------|-----------|---------------|---------------|
| | Singe Family | TwnHse/Condo | Apartment | Manufactd | Total | % Total |
| Chesterfield County | 4,341 | 5,565 | 1,024 | 0 | 10,930 | 76.3% |
| Dinwiddie County | 821 | 0 | 0 | 0 | 821 | 5.7% |
| Prince George County | 2,146 | 230 | 200 | 0 | 2,576 | 18.0% |
| City of Colonial Heights | 0 | 0 | 0 | 0 | - | 0.0% |
| City of Hopewell | 0 | 0 | 0 | 0 | - | 0.0% |
| City of Petersburg | 100 | 102 | 702 | 0 | 904 | 6.3% |
| Total | 7,308 | 5,795 | 1,224 | 0 | 14,327 | 100.0% |

[1] The tentatively approved apartment number for Chesterfield County represents projects that received approval more than five years ago and may require further review based on current development/zoning standards

[2] Represents projects seeking rezoning approval or conceptual review

Source: Planning Departments of area jurisdictions

3. Proposed Housing

The category of *proposed housing* represents a long-term, as well as a more speculative, supply of potential residential development within the study area. These projects are in the process of requesting a property rezoning and/or a conceptual plan review. There is no guarantee that the rezoning will be granted, and therefore these units represent only an indication of the long-term growth potential that the development community anticipates will exist within the near future. If approved, the actual construction of these units could conceivably occur beyond the time period in which Fort Lee is expected to reach its full planned expansion. As illustrated in Table 3-9, developments containing an estimated 14,327 housing units are presently seeking rezoning or conceptual review within the study area's six jurisdictions.

Despite the Growth Management Plan's focus on the six jurisdictions surrounding Fort Lee, RKG estimates that considerable housing competition could come from eastern Henrico County over the next decade, which could absorb some of the PIA's population impacts. Several developers are moving quickly to gain development approvals in this area, which is a short distance from the front gate of Fort Lee.

Large residential developments proposed in this part of eastern Henrico County could have a direct impact on the settlement patterns of households related to Fort Lee's expansion, especially if the housing price points are favorable to the incoming personnel. This area is within a 15-minute drive of the gate, with direct access from Interstate 295. Projects, such as Tree Hill (described on this page), could potentially add thousands of housing units to the regional housing market at price points competitive, or even lower, than housing in the Fort Lee region.

**Inter-Regional Growth Potential
Eastern Henrico County, VA**

In 2007, the Henrico Planning Commission approved plans to convert Tree Hill Farm into the Town of Tree Hill. Gray Land and Development Company-Tree Hill LLC, the developers, hope to break ground in 2008 on the development, planned for between state Route 5 and the James River. The project is expected to feature 2,770 homes, 1.2 million square feet of office, retail and commercial spaces. A site has been specifically set aside for a large corporate headquarters with views of the river and the downtown skyline. The plans also call for an elementary school and library.

INSERT DEVELOPMENT POTENTIAL MAP HERE - **Figure 3-1**

K. HOUSING AFFORDABILITY ANALYSIS

This analysis examines the housing affordability implications within the Fort Lee region based on the growth impacts of the base. The direct and indirect impacts of increasing operations at Fort Lee will generate additional demand for ownership and rental housing. This analysis quantifies the depth of the market for each jurisdiction based on the number and ranks/pay grades incoming personnel to Fort Lee.

The data utilized in this analysis was collected from various sources including the Fort Lee garrison commander, U.S. Census Bureau, and private data vendors such as DemographicsNow. Each of these sources provided information critical to calculating the market impacts of the new military, civilian and contractor jobs being added to the Fort.

It is important to note that the results of this analysis do not represent an exact, 100% market impact dues to limitations in the data. While the estimates of the number and rank/pay grade of the military, civilian, and contractor personnel reflect the best available information, these estimates are changing daily and it is too early to know how many civilians and contractors will be relocating to Fort Lee. As such, the results in this section represent an 'order of magnitude' impact on each jurisdiction. The findings should be used to shape strategies for addressing the number and type of housing that likely will be demanded due to the growth at Fort Lee.

1. Methodology

The affordability analysis involved several intricate processes to determine the potential market impact within the Fort Lee region. This section provides a detailed methodology for the key components utilized to complete the analysis.

a.) Affordability Assumptions

The consultants utilized key assumptions within the analysis that helped calculate the market impacts for housing. These assumptions primarily are based on market observations and the professional experience of the consultant.

- For every new job created at Fort Lee, one additional household will be added to the region. This assumption discounts the potential that two members of the same household will occupy more than one new job at Fort Lee.
- New households will maximize their spending potential. Households seeking new housing, whether rental or ownership, typically search out the best housing they can afford. While there often times are trade-offs related to location, size and style, households usually will spend as much as they can afford to maximize these characteristics.
- Affordability calculations account for the most recent market conditions. The consultant utilized the most current information regarding lending practices including mortgage rates, income thresholds and debt to income ratios. For this analysis, the consultant assumed all military buyers would obtain a 30-year, fixed rate VA loan with no down payment at an interest rate of 5.875% (the lowest available rate at the time of writing for persons with "good" credit). The mortgage debt threshold for the borrower was set at 30% of gross monthly income. This front

end, debt-to-income ratio is used by the U.S. Department of Housing and Urban Development (HUD), as a housing affordability threshold. As such, borrowers' monthly housing expenses (includes: principal, interest, taxes and insurance (PITI)) should not exceed 30% of gross monthly income. It should be noted that the 30% threshold is a rough measure of housing affordability and not an indication of how much money a person can borrow. Persons with excellent credit are often extended mortgage loans that exceed 30% of their income.

- Inflation will keep pace with salary increases. Most of the new jobs will be created at Fort Lee sometime between 2009 and 2011. As such, income levels and housing pricing will likely be different at those times. However, the consultants used current salary levels and housing prices to judge the region's affordability today. With the current housing slump, the future pricing of housing is extremely uncertain and cannot be reasonably estimated.

b.) Direct Impact Affordability Analysis

The analysis is broken down into two sections, direct impact demand and indirect/natural impact demand. The direct impact demand section focuses on the demand for housing from new households relocating to the region due to the current BRAC expansion. This group includes the military personnel required to fill the new positions as well as the civilians and contractors that serve the military personnel at Fort Lee. According to the BRAC Synchronization Office, 3,090 new military, civilian and contractor jobs will be created at Fort Lee by 2013. However, not all of these jobs will be filled by persons from the realigned installations. Some of the jobs, particularly those that are not highly specialized, will be filled by local residents. To estimate this, RKG consulted with the base command to estimate the percentage of incoming civilians and contractors. The result of this analysis indicated that approximately 2,507 positions will be filled by people relocating to the Fort Lee region and balance will come from local hiring.

The consultant then estimated the share of these households that will seek housing ownership versus rental opportunities. The consultant relied on the data obtained from the 2006 Fort Lee Workforce Survey. The data were segmented by rank (military) and pay grade (civilian) to model the characteristics of different types of households.

The military provides different monthly housing allowances to personnel based on whether they have dependents (spouse and/or children). RKG split the pool of potential homeowners into these two groups based on the results of the 2006 survey results. Additional assumptions were made about the percentage of households with spouses and the level at which they contribute to the household's income. Simply put, households that have working spouses will have a greater ability to pay for housing than those that do not. The analysis described in the following sections will show the differences.

Utilizing current home lending practices, the consultants were able to estimate each rank and pay grade's ability to purchase housing (accounting for the variations described above). Income adjustments for military personnel included basic allowances for housing and subsistence, and the consultants utilized typical mortgage underwriting assumptions. The results of this analysis were then compared to a series of home prices

to determine the percentage of monthly income required for each military, civilian, and contractor employee to purchase the home.

For renters, the consultants utilized the same 30% housing debt-to-income threshold to calculate the maximum monthly rent rate by rank and pay grade. This effort was much simpler, as renters do not have interest, taxes or insurance payments for which to account.

c.) Indirect/Natural Impact Affordability Analysis

The consultants followed a relatively similar procedure to calculate the homeownership and renter affordability thresholds for all other households entering the region as an indirect result of the Fort Lee expansion and natural region growth. However, the methodology for estimating the number of households and income levels required some adjustments, as these households could only be grouped into general income ranges rather than specific incomes like the Fort Lee personnel.

The growth in households for each jurisdiction was calculated utilizing the Regional Economic Modeling, Inc. (REMI) econometric model. This model simulates future growth trends based on several inputs and variables including past and current growth trends as well as expected future investments (such as Fort Lee). The REMI model provided a net population growth projection for each City and County. These population totals were adjusted by the average household size for that particular jurisdiction, resulting in a net change in households for each City and County.

To determine the income levels of these new households, the consultant utilized current estimates from DemographicsNow, by income levels for each jurisdiction. For example, the new households locating in each jurisdiction were classified by various income ranges at the same rate as existing households. For example, if a County had 10% of its households earning \$50,000 to \$75,000, then it was assumed that 10% of future households would be in this income range.

Once the households were segmented into these categories, the consultant applied current homeownership and rental rates for each jurisdiction to better understand the size of each of these markets. This adjustment provided City/County specific growth impacts for ownership and rental housing.

The affordability analysis methodology is similar to the direct impact analysis described above.

2. Direct Growth Impacts

This section details the affordability of housing for those households being relocated into the region to occupy the new military, civilian and contractor jobs at Fort Lee. As mentioned, only 2,507 (81%) of the 3,090 jobs currently projected for Fort Lee will be occupied by new residents in need of housing. The remaining jobs are projected to be occupied by existing residents, who are assumed to be living within commuting distance of Fort Lee and not in need of new housing. Furthermore, the estimated 421 households that will occupy on-base housing will not have an impact on the regional housing market. As such, only 2,086 households are projected to be seeking for-sale or for-rent, private housing.

a.) For-Sale Housing

The Fort Lee demographic survey indicated that approximately 27% of the military personnel and 85% of the non-military personnel own their home (Figure 3-2). Based on these figures, the consultant estimates that 1,366 of the 2,507 new households will seek homeownership opportunities within the region. As previously mentioned, the military households had to be segmented by rank and dependents as pay levels and basic housing/subsistence allowances vary based on these two factors (Table 3-10). In addition, civilian employees also follow a set pay scale (Table 3-11). Given these facts, affordability is impacted by the grade and dependent status for the employees being relocated to Fort Lee. Utilizing the survey results and input from the garrison command, the consultant was able to parse the number of households into pay levels and status of dependents for both military and civilian personnel (Tables 3-12 and 3-13). As shown, there potentially will be 361 military households and 1,006 civilian households seeking homeownership opportunities within the region.

For the affordability analysis, the consultant measured 1,366 potential ownership households ability to pay against housing priced between \$200,000 and \$500,000, representing the

Figure 3-2 Housing Demand by Type

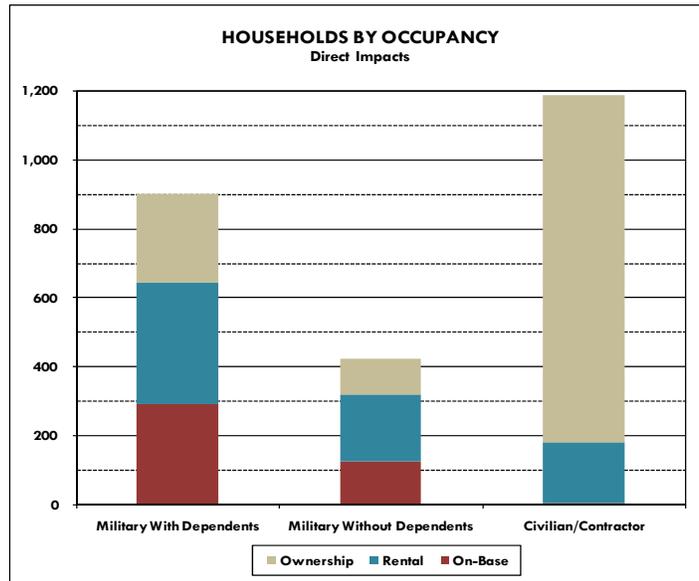


Table 3-10 Military Pay/Basic Housing Allowance Rates by Rank and Grade

| Rank | Monthly Pay Rate | Basic Housing Allowance | |
|---------|------------------|-------------------------|--------------------|
| | | With Dependents | Without Dependents |
| LTG (2) | \$11,947 | \$1,728 | \$1,439 |
| MG | \$8,965 | \$1,728 | \$1,439 |
| BG | \$7,621 | \$1,728 | \$1,439 |
| O-6 | \$6,095 | \$1,710 | \$1,415 |
| O-5 | \$5,291 | \$1,698 | \$1,326 |
| O-4 | \$4,688 | \$1,580 | \$1,268 |
| O-3 | \$4,392 | \$1,411 | \$1,159 |
| O-2 | \$3,857 | \$1,171 | \$1,122 |
| W-5 | \$5,846 | \$1,550 | \$1,281 |
| W-4 | \$3,869 | \$1,478 | \$1,194 |
| W-3 | \$3,413 | \$1,415 | \$1,155 |
| W-2 | \$3,125 | \$1,299 | \$1,143 |
| E-9 | \$4,111 | \$1,547 | \$1,241 |
| E-8 | \$3,514 | \$1,442 | \$1,230 |
| E-7 | \$2,781 | \$1,346 | \$1,185 |
| E-6 | \$2,420 | \$1,259 | \$1,148 |
| E-5 | \$2,171 | \$1,223 | \$1,109 |
| E-4 | \$1,883 | \$1,183 | \$1,040 |
| E-3 | \$1,729 | \$1,183 | \$1,040 |

Source: U.S. Department of Defense, 2007

mid-range for housing prices in the Fort Lee PIA. Among the many findings that came from this analysis, the following are the most prevalent:

- Housing affordability is substantially improved by having a cosigner within the household. The additional salary provides these households a substantial advantage over similar ranks/pay grades that do not have this income. Nearly 73% of military households with dependents and a cosigner can afford a \$500,000. In contrast, less than 8% of these same households would be able to afford the same house without a co-signer.
- Housing affordability is higher for households with dependents. Military households with dependents get additional housing allowance as high as 30% above a single person of the same pay grade.
- The higher ranks/pay grades can afford the high-end of the market. The top military and non-military pay grades can afford housing up to and beyond \$500,000 with or without the assistance of a cosigner and/or having the additional dependent housing allowance.
- On average, non-military households cannot afford as much house as military households. The non-military households tend to earn a higher wage, but do not receive the housing allowance. This substantially affects their ability to pay for the higher-end housing within the market.

Table 3-11 Civilian Pay/Basic Housing Allowance Rates by Grade

| Rank | Monthly Pay Rate | Basic Housing Allowance | |
|-------------|------------------|-------------------------|--------------------|
| | | With Dependents | Without Dependents |
| SES | \$11,653 | \$0 | \$0 |
| 15 | \$10,056 | \$0 | \$0 |
| 14 | \$8,549 | \$0 | \$0 |
| 13 | \$7,234 | \$0 | \$0 |
| 12 | \$6,084 | \$0 | \$0 |
| 11 | \$5,076 | \$0 | \$0 |
| 10 | \$4,620 | \$0 | \$0 |
| 9 | \$3,948 | \$0 | \$0 |
| 8 | \$3,575 | \$0 | \$0 |
| 7 | \$3,228 | \$0 | \$0 |
| 6 | \$2,905 | \$0 | \$0 |
| 5 | \$2,606 | \$0 | \$0 |
| 4 | \$2,329 | \$0 | \$0 |
| Contractors | \$5,628 | \$0 | \$0 |

Source: U.S. Office of Personnel Management, 2007

Table 3-12 Military Households by Occupancy Tenure by Rank and Status

| Rank | Ownership | | On-Base Housing | Total Households | Ownership | | On-Base Households |
|--------------------------------------|-----------|-------------|--------------------|---------------------|------------|------------|-----------------------|
| | Rate | Rental Rate | | | Rental | Households | |
| HOUSEHOLDS WITH DEPENDENTS | | | | | | | |
| LTG (2) | 53% | 24% | 23% | 0 | 0 | 0 | 0 |
| MG | 53% | 24% | 23% | 2 | 1 | 0 | 0 |
| BG | 53% | 24% | 23% | 0 | 0 | 0 | 0 |
| O-6 | 53% | 24% | 23% | 5 | 3 | 1 | 1 |
| O-5 | 53% | 24% | 23% | 15 | 8 | 3 | 3 |
| O-4 | 53% | 24% | 23% | 27 | 15 | 6 | 6 |
| O-3 | 53% | 24% | 23% | 52 | 28 | 12 | 12 |
| O-2 | 53% | 24% | 23% | 7 | 4 | 2 | 2 |
| W-5 | 53% | 24% | 23% | 13 | 7 | 3 | 3 |
| W-4 | 53% | 24% | 23% | 27 | 15 | 6 | 6 |
| W-3 | 53% | 24% | 23% | 10 | 5 | 2 | 2 |
| W-2 | 53% | 24% | 23% | 1 | 0 | 0 | 0 |
| E-9 | 29% | 31% | 41% | 29 | 8 | 9 | 12 |
| E-8 | 29% | 31% | 41% | 51 | 14 | 16 | 21 |
| E-7 | 29% | 31% | 41% | 278 | 79 | 86 | 113 |
| E-6 | 18% | 53% | 28% | 341 | 63 | 182 | 97 |
| E-5 | 18% | 53% | 28% | 23 | 4 | 12 | 6 |
| E-4 | 18% | 53% | 28% | 17 | 3 | 9 | 5 |
| E-3 | 18% | 53% | 28% | 1 | 0 | 0 | 0 |
| TOTAL | | | | 899 | 257 | 352 | 291 |
| HOUSEHOLDS WITHOUT DEPENDENTS | | | | | | | |
| LTG (2) | 53% | 24% | 23% | 0 | 0 | 0 | 0 |
| MG | 53% | 24% | 23% | 1 | 0 | 0 | 0 |
| BG | 53% | 24% | 23% | 0 | 0 | 0 | 0 |
| O-6 | 53% | 24% | 23% | 2 | 1 | 0 | 0 |
| O-5 | 53% | 24% | 23% | 5 | 3 | 1 | 1 |
| O-4 | 53% | 24% | 23% | 9 | 5 | 2 | 2 |
| O-3 | 53% | 24% | 23% | 18 | 9 | 4 | 4 |
| O-2 | 53% | 24% | 23% | 2 | 1 | 1 | 1 |
| W-5 | 53% | 24% | 23% | 4 | 2 | 1 | 1 |
| W-4 | 53% | 24% | 23% | 9 | 5 | 2 | 2 |
| W-3 | 53% | 24% | 23% | 3 | 2 | 1 | 1 |
| W-2 | 53% | 24% | 23% | 0 | 0 | 0 | 0 |
| E-9 | 29% | 31% | 41% | 6 | 2 | 2 | 2 |
| E-8 | 29% | 31% | 41% | 10 | 3 | 3 | 4 |
| E-7 | 29% | 31% | 41% | 56 | 16 | 17 | 23 |
| E-6 | 18% | 53% | 28% | 264 | 48 | 141 | 75 |
| E-5 | 18% | 53% | 28% | 18 | 3 | 9 | 5 |
| E-4 | 18% | 53% | 28% | 13 | 2 | 7 | 4 |
| E-3 | 18% | 53% | 28% | 1 | 0 | 0 | 0 |
| | | | | 422 | 104 | 192 | 126 |

Source: U.S. Department of Defense, 2007

Table 3-13 Civilian Households by Occupancy Status by Grade

| Rank | Ownership | | On-Base Housing | Total Households | Ownership Households | Rental Households | On-Base Households |
|-----------------------------------|-----------|-------------|-----------------|------------------|----------------------|-------------------|--------------------|
| | Rate | Rental Rate | | | | | |
| HOUSEHOLDS WITH DEPENDENTS | | | | | | | |
| SES | 92% | 8% | 0% | 0 | 0 | 0 | 0 |
| 15 | 92% | 8% | 0% | 9 | 8 | 1 | 0 |
| 14 | 92% | 8% | 0% | 20 | 19 | 2 | 0 |
| 13 | 92% | 8% | 0% | 83 | 76 | 6 | 0 |
| 12 | 92% | 8% | 0% | 197 | 181 | 15 | 0 |
| 11 | 92% | 8% | 0% | 289 | 266 | 22 | 1 |
| 10 | 92% | 8% | 0% | 2 | 2 | 0 | 0 |
| 9 | 76% | 24% | 0% | 161 | 123 | 39 | 0 |
| 8 | 76% | 24% | 0% | 18 | 14 | 4 | 0 |
| 7 | 76% | 24% | 0% | 101 | 77 | 24 | 0 |
| 6 | 76% | 24% | 0% | 56 | 43 | 13 | 0 |
| 5 | 76% | 24% | 0% | 72 | 54 | 17 | 0 |
| 4 | 71% | 28% | 1% | 13 | 10 | 4 | 0 |
| Contractors | 81% | 17% | 2% | 165 | 133 | 29 | 3 |
| TOTAL | | | | 1,186 | 1,006 | 176 | 5 |

Source: U.S. Department of Defense, 2007

The pricing for housing marketed to the incoming households relocating to Fort Lee should be between \$200,000 and \$300,000. Almost all of the new households that would likely be interested in homeownership can afford a \$200,000 home. However, the ability to pay for housing drops significantly beyond the \$300,000 threshold. Only 25% to 33% of those households that can afford a \$200,000 house can also afford a \$350,000 house. This drop off is particularly prevalent for civilian and contractor households (Table 3-14). The \$200,000 to \$300,000 price range will capture between 860 and 940 of the projected new homeownership housing demand.

The upper-end housing market, or those priced over \$300,000, is much smaller. Between 320 and 400 households are projected to be able to afford a \$350,000 home. This number drops to between 60 and 220 households for a \$450,000 home, with the higher end requiring most of the military households to have a working cosigner within the household. As such, the higher-end housing market probably will be the exception rather than the norm for most households moving into the region.

This finding suggests that housing within the primary impact area (PIA) generally is affordable to this population. The average sale price for existing housing in 2006 was below \$300,000 in each community except for new construction in Chesterfield County (\$399,335). Housing in each of the other communities ranged from \$109,000 (existing housing supply in Petersburg) to \$276,000 (new supply in Colonial Heights). As such, military and civilian employees at Fort Lee have ample access to the housing markets in each community (Figures 3-3, 3-4 and 3-5).

INSERT TABLE 3-14 HERE - AFFORDABILITY MATRIX

Figure 3-3 Affordability Matrix – Military Households with Dependents

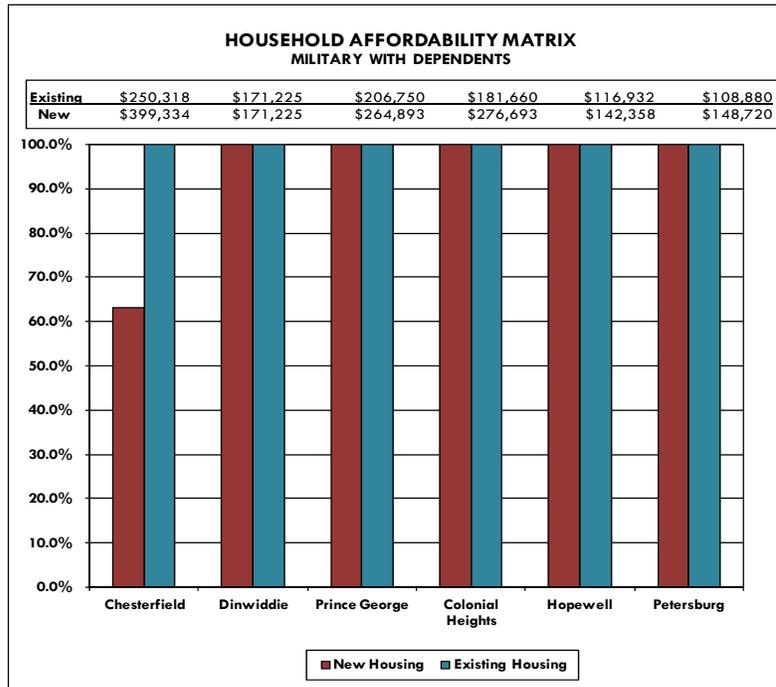


Figure 3-4 Affordability Matrix – Military Households without Dependents

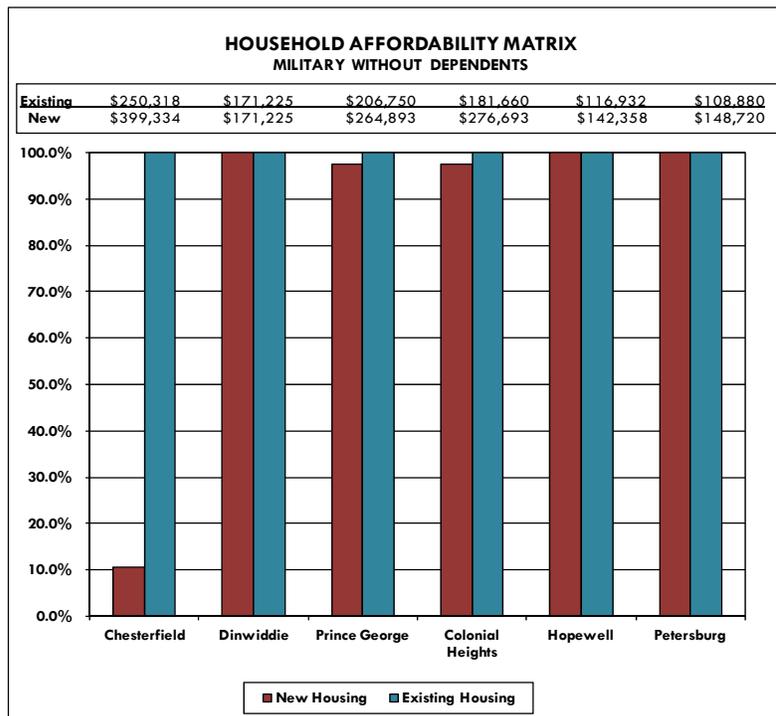
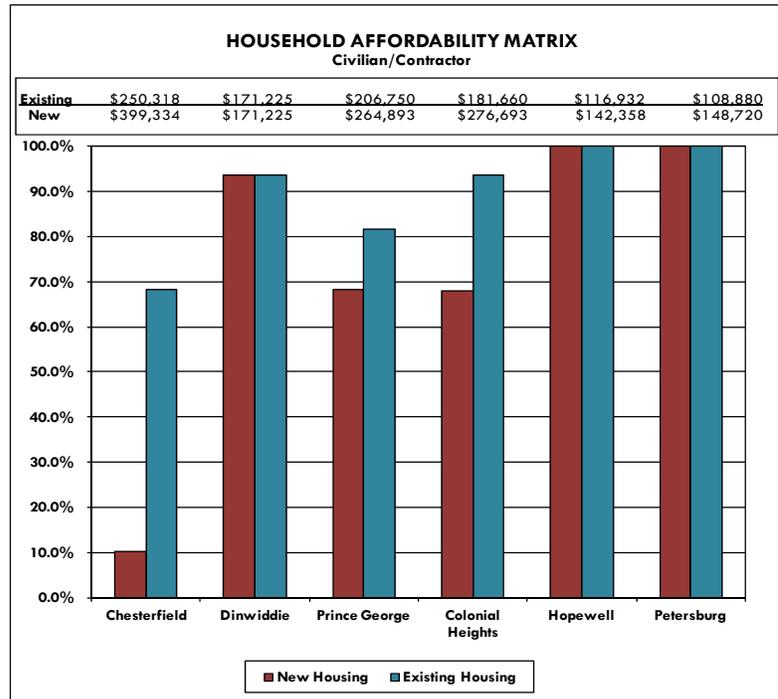


Figure 3-5 Affordability Matrix – Civilian Households



b.) For-Rent Housing

In 2000, occupied rental housing units totaled 35,358 units, accounting for nearly 24% of all housing in the Fort Lee study area. Based on this finding and building permit information for the Primary Impact Area, the consultant estimates there are nearly 41,000 occupied rental housing units within the Fort Lee study area. Assuming the new households moving into the region have similar characteristics to the existing personnel, approximately 720 of the remaining 1,141 households might seek rental housing. This growth represents a 1.7% increase in rental housing demand, resulting in minimal impact to the rental housing market. The remaining 421 households will be accommodated with on-base housing.

Slightly more than 75%, or 544 households, of the rental households are projected to be occupied by military personnel. This finding is not surprising, given the transient nature of military households. The majority of the military renters (426 households) are mid-level enlisted personnel in the E-6 and E-7 classifications (Table 3-15). Civilian households represent a much smaller share of the total than military households, but are more evenly distributed through the civilian pay grades (Table 3-16).

Table 3-15 Military Household Rent Rate Maximization

| Rank | Monthly Pay Rate | Basic Housing Allowance | | Maximization With Dependents | Maximization Without Dependents | Rental HHs With Dependents | Rental HHs Without Dependents |
|---------|------------------|-------------------------|--------------------|------------------------------|---------------------------------|----------------------------|-------------------------------|
| | | With Dependents | Without Dependents | | | | |
| LTG (2) | \$11,947 | \$1,728 | \$1,439 | \$5,312 | \$5,023 | 0 | 0 |
| MG | \$8,965 | \$1,728 | \$1,439 | \$4,417 | \$4,128 | 0 | 0 |
| BG | \$7,621 | \$1,728 | \$1,439 | \$4,014 | \$3,725 | 0 | 0 |
| O-6 | \$6,095 | \$1,710 | \$1,415 | \$3,538 | \$3,243 | 1 | 0 |
| O-5 | \$5,291 | \$1,698 | \$1,326 | \$3,285 | \$2,913 | 3 | 1 |
| O-4 | \$4,688 | \$1,580 | \$1,268 | \$2,986 | \$2,674 | 6 | 2 |
| O-3 | \$4,392 | \$1,411 | \$1,159 | \$2,728 | \$2,476 | 12 | 4 |
| O-2 | \$3,857 | \$1,171 | \$1,122 | \$2,328 | \$2,279 | 2 | 1 |
| W-5 | \$5,846 | \$1,550 | \$1,281 | \$3,303 | \$3,034 | 3 | 1 |
| W-4 | \$3,869 | \$1,478 | \$1,194 | \$2,638 | \$2,354 | 6 | 2 |
| W-3 | \$3,413 | \$1,415 | \$1,155 | \$2,439 | \$2,179 | 2 | 1 |
| W-2 | \$3,125 | \$1,299 | \$1,143 | \$2,236 | \$2,080 | 0 | 0 |
| E-9 | \$4,111 | \$1,547 | \$1,241 | \$2,780 | \$2,474 | 9 | 2 |
| E-8 | \$3,514 | \$1,442 | \$1,230 | \$2,496 | \$2,284 | 16 | 3 |
| E-7 | \$2,781 | \$1,346 | \$1,185 | \$2,180 | \$2,019 | 86 | 17 |
| E-6 | \$2,420 | \$1,259 | \$1,148 | \$1,985 | \$1,874 | 182 | 141 |
| E-5 | \$2,171 | \$1,223 | \$1,109 | \$1,874 | \$1,760 | 12 | 9 |
| E-4 | \$1,883 | \$1,183 | \$1,040 | \$1,748 | \$1,605 | 9 | 7 |
| E-3 | \$1,729 | \$1,183 | \$1,040 | \$1,702 | \$1,559 | 0 | 0 |

Source: U.S. Department of Defense, 2007

All but 58 of these renter households have the ability to pay more than \$1,000 per month for housing. All of the new military households can afford more than \$1,000 per month for housing. The housing allotment alone for military households exceeds \$1,000 per month for all ranks and household status. The civilian jobs do not offer this benefit, but generally pay enough for employees to afford a \$1,000 per month apartment. However, the lowest civilian pay grade earns enough to afford a \$700 per month rent (without spousal assistance).

Table 3-16 Military Household Rent Rate Maximization

| Rank | Monthly Pay Rate | Basic Housing Allowance | | Rent Threshold | Rental Households |
|-------------|------------------|-------------------------|--------------------|----------------|-------------------|
| | | With Dependents | Without Dependents | | |
| SES | \$11,653 | \$0 | \$0 | \$3,496 | 0 |
| 15 | \$10,056 | \$0 | \$0 | \$3,017 | 1 |
| 14 | \$8,549 | \$0 | \$0 | \$2,565 | 2 |
| 13 | \$7,234 | \$0 | \$0 | \$2,170 | 6 |
| 12 | \$6,084 | \$0 | \$0 | \$1,825 | 15 |
| 11 | \$5,076 | \$0 | \$0 | \$1,523 | 22 |
| 10 | \$4,620 | \$0 | \$0 | \$1,386 | 0 |
| 9 | \$3,948 | \$0 | \$0 | \$1,184 | 39 |
| 8 | \$3,575 | \$0 | \$0 | \$1,072 | 4 |
| 7 | \$3,228 | \$0 | \$0 | \$968 | 24 |
| 6 | \$2,905 | \$0 | \$0 | \$871 | 13 |
| 5 | \$2,606 | \$0 | \$0 | \$782 | 17 |
| 4 | \$2,329 | \$0 | \$0 | \$699 | 4 |
| Contractors | \$5,628 | \$0 | \$0 | \$1,688 | 29 |

Source: U.S. Office of Personnel Management, 2007

In comparison to these earning levels, the Fort Lee study area rental market is very affordable. Based on market research completed by a variety of sources, average rent rates do not exceed \$1,000 per month for any size apartment in any community (Table 3-17). In fact, the apartment communities that provided information have a rent cap of \$1,215 per month (3-Bedrooms, Chesterfield County). As such, finding affordable accommodations for these households will not be difficult.

These findings suggest that the renters generated by the direct growth of Fort Lee may seek housing in the single-family market. Census data indicated that nearly 50% of rental units in the study area are single-family units. The disparity between the ability to pay and rent rates may allow for some of these new households to compete with buyers in the single-family market, if the rental income exceeds the mortgage costs of a given home. Although the relatively small size of this population likely will not have a noticeable impact on the greater market, issues could arise in neighborhoods with convenient access to Fort Lee.

Table 3-17 Asking Rent Ranges by Community and Bedroom Count

| | Rent Rates | | |
|---------------------------------|-------------------|---------|---------|
| | Low | Average | High |
| CHESTERFIELD COUNTY | | | |
| 1 Bedroom | \$694 | \$780 | \$907 |
| 2 Bedrooms | \$615 | \$858 | \$1,199 |
| 3 Bedrooms | \$755 | \$953 | \$1,215 |
| 4+Bedrooms | \$818 | \$922 | \$1,026 |
| DINWIDDIE COUNTY | | | |
| 1 Bedroom | NO DATA AVAILABLE | | |
| 2 Bedrooms | | | |
| 3 Bedrooms | | | |
| 4+Bedrooms | | | |
| PRINCE GEORGE COUNTY | | | |
| 1 Bedroom | \$415 | \$565 | \$715 |
| 2 Bedrooms | \$595 | \$788 | \$935 |
| 3 Bedrooms | N/A | N/A | N/A |
| 4+Bedrooms | \$0 | \$0 | \$0 |
| CITY OF COLONIAL HEIGHTS | | | |
| 1 Bedroom | \$722 | \$722 | \$722 |
| 2 Bedrooms | \$650 | \$702 | \$825 |
| 3 Bedrooms | \$800 | \$843 | \$886 |
| 4+Bedrooms | \$0 | \$0 | \$0 |
| CITY OF HOPEWELL | | | |
| 1 Bedroom | \$495 | \$548 | \$615 |
| 2 Bedrooms | \$540 | \$625 | \$725 |
| 3 Bedrooms | \$617 | \$687 | \$770 |
| 4+Bedrooms | \$689 | \$689 | \$689 |
| CITY OF PETERSBURG | | | |
| 1 Bedroom | \$540 | \$615 | \$740 |
| 2 Bedrooms | \$499 | \$679 | \$964 |
| 3 Bedrooms | \$710 | \$813 | \$1,144 |
| 4+Bedrooms | \$0 | \$0 | \$0 |

Source: Bay Area Economics, Fort Lee, and RKG Associates, 2007

3. Indirect/Natural Growth Impacts

In addition to studying the general affordability of housing for households relocating to the study area due to the increase of jobs at Fort Lee, the consultant also studied the relative affordability of housing for those households locating within the region due to spin-off effects of Fort Lee and the natural growth occurring in the region. While this growth is not directly attributable to Fort Lee, the data provide a comparative basis to better understand the buying power of new personnel at the Fort.

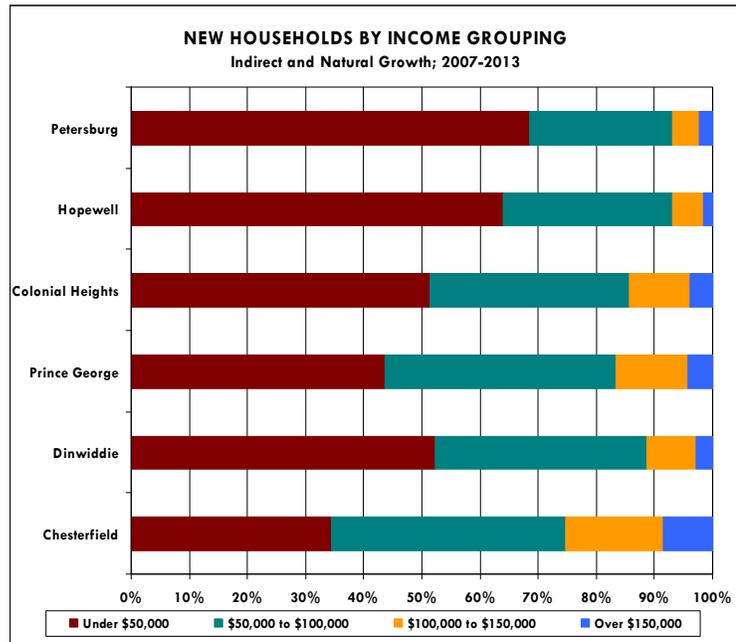
a.) Chesterfield County

Chesterfield County has been experiencing the greatest growth in population within the study region. This trend is projected to continue into the near future. By 2013, an additional 18,634 additional households are projected to add to the County.

Utilizing existing income data for Chesterfield County, approximately 34.4% of these households are projected to earn less than \$50,000, while an additional 40.4% would fall into the \$50,000 to \$100,000

income range. The households falling into the highest income bracket (over \$150,000), account for 8.4% of the total (Figure 3-6).

Figure 3-6 New Households by Income Bracket



- **For-Sale Affordability**

Current settlement patterns indicate that approximately 14,100, or 76%, of the new households in Chesterfield County will seek homeownership opportunities. Not surprisingly, households earning the highest incomes have a higher propensity to be homeowners. As such, Chesterfield has the highest homeownership rate in the study area.

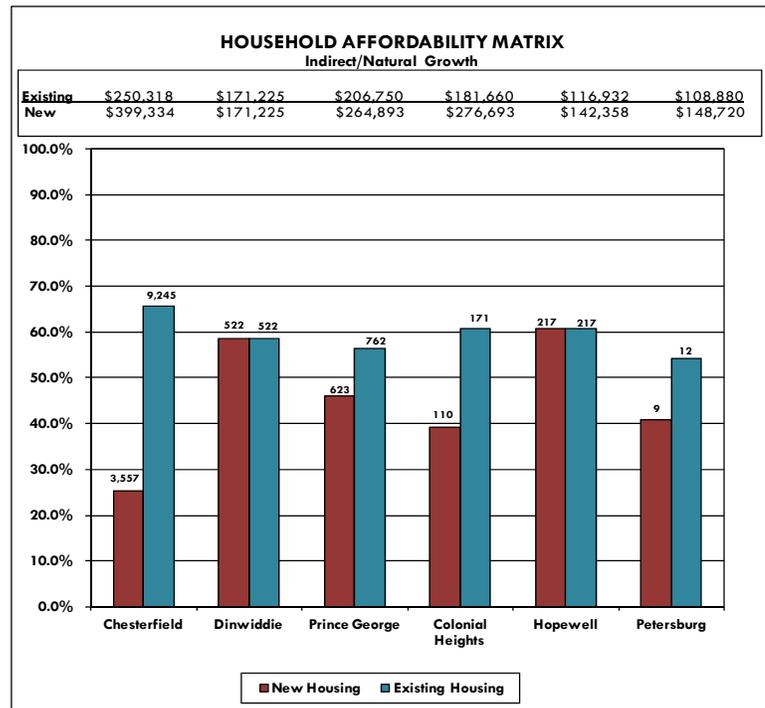
The existing supply of ownership housing is much more affordable than the newly constructed units. Approximately 66% of the new households (9,245 households) coming to Chesterfield assumed to be seeking homeownership can afford the average existing house (\$250,318) based on the assumptions detailed in the methodology section. In contrast, only 25% can afford the average price of newly constructed home (Figure 3-7).

- **For-Rent Affordability**

New renter households locating in Chesterfield County generally will have a variety of choice. The average rent rate for housing in Chesterfield County ranged from \$780 (1-bedroom) to \$950 (3-bedroom), with a peak rent of \$1,215 for a 3-bedroom unit. Utilizing the standard 30% income to price ratio, almost 85% of the new households locating in Chesterfield County seeking rental housing can afford the typical 1- or 2-bedroom unit. Almost 66% of these households could afford the most expensive unit identified through this analysis.

b.) Dinwiddie County
Dinwiddie County is projected to capture 1,257 new households by 2013, or roughly 200 new households annually, due to indirect and natural growth within the region. Income levels in Dinwiddie County fall below Chester-field and Prince George counties, but are comparable to Colonial Heights. Approximately 52.4% of the new households are projected to earn less than \$50,000. In comparison, only 11.3% will earn more than \$100,000.

Figure 3-7 Affordability Matrix Military HH without Dependents



- ***For-Sale Affordability***

Despite the relative lack of traditional multi-family housing units, Dinwiddie County has a slightly lower homeownership rate (71.0%) than Chesterfield County. This is attributable, in part, to the lower income levels of Dinwiddie households. Despite this, 893 of the new households are projected to demand homeowner-ship opportunities.

Sale data was not available for both new housing and existing housing for Dinwiddie. Rather, the consultant was only able to capture an average sale price for all housing (\$171,225). Based on this average, slightly less than 59% of the new residents seeking ownership opportunities would be able to afford a home in the County (Figure 3-7). However, anecdotal information indicate that new construction in Dinwiddie ranges from \$250,000 to more than \$500,000, lowering the natural growth consumer base for this new housing.

- ***For-Rent Affordability***

No data was available for rental housing in Dinwiddie County due to the limited number of traditional rental units in the County. As such, it is impossible to determine the relative affordability.

Using Dinwiddie’s relative affordability in ownership units within the region as a guide for determining rent ranges, Dinwiddie would have rents generally between \$650 to \$800. At these values, roughly 70% to 82% of new renters would be able to afford housing in Dinwiddie. However, the predominance of rental units are single-family, detached homed and not apartments. Using rent ranges for apartment

complexes to determine pricing in Dinwiddie County does not provide a relevant comparison.

c.) Prince George County

Prince George County has experienced the second fastest population growth rates in the region, behind Chester-field County. However, this growth is substantially lower than Chesterfield, in terms of net household gain. Prince George is projected to grow by slightly more than 2,000 households by 2013 due to indirect and natural growth for the Fort Lee study area.

Income levels of these new households are comparatively high for the region, with less than 44% earning below \$50,000. In contrast, Prince George has the second highest concentration of households earning above \$150,000 (4.3%) in the region. Households earning between \$50,000 and \$100,000 account for a large share (39.7%) of all households as well (Figure 3-6).

- ***For-Sale Affordability***

Current settlement patterns indicate that approximately 1,350 of the 2,016 new households projected to settle in Prince George County will seek homeownership opportunities. This translates into a homeownership rate of 67.1%.

The average sale price in 2006 for housing supply in Prince George ranged from \$206,000 for existing homes to slightly less than \$265,000 for newly constructed homes. Based on these figures, approximately 46% to 56% of the projected new households seeking homeownership will be able to afford housing in Prince George (Figure 3-7).

- ***For-Rent Affordability***

Similar to the rest of the communities, rental housing is relatively affordable in Prince George County. Rent rates for 1- and 2-bedroom apartments within complexes that provided data in the various housing analyses that have taken place in the region average between \$565 and \$790, with a high end of \$935. Data was not available for 3-bedroom units.

Based on this analysis, Prince George County has the highest share of households that can afford the average rental unit. Assuming asking rents for 3-bedroom units are proportional to 1- and 2-bedroom units, approximately 77% to 87% of the 662 households that are projected to be seeking rental housing can afford the units represented in the data provided above.

d.) City of Colonial Heights

Like the other cities within the Fort Lee study area, Colonial Heights has very little developable land for new housing construction. Much of the growth in Colonial Heights is infill development and redevelopment of built parcels. In addition, the cities all have substantially smaller land areas, further limiting development potential. As a result, growth in the cities has been comparatively smaller than the three counties. Colonial Heights is projected to grow by 412 households by the end of the study period, or roughly 33% of the growth in Dinwiddie County.

Income levels in Colonial Heights are comparable to Dinwiddie County. Slightly more than 50% of households are projected to earn less than \$50,000. In comparison,

households earning more than \$100,000 are projected to account for less than 15% of the total.

- ***For-Sale Affordability***

Current settlement patterns indicate that approximately 280, or 68%, of the new households in Colonial Heights will seek homeownership opportunities. This rate is the third highest in the region, behind Chesterfield and Dinwiddie counties.

Similar to Chesterfield, there is a large disparity between the average price for existing ownership housing and newly constructed units. Approximately 61% of the new households (171 households) coming to Colonial Heights assumed to be seeking homeownership can afford the average existing house (\$181,660) based on the assumptions detailed in the methodology section. In comparison, slightly less than 40% can afford the average price of newly constructed home (Figure 3-7).

- ***For-Rent Affordability***

Rental rates in Colonial Heights are comparatively high for the region, with asking prices for 1-bedrooms averaging \$722 per month (Table 3-17). Asking rents for 2- and 3-bedroom units averaged between \$700 and \$850 per month. Approximately 75% of the 132 households projected to seek rental housing can afford the average unit in Colonial Heights based on affordability calculations.

e.) City of Hopewell

The City of Hopewell is projected to experience the largest growth, in terms of actual households, of the three cities within the Fort Lee study area. Like the other cities within the Fort Lee study area, much of the growth in Hopewell is infill development and redevelopment of built parcels. The City of Hopewell is projected to grow by 676 households by the end of the study period.

Income levels in Hopewell are comparatively lower than the rest of the region. Nearly 64% of the new households entering the City are projected to earn less than \$50,000. In contrast, less than 7% of these new households are projected to earn more than \$100,000. Only the City of Petersburg has a higher concentration of modest-income households.

- ***For-Sale Affordability***

Hopewell has the second lowest homeownership rate in the region, at less than 53%. As a result, the consultant estimates that 357 of the 676 new households will seek a homeownership opportunity. This finding is not surprising, as Hopewell has a much higher concentration of multi-unit structures than those communities with higher homeownership rates.

Home values in Hopewell are relatively lower than most of the region. This finding is consistent with income levels, as households tend to maximize the buying capacity. The average sale price in 2006 for housing supply in Hopewell ranged from \$119,932 for existing homes to \$142,358 for newly constructed homes. (Figure 3-7). Although the housing stock is relatively affordable to those new households seeking home ownership (60.8%) on average, the lower income levels make it difficult for all interested parties to find an affordable opportunity.

- ***For-Rent Affordability***

Similar to the rest of the communities, rental housing is relatively affordable in Hopewell. Average asking rent rates in Hopewell are the lowest within the study area, ranging from \$548 for a 1-bedroom unit to \$689 for a 4-bedroom unit. The highest asking rent provided is \$770 per month for a 3-bedroom unit.

Similar to the homeownership analysis, the relatively lower prices are negated by a concentration of modest-income households. As such, affordability for the 319 new households locating in Hopewell seeking rental housing is slightly higher than 75%, on par with other communities in the study area.

f.) City of Petersburg

The City of Petersburg has steadily been declining in population in the recent past. However, market projections suggest the City will experience a modest gain of 50 new households by the end of the study period. It is important to note that this growth is predicated, in part, to the improved perceptions of education and safety in the community.

Petersburg has the highest concentration of modest-income households within the study area. Almost 70% of the new households are projected to earn less than \$50,000 while fewer than 7% are projected to earn above \$150,000. While actual income levels may vary, depending on the success in improving conditions in the City, Petersburg continues to have the most affordable housing supply in the region.

- ***For-Sale Affordability***

As mentioned earlier, homeownership levels are correlated to income level. Given the high concentration of modest incomes in Petersburg, it is not surprising that fewer than 50% of all households own their home. Future growth is projected to maintain this pattern, indicating 22 of the new households will seek homeownership.

Similar to the situation in Hopewell, Petersburg has comparatively low housing values in addition to low in-come levels. The average sale price in 2006 for housing supply in Petersburg ranged from \$108,880 for existing homes to \$148,720 for newly constructed homes. (Figure 3-7). Although the housing stock is relatively affordable, the comparatively low ability to pay by the new households seeking homeownership adversely affects some interested parties in finding an affordable home. The affordability levels range from 40% to 54% in Petersburg.

- ***For-Rent Affordability***

The average asking rents in Petersburg are relatively low, as compared to the region, but are higher compared to the ability to pay of the projected new residents. This is due to a substantial disparity in rent rates that were reported to the consultant. For example, 3-bedroom units had an asking rent range from \$710 to nearly \$1,150. This finding suggests there are unique submarkets within Petersburg.

Similar to Hopewell, the relatively lower prices are negated by a concentration of modest-income households. However, the disparate submarkets in Petersburg have increased the average asking rent rate, slightly widening gap in affordability. As

such, affordability for the 28 new households locating in Petersburg seeking rental housing is slightly below 70%, the lowest rate for all communities in the study area.

4. Conclusions

The incoming households to Fort Lee seem well equipped to find suitable housing within the region with few exceptions. Housing prices in the region generally are within the affordability range of the new personnel, but not all personnel will be able to afford new construction due to the rising cost of land in many communities. The military personnel, with their basic allowance for housing and subsistence, have the greatest potential to access the local housing market due to their higher ability-to-pay. However, the civilian employees also earn enough to allow them alternatives in housing selection.

In comparison, the indirect and natural growth rate data suggest it will be more difficult for all other households interested in homeownership to find adequate opportunities. Based on current market conditions, roughly 50% to 60% of those seeking homeownership will qualify, on average, to obtain a mortgage. While the household income ranges used in this analysis were general in nature, the analysis indicates that housing values, particularly for new construction, are beyond the ability-to-pay of the average households in the region. The rental market is much more affordable, ranging between 70% and 85%, but still not as affordable to the natural growth population as it is to the incoming Fort Lee personnel.

The infusion of the new households to Fort Lee could affect the availability of affordable housing for those new moderate-income households drawn to the region over the next decade. Simply put, the higher ability-to-pay for the Fort Lee personnel could put pressure on those households that are marginally able to afford to buy a house. Information provided by local real estate professionals indicate that the cost of land and the cost of construction is making it more difficult to keep prices within the ranges that are affordable to current and projected households within the Fort Lee region, exacerbating the affordability for 'margin' households.

This issue is particularly true within the three cities, where land availability is at a premium and future residential development may require redevelopment. Redevelopment will increase the cost of housing in these jurisdictions because of the upfront costs to acquire and remove existing structures is higher than developing a "greenfield" site. Given their relative proximity to Fort Lee, new personnel at the post may look at the relatively inexpensive housing in these communities as a preferred alternative. Particular attention needs to be paid to housing investment and redevelopment in these communities, providing guidance and potentially subsidies to remove some of the barriers that may keep these communities from participating in the region's growth.

4

GROWTH IMPACTS

A. INTRODUCTION

This chapter examines regional economic and demographic implications of installation growth at Fort Lee. The primary purpose of this chapter is to present an evaluation of direct and indirect changes associated with the increase in the number of military, civilian, and contractor personnel, as well as other related changes in the Primary Impact Area (PIA) that includes Dinwiddie, Prince George, and Chesterfield Counties, and the Cities of Petersburg, Colonial Heights, and Hopewell.

In order to evaluate expected impacts associated with base expansion; this chapter uses two scenarios to identify a possible range of impacts. The first scenario, which is referred to as the "Proportional Growth Scenario," assumes that all jurisdictions capture their proportional share of future growth based on their historical share. The "Shifting Share Growth Scenario," accounts for declining population trends in the City of Petersburg and reallocates regional growth to other nearby jurisdictions. While RKG Associates believes that Petersburg has an opportunity to reverse its declining population trends with the projected growth at Fort Lee, it is not likely that these trends will be reversed over night. The use of these two growth scenarios offers a reasonable range of potential outcomes for the region as it plans for the future.

This section does not address impacts to such things as regional housing, educational services, childcare and healthcare. These impacts are detailed in their own sections later in this report.

B. SUMMARY OF MAJOR FINDINGS

Population

- The REMI Model estimates that the primary impact area had a 2006 population of 433,589. Overall, the region's population is expected to grow by an average annual rate of 2.1% between 2006 and 2013, the period in which Fort Lee is expected to expand. This rapid growth rate is driven primarily by Chesterfield County, which accounts for more than 68% of the region's population, and is projected to grow at an average annual rate of 2.5% during this period. Adjusting for Chesterfield County's

growth, the rest of the impacted communities are projected to grow by a more modest 1.2% annual rate until 2013.

- RKG estimates that approximately 64% of this new population growth (7,011 pop.) will be comprised of direct military, civilian and contractor personnel and their dependents. Extending the projections to 2035, the region's population will increase by 14,280 due to the expansion of Fort Lee.

Employment

- Nearly 88.2% of all new employment growth (67,077 new jobs) over the next three decades is expected to occur in the region's economic hub, Chesterfield County. The next largest job creator is projected to be Prince George County with 4,694 new jobs or roughly 6.2% of future employment growth.
- Total employment growth is expected to increase by nearly 12,000 jobs in the peak year of 2010. The rapid increase in jobs is largely due to the increased demand for construction workers at Fort Lee. In 2008, it is estimated that approximately 5,130 construction jobs will be created throughout the PIA and surrounding region in support of Fort Lee's massive construction program.
- Over the 30-year projection period, occupations such as: (1) management, (2) computer/math/architecture/engineering, (3) education and training, (4) healthcare, and (5) protective services are expected to experience sustained job growth.

Construction Spending

- The peak construction year is planned for 2008, when expenditures could exceed \$373 million. The next highest year is expected in 2009 when construction could exceed \$341 million. During these peak years, the REMI model simulation indicates that the region may experience a shortage of construction workers or companies within the region due Fort Lee and other spin-off development activity. The combination of large contracts and short completion schedules could result in the immigration of 500 to 700 construction workers from outside the region to complete the work before the 2011 BRAC deadline.

Projected Staff Changes

- Fort Lee's military and civilian population consists of two major categories of personnel: student soldiers attending professional schools and permanent party personnel. According to Fort Lee's BRAC Synchronization Office, approximately 8,870 new personnel are expected to arrive at Fort Lee by the year 2013. Approximately 65.2% of the new personnel will be students and Advanced Individualized Trainees (AITs).
- For purposes of this analysis, the incoming student and trainee population is treated differently than the permanent party personnel. Students and trainees will impact the community differently and will be housed in lodging units or barracks while stationed at Fort Lee. Permanent party military, civilians, and contractors will have longer-term assignments at Fort Lee and will either be housed on-base in family housing units, in the case of military personnel, or they will seek housing off base in the surrounding communities. In either case, these permanent staff will generate

demand for local housing, will enroll their children in local schools, and will demand municipal services like other households in the region.

- Based on discussions with the Fort Lee BRAC Synchronization Office, it is estimated that as many as 81% (2,507 people) of the 3,090 permanent party personnel scheduled for reassignment will actually relocate to the region.

Payroll Impacts

- RKG estimates that by 2013, the annual payroll associated with the new personnel at Fort Lee will equal approximately \$216.6 million. Approximately 55% of that payroll will be attributable to 1,604 civilian employees, 38.5% to 1,321 military employees, and 6.1% to 165 contractor personnel.
- According to Fort Lee estimates, roughly 71.1% of incoming military personnel will be classified as either E7s or E8s. Enlisted personnel at these ranks make between \$33,000 and \$42,000 per year (in 2007 dollars), with housing and subsistence allowances of between \$13,000 and \$16,000. Relative to civilian personnel, it is estimated that roughly 63.6% will be between GS-9 and GS-12. Personnel at these pay grades make between \$47,000 and \$73,000 per year in 2007 dollars.
- Contrary to popular perceptions that military personnel are lower paid employees, RKG estimates that annual salaries for incoming military could exceed \$54,000 in 2009. Likewise, civilian and contractor salaries are expected to average roughly \$64,000/yr. and \$67,500 respectively.

Hotel Demand

- Based on RKG's projections of monthly room night demand, by 2011 Fort Lee's training operations could be generating demand for over 340,000 room nights per year. If no additional lodging units are constructed on-post, Fort Lee only may be able to accommodate 55.4% of this annual demand (188,752 room nights). This would result in over 151,000 unmet room nights, which would have to be accommodated by the private hotel market. This level of demand would be equivalent to 640 hotel rooms operating at 65% occupancy.
- Until additional lodging units are constructed on-post, Fort Lee will have a problem transporting students to and from private hotels. Most students do not have cars and are not authorized to rent cars. As such, they will have to rely on other means of transportation to get to Fort Lee. With no reliable public transit to serve this population, Fort Lee Garrison Commander and local officials must work cooperatively with local hotels/motels to solve this problem.

C. REMI POLICY INSIGHT MODEL[®]

Regional Economic Models, Inc. (REMI) developed a custom Policy Insight model to evaluate the economic impacts associated with installation expansion at Fort Lee. This Policy Insight model was used to evaluate economic impacts related to Chesterfield, Dinwiddie, and Prince George Counties, and the Cities of Petersburg, Colonial Heights, and Hopewell on an individual basis. Throughout this chapter, the results are often expressed for the PIA or Primary Impact Area, which consists of the six host communities. The distinguishing features of the REMI Policy Insight model are listed below:

- The REMI model is a multi-year forecasting and simulation model, enabling users to evaluate policy alternatives in terms of “what if” scenarios in order to estimate economic impacts. The model has strong dynamic properties, which means that it forecasts not only what will happen but also when it will happen.
- REMI developed a custom multi-regional economic and demographic forecast for PIA communities. This dynamic year-by-year forecast represents the baseline, or no-build scenario. The REMI forecast extends to the year 2035.
- The Industrial Sectors in Policy Insight are based on the North American Industry Classification System (NAICS). NAICS replaced the old Standard Industrial Classification (SIC) System in 1997, and was developed jointly by the United States, Canada and Mexico to allow business statistics comparability across North America.
- Policy Insight’s forecast was assembled at the county level using data from various U.S. government agencies, including the Bureau of Economic Analysis (BEA), the Bureau of Labor Statistics (BLS), the Department of Energy, Department of Defense (DoD), the Bureau of Census, and other public sources. It should be noted that Virginia’s independent cities are not tracked by the BLS as independent jurisdictions from the counties. As such, their data are reported as part of the county and RKG had to develop a methodology to disaggregate the data to the jurisdictional level.
- The disaggregation methodology employed a proportional and shifting share method to reflect the cities’ economic impacts. The two methods are explained in detail later in this chapter.
- The REMI model generates estimates for both DIRECT and INDIRECT impacts. Direct impacts for this analysis are expanded military operations: military personnel, on-post jobs, and on-post infrastructure spending. The indirect impacts can be split into two groups: Intermediate and Induced. Intermediate impacts are essentially business to business purchases. Induced impacts are associated with increased regional disposable income resulting in a change in consumer spending.
- The model structure has been developed to include “new economic geography” assumptions. Economic geography theory explains regional and urban economies in terms of competing factors of dispersion and agglomeration. Producers and consumers are assumed to benefit from access to variety, which tends to concentrate production and the location of households.
- For businesses, the demand for labor, capital, and fuel depends on their relative costs. For example, if there were an increase in the price of capital, businesses would likely have a preference shift away from capital toward labor and fuel.
- Individuals respond to price changes. Consequently, economic migrants will respond to wages, new employment opportunity, local prices, and other labor market factors.

Figure 4-1 is a representation of REMI Policy Insight’s structure and illustrates the linkages within the local economy. The output block shows how businesses will produce goods to sell to other firms, consumers, investors, governments, and purchasers outside the region. The Labor and Capital Demand block shows how labor and capital requirements depend both on total sales (output) and on relative costs. In the Demographic block, Population and Labor

Supply contribute to consumer spending (demand) and influence wages. Supply and demand interact in the Wage, Price, and Profit block. Production costs determine market shares locally, for the rest of the U.S., and for the rest of the world. Output depends on market shares and the components of demand.

Figure 4-1 – REMI Model Linkages Diagram

REMI Model Linkages (Excluding Economic Geography Linkages)

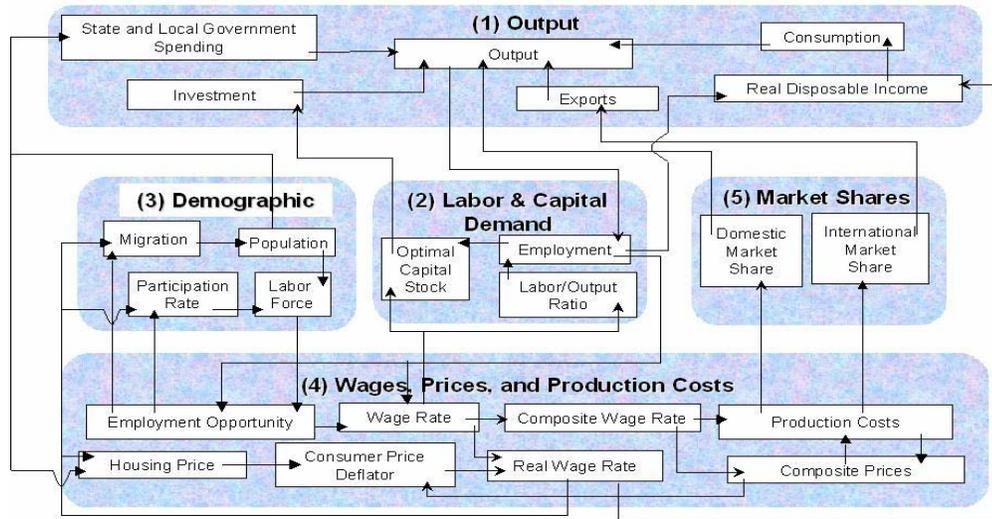
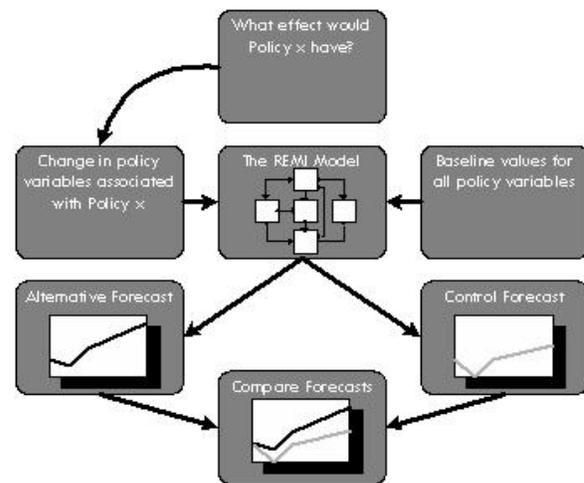


Figure 4-2 illustrates the policy simulation process for a scenario called “Policy X.” To determine the effects of this scenario, the user must select the appropriate policy variables and then enter the values and assumptions that represent the direct effects of the scenario. The alternative forecast is then generated using these policy variable inputs. Two alternative forecasts are used in this analysis, the Expected Growth Scenario and the Alternative Growth Scenario. The impacts of these scenarios are then determined by comparing the baseline REMI forecast (or Control Forecast) with these new alternative forecasts to quantify the expected change to the baseline economy.

Figure 4-2 - REMI Model Policy Simulation Process



D. JURISDICTIONAL BASELINE FORECASTS

The following section presents the baseline forecasts for the six jurisdictions comprising the Fort Lee Primary Impact Area. The baseline forecasts are not influenced by Fort Lee’s

expansion and should be viewed as growth forecasts that would occur without any expansion of Fort Lee in the future. The forecasts cover the projection period starting in 2006 and ending in 2035 and include population, gross regional product, personal income, and employment. The growth impacts associated with Fort Lee's expansion are included later in this chapter.

1. Data Allocation Methods

This section presents two alternative baseline forecasts for the jurisdictions of Dinwiddie County and the cities of Colonial Heights and Petersburg. This was necessary to account for declining population trends in the City of Petersburg, which have ranged from -0.7% to -1.3% annually since the 1980s. At the same time, the REMI Model is constructed as a county-level model and does not report data at the independent city level, which is a designation that is unique to the Commonwealth of Virginia. According to the Bureau of Labor Statistics (BLS), the Census designated area known as Dinwiddie County, VA consists of Dinwiddie County, as well as the cities of Petersburg and Colonial Heights. As such, it was necessary for RKG to proportionally disaggregate the data for these three jurisdictions, while adjusting for Petersburg's recent trends and reallocating projected growth to these communities.

Since the REMI Model projects steady growth for the combined Dinwiddie County area (including all three jurisdictions) in the future, it was not reasonable to assume that all three jurisdictions would grow at the same rate into the future. In fact, after more than two decades of population loss, it was not reasonable to assume any immediate population gains for Petersburg. However, RKG's adjustments to the REMI projections recognize that the expansion of Fort Lee is a significant growth event that has the potential to reverse the City's declining trends over the next decade. During this transition period, RKG envisions that Dinwiddie County will be the primary beneficiary of these trends and will grow at a more rapid pace over the 2006-2035 projection period as its regional population share increases. To account for these regional conditions, RKG prepared two different methods for apportioning regional growth.

- Shifting Share Projection Method - This projection method assumes that as the City of Petersburg's share of regional growth declines, Dinwiddie County and Colonial Heights will benefit. In 2006, Petersburg accounted for approximately 42.8% of the combined population of the three jurisdictions. Using the Virginia Employment Commission's 2030 population projections as a control point, RKG calculated that Petersburg's regional population share is projected to drop to 38.4% by 2030. Likewise, Dinwiddie County's share is projected to increase from 33.9% in 2006 to 38.3% in 2030 and Colonial Heights is expected to remain steady at roughly 23%. While the VEC projects a slight population decline for these three jurisdictions over the next 29 years, the REMI model calls for modest, but steady growth of approximately 1% per year.

Applying these shifting share percentages to REMI's annual population estimates, RKG was able to reapportion growth among the three communities. And because the population of these three communities is projected to increase by nearly 22,000 people by 2035, it is likely the City of Petersburg will eventually capture some share of this growth, but only after it gradually reverses its negative population trends.

- Proportional Share Projection Method - Unlike the shifting share method, the proportional share approach simply assumes that each jurisdiction maintains its current share of regional population into the future. Accordingly, if Petersburg's share was equal to 42.8% in 2006, then it is assumed to be 42.8% in 2035, irrespective of recent trends. While this method is not considered a reliable predictor of future growth, it is likely to produce an upper end estimate for the City of Petersburg and a lower end estimate for Dinwiddie County.

2. Population

The demographic component of the REMI model uses a "cohort-component" method to forecast the population for a region. The population and labor-force estimates in the REMI model include detailed demographic information about the region. The total population reflects mid-year estimates of people, and includes survivors from the previous year, births, special populations, and three types of migrants (economic, international, and retired). The rate of change for each of the components depends on both observed historical trends in the region and on forecasted national trends. The REMI model calculates the demographic changes every year, for each age group by gender and ethnicity. The model contains historical demographic data starting from the year 1990. The majority of this data is provided by official sources, while a portion must be estimated. In addition, there are also several types of special populations that have different characteristics than the rest of the population. These special populations need to be treated differently, in particular military personnel, military dependents, and college students.

Changes in population are due to changes in birth rates and migration (retired and international) that is the result of economic growth. The population variable in REMI Policy Insight will directly affect the potential labor force, government spending, consumer spending, and housing prices.

The REMI Model estimates that the primary impact area had a 2006 population of 433,589 (Table 4-1). Overall, the region's population is expected to grow by an average annual rate of 2.1% between 2006 and 2013, the period in which Fort Lee is expected to expand. This rapid growth rate is driven primarily by Chesterfield County, which accounts for more than 68% of the region's population, and is projected to grow at an average annual rate of 2.5% during this period. Adjusting for Chesterfield County's growth, the rest of the impacted communities are projected to grow by a more modest 1.2% annual rate until 2013.

Between 2013 and 2035, the PIA's population is projected to increase from 496,073 to 663,599 for an increase of 167,126 (34%). However, the rate of growth during this period is expected to slow slightly to 1.5% per year. It should be pointed out that the REMI model does not assume any constraints to growth. Such factors as economic recessions, infrastructure availability and capacity, traffic congestion, restrictive growth controls, or other local factors that might limit the rate of growth, are not accounted for in the long-range projections. As a result, the growth projections should be viewed as the jurisdiction's growth potential.

Population Baseline Forecasts (2006-2035)

Table 4-1

Fort Lee Primary Impact Area

REMI Model Outputs

| Jurisdictions | Fort Lee Expansion Period | | | | | | | | | | | |
|-------------------------------------|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|---------|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2020 | 2025 | 2030 | 2035 |
| Chesterfield County | 296,440 | 303,281 | 310,261 | 317,383 | 324,670 | 332,099 | 339,749 | 347,500 | 400,458 | 432,628 | 458,246 | 478,062 |
| Prince George County | 37,582 | 38,397 | 39,025 | 39,773 | 40,561 | 41,370 | 42,215 | 43,085 | 48,615 | 52,328 | 55,715 | 58,706 |
| City of Hopewell | 23,610 | 23,878 | 24,021 | 24,229 | 24,449 | 24,696 | 24,960 | 25,233 | 26,677 | 27,653 | 28,390 | 28,877 |
| Dinwiddie County | | | | | | | | | | | | |
| Shifting Share Method | 25,743 | 26,186 | 26,663 | 27,181 | 27,742 | 28,121 | 28,529 | 28,960 | 32,319 | 34,442 | 36,349 | 38,102 |
| Proportional Share Method | 25,743 | 25,868 | 26,019 | 26,203 | 26,418 | 26,655 | 26,918 | 27,199 | 29,420 | 30,887 | 32,125 | 33,198 |
| City of Petersburg | | | | | | | | | | | | |
| Shifting Share Method | 32,505 | 32,353 | 32,227 | 32,132 | 32,066 | 32,226 | 32,414 | 32,622 | 34,303 | 35,541 | 36,478 | 37,197 |
| Proportional Share Method | 32,505 | 32,663 | 32,855 | 33,086 | 33,358 | 33,658 | 33,989 | 34,345 | 37,149 | 39,001 | 40,564 | 41,919 |
| City of Colonial Heights | | | | | | | | | | | | |
| Shifting Share Method | 17,709 | 17,787 | 17,884 | 18,002 | 18,141 | 18,303 | 18,481 | 18,673 | 20,185 | 21,153 | 21,962 | 22,655 |
| Proportional Share Method | 17,709 | 17,795 | 17,899 | 18,025 | 18,173 | 18,337 | 18,517 | 18,711 | 20,239 | 21,248 | 22,099 | 22,837 |
| Total Population | 433,589 | 441,882 | 450,080 | 458,700 | 467,629 | 476,815 | 486,349 | 496,073 | 562,558 | 603,745 | 637,140 | 663,599 |
| Actual Population Change | | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-20 | 2020-25 | 2025-2030 | 2030-35 |
| Chesterfield County | | 6,841 | 6,980 | 7,122 | 7,287 | 7,429 | 7,650 | 7,751 | 52,958 | 46,656 | 37,729 | 29,314 |
| Prince George County | | 814 | 628 | 748 | 787 | 809 | 845 | 870 | 5,530 | 5,352 | 4,830 | 4,300 |
| City of Hopewell | | 269 | 143 | 208 | 221 | 247 | 264 | 273 | 1,444 | 1,400 | 1,096 | 751 |
| Dinwiddie County | | - | - | - | - | - | - | - | - | - | - | - |
| Shifting Share Method | | 443 | 477 | 519 | 561 | 379 | 408 | 430 | 3,360 | 3,108 | 2,731 | 2,496 |
| Proportional Share Method | | 125 | 151 | 184 | 215 | 238 | 263 | 281 | 2,221 | 2,111 | 1,797 | 1,547 |
| City of Petersburg | | - | - | - | - | - | - | - | - | - | - | - |
| Shifting Share Method | | (152) | (127) | (95) | (66) | 160 | 188 | 208 | 1,681 | 1,715 | 1,395 | 1,066 |
| Proportional Share Method | | 158 | 191 | 232 | 271 | 300 | 332 | 355 | 2,804 | 2,666 | 2,269 | 1,953 |
| City of Colonial Heights | | - | - | - | - | - | - | - | - | - | - | - |
| Shifting Share Method | | 79 | 96 | 118 | 139 | 162 | 179 | 192 | 1,512 | 1,407 | 1,176 | 1,001 |
| Proportional Share Method | | 86 | 104 | 126 | 148 | 163 | 181 | 194 | 1,528 | 1,452 | 1,236 | 1,064 |
| Total Population Change | | 8,293 | 8,198 | 8,620 | 8,929 | 9,186 | 9,534 | 9,724 | 66,485 | 59,638 | 48,957 | 38,929 |
| Percentage Population Change | | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-20 | 2020-25 | 2025-2030 | 2030-35 |
| Chesterfield County | | 2.3% | 2.3% | 2.3% | 2.3% | 2.3% | 2.3% | 2.3% | 13.5% | 10.9% | 8.3% | 6.2% |
| Prince George County | | 2.2% | 1.6% | 1.9% | 2.0% | 2.0% | 2.0% | 2.1% | 11.6% | 10.4% | 8.8% | 7.4% |
| City of Hopewell | | 1.1% | 0.6% | 0.9% | 0.9% | 1.0% | 1.1% | 1.1% | 5.5% | 5.1% | 3.9% | 2.6% |
| Dinwiddie County | | | | | | | | | | | | |
| Shifting Share Method | | 1.7% | 1.8% | 1.9% | 2.1% | 1.4% | 1.5% | 1.5% | 10.6% | 9.1% | 7.6% | 6.6% |
| Proportional Share Method | | 0.5% | 0.6% | 0.7% | 0.8% | 0.9% | 1.0% | 1.0% | 7.6% | 6.9% | 5.6% | 4.7% |
| City of Petersburg | | | | | | | | | | | | |
| Shifting Share Method | | -0.5% | -0.4% | -0.3% | -0.2% | 0.5% | 0.6% | 0.6% | 4.9% | 4.9% | 3.8% | 2.9% |
| Proportional Share Method | | 0.5% | 0.6% | 0.7% | 0.8% | 0.9% | 1.0% | 1.0% | 7.6% | 6.9% | 5.6% | 4.7% |
| City of Colonial Heights | | | | | | | | | | | | |
| Shifting Share Method | | 0.4% | 0.5% | 0.7% | 0.8% | 0.9% | 1.0% | 1.0% | 7.6% | 6.7% | 5.4% | 4.4% |
| Proportional Share Method | | 0.5% | 0.6% | 0.7% | 0.8% | 0.9% | 1.0% | 1.0% | 7.6% | 6.9% | 5.6% | 4.7% |
| Total Population Change | | 1.9% | 1.9% | 1.9% | 1.9% | 2.0% | 2.0% | 2.0% | 12.0% | 10.0% | 7.8% | 5.9% |

Source: REMI Model, Inc. and RKG Associates, Inc., 2007.

As noted earlier in this chapter, the City of Petersburg has experienced a prolonged period of population loss since the 1980s. The REMI model projections, under the shifting share method, see a continuation of these trends until regional growth begins to reverse these trends over the next 5 to 7 years. Implied in these projections is the assumption that Petersburg will capture its fair share of growth by aggressively attracting new residential developments that will effectively offset population losses.

3. Gross Regional Product

Gross Regional Product (GRP) is a value-added concept that is analogous to the national concept of Gross Domestic Product. GRP is essentially the market value of all final goods and services produced within a given region. The components that make up GRP are spending by governments, investment within the region by firms and individuals, consumption by individuals, the combined effects of trade (net exports equals exports minus imports), and the change in business inventories (CBI). GRP is usually a smaller dollar amount than total economic output because output includes the production of final goods and intermediate inputs (business to business transactions), whereas GRP reports only final goods production.

The total GRP for the region, presented in Table 4-2 is projected to grow at a rate of between 4.4% and 5.1% per year during the 2006-2013 period, not including the Fort Lee growth effect. Again, the REMI model is not predictive of economic downturns and cannot adjust its projections to reflect emerging economic conditions unless those assumptions are built into the model's policy variables. In subsequent decades, Gross Regional Product is expected to grow at a slightly slower rate of 3% to 4%, but GRP in the impacted communities is projected to increase from \$14.3 billion in 2006 to \$36.6 billion in 2035, expressed in constant 2000 dollars.

4. Personal Income

Personal income is represented in the Policy Insight model as the income that is received by, or on behalf of, the individuals who live in the area. Personal income estimates are adjusted to represent income earned by the place of residence and not by place of work. Personal income is the sum of wage and salary disbursements, proprietors' income, rental income, personal dividend income, personal interest income, and current transfer payments not including contributions to government social insurance.

Personal income within the primary impact area is projected to increase by roughly 6% annually between 2006 and 2013 as the region's economy and population continue to expand. Chesterfield and Dinwiddie Counties (under shifting share method) are expected to experience the strongest annual growth during the projection period. In real terms, personal income is projected to increase from \$15 billion in 2006 to \$61.2 billion in 2035 (expressed in 2000 fixed dollars) (Table 4-3). As the largest jurisdiction, Chesterfield County accounted for roughly 78% of the region's personal income in 2006. By 2035, the county's share is expected to rise to over 81% of personal income.

Gross Regional Product (GRP) Baseline Forecasts (2006-2035) (\$billions fixed Yr. 2000 dollars)

Table 4-2

Fort Lee Primary Impact Area

REMI Model Outputs

| Jurisdictions | Fort Lee Expansion Period | | | | | | | | | 2020 | 2025 | 2030 | 2035 |
|---------------------------|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | | | | | |
| Chesterfield County | \$ 10.259 | \$ 10.755 | \$ 11.322 | \$ 11.973 | \$ 12.645 | \$ 13.327 | \$ 14.013 | \$ 14.696 | \$ 19.151 | \$ 22.036 | \$ 25.097 | \$ 28.332 | |
| Prince George County | \$ 1.244 | \$ 1.288 | \$ 1.329 | \$ 1.381 | \$ 1.434 | \$ 1.487 | \$ 1.538 | \$ 1.589 | \$ 1.938 | \$ 2.184 | \$ 2.467 | \$ 2.782 | |
| City of Hopewell | \$ 0.781 | \$ 0.801 | \$ 0.818 | \$ 0.841 | \$ 0.864 | \$ 0.887 | \$ 0.909 | \$ 0.930 | \$ 1.064 | \$ 1.154 | \$ 1.257 | \$ 1.369 | |
| Dinwiddie County | | | | | | | | | | | | | |
| Shifting Share Method | \$ 0.686 | \$ 0.717 | \$ 0.746 | \$ 0.781 | \$ 0.818 | \$ 0.849 | \$ 0.879 | \$ 0.909 | \$ 1.118 | \$ 1.261 | \$ 1.428 | \$ 1.615 | |
| Proportional Share Method | \$ 0.686 | \$ 0.708 | \$ 0.728 | \$ 0.753 | \$ 0.779 | \$ 0.805 | \$ 0.829 | \$ 0.854 | \$ 1.017 | \$ 1.131 | \$ 1.262 | \$ 1.407 | |
| City of Petersburg | | | | | | | | | | | | | |
| Shifting Share Method | \$ 0.867 | \$ 0.885 | \$ 0.901 | \$ 0.923 | \$ 0.945 | \$ 0.973 | \$ 0.999 | \$ 1.024 | \$ 1.186 | \$ 1.302 | \$ 1.433 | \$ 1.576 | |
| Proportional Share Method | \$ 0.867 | \$ 0.894 | \$ 0.919 | \$ 0.951 | \$ 0.983 | \$ 1.016 | \$ 1.047 | \$ 1.078 | \$ 1.285 | \$ 1.428 | \$ 1.594 | \$ 1.776 | |
| City of Colonial Heights | | | | | | | | | | | | | |
| Shifting Share Method | \$ 0.472 | \$ 0.487 | \$ 0.500 | \$ 0.517 | \$ 0.535 | \$ 0.552 | \$ 0.569 | \$ 0.586 | \$ 0.698 | \$ 0.775 | \$ 0.863 | \$ 0.960 | |
| Proportional Share Method | \$ 0.472 | \$ 0.487 | \$ 0.501 | \$ 0.518 | \$ 0.536 | \$ 0.553 | \$ 0.571 | \$ 0.587 | \$ 0.700 | \$ 0.778 | \$ 0.868 | \$ 0.968 | |
| Total GRP | \$ 14.309 | \$ 14.933 | \$ 15.616 | \$ 16.417 | \$ 17.241 | \$ 18.075 | \$ 18.907 | \$ 19.734 | \$ 25.155 | \$ 28.712 | \$ 32.545 | \$ 36.634 | |
| Actual Change | | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-20 | 2020-25 | 2025-2030 | 2030-35 | |
| Chesterfield County | | \$ 0.496 | \$ 0.567 | \$ 0.651 | \$ 0.672 | \$ 0.682 | \$ 0.686 | \$ 0.683 | \$ 4.455 | \$ 4.084 | \$ 4.211 | \$ 4.502 | |
| Prince George County | | \$ 0.044 | \$ 0.041 | \$ 0.052 | \$ 0.053 | \$ 0.053 | \$ 0.051 | \$ 0.051 | \$ 0.350 | \$ 0.343 | \$ 0.384 | \$ 0.434 | |
| City of Hopewell | | \$ 0.020 | \$ 0.017 | \$ 0.023 | \$ 0.023 | \$ 0.023 | \$ 0.022 | \$ 0.021 | \$ 0.133 | \$ 0.125 | \$ 0.140 | \$ 0.155 | |
| Dinwiddie County | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | |
| Shifting Share Method | | \$ 0.030 | \$ 0.029 | \$ 0.036 | \$ 0.037 | \$ 0.031 | \$ 0.030 | \$ 0.030 | \$ 0.209 | \$ 0.202 | \$ 0.226 | \$ 0.257 | |
| Proportional Share Method | | \$ 0.022 | \$ 0.020 | \$ 0.025 | \$ 0.026 | \$ 0.026 | \$ 0.025 | \$ 0.024 | \$ 0.164 | \$ 0.159 | \$ 0.178 | \$ 0.200 | |
| City of Petersburg | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | |
| Shifting Share Method | | \$ 0.019 | \$ 0.016 | \$ 0.022 | \$ 0.022 | \$ 0.027 | \$ 0.026 | \$ 0.025 | \$ 0.162 | \$ 0.158 | \$ 0.179 | \$ 0.198 | |
| Proportional Share Method | | \$ 0.027 | \$ 0.025 | \$ 0.032 | \$ 0.033 | \$ 0.033 | \$ 0.031 | \$ 0.031 | \$ 0.207 | \$ 0.200 | \$ 0.224 | \$ 0.252 | |
| City of Colonial Heights | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | |
| Shifting Share Method | | \$ 0.015 | \$ 0.013 | \$ 0.017 | \$ 0.017 | \$ 0.018 | \$ 0.017 | \$ 0.017 | \$ 0.112 | \$ 0.107 | \$ 0.120 | \$ 0.134 | |
| Proportional Share Method | | \$ 0.015 | \$ 0.014 | \$ 0.017 | \$ 0.018 | \$ 0.018 | \$ 0.017 | \$ 0.017 | \$ 0.113 | \$ 0.109 | \$ 0.122 | \$ 0.137 | |
| Total Change | | \$ 0.624 | \$ 0.683 | \$ 0.801 | \$ 0.824 | \$ 0.834 | \$ 0.832 | \$ 0.827 | \$ 5.421 | \$ 5.020 | \$ 5.259 | \$ 5.680 | |
| Percentage Change | | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-20 | 2020-25 | 2025-2030 | 2030-35 | |
| Chesterfield County | | 4.8% | 5.3% | 5.7% | 5.6% | 5.4% | 5.1% | 4.9% | 24.0% | 19.0% | 17.2% | 16.3% | |
| Prince George County | | 3.6% | 3.2% | 3.9% | 3.8% | 3.7% | 3.4% | 3.3% | 18.5% | 16.1% | 16.0% | 16.0% | |
| City of Hopewell | | 2.5% | 2.1% | 2.8% | 2.7% | 2.7% | 2.5% | 2.3% | 12.7% | 11.0% | 11.3% | 11.5% | |
| Dinwiddie County | | | | | | | | | | | | | |
| Shifting Share Method | | 4.4% | 4.0% | 4.8% | 4.7% | 3.8% | 3.6% | 3.4% | 19.2% | 16.4% | 16.2% | 16.3% | |
| Proportional Share Method | | 3.2% | 2.8% | 3.5% | 3.4% | 3.3% | 3.1% | 2.9% | 16.5% | 14.3% | 14.4% | 14.5% | |
| City of Petersburg | | | | | | | | | | | | | |
| Shifting Share Method | | 2.2% | 1.8% | 2.5% | 2.4% | 2.9% | 2.7% | 2.5% | 13.9% | 12.4% | 12.7% | 12.8% | |
| Proportional Share Method | | 3.2% | 2.8% | 3.5% | 3.4% | 3.3% | 3.1% | 2.9% | 16.5% | 14.3% | 14.4% | 14.5% | |
| City of Colonial Heights | | | | | | | | | | | | | |
| Shifting Share Method | | 3.1% | 2.7% | 3.4% | 3.4% | 3.3% | 3.1% | 2.9% | 16.4% | 14.1% | 14.2% | 14.3% | |
| Proportional Share Method | | 3.2% | 2.8% | 3.5% | 3.4% | 3.3% | 3.1% | 2.9% | 16.5% | 14.3% | 14.4% | 14.5% | |
| Total Change | | 4.4% | 4.6% | 5.1% | 5.0% | 4.8% | 4.6% | 4.4% | 22.2% | 17.9% | 16.6% | 15.9% | |

Source: REMI Model, Inc. and RKG Associates, Inc., 2007.

Personal Income Baseline Forecasts (2006-2035) (\$billions fixed in 2000 dollars)

Table 4-3

Fort Lee Primary Impact Area

REMI Model Outputs

| Jurisdictions | Fort Lee Expansion Period | | | | | | | | 2020 | 2025 | 2030 | 2035 |
|---------------------------|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|----------------|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | | | | |
| Chesterfield County | \$ 11.7250 | \$ 12.4770 | \$ 13.2750 | \$ 14.0950 | \$ 14.9760 | \$ 15.9050 | \$ 16.9230 | \$ 17.9570 | \$ 25.7850 | \$ 32.3990 | \$ 40.3520 | \$ 49.8660 |
| Prince George County | \$ 1.0079 | \$ 1.0710 | \$ 1.1328 | \$ 1.1981 | \$ 1.2678 | \$ 1.3388 | \$ 1.4121 | \$ 1.4877 | \$ 2.0443 | \$ 2.5182 | \$ 3.1029 | \$ 3.8019 |
| City of Hopewell | \$ 0.6331 | \$ 0.6660 | \$ 0.6972 | \$ 0.7299 | \$ 0.7642 | \$ 0.7992 | \$ 0.8349 | \$ 0.8713 | \$ 1.1217 | \$ 1.3308 | \$ 1.5811 | \$ 1.8701 |
| Dinwiddie County | | | | | | | | | | | | |
| Shifting Share Method | \$ 0.5562 | \$ 0.5959 | \$ 0.6355 | \$ 0.6778 | \$ 0.7232 | \$ 0.7644 | \$ 0.8071 | \$ 0.8512 | \$ 1.1787 | \$ 1.4546 | \$ 1.7962 | \$ 2.2063 |
| Proportional Share Method | \$ 0.5562 | \$ 0.5887 | \$ 0.6202 | \$ 0.6534 | \$ 0.6887 | \$ 0.7246 | \$ 0.7615 | \$ 0.7995 | \$ 1.0730 | \$ 1.3045 | \$ 1.5875 | \$ 1.9223 |
| City of Petersburg | | | | | | | | | | | | |
| Shifting Share Method | \$ 0.7023 | \$ 0.7363 | \$ 0.7682 | \$ 0.8013 | \$ 0.8359 | \$ 0.8760 | \$ 0.9170 | \$ 0.9589 | \$ 1.2511 | \$ 1.5010 | \$ 1.8026 | \$ 2.1539 |
| Proportional Share Method | \$ 0.7023 | \$ 0.7433 | \$ 0.7831 | \$ 0.8251 | \$ 0.8696 | \$ 0.9149 | \$ 0.9616 | \$ 1.0095 | \$ 1.3549 | \$ 1.6472 | \$ 2.0045 | \$ 2.4273 |
| City of Colonial Heights | | | | | | | | | | | | |
| Shifting Share Method | \$ 0.3826 | \$ 0.4048 | \$ 0.4263 | \$ 0.4489 | \$ 0.4729 | \$ 0.4975 | \$ 0.5229 | \$ 0.5489 | \$ 0.7362 | \$ 0.8934 | \$ 1.0852 | \$ 1.3118 |
| Proportional Share Method | \$ 0.3826 | \$ 0.4050 | \$ 0.4267 | \$ 0.4495 | \$ 0.4737 | \$ 0.4985 | \$ 0.5239 | \$ 0.5500 | \$ 0.7381 | \$ 0.8974 | \$ 1.0920 | \$ 1.3224 |
| total Personal Income | \$ 15.0070 | \$ 15.9510 | \$ 16.9350 | \$ 17.9510 | \$ 19.0400 | \$ 20.1810 | \$ 21.4170 | \$ 22.6750 | \$ 32.1170 | \$ 40.0970 | \$ 49.7200 | \$ 61.2100 |
| Actual Change | | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-20 | 2020-25 | 2025-2030 | 2030-35 |
| Chesterfield County | | \$ 0.752 | \$ 0.798 | \$ 0.820 | \$ 0.881 | \$ 0.929 | \$ 1.018 | \$ 1.034 | \$ 7.828 | \$ 9.015 | \$ 10.724 | \$ 12.893 |
| Prince George County | | \$ 0.063 | \$ 0.062 | \$ 0.065 | \$ 0.070 | \$ 0.071 | \$ 0.073 | \$ 0.076 | \$ 0.557 | \$ 0.644 | \$ 0.786 | \$ 0.945 |
| City of Hopewell | | \$ 0.033 | \$ 0.031 | \$ 0.033 | \$ 0.034 | \$ 0.035 | \$ 0.036 | \$ 0.036 | \$ 0.250 | \$ 0.283 | \$ 0.338 | \$ 0.393 |
| Dinwiddie County | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Shifting Share Method | | \$ 0.040 | \$ 0.040 | \$ 0.042 | \$ 0.045 | \$ 0.041 | \$ 0.043 | \$ 0.044 | \$ 0.328 | \$ 0.376 | \$ 0.459 | \$ 0.554 |
| Proportional Share Method | | \$ 0.033 | \$ 0.032 | \$ 0.033 | \$ 0.035 | \$ 0.036 | \$ 0.037 | \$ 0.038 | \$ 0.274 | \$ 0.314 | \$ 0.381 | \$ 0.453 |
| City of Petersburg | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Shifting Share Method | | \$ 0.034 | \$ 0.032 | \$ 0.033 | \$ 0.035 | \$ 0.040 | \$ 0.041 | \$ 0.042 | \$ 0.292 | \$ 0.337 | \$ 0.407 | \$ 0.477 |
| Proportional Share Method | | \$ 0.041 | \$ 0.040 | \$ 0.042 | \$ 0.045 | \$ 0.045 | \$ 0.047 | \$ 0.048 | \$ 0.345 | \$ 0.397 | \$ 0.481 | \$ 0.573 |
| City of Colonial Heights | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Shifting Share Method | | \$ 0.022 | \$ 0.021 | \$ 0.023 | \$ 0.024 | \$ 0.025 | \$ 0.025 | \$ 0.026 | \$ 0.187 | \$ 0.214 | \$ 0.258 | \$ 0.307 |
| Proportional Share Method | | \$ 0.022 | \$ 0.022 | \$ 0.023 | \$ 0.024 | \$ 0.025 | \$ 0.025 | \$ 0.026 | \$ 0.188 | \$ 0.216 | \$ 0.262 | \$ 0.312 |
| Total Change | | \$ 0.944 | \$ 0.984 | \$ 1.016 | \$ 1.089 | \$ 1.141 | \$ 1.236 | \$ 1.258 | \$ 9.442 | \$ 10.869 | \$ 12.972 | \$ 15.569 |
| Percentage Change | | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-20 | 2020-25 | 2025-2030 | 2030-35 |
| Chesterfield County | | 6.4% | 6.4% | 6.2% | 6.3% | 6.2% | 6.4% | 6.1% | 31.9% | 29.1% | 27.8% | 27.0% |
| Prince George County | | 6.3% | 5.8% | 5.8% | 5.8% | 5.6% | 5.5% | 5.4% | 28.4% | 26.6% | 26.4% | 25.9% |
| City of Hopewell | | 5.2% | 4.7% | 4.7% | 4.7% | 4.6% | 4.5% | 4.4% | 23.1% | 22.0% | 22.1% | 21.7% |
| Dinwiddie County | | | | | | | | | | | | |
| Shifting Share Method | | 7.2% | 6.6% | 6.7% | 6.7% | 5.7% | 5.6% | 5.5% | 29.1% | 27.0% | 26.6% | 26.1% |
| Proportional Share Method | | 5.9% | 5.4% | 5.4% | 5.4% | 5.2% | 5.1% | 5.0% | 26.5% | 25.0% | 24.9% | 24.5% |
| City of Petersburg | | | | | | | | | | | | |
| Shifting Share Method | | 4.8% | 4.3% | 4.3% | 4.3% | 4.8% | 4.7% | 4.6% | 24.2% | 23.3% | 23.4% | 22.9% |
| Proportional Share Method | | 5.9% | 5.4% | 5.4% | 5.4% | 5.2% | 5.1% | 5.0% | 26.5% | 25.0% | 24.9% | 24.5% |
| City of Colonial Heights | | | | | | | | | | | | |
| Shifting Share Method | | 5.8% | 5.3% | 5.3% | 5.3% | 5.2% | 5.1% | 5.0% | 26.5% | 24.9% | 24.7% | 24.3% |
| Proportional Share Method | | 5.9% | 5.4% | 5.4% | 5.4% | 5.2% | 5.1% | 5.0% | 26.5% | 25.0% | 24.9% | 24.5% |
| Total Change | | 6.3% | 6.2% | 6.0% | 6.1% | 6.0% | 6.1% | 5.9% | 30.8% | 28.3% | 27.2% | 26.5% |

Source: REMI Model, Inc. and RKG Associates, Inc., 2007.

5. Employment

The Employment variable in the REMI baseline forecast uses historical data from the Bureau of Economic Analysis (BEA). This variable is based on place of work and includes part-time employees, full-time employees, and the self-employed. The model counts full-time and part-time jobs at equal weight. These estimates will not be consistent with employment estimates from the Bureau of Labor Statistics (BLS) as BLS records “full-time equivalent” employment. The county employment estimates are a count of the number of jobs so that, as with the earnings estimates, a worker's activity in each industry and location of employment is reflected in the measure.

Table 4-4 provides projections about total employment by county and primary impact area. Most jurisdiction within the study area show positive growth, with the exception of the City of Petersburg during several years. However, over the entire 2006 to 2035 projection period, Petersburg is projected to add between 248 (shifting share method) to 1,917 (proportional method) new jobs, depending on the projection method. Nearly 88.2% of all new employment growth (67,077 new jobs) over the next three decades is expected to occur in region's economic hub, Chesterfield County. The next largest job creator is projected to be Prince George County with 4,694 new jobs or roughly 6.2% of future employment growth.

E. FORT LEE GROWTH IMPACT ANALYSIS

1. Regional Growth Allocation Method

In order to prepare growth projections for each of the six impact communities, RKG Associates had to make a series of assumptions about the characteristics of Fort Lee's future growth and where these growth effects would most likely occur. In August 2006, a voluntary community survey was distributed, with the support of the base command, to 7,888 military, civilian, and contract employees at Fort Lee. The purpose of the survey was to obtain baseline demographic information to prepare for the regional growth resulting from the 2005 Base Realignment and Closure (BRAC) decision to expand Fort Lee. Included in the survey were questions regarding current military status, number of dependents, special health care needs, school districts, residential area, and number of vehicles owned.

The survey was administered to the 3,292 permanent party military members and 4,596 civilian and contractor employees who were employed at Ft. Lee at the time of the survey. The response rate of 48% broke into 46% military and 54% civilian/contractor employees. While 48% is considered a good response rate for a voluntary survey, 52% of the target audience elected not to participate. In general, people who respond to voluntary surveys are either those who: (1) may be dissatisfied with the survey topic; (2) people who are satisfied with the survey topic; (3) people who are interested or engaged in the survey topic or, (4) people who simply enjoy taking surveys. While the responses generated were not purely random, they are considered useful in creating household profiles of those military, civilian, and contractor households that responded to the survey.

Employment Baseline Forecasts (2006-2035)

Table 4-4

Fort Lee Primary Impact Area

REMI Model Outputs

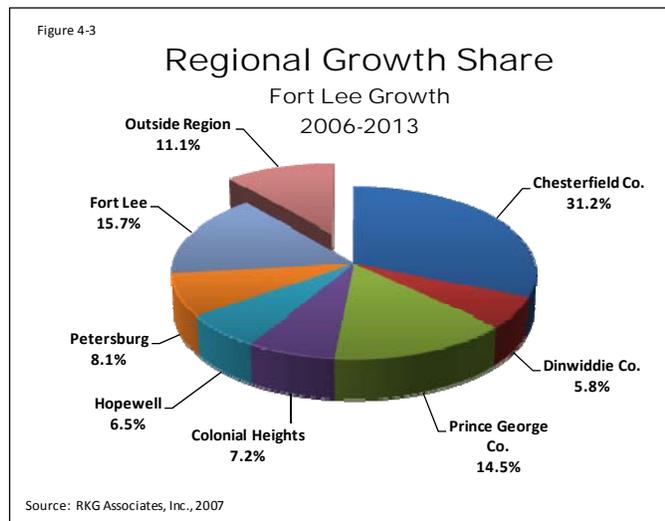
| Jurisdictions | Fort Lee Expansion Period | | | | | | | | | | | |
|---------------------------|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|----------------|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2020 | 2025 | 2030 | 2035 |
| Chesterfield County | 153,817 | 156,648 | 160,151 | 163,387 | 166,913 | 170,454 | 174,193 | 177,629 | 196,750 | 205,299 | 213,407 | 220,894 |
| Prince George County | 18,513 | 18,764 | 18,970 | 19,229 | 19,506 | 19,781 | 20,049 | 20,305 | 21,272 | 21,734 | 22,426 | 23,207 |
| City of Hopewell | 11,630 | 11,669 | 11,677 | 11,713 | 11,758 | 11,808 | 11,855 | 11,891 | 11,673 | 11,485 | 11,428 | 11,415 |
| Dinwiddie County | | | | | | | | | | | | |
| Shifting Share Method | 10,216 | 10,441 | 10,644 | 10,878 | 11,127 | 11,295 | 11,460 | 11,618 | 12,266 | 12,554 | 12,982 | 13,467 |
| Proportional Share Method | 10,216 | 10,314 | 10,387 | 10,487 | 10,596 | 10,706 | 10,813 | 10,912 | 11,165 | 11,258 | 11,474 | 11,734 |
| City of Petersburg | | | | | | | | | | | | |
| Shifting Share Method | 12,900 | 12,900 | 12,864 | 12,859 | 12,861 | 12,943 | 13,020 | 13,087 | 13,019 | 12,955 | 13,028 | 13,147 |
| Proportional Share Method | 12,900 | 13,024 | 13,115 | 13,241 | 13,379 | 13,518 | 13,653 | 13,778 | 14,099 | 14,216 | 14,488 | 14,816 |
| City of Colonial Heights | | | | | | | | | | | | |
| Shifting Share Method | 7,028 | 7,092 | 7,139 | 7,204 | 7,276 | 7,351 | 7,424 | 7,491 | 7,661 | 7,710 | 7,844 | 8,007 |
| Proportional Share Method | 7,028 | 7,095 | 7,145 | 7,214 | 7,289 | 7,365 | 7,438 | 7,506 | 7,681 | 7,745 | 7,893 | 8,072 |
| Total Population | 214,103 | 217,514 | 221,445 | 225,271 | 229,441 | 233,632 | 238,001 | 242,021 | 262,640 | 271,737 | 281,115 | 290,138 |
| Actual Change | | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-20 | 2020-25 | 2025-2030 | 2030-35 |
| Chesterfield County | | 2,831 | 3,503 | 3,236 | 3,526 | 3,541 | 3,739 | 3,436 | 19,121 | 12,984 | 11,263 | 10,843 |
| Prince George County | | 251 | 206 | 258 | 278 | 274 | 269 | 255 | 968 | 664 | 892 | 1,087 |
| City of Hopewell | | 39 | 8 | 37 | 44 | 51 | 46 | 37 | (219) | (289) | (123) | (20) |
| Dinwiddie County | | - | - | - | - | - | - | - | - | - | - | - |
| Shifting Share Method | | 225 | 203 | 235 | 249 | 168 | 165 | 158 | 648 | 433 | 553 | 674 |
| Proportional Share Method | | 98 | 73 | 100 | 109 | 110 | 107 | 99 | 254 | 127 | 261 | 362 |
| City of Petersburg | | - | - | - | - | - | - | - | - | - | - | - |
| Shifting Share Method | | 0 | (35) | (5) | 2 | 82 | 77 | 67 | (69) | (130) | 57 | 166 |
| Proportional Share Method | | 124 | 92 | 126 | 138 | 139 | 135 | 125 | 321 | 160 | 329 | 457 |
| City of Colonial Heights | | - | - | - | - | - | - | - | - | - | - | - |
| Shifting Share Method | | 65 | 47 | 66 | 72 | 75 | 73 | 67 | 170 | 72 | 159 | 227 |
| Proportional Share Method | | 68 | 50 | 69 | 75 | 76 | 73 | 68 | 175 | 87 | 179 | 249 |
| Total Population Change | | 3,411 | 3,931 | 3,826 | 4,170 | 4,191 | 4,369 | 4,020 | 20,619 | 13,734 | 12,801 | 12,977 |
| Percentage Change | | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-20 | 2020-25 | 2025-2030 | 2030-35 |
| Chesterfield County | | 1.8% | 2.2% | 2.0% | 2.2% | 2.1% | 2.2% | 2.0% | 9.8% | 6.4% | 5.3% | 4.9% |
| Prince George County | | 1.4% | 1.1% | 1.4% | 1.4% | 1.4% | 1.4% | 1.3% | 4.6% | 3.1% | 4.0% | 4.7% |
| City of Hopewell | | 0.3% | 0.1% | 0.3% | 0.4% | 0.4% | 0.4% | 0.3% | -1.9% | -2.5% | -1.1% | -0.2% |
| Dinwiddie County | | | | | | | | | | | | |
| Shifting Share Method | | 2.2% | 1.9% | 2.2% | 2.3% | 1.5% | 1.5% | 1.4% | 5.3% | 3.5% | 4.3% | 5.0% |
| Proportional Share Method | | 1.0% | 0.7% | 1.0% | 1.0% | 1.0% | 1.0% | 0.9% | 2.3% | 1.1% | 2.3% | 3.1% |
| City of Petersburg | | | | | | | | | | | | |
| Shifting Share Method | | 0.0% | -0.3% | 0.0% | 0.0% | 0.6% | 0.6% | 0.5% | -0.5% | -1.0% | 0.4% | 1.3% |
| Proportional Share Method | | 1.0% | 0.7% | 1.0% | 1.0% | 1.0% | 1.0% | 0.9% | 2.3% | 1.1% | 2.3% | 3.1% |
| City of Colonial Heights | | | | | | | | | | | | |
| Shifting Share Method | | 0.9% | 0.7% | 0.9% | 1.0% | 1.0% | 1.0% | 0.9% | 2.2% | 0.9% | 2.0% | 2.9% |
| Proportional Share Method | | 1.0% | 0.7% | 1.0% | 1.0% | 1.0% | 1.0% | 0.9% | 2.3% | 1.1% | 2.3% | 3.1% |
| Total Change | | 1.6% | 1.8% | 1.7% | 1.9% | 1.8% | 1.9% | 1.7% | 7.9% | 5.1% | 4.6% | 4.5% |

Source: REMI Model, Inc. and RKG Associates, Inc., 2007.

The intended purpose of the survey, which was conducted by U.S. Army Garrison, Fort Lee, was to create a profile for military, civilian, and contractor employees that would reflect the household characteristics of the incoming personnel at Fort Lee. While very little is actually known about the incoming personnel at this time, it is being assumed by RKG, Fort Lee's Base Command, and the Growth Management Study Steering Committee, that the new personnel and their dependents will share many characteristics with the base's existing workforce. If this turns out to be untrue, it is recommended that Fort Lee revisit these projections in the future.

Utilizing the analyzed results, as well as the raw data from the 2006 survey, RKG Associates created a household profile of the military, civilian, and contractor employees who responded to the survey. A series of household multipliers were calculated that allowed RKG to estimate where incoming personnel might locate within the region based on their employment status (i.e., military, civilian, or contractor) and estimated income levels. In addition, data were analyzed for different household types to determine average household size; the number of married and single personnel; and the number dependents and school-aged children in each household. While survey respondents were not asked to provide household income information, RKG Associates was able to estimate income based on the military and civilian pay grades reported by survey respondents.

RKG Associates calculated the distribution of where survey respondents lived based on their stated place of residence. Figure 4-3 shows the estimated allocation of direct population associated with the expansion of Fort Lee. The largest factor influencing this distribution was the reported place of residency of existing personnel based on their survey responses. Implied in those responses are the housing and community preferences of Fort Lee personnel, and the underlying factors that contributed to their decisions to located in their chosen neighborhoods or communities?



Like the rest of the population, Fort Lee personnel have made their residency decisions based on dozens of factors such as: proximity to their employment at Fort Lee, housing cost and availability, perceived community safety and desirability factors, proximity and quality of local schools, proximity to shopping centers, and many other factors.

The share-out results reflected in Figure 4-3 were derived from a weighted scoring system that took into account the following locational factors in each community:

- Historical Residency Patterns of Existing Fort Lee Workforce - Fort Lee personnel were sorted by their stated place of residency as reported in the 2006 Workforce Survey.

Weighting Factor: (80%)

- Approved and Available Building Lots – RKG met with the planning directors of each jurisdiction and identified the current inventory of available building lots in each of the impacted communities based on their current planning approval status (i.e., approved for development, pending approval, proposed for future development, but not submitted for planning approval). It was assumed that new residential development would most likely occur in communities that were best prepared to accommodate new growth. The availability of new subdivision lots was used as a proxy for growth capacity.

Weighting Factor: (15%)

- Historical Building Permit Activity – RKG documented annual residential permitting activity in each impacted community. It was assumed that future residential development in each community will occur at rates that are somewhat reflective of past trends. For example, if a community has historically approved 100 new single-family permits over the past five years, it was assumed that future development rates would be proportional to historical development levels.

Weighting Factor: (5%)

2. Definitions

For this analysis, **direct impacts** include military, civilian, and government contractor jobs and wages. The **secondary effects** (indirect impacts), also referred to as spillover effects, are split into two categories: intermediate and induced impacts. **Intermediate impacts** represent the activity of supplying goods and services that are used in the production process of a final good. For example, if an auto-manufacturer wanted to build more cars (increase production), the intermediate demand would represent additional demand for automotive parts from suppliers such as transmissions and tires. Auto part suppliers would then increase production to meet this need. The suppliers' efforts to meet this new demand represent the intermediate impacts. **Induced impacts** represent the new consumer expenditures from increased income within the region. It should be noted that the major impacts to the region are related to secondary impacts. The growth impact analysis also assumes that some growth impacts will accrue to areas outside the primary impact area. Such areas might include Henrico County, VA, the City of Richmond, or some of the rural counties surrounding the PIA. As shown in Figure 4-3, it is estimated that approximately 11.1% of Fort Lee-related population growth is expected to occur outside the primary impact area.

3. Proposed BRAC Action – Fort Lee

On September 8, 2005, the Base Realignment and Closure Commission (BRAC Commission) recommended that certain realignment actions occur at Fort Lee, Virginia. These recommendations were approved by the President on September 15, 2005, and forwarded to Congress. Upon expiration of the statutory period for Congress to enact a joint resolution of disapproval on November 9, 2005, the BRAC Commission's recommendations became law.

The proposed action is to implement the BRAC Commission's recommendations to realign Fort Lee. Implementing the BRAC Commission's recommendations consist of three major components: (1) The BRAC Commission's recommendations would result in the relocation

of approximately 8,870 additional personnel to Fort Lee, (2) additional facilities at both Fort Lee would be constructed to accommodate relocated personnel and functions, and (3) the Army would conduct training and other operations at Fort Lee.

Details of these components are provided below. The BRAC Commission made six recommendations concerning Fort Lee, which would be implemented under the proposed action as follows.

- Establish a Sustainment Center of Excellence (SCOE) at Fort Lee - Activities that would relocate to Fort Lee and be incorporated into the SCOE are portions of the Transportation Center and School from Fort Eustis, Virginia; the Ordnance Maintenance Mechanical School of the Ordnance Center and School from Aberdeen Proving Ground, Maryland; and the Ordnance Munitions and Electronics Maintenance School (OMEMS) of the Missile and Munitions Center from Redstone Arsenal, Alabama. The Transportation Center and School and the Ordnance Center and School would be consolidated with the Quartermaster Center & School, the Army Logistic Management College, and the Combined Arms Support Command to form the SCOE.
- Establish a Joint Center for Consolidated Transportation Management Training - Transportation Management Training from Lackland Air Force Base, Texas, would relocate to Fort Lee, Virginia, to accomplish this.
- Establish a Joint Center of Excellence for Culinary Training - Culinary Training from Lackland Air Force Base, Texas, would relocate to Fort Lee.
- Co-locate Miscellaneous Department of Defense, Defense Agency, and Field Activity Leased Locations - Close Metro Park III and IV (6350 and 6359 Walker Lane), a leased installation in Alexandria, Virginia, by relocating the Defense Contract Management Agency (DCMA) Headquarters to Fort Lee, Virginia.
- Relocate all components of the Defense Commissary Agency (DeCA) to Fort Lee - Defense Commissary Agency Eastern, Midwestern Regional, and Hopewell, Virginia, Offices would be consolidated at Fort Lee. Leased facilities at 300 AFCOMS Way in San Antonio, Texas; 5258 Oaklawn Boulevard in Hopewell, Virginia; and 5151 Bonney Road in Virginia Beach, Virginia, would be closed.
- Relocation of Mobilization Processing Functions - In addition to the five actions above, through which Fort Lee would gain functions, facilities, and personnel, the BRAC Commission recommended the creation of Joint Mobilization Sites that would result in a loss at Fort Lee. Under this recommendation, all mobilization processing functions at Fort Lee, Virginia; Fort Eustis, Virginia; and Fort Jackson, South Carolina would be relocated to Fort Bragg, North Carolina, and Fort Bragg would be designated Joint Pre-Deployment/Mobilization Site Bragg/Pope.

Under the BRAC law, the Army must initiate all realignments not later than September 14, 2007, and complete all realignments not later than September 14, 2011. Implementation of the proposed action would occur over a span of approximately 5 years. Facilities

renovations and new construction would be synchronized to meet the needs, on a priority basis, of units and activities proposed for relocation to Fort Lee.¹

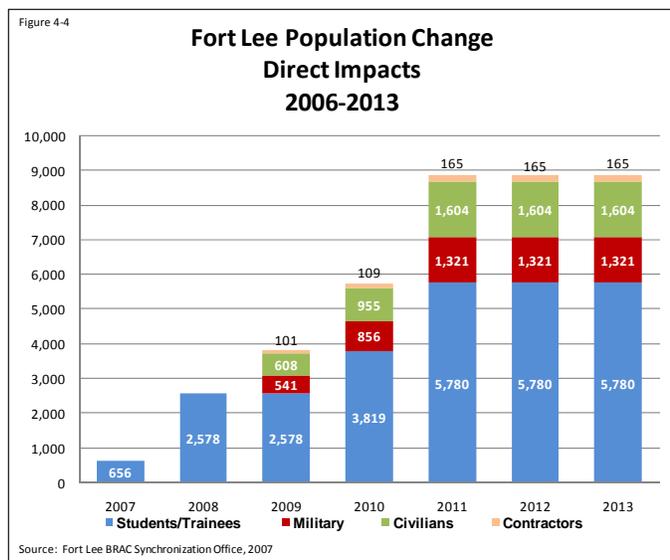
4. Projected Staffing Changes

Fort Lee’s military and civilian population consists of two major categories of personnel: student soldiers attending professional schools and permanent party personnel. According to Fort Lee’s BRAC Synchronization Office, approximately 8,870 new personnel are expected to arrive at Fort Lee by the year 2013. Personnel will be relocated from several installations throughout the U.S. including Redstone Arsenal (Huntsville, AL), Aberdeen Proving Grounds (Aberdeen, MD), Fort Eustis (Fort Eustis, VA), and others. As shown in Figure 4-4 and Table 4-5, approximately 65.2% of the new personnel will be students and Advanced Individualized Trainees (AITs).

For purposes of this analysis, the incoming student and trainee population is treated differently than the permanent party personnel. Students and trainees will impact the community differently and will be housed in lodging units or barracks while stationed at Fort Lee (from 2 weeks to 6 months). Permanent party military, civilians, and contractors will have longer-term assignments at Fort Lee and will either be housed on-base in family housing units, in the case of military personnel, or they will seek housing off base in the surrounding communities. In

either case, these permanent staff will generate demand for local housing, will enroll their children in local schools, and will demand municipal services like other households in the region. Those military personnel living in family housing units at Fort Lee will generate fewer impacts than those living off base.

By the end of 2011, all incoming personnel should to be in place at Fort Lee, while the facility construction required to support these employees is expected to be substantially completed by 2013 (Table 4-5). Given the uncertain nature of BRAC-related funding and the changing needs of the military, it is very difficult to project the exact timing and size of future personnel movements. If the size and timing of these movements change in the future, the resulting impacts from that incoming population will change as well.



¹ Draft Environmental Impact Statement, Implementation of Base Closure and Realignment (BRAC) to recommendations and other Army actions at Fort Lee, Virginia and Fort A.P., Virginia, U.S. Army Corp. of Engineers, Mobile District., pp. ES1-2, September 20056.

In total, approximately 1,321 military (14.9%), 1,604 civilian (18.1%), and 165 (1.9%) contractors are projected to arrive beginning in 2009. By 2011, all new personnel are expected to be in place. According to the Fort Lee Base Command, small numbers of personnel have already begun their relocation to Fort Lee

**Cumulative Annual Staffing Changes
Fort Lee Annual Staffing Projections
Military, Civilian & Contractors
2006-2013**

Table 4-5

| Direct Employees | 2006-07 | 2006-08 | 2006-09 | 2006-2010 | 2006-11 | 2006-12 | 2006-13 | Change (05-13) |
|--|---------|---------|---------|-----------|---------|---------|---------|----------------|
| Military | 0 | 0 | 541 | 856 | 1,321 | 1,321 | 1,321 | 1,321 |
| Civilians | 0 | 0 | 608 | 955 | 1,604 | 1,604 | 1,604 | 1,604 |
| Contractors | 0 | 0 | 101 | 109 | 165 | 165 | 165 | 165 |
| Students & Trainees | 656 | 2,578 | 2,578 | 3,819 | 5,780 | 5,780 | 5,780 | 5,780 |
| Cumulative Total - Permanent Party & Stu | 656 | 2,578 | 3,828 | 5,739 | 8,870 | 8,870 | 8,870 | 8,870 |

Source: Fort Lee BRAC Synchronization Office and RKG Associates, Inc., 2007.

5. Household Multipliers

In order to project the direct, indirect and induced impacts of Fort Lee's incoming population, it was necessary to first create a series of multipliers that reflect the household characteristics of military, civilian, and contractor employees at Fort Lee. This was accomplished with the use of the 2006 survey data. A central assumption in this analysis is that one new household will be associated with every new permanent party position created at Fort Lee. As such, if 3,090 permanent party positions are being created at the base, the same number of households will be added to the region's population. While it is likely that some married spouses will relocate to Fort Lee and fill two new positions, RKG had no reliable method for estimating the percentage of the incoming personnel that would fill two positions and occupy one household. Therefore, the assumption used in this analysis is considered the most conservative assumption and produces the greatest potential impact to municipal service demand. While this may result in a slight overstatement of actual impacts, it should aid local officials as they try to project the maximum impact Fort Lee will have on municipal services.

The household multipliers contained in Table 4-6 establish a series of data relationships for three different household types: military, civilian, and contractor. The data were obtained from the 2006 Fort Lee Workforce Survey and the multipliers were applied to the incoming personnel. Military households were divided into three categories based on rank, with lower level enlisted (less than E6), mid-level enlisted (E7-E9) and military officers comprising the total group. The same approach was used for civilian government employees based on pay grade ranges, but no such delineations were possible for contractor personnel. The multipliers generate average household size, marriage rates, and average numbers of school-aged children per household. Since school impacts are likely to be the greatest impacts to local jurisdictions, RKG used these multipliers to convert the incoming personnel (by rank or pay grade) into new households, and ascribing characteristics to those households that were similar to existing Fort Lee households.

The following bullets highlight some unique aspects of the Fort Lee population:

- E7-E9 households had the highest marriage rate (78.6%) and 83.1% of these households had dependents. With 2.31 dependents per household, E7-E9s had the largest household size of 3.31.

- Military households tend to have more children in day care and K-5 than either civilian or contractor households.
- Civilian and contractor households tend to have a greater percentage of college-aged children than military households.

Fort Lee Workforce Survey (2006)
Regional Household Multiplier by Household Type

Table 4-6

| Household Type | Total Number | Total Married | % Married | Total HH w/ Dep. | % HH w/ Dep. | School-Aged Children | | | | | Household Averages | | | | | | |
|-------------------|--------------|---------------|-----------|------------------|--------------|----------------------|----------|------|-----|------|--------------------|------------------|----------|------|------|------|---------|
| | | | | | | Total Dep. | Day Care | K-5 | 6-8 | 9-12 | College | Avg. Dep. Per HH | Day Care | K-5 | 6-8 | 9-12 | College |
| MILITARY | | | | | | | | | | | | | | | | | |
| Military Officers | 407 | 293 | 72.0% | 304 | 74.7% | 764 | 71 | 189 | 83 | 101 | 27 | 1.88 | 0.17 | 0.46 | 0.20 | 0.25 | 0.07 |
| E7-E9 | 415 | 326 | 78.6% | 345 | 83.1% | 959 | 102 | 215 | 126 | 152 | 38 | 2.31 | 0.25 | 0.52 | 0.30 | 0.37 | 0.09 |
| <E6 | 927 | 550 | 59.3% | 523 | 56.4% | 1,320 | 189 | 339 | 133 | 92 | 17 | 1.42 | 0.20 | 0.37 | 0.14 | 0.10 | 0.02 |
| Subtotal | 1749 | 1169 | 66.8% | 1,172 | 67.0% | 3043 | 362 | 743 | 342 | 345 | 82 | 1.74 | 0.21 | 0.42 | 0.20 | 0.20 | 0.05 |
| CIVILIAN | | | | | | | | | | | | | | | | | |
| GS 9-SES | 1089 | 842 | 77.3% | 866 | 79.5% | 1,730 | 87 | 158 | 143 | 218 | 282 | 1.59 | 0.08 | 0.15 | 0.13 | 0.20 | 0.26 |
| GS 5-8 | 341 | 217 | 63.6% | 278 | 81.5% | 490 | 39 | 69 | 36 | 68 | 61 | 1.44 | 0.11 | 0.20 | 0.11 | 0.20 | 0.18 |
| GS 1-4 | 33 | 19 | 57.6% | 22 | 66.7% | 41 | 1 | 2 | 7 | 9 | 3 | 1.24 | 0.03 | 0.06 | 0.21 | 0.27 | 0.09 |
| Other | 229 | 129 | 56.3% | 171 | 74.7% | 309 | 19 | 33 | 41 | 44 | 43 | 1.35 | 0.08 | 0.14 | 0.18 | 0.19 | 0.19 |
| Subtotal | 1692 | 1207 | 71.3% | 1,337 | 79.0% | 2570 | 146 | 262 | 227 | 339 | 389 | 1.52 | 0.09 | 0.15 | 0.13 | 0.20 | 0.23 |
| CONTRACTOR | | | | | | | | | | | | | | | | | |
| | 360 | 251 | 69.7% | 300 | 83.3% | 662 | 76 | 105 | 64 | 86 | 80 | 1.84 | 0.21 | 0.29 | 0.18 | 0.24 | 0.22 |
| Grand Total | 3801 | 2627 | 69.1% | 2,809 | 73.9% | 6275 | 584 | 1110 | 633 | 770 | 551 | 1.65 | 0.15 | 0.29 | 0.17 | 0.20 | 0.14 |

Source: Fort Lee Workforce Survey (2006) and RKG Associates, Inc., 2007

6. Personnel Relocation Rates

Another key assumption in this analysis was the estimated percentage of incoming personnel that would actually relocate to the Fort Lee region. While it is too early to know how many personnel at other bases will accept the transfer to Fort Lee, it is possible to make informed estimates. Since 2005, members of the BRAC Working Group and Fort Lee Garrison Command have met with installation commanders from other installations with incoming personnel. Based on discussions with the Fort Lee BRAC Synchronization Office, RKG made estimates regarding the percentage of outside personnel that would likely relocate to Fort Lee. It is assumed that as many as 81% (2,507 people) of the 3,090 permanent party personnel scheduled for reassignment will actually relocate to the region. This is because some installations such as Fort Eustis in Newport News, VA and DCMA in Alexandria, VA, have workforces

Fort Lee Staff Relocation by Installation and Type of Personnel
Projected Personnel Relocating to the Primary Impact Area
2006-2013

Table 4-7

| | Total Personnel | Relocating to PIA Region |
|---------------------------|-----------------|--------------------------|
| Military Personnel | | |
| Aberdeen Proving Grounds | 536 | 100% |
| Fort Eustis | 176 | 100% |
| Redstone Arsenal | 250 | 100% |
| USAF/USN Culinary | 75 | 100% |
| DeCA Consolidation | 0 | 100% |
| BASOPS Increase | 11 | 100% |
| Edgewood Moves | 136 | 100% |
| USAF Trans. | 58 | 100% |
| DCMA | 78 | 100% |
| Monmouth Vet Clinic | 1 | 100% |
| Total | 1321 | 100% |
| Civilian Personnel | | |
| Aberdeen Proving Grounds | 116 | 85% |
| Fort Eustis | 41 | 30% |
| Redstone Arsenal | 115 | 95% |
| USAF/USN Culinary | 1 | 100% |
| DeCA Consolidation | 125 | 50% |
| BASOPS Increase | 211 | 50% |
| Edgewood Moves | 31 | 100% |
| USAF Trans. | 8 | 100% |
| DCMA | 373 | 75% |
| Monmouth Vet Clinic | 0 | 100% |
| Total | 1021 | 64% |
| Contractors | | |
| Aberdeen Proving Grounds | 101 | 100% |
| Fort Eustis | 8 | 100% |
| Redstone Arsenal | 0 | 100% |
| USAF/USN Culinary | 0 | 0% |
| DeCA Consolidation | 0 | 0% |
| BASOPS Increase | 0 | 0% |
| Edgewood Moves | 0 | 0% |
| USAF Trans. | 0 | 0% |
| DCMA | 56 | 100% |
| Monmouth Vet Clinic | 0 | 0% |
| Total | 165 | 100% |
| Grand Total | 2507 | 81% |

Source: Fort Lee BRAC Synchronization Office and RKG Associates, Inc., 2007

that live within commuting distance (1 to 2 hours) of Fort Lee. As such, it is assumed that some personnel may choose not to relocate to the region. Other installations such as Redstone Arsenal in Huntsville, AL are also believed to have low percentages of civilians interested in moving to the Fort Lee region. However, given the specialized nature of many of these positions, even if Redstone civilians do not relocate to Fort Lee, the open positions will have to be filled through some broader nationwide recruitment effort.

7. Population Impacts

By the end of 2013, REMI model projections indicate that the primary impact area will add an additional 10,900 people to the region as a result of Fort Lee's expansion (Figure 4-6). The model is driven by stimulus events such as the creation of new employment at the base, as well as the proposed \$1.2 billion construction program.

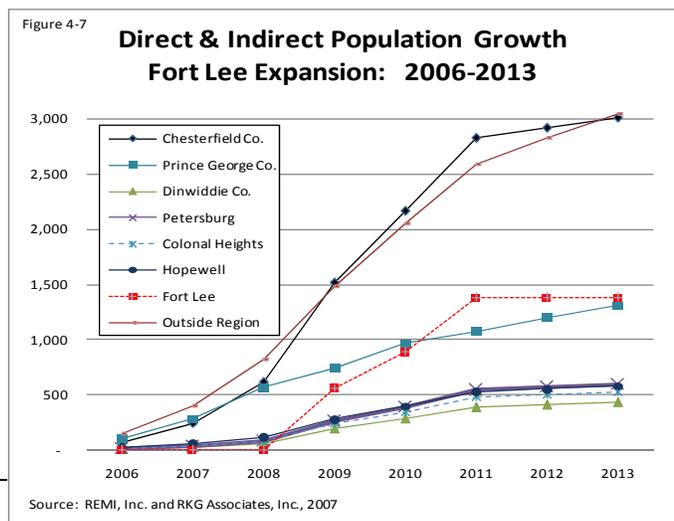
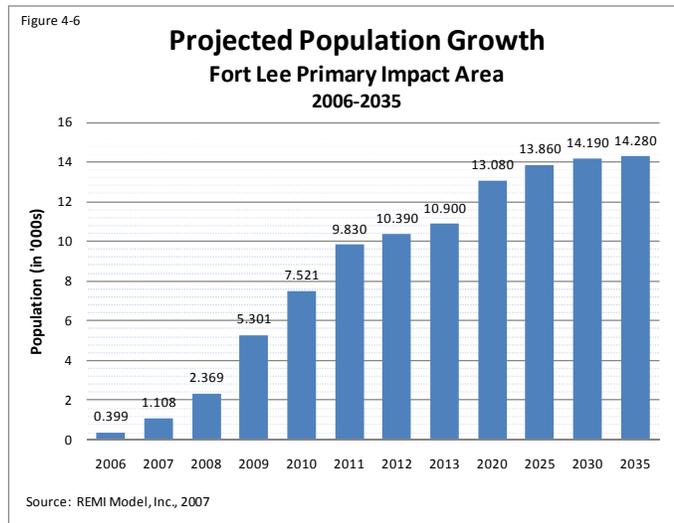
RKG estimates that approximately 64% of this new population growth (7,011 pop.) will be comprised of direct military, civilian and contractor personnel and their dependents.

Extending the projections to 2035, the region's population will increase by 14,280 due to the expansion of Fort Lee. These projections assume that staffing levels at the base remain constant into the future.

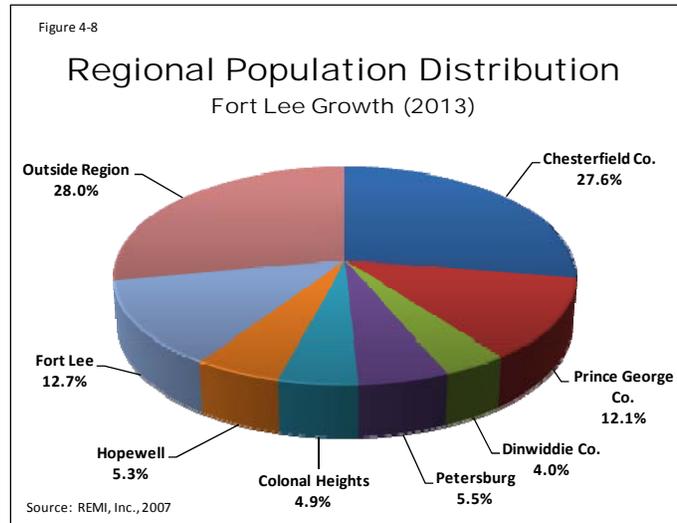
a.) Direct and Indirect Fort Lee Growth

The direct and indirect population impacts from Fort Lee's expansion will impact communities differently. Indirect population, in this context, pertains to the secondary population growth resulting from the stimulus effect of expanding Fort Lee. The largest population impacts within the PIA will occur in Chesterfield Co., which is expected to gain over 3,000 people during the 2006-2013 projection period (Figure 4-7). However, as a share of total growth, the Fort Lee increase is expected to comprise only 5.5% of the county's new population gains during this period.

The largest total population gains (3,048 pop.) are expected to occur in the "rest of Virginia" or areas outside the primary impact area. While the REMI model does not identify the specific communities that will be



impacted, RKG estimates that most of these impacts would accrue to the City of Richmond and Henrico County because they possess larger and more dynamic economies than the PIA or the surrounding communities. Prince George County, by virtue of its proximity to Fort Lee, is expected to realize strong population gains of 1,314 people outside the “gate.” If the additional on-base population of 1,379 is added to this figure, Prince George County could experience the



largest proportional increase to their population, roughly 14.8%. This is particularly relevant to the provision of educational services, which are provided to Fort Lee children by Prince George County School District.

In terms of regional capture of direct and indirect population growth, Chesterfield and Prince George Counties are expected to capture close to 40% by the Year 2013. Fort Lee is projected to capture 12.7% and 28% is projected to occur outside the primary impact area (Figure 4-8). Dinwiddie, Colonial Heights, Petersburg, and Hopewell are expected to capture between 4% and 6% of Fort Lee growth by 2013.

b.) Total Population Impacts

The REMI model also projects the natural population change that would be expected even if no expansion occurred at Fort Lee. Table 4-8 presents the direct, indirect and natural growth projected for each of the PIA jurisdictions under the “shifting share” and “proportional share” projection methods. The reader is reminded that the REMI model is not constrained by any factors in arriving at its population projections. As such, some jurisdictional projections must be viewed as “population potential,” assuming no constraints to growth.

The data presented in Table 4-8 show the respective impacts of the direct and indirect Fort Lee population growth, as well as the natural population change projected by the REMI model. In short, a population gain of 10,900 people is expected by 2013 as a direct result of Fort Lee’s expansion. This does not include the 5,780 student and trainee population which will be arriving during the same period. However, as mentioned earlier, most of the trainee and students at Fort Lee will be housed on-post and only about one third of this population will be allowed off-post, with many housed in local hotels and motels. Because of their temporary status, they do not produce the same impacts as the permanent party personnel and their numbers have been kept separate from this analysis.

- **Chesterfield County** - Chesterfield County has been growing at a rapid rate since the 1970s, and REMI projections indicate that growth will likely continue at a rapid rate for the foreseeable future. By 2013, Chesterfield is expected to add

over 54,000 new people in an estimated 19,731 households. Based on historical development patterns, over 75% of these new households are likely to be homeowners and will be attracted to the County's ever-growing residential stock. The southern tier of Chesterfield is a growth area and much subdivision activity is taking place, which will accommodate new residential development. A 2.6% annual growth rate is considered very fast growth, but is consistent with recent growth rates in the county. While future Fort Lee households could be dispersed throughout the county, RKG projects that the southern tier communities are most likely to be impacted by Fort Lee, given the relative proximity to the post.

- **Prince George County** - The Fort Lee population impact is likely to equal only a 2.5% increase over the region's 2006 population base of 433,589, as estimated by REMI. The most severely impacted community could be Prince George County, which could realize a 1,314 pop. increase outside the gate and 1,379 pop. gain inside the gate. The population increase on-post is relevant to Prince George because Fort Lee children are educated in the county's school system. With a combined population increase of 2,693, the county would realize an increase of 7.2% over a 7-year period, not including the natural population increase. Other than Prince George County, the Fort Lee direct and indirect population growth is distributed throughout the region in a way that should not adversely impact any one community.

Relative to total population growth during the 2006-2013 period, the impacts could be more significant. The REMI model projects that total growth rates could range from a low of 2.2% in Petersburg to a high of 18.2% in Chesterfield County. With Fort Lee's incoming population added to Prince George, the total increase could approach 22% (8,196 pop.) over the 2006 estimated population of 37,582. This is considered a very aggressive projection and is primarily due to the fact that Prince George County is the host jurisdiction for the Fort Lee expansion. As such, the REMI model anticipates that many economic benefits will accrue to the County, which in turn will attract economic migrants. Economic migrants refers to people who move to a community because they are attracted to plentiful job opportunities. While this is true in the case of Prince George County, access to job opportunities at Fort Lee will be more restricted than other private sector jobs in the economy. However, it is suggested that Prince George closely monitor residential development and sales activity on an annual basis to identify potential growth areas.

- **City of Hopewell** - Like the City of Colonial Heights, Hopewell is a community with a lack of suitable land for new development. As such, its ability to accommodate a new population of 2,206 people and 919 households may be limited. In order for Hopewell to capture its fair share of Fort Lee growth, it may have to rely on redevelopment, which is more complex and costly than "Greenfield" development. Hopewell's close proximity to Fort Lee and the Interstate highway system makes it an attractive "front door" community for Fort Lee employees. It is likely that development pressures will increase in Hopewell as developers seek the close proximity that Hopewell has to offer.

- **Dinwiddie County** - The jurisdictions of Dinwiddie County and the Cities of Petersburg and Colonial Heights have two population projections, based on the “shifting share” and “proportional share” methods discussed earlier in this section. Under the shifting share method, Dinwiddie is projected to grow by as much as 14.2% over a 7-year period. This is considered a very aggressive projection and would result in 1,426 new households. The County’s lack of multi-family, rental housing could also be a limiting factor to renting households.

The proportional method projects a 7.3% increase (1,891 people) over the County’s 2006 population of 25,743 and is more consistent with historical trends. Dinwiddie County has some development constraints, particularly its ability to secure suitable sewer treatment capacity for new development. In addition, the county is pursuing economic development opportunities that could compete with residential development for wastewater capacity. The County is also dealing with school capacity issues that may persist at the elementary school level, even after the construction of its new schools.

- **City of Petersburg** - Under either scenario, the City of Petersburg has the potential to reverse its declining population trends. The population gains ranges from 720 under the shifting share to 2,442 under the proportional share. With Fort Lee’s expansion, Petersburg is expected to receive significant development attention. This is already apparent from existing development activity and will likely increase given the City’s close proximity to the post. Petersburg’s ability to attract single-family development will be its biggest challenge, as the community struggles with negative perceptions regarding its schools, fiscal well-being, and crime. These are all factors that could discourage families with children from locating in the City, but will have less impact on renter households. Under the shifting share method, Petersburg shows a positive gain in population by the Year 2011, as growth effects of Fort Lee’s expansion begin to exceed the rate of population loss. This is considered a reasonable expectation for the City, but it’s predicated on the assumption that Petersburg will aggressively pursue new residential and commercial development opportunities over the next 5 to 7 years. Sustained growth for the City will ultimately depend on its ability to address the negative perceptions and problems that have been at the core of its steady population decline.

It is also the concern of Petersburg officials that a disproportionate share of new multi-family housing will be constructed in Petersburg because adjacent jurisdictions do not want this type of development. With a very low homeownership rate of 44.8%, the City would like to attract single family development in order to rebalance its residential tax base.

- **City of Colonial Heights** - The City of Colonial Heights is a smaller community with real land constraints that could limit future growth. In addition, the City is somewhat reluctant to encourage new development, particularly types that are considered less desirable. The REMI projections call for a population gain of between 1,499 and 1,536 people by 2013, which is equivalent to 640 to 657 new households. While the average annual rate of growth is not considered extreme,

approximately 1.2% per year, the City may be too constrained to accommodate that level of growth.

**Population Projections by Jurisdiction and Projection Method
Direct, Indirect & Natural Population Gains
2006-2013**

Table 4-8

| Fort Lee Direct & Indirect Population | | | | | | | | | REMI 2006 Base Pop. | % Chge. (06-13) | Avg. HH Size | New HH | Ownership Rate | Rental Rate | New Owners | New Renters |
|---------------------------------------|------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------------|-----------------|--------------|--------------|----------------|--------------|--------------|--------------|
| Population | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | | | | | | | | |
| Chesterfield Co. | 69 | 247 | 617 | 1,519 | 2,169 | 2,828 | 2,919 | 3,006 | 296,440 | 1.0% | 2.73 | 1,101 | 75.6% | 24.4% | 832 | 269 |
| Prince George Co. | 112 | 286 | 569 | 749 | 970 | 1,080 | 1,203 | 1,314 | 37,582 | 3.5% | 2.72 | 483 | 67.1% | 32.9% | 324 | 159 |
| Hopewell | 24 | 62 | 123 | 284 | 402 | 532 | 559 | 583 | 23,610 | 2.5% | 2.79 | 209 | 52.9% | 47.1% | 110 | 98 |
| Dinwiddie Co. | 11 | 30 | 65 | 194 | 285 | 393 | 414 | 434 | 25,743 | 1.7% | 2.70 | 161 | 71.0% | 29.0% | 114 | 47 |
| Petersburg | 15 | 42 | 90 | 270 | 395 | 546 | 575 | 603 | 32,505 | 1.9% | 2.90 | 208 | 44.8% | 55.2% | 93 | 115 |
| Colonial Heights | 13 | 37 | 80 | 239 | 350 | 484 | 510 | 534 | 17,709 | 3.0% | 2.77 | 193 | 68.1% | 31.9% | 131 | 62 |
| Fort Lee | - | - | - | 565 | 890 | 1,379 | 1,379 | 1,379 | n/a | n/a | 3.02 | 456 | 0.0% | 100.0% | - | 456 |
| Outside Region | 155 | 404 | 827 | 1,480 | 2,059 | 2,587 | 2,834 | 3,048 | n/a | n/a | 2.68 | 1,136 | 69.0% | 31.0% | 784 | 352 |
| Total | 399 | 1,108 | 2,370 | 5,301 | 7,520 | 9,830 | 10,392 | 10,901 | 433,589 | 2.5% | 2.76 | 3,947 | 60.5% | 39.5% | 2,389 | 1,558 |

| Natural Population Growth | | | | | | | | | REMI 2006 Base Pop. | % Chge. (06-13) | Avg. HH Size | New HH | Ownership Rate | Rental Rate | New Owners | New Renters |
|---------------------------|----------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------------|-----------------|--------------|---------------|----------------|--------------|---------------|--------------|
| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | | | | | | | | | |
| Chesterfield Co. | - | 6,841 | 13,821 | 20,943 | 28,230 | 35,659 | 43,309 | 51,060 | 296,440 | 17.2% | 2.74 | 18,634 | 75.6% | 24.4% | 14,084 | 4,550 |
| Prince George Co. | - | 814 | 1,442 | 2,191 | 2,978 | 3,787 | 4,632 | 5,503 | 37,582 | 14.6% | 2.73 | 2,016 | 67.1% | 32.9% | 1,353 | 662 |
| Hopewell | - | 269 | 412 | 619 | 840 | 1,087 | 1,351 | 1,623 | 23,610 | 6.9% | 2.40 | 676 | 52.9% | 47.1% | 357 | 319 |
| Dinwiddie Co. | | | | | | | | | | | | | | | | |
| Shifting Share Method | - | 443 | 920 | 1,439 | 1,999 | 2,379 | 2,787 | 3,217 | 25,743 | 12.5% | 2.56 | 1,257 | 71.0% | 29.0% | 893 | 364 |
| Proportional Share Method | - | 125 | 277 | 460 | 675 | 913 | 1,175 | 1,457 | 25,743 | 5.7% | 2.56 | 569 | 71.0% | 29.0% | 404 | 165 |
| Petersburg | | | | | | | | | | | | | | | | |
| Shifting Share Method | - | (152) | (279) | (374) | (439) | (279) | (91) | 117 | 32,505 | 0.4% | 2.33 | 50 | 44.8% | 55.2% | 22 | 28 |
| Proportional Share Method | - | 158 | 349 | 581 | 852 | 1,152 | 1,484 | 1,839 | 32,505 | 5.7% | 2.33 | 789 | 44.8% | 55.2% | 353 | 436 |
| Colonial Heights | | | | | | | | | | | | | | | | |
| Shifting Share Method | - | 79 | 175 | 293 | 432 | 594 | 773 | 964 | 17,709 | 5.4% | 2.34 | 412 | 68.1% | 31.9% | 280 | 132 |
| Proportional Share Method | - | 86 | 190 | 317 | 464 | 628 | 809 | 1,002 | 17,709 | 5.7% | 2.34 | 428 | 68.1% | 31.9% | 292 | 137 |
| Fort Lee | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Outside Region | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Total | - | 8,293 | 16,491 | 25,111 | 34,040 | 43,226 | 52,760 | 62,484 | 433,589 | 14.4% | 2.52 | 24,832 | 72.6% | 27.4% | 18,039 | 6,792 |

| Total Growth | | | | | | | | | REMI 2006 Base Pop. | % Chge. (06-13) | Avg. HH Size | New HH | Ownership Rate | Rental Rate | New Owners | New Renters |
|---------------------------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------------|-----------------|--------------|---------------|----------------|--------------|---------------|--------------|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | | | | | | | | |
| Chesterfield Co. | 69 | 7,088 | 14,438 | 22,462 | 30,399 | 38,487 | 46,228 | 54,066 | 296,440 | 18.2% | 2.74 | 19,731 | 75.6% | 24.4% | 14,913 | 4,818 |
| Prince George Co. | 112 | 1,101 | 2,011 | 2,939 | 3,948 | 4,867 | 5,836 | 6,817 | 37,582 | 18.1% | 2.73 | 2,497 | 67.1% | 32.9% | 1,676 | 820 |
| Hopewell | 24 | 331 | 535 | 903 | 1,242 | 1,619 | 1,909 | 2,206 | 23,610 | 9.3% | 2.40 | 919 | 52.9% | 47.1% | 486 | 433 |
| Dinwiddie Co. | | | | | | | | | | | | | | | | |
| Shifting Share Method | 11 | 473 | 985 | 1,633 | 2,284 | 2,772 | 3,200 | 3,651 | 25,743 | 14.2% | 2.56 | 1,426 | 71.0% | 29.0% | 1,013 | 413 |
| Proportional Share Method | 11 | 155 | 341 | 655 | 960 | 1,306 | 1,589 | 1,891 | 25,743 | 7.3% | 2.56 | 739 | 71.0% | 29.0% | 525 | 214 |
| Petersburg | | | | | | | | | | | | | | | | |
| Shifting Share Method | 15 | (111) | (189) | (104) | (44) | 267 | 483 | 720 | 32,505 | 2.2% | 2.33 | 309 | 44.8% | 55.2% | 138 | 171 |
| Proportional Share Method | 15 | 200 | 439 | 851 | 1,248 | 1,699 | 2,059 | 2,442 | 32,505 | 7.5% | 2.33 | 1,048 | 44.8% | 55.2% | 469 | 579 |
| Colonial Heights | | | | | | | | | | | | | | | | |
| Shifting Share Method | 13 | 116 | 255 | 532 | 783 | 1,078 | 1,282 | 1,499 | 17,709 | 8.5% | 2.34 | 640 | 68.1% | 31.9% | 436 | 204 |
| Proportional Share Method | 13 | 123 | 270 | 556 | 815 | 1,112 | 1,318 | 1,536 | 17,709 | 8.7% | 2.34 | 657 | 68.1% | 31.9% | 447 | 210 |
| Fort Lee | - | - | - | 565 | 890 | 1,379 | 1,379 | 1,379 | n/a | n/a | 3.03 | 455 | n/a | n/a | n/a | n/a |
| Outside Region | 155 | 404 | 827 | 1,480 | 2,059 | 2,587 | 2,834 | 3,048 | n/a | n/a | 2.5 | 1,219 | n/a | n/a | n/a | n/a |
| Total | 399 | 9,401 | 18,861 | 30,412 | 41,560 | 53,056 | 63,152 | 73,385 | 433,589 | 16.9% | 2.48 | 29,640 | 67.8% | 32.2% | 20,103 | 7,863 |

Source: REMI, Inc. and RKG Associates, Inc., 2007

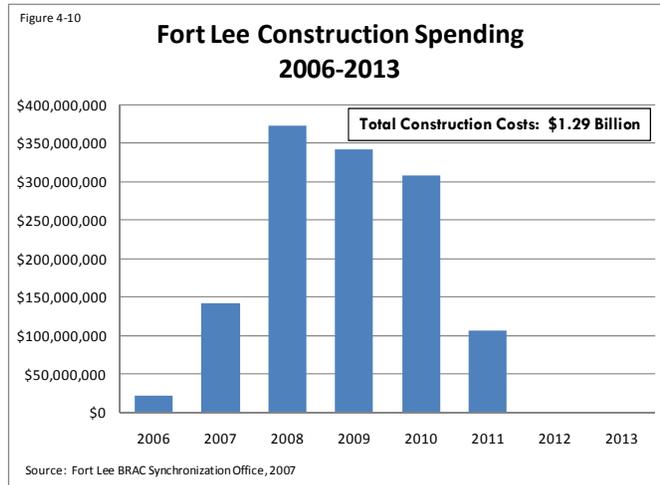
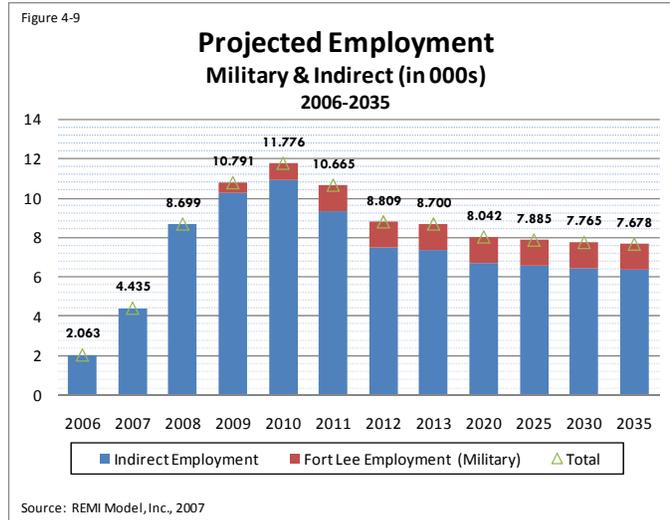
n/a - not applicable

8. Employment Impacts

The REMI model simulation presented in Figure 4-9 shows the employment impacts associated with the addition of 3,090 military, civilian, and contractor jobs at Fort Lee. The most significant employment gains are likely to occur during the years 2008-2011 as new personnel arrive at Fort Lee and construction activities reach their peak. Total employment levels are expected to increase by nearly 12,000 jobs in the peak year of 2010. The rapid increase in jobs is largely due to the increased demand for construction workers at Fort Lee. In 2008, it is estimated that approximately 5,130 construction jobs will be created throughout the PIA and surrounding region in support of Fort Lee's massive construction program.

a.) Construction Employment

According to Fort Lee's BRAC Synchronization Office, the base will initiate a \$1.29 billion construction program beginning in 2007 and ending 2011 in accordance with BRAC law (Figure 4-10). It is anticipated that over 6 million square feet of new construction will be completed over the next several years, including the establishment of the Combat Service Support Center and the Joint Culinary and Transportation Management Center. In June 2007, construction contracts were awarded for the initial facilities including the



Fort Lee Sustainment Center of Excellence Headquarters

Sustainment Center of Excellence and the Logistics University. Thompkins Builders, Inc. was awarded the prime construction contract for the \$50 million Sustainment Center of Excellence headquarters. The new four-story, 230,000-square-foot administrative facility will house a new integrated command, administrative, and operations facility and will be completed within 18 months (Figure 4-10). In addition, the Army recently awarded a \$110 million contract to convert its Army Logistic Management College, in the southwestern part of the base, into a bigger facility to be called the Army Logistics University. The work will include a four-story classroom building and a simulation center, which will allow officers and noncommissioned officers to practice the computer-based work they will do in the field. By the end of 2007, the Crater Procurement Assistance Center estimates that as much as \$351 million in construction projects will be under contract.

Fort Lee Construction Contract Awards (2007)

| Project Name | Prime Contractor | Value of Contract |
|--|--------------------------------|-----------------------|
| Sustainment Center of Excellence | Tompkins Builders | \$ 49,600,000 |
| Logistics University | Balfour Beatty | \$ 110,100,000 |
| Soldier Support Center | Rocky Hill Contracting | \$ 23,000,000 |
| Ordnance Campus Infrastructure Project | Fort Sill Apache | \$ 38,000,000 |
| | Dominion Virginia Power | |
| Tactical Service Equipment Depot | Hensel Phelps Construction Co. | \$ 47,000,000 |
| Total Contract Value | | \$ 267,700,000 |

Source: Crater Procurement Assistance Center, 2007

The peak construction year is planned for 2008, when expenditures could exceed \$373 million. The next highest year is expected in 2009 when construction could exceed \$341 million. During these peak years, the REMI model simulation indicates that the region may experience a shortage of construction workers or companies within the region due Fort Lee and other spin-off development activity. The combination of large contracts and short completion schedules could result in the in-migration of 500 to 700 construction workers from outside the region to complete the work before the 2011 BRAC deadline. As of October 2007, RKG's initial contacts with Fort Lee's prime contractors did not indicate any shortages or difficulties finding construction workers or subcontracting firms.

During the course of this planning process, some local officials have expressed concerns over potential secondary impacts resulting from the in-migration of outside construction workers. Of particular concern is the housing of large numbers of outside workers in local hotels or rental housing. For example, the City of Petersburg reports a renewed interest in the conversion of single family homes in some neighborhoods for worker/rental housing. City officials have also expressed concerns about increased school demand and the potential for crime resulting from this transient population. Discussions with the current prime contractors at Fort Lee indicate that outside workers are living in motel rooms during the work week and are returning home on the weekends. As a general rule, construction workers do not permanently or temporarily relocate their families to the location of their current project.

b.) Occupational Employment Projections

The expansion of Fort Lee will alter the region's economy and will create new employment opportunities where they currently do not exist. REMI model projections presented in Table 4-8 show how occupational employment levels may change in 17 major occupational employment categories between 2006 and 2035. Identical to total direct and indirect employment levels shown in Figure 4-9, occupational employment levels are expected to rise and fall with the infusion of more than \$1.2 billion in construction spending over a 5 to 7 year period. Table 4-9 indicates that construction and extraction occupations will see employment spike during the 2008-2010 period as Fort Lee construction peaks. As a percentage of total Fort Lee employment growth, construction and extraction jobs are projected to rise from 14.1% of new jobs in 2006 to nearly 40% in 2008. However, by 2013, employment in this category is expected to drop to only 8% of Fort Lee related job growth.

It should be noted that occupational employment growth is different than industry employment growth, in that occupational employment is a reflection of the type of job (i.e., contractor, secretary, or manager). Industry employment growth reflects all jobs in a given industry, irrespective of the various occupations that comprise the industry. Over the 30-year projection period, occupations such as: (1) management, (2) computer/math/architecture/engineering, (3) education and training, (4) healthcare, and (5) protective services are expected to experience sustained job growth.

**Fort Lee Occupational Employment Impacts
Fort Lee PIA and Rest of Virginia**

Table 4-9

2006-2035

| Occupation Category | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2020 | 2025 | 2030 | 2035 |
|---------------------------------|--------------|--------------|--------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Mngmnt, bus, fin | 149 | 333 | 667 | 888 | 990 | 965 | 818 | 811 | 769 | 765 | 764 | 764 |
| Comp, math, arch, eng | 68 | 111 | 187 | 302 | 354 | 402 | 369 | 367 | 351 | 348 | 346 | 344 |
| Life, phys, soc sci | 11 | 16 | 24 | 72 | 98 | 139 | 136 | 137 | 137 | 137 | 138 | 138 |
| Comm, soc serv | 13 | 25 | 44 | 67 | 80 | 89 | 82 | 83 | 87 | 90 | 94 | 97 |
| Legal | 15 | 21 | 31 | 71 | 91 | 121 | 117 | 116 | 112 | 111 | 110 | 108 |
| Educ, train, lib | 19 | 45 | 91 | 177 | 236 | 294 | 297 | 308 | 361 | 384 | 398 | 406 |
| Arts, des, enter, sports, media | 20 | 31 | 51 | 75 | 86 | 92 | 83 | 81 | 76 | 74 | 73 | 73 |
| Healthcare | 124 | 167 | 217 | 336 | 408 | 473 | 460 | 465 | 469 | 480 | 493 | 504 |
| Protective service | 15 | 28 | 51 | 116 | 155 | 206 | 203 | 206 | 218 | 222 | 225 | 226 |
| Food prep, serving | 277 | 396 | 580 | 723 | 825 | 864 | 790 | 783 | 722 | 707 | 697 | 695 |
| Blding, grnds, pers care, serv | 95 | 173 | 307 | 417 | 472 | 479 | 418 | 411 | 384 | 384 | 385 | 388 |
| Sales, office, admin | 670 | 1,088 | 1,829 | 2,362 | 2,620 | 2,554 | 2,198 | 2,149 | 1,868 | 1,763 | 1,672 | 1,594 |
| Farm, fish, forestry | 3 | 5 | 8 | 11 | 12 | 13 | 11 | 11 | 10 | 10 | 10 | 10 |
| Constr, extraction | 292 | 1,399 | 3,453 | 3,319 | 3,113 | 1,538 | 650 | 617 | 435 | 390 | 365 | 351 |
| Install, maint, repair | 101 | 246 | 515 | 570 | 588 | 446 | 326 | 319 | 280 | 270 | 263 | 258 |
| Production | 61 | 114 | 208 | 245 | 257 | 218 | 169 | 163 | 140 | 137 | 134 | 132 |
| Transp, mat moving | 130 | 238 | 435 | 502 | 531 | 449 | 359 | 351 | 304 | 290 | 279 | 270 |
| Total Employment | 2,063 | 4,434 | 8,698 | 10,252 | 10,915 | 9,344 | 7,488 | 7,378 | 6,721 | 6,563 | 6,444 | 6,357 |

Percentage of Total Employment

| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2020 | 2025 | 2030 | 2035 |
|---------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Mngmnt, bus, fin | 7.2% | 7.5% | 7.7% | 8.7% | 9.1% | 10.3% | 10.9% | 11.0% | 11.4% | 11.7% | 11.9% | 12.0% |
| Comp, math, arch, eng | 3.3% | 2.5% | 2.1% | 2.9% | 3.2% | 4.3% | 4.9% | 5.0% | 5.2% | 5.3% | 5.4% | 5.4% |
| Life, phys, soc sci | 0.5% | 0.4% | 0.3% | 0.7% | 0.9% | 1.5% | 1.8% | 1.9% | 2.0% | 2.1% | 2.1% | 2.2% |
| Comm, soc serv | 0.6% | 0.6% | 0.5% | 0.7% | 0.7% | 1.0% | 1.1% | 1.1% | 1.3% | 1.4% | 1.5% | 1.5% |
| Legal | 0.7% | 0.5% | 0.4% | 0.7% | 0.8% | 1.3% | 1.6% | 1.6% | 1.7% | 1.7% | 1.7% | 1.7% |
| Educ, train, lib | 0.9% | 1.0% | 1.0% | 1.7% | 2.2% | 3.1% | 4.0% | 4.2% | 5.4% | 5.8% | 6.2% | 6.4% |
| Arts, des, enter, sports, media | 1.0% | 0.7% | 0.6% | 0.7% | 0.8% | 1.0% | 1.1% | 1.1% | 1.1% | 1.1% | 1.1% | 1.1% |
| Healthcare | 6.0% | 3.8% | 2.5% | 3.3% | 3.7% | 5.1% | 6.1% | 6.3% | 7.0% | 7.3% | 7.7% | 7.9% |
| Protective service | 0.7% | 0.6% | 0.6% | 1.1% | 1.4% | 2.2% | 2.7% | 2.8% | 3.2% | 3.4% | 3.5% | 3.6% |
| Food prep, serving | 13.4% | 8.9% | 6.7% | 7.1% | 7.6% | 9.3% | 10.6% | 10.6% | 10.7% | 10.8% | 10.8% | 10.9% |
| Blding, grnds, pers care, serv | 4.6% | 3.9% | 3.5% | 4.1% | 4.3% | 5.1% | 5.6% | 5.6% | 5.7% | 5.8% | 6.0% | 6.1% |
| Sales, office, admin | 32.5% | 24.5% | 21.0% | 23.0% | 24.0% | 27.3% | 29.3% | 29.1% | 27.8% | 26.9% | 25.9% | 25.1% |
| Farm, fish, forestry | 0.2% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.2% |
| Constr, extraction | 14.1% | 31.5% | 39.7% | 32.4% | 28.5% | 16.5% | 8.7% | 8.4% | 6.5% | 5.9% | 5.7% | 5.5% |
| Install, maint, repair | 4.9% | 5.6% | 5.9% | 5.6% | 5.4% | 4.8% | 4.4% | 4.3% | 4.2% | 4.1% | 4.1% | 4.1% |
| Production | 3.0% | 2.6% | 2.4% | 2.4% | 2.4% | 2.3% | 2.3% | 2.2% | 2.1% | 2.1% | 2.1% | 2.1% |
| Transp, mat moving | 6.3% | 5.4% | 5.0% | 4.9% | 4.9% | 4.8% | 4.8% | 4.8% | 4.5% | 4.4% | 4.3% | 4.2% |
| Total Percentage | 100.0% |

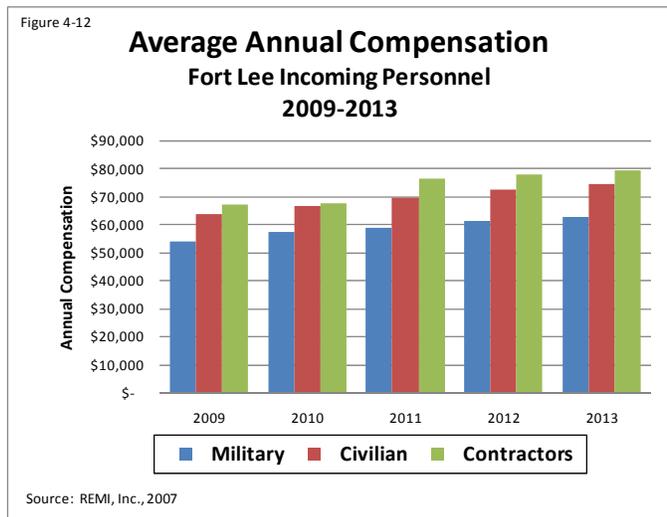
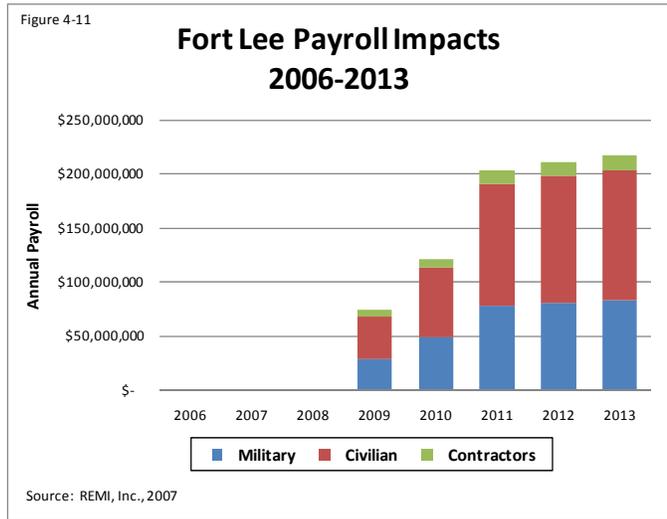
Source: REMI, Inc. and RKG Associates, Inc., 2007

9. Payroll Impacts

RKG estimates that by 2013, the annual payroll associated with the new personnel at Fort Lee will equal approximately \$216.6 million (Figure 4-11). Approximately 55% of that payroll will be attributable to 1,604 civilian employees, 38.5% to 1,321 military employees, and 6.1% to 165 contractor personnel.

Military payrolls include adjustments for a basic allowance for housing (BAH) and a basic allowance for subsistence (BAS). These allowances vary by rank, the location of the base, and whether the military personnel have dependents in their household. As an example, the current monthly BAH payment for an E7 at Fort Lee is \$1,066/mo. with dependents and \$905/mo. without dependents. Likewise, for a major general, the BAH is \$1,535/mo. with dependents and \$1,246/mo. without dependents. Collectively, these allowances can add between \$12,204 and \$20,277 to the annual salaries of military personnel, depending on rank and household status.

Figure 4-12 shows the estimated average annual salaries of incoming military, civilian and contractor personnel at Fort Lee. Contrary to popular perceptions that military personnel are lower paid employees, RKG estimates that annual salaries for incoming military could exceed \$54,000 in 2009. Likewise, civilian and contractor salaries are expected to average roughly \$64,000/yr. and \$67,500 respectively.



The incoming permanent party personnel at Fort Lee could fall within the distribution shown in Table 4-10. The distribution of personnel by rank and pay grade is based on the best available information, but could change. According to Fort Lee estimates, roughly 71.1% of incoming military personnel will be classified as either E7s or E8s. Enlisted personnel at these ranks make between \$33,000 and \$42,000 per year (in 2007 dollars), with housing and subsistence allowances of between \$13,000 and \$16,000. Another 5.4% of permanent party military will be ranked below E7 and another 24.5% will be ranked above E8.

Relative to civilian personnel, it is estimated that roughly 63.6% will be between GS9 and GS12. Personnel at these pay grades make between \$47,000 and \$73,000 per year in 2007 dollars.

Fort Lee Personnel by Rank, Pay Grade, and Year of Arrival
Military, Civilian & Contractors
2007-2013 Table 4-10

| Personnel | % of Total | Year of Arrival | | | | | | | | % of Total 2013 |
|--------------------------|---------------|-----------------|----------|----------|------------|------------|--------------|--------------|--------------|-----------------|
| | | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | |
| MILITARY BY GRADE | | | | | | | | | | |
| LTC | 0.0% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| MG | 0.2% | 0 | 0 | 0 | 1 | 2 | 2 | 2 | 2 | 0.2% |
| BG | 0.0% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| O6 | 0.6% | 0 | 0 | 0 | 3 | 5 | 7 | 7 | 7 | 0.6% |
| O5 | 1.5% | 0 | 0 | 0 | 8 | 13 | 19 | 19 | 19 | 1.5% |
| O4 | 2.8% | 0 | 0 | 0 | 15 | 24 | 37 | 37 | 37 | 2.8% |
| O3 | 5.3% | 0 | 0 | 0 | 28 | 45 | 69 | 69 | 69 | 5.3% |
| O2 | 0.7% | 0 | 0 | 0 | 4 | 6 | 10 | 10 | 10 | 0.7% |
| W5 | 1.3% | 0 | 0 | 0 | 7 | 11 | 17 | 17 | 17 | 1.3% |
| W4 | 2.8% | 0 | 0 | 0 | 15 | 24 | 37 | 37 | 37 | 2.8% |
| W3 | 1.0% | 0 | 0 | 0 | 5 | 9 | 13 | 13 | 13 | 1.0% |
| W2 | 0.1% | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0.1% |
| E9 | 2.7% | 0 | 0 | 0 | 14 | 23 | 35 | 35 | 35 | 2.7% |
| E8 | 4.6% | 0 | 0 | 0 | 25 | 39 | 61 | 61 | 61 | 4.6% |
| E7 | 25.3% | 0 | 0 | 0 | 137 | 217 | 335 | 335 | 335 | 25.3% |
| E6 | 45.8% | 0 | 0 | 0 | 248 | 392 | 605 | 605 | 605 | 45.8% |
| E5 | 3.0% | 0 | 0 | 0 | 16 | 26 | 40 | 40 | 40 | 3.0% |
| E4 | 2.3% | 0 | 0 | 0 | 12 | 20 | 30 | 30 | 30 | 2.3% |
| E3 | 0.1% | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0.1% |
| Total | 100.0% | 0 | 0 | 0 | 541 | 856 | 1,321 | 1,321 | 1,321 | 100.0% |
| CIVILIAN BY GRADE | | | | | | | | | | |
| SES | 0.0% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| 15 | 0.9% | 0 | 0 | 0 | 5 | 8 | 14 | 14 | 14 | 0.9% |
| 14 | 2.0% | 0 | 0 | 0 | 12 | 19 | 32 | 32 | 32 | 2.0% |
| 13 | 8.1% | 0 | 0 | 0 | 49 | 77 | 130 | 130 | 130 | 8.1% |
| 12 | 19.3% | 0 | 0 | 0 | 117 | 184 | 310 | 310 | 310 | 19.3% |
| 11 | 28.3% | 0 | 0 | 0 | 172 | 270 | 454 | 454 | 454 | 28.3% |
| 10 | 0.2% | 0 | 0 | 0 | 1 | 2 | 4 | 4 | 4 | 0.2% |
| 9 | 15.8% | 0 | 0 | 0 | 96 | 151 | 253 | 253 | 253 | 15.8% |
| 8 | 1.8% | 0 | 0 | 0 | 11 | 17 | 28 | 28 | 28 | 1.8% |
| 7 | 9.9% | 0 | 0 | 0 | 60 | 94 | 158 | 158 | 158 | 9.9% |
| 6 | 5.5% | 0 | 0 | 0 | 33 | 52 | 88 | 88 | 88 | 5.5% |
| 5 | 7.0% | 0 | 0 | 0 | 43 | 67 | 113 | 113 | 113 | 7.0% |
| 4 | 1.3% | 0 | 0 | 0 | 8 | 13 | 21 | 21 | 21 | 1.3% |
| Total | 100.0% | 0 | 0 | 0 | 608 | 955 | 1,604 | 1,604 | 1,604 | 100.0% |
| CONTRACTORS | | | | | | | | | | |
| APG | 61.2% | 0 | 0 | 0 | 101 | 101 | 101 | 101 | 101 | 61.2% |
| Eustis | 4.8% | 0 | 0 | 0 | 0 | 8 | 8 | 8 | 8 | 4.8% |
| Redstone | 0.0% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| DCMA | 33.9% | 0 | 0 | 0 | 0 | 0 | 56 | 56 | 56 | 33.9% |
| Total | 100.0% | 0 | 0 | 0 | 101 | 109 | 165 | 165 | 165 | 100.0% |

Source: Fort Lee BRAC Synchronization Office and RKG Associates, Inc., 2007

10. Hotel Demand Impacts

One issue that has surfaced during this planning process has been the changing funding levels related to Fort Lee's facility construction program. What was once a \$1.7 billion program in early 2007 has since been reduced to approximately \$1.29 billion due to federal funding constraints. This has resulted in various changes in the program including the elimination of roughly 1,200 units of on-post lodging that was originally envisioned to house incoming students being trained at Fort Lee. As a result, these students will now be required to find private hotel accommodations outside the gate until new lodging units can be built on-post.

There are presently a total of 574 on-post lodging rooms at Fort Lee. These rooms are located in multiple buildings and are generally intended for single occupancy use, although a small percentage are suites that allow for double occupancy. The supply of on-post lodging is reportedly insufficient to meet present demand, requiring the military to secure additional hotel rooms off-post that, on average, total approximately 450 per night. This

figure can range from a high of 770 to a low of 250 due to fluctuations in garrison operations. In addition to the insufficient supply of on-post lodging, a substantial portion of the existing rooms, possibly as much as 80% to 90%, are considered to need extensive renovation. This may impact their long-term viability to support future demand for this type of housing on the post.

a.) Fort Lee Hotel Demand Projections

Estimates provided by the Fort Lee’s BRAC Synchronization Office anticipate a significant increase in future demand for lodging facilities beginning in FY08. While it is not possible to prepare definitive projections of future lodging demand at Fort Lee, RKG obtained lodging figures for the last 12 month period and adjusted these figures based on projected changes in incoming student loads over the 2006-2013 period.

RKG’s projections assume that monthly demand in the future will be proportional to recent trends. In other words, peak demand will occur between the months of May and September and will drop off between October and April. In addition, as the number of students increase at Fort Lee, the demand for lodging rooms will increase proportionally.

With 574 lodging units on-post, Fort Lee has a monthly capacity of 17,411 room nights (574 units x 365 days/12 months) and an annual capacity of 208,936 room nights. If more than 574 students require on-post lodging at any one time, they will not be able to stay on-post and must seek lodging off-post at market rate hotels. Based on the past 12 month period, only the months of June and August produced demand in

**Projected Lodging Demand - Fort Lee
 2006-2013** **Table 4-11**

| Year | Met Room Demand | Unmet Room Demand | Total Room Demand |
|------|--------------------|----------------------|----------------------|
| 2006 | 138,416 | 28,269 | 166,685 |
| 2007 | 150,726 | 35,693 | 186,419 |
| 2008 | 176,563 | 67,674 | 244,237 |
| 2009 | 176,563 | 67,674 | 244,237 |
| 2010 | 183,187 | 98,382 | 281,569 |
| 2011 | 188,752 | 151,808 | 340,560 |
| 2012 | 188,752 | 151,808 | 340,560 |
| 2013 | 188,752 | 151,808 | 340,560 |

Source: RKG Associates, Inc., 2007

excess of what could be accommodated on-post. That excess demand resulted in approximately 28,269 excess room nights (Table 4-11). As a point of reference, a 120-room hotel operating at a healthy 65% occupancy rate would capture roughly 28,470 room nights per year. Based on RKG’s projections of monthly room night demand, by 2011 Fort Lee’s training operations could be generating demand for over 340,000 room nights per year. If no additional lodging units are constructed on-post, Fort Lee only may be able to accommodate 55.4% of this annual demand (188,752 room nights). This would result in over 151,000 unmet room nights, which would have to be accommodated by the private hotel market. This level of demand would be equivalent to 640 hotel rooms operating at 65% occupancy.

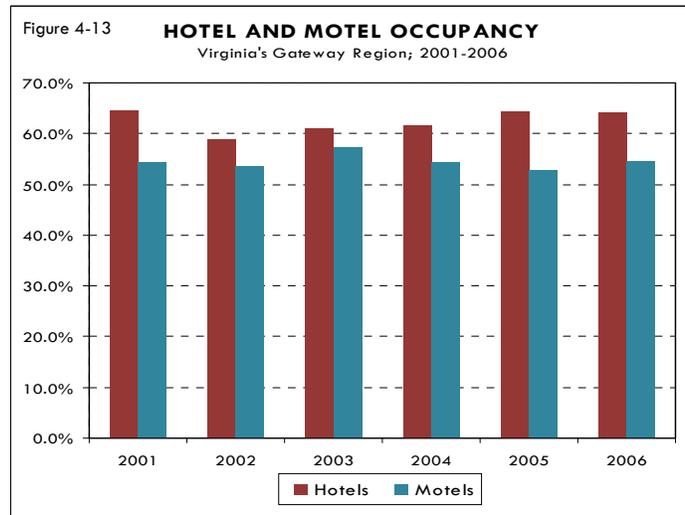
b.) New Hotel Construction and Occupancy Trends

Currently, there are three hotel projects under construction and another three in the planning stages within the Fort Lee PIA region. Two projects, Holiday Inn Millennium and Hampton Inn, are located within Colonial Heights. These two hotels will add 272 rooms to the market. The Holiday Inn (143 rooms) and Hampton Inn (129 rooms) both recently broke ground and are under construction. They are located adjacent to

Interstate 95 near Southpark Mall. Openings for both hotels are estimated at the end of 2008 or early 2009. The third hotel is located in Petersburg and is a Country Inn and Suites with 70 rooms. This hotel is located on Wagner Road adjacent to the Department of Motor Vehicles. The hotel construction is nearing completion and has an estimated opening date of early 2008.

With these three new hotels adding 342 rooms to the market, there may be a theoretical demand for close to 300 additional hotel rooms by the Year 2011. Much of this demand is expected to be absorbed by the other three hotels in the planning stage.

This spike in hotel construction is largely due to anticipated changes at Fort Lee, but also because the region's existing hotel base seems to be performing at a fairly high level (Figure 4-13). Based on RKG's analysis of 80 hotels and motels operating within the PIA and comprising 7,104 rooms, hotel occupancy rates have been rising steadily since 2002. Similarly, average room rates and RevPAR (Revenue Per Available Room) has been increasing as well. At sustained occupancy rates approaching 65%, hotel developers will consider making new investments and add to the local supply.



Source: Smith Travel Research and RKG Associates, Inc., 2007

As shown in Figure 4-13, the region's hotels have reported occupancy rates in the 65% range over the past two years without any growth effects from Fort Lee. Hotels generally have outperformed motels within the region. The annual average occupancy for hotels used in this analysis ranged from 58% in 2002 to more than 64% in 2006. In contrast, the study motels have maintained occupancy rates in the low to mid 50% range. The higher occupancy in hotels supports current efforts to add three new hotels to the market.

Relative to Fort Lee's on-post lodging needs, it is now believed that funding may become available in FY09-10, with construction be completed by 2012. If a substantial number of lodging units are constructed on-post in the future, the region's hotels must be prepared to deal with increased vacancies and dropping room rates until regional demand is able to grow to fill the gap.

It is worth noting that until additional lodging units are constructed on-post, Fort Lee will have a problem transporting students to and from private hotels. Most students do not have cars and are not authorized to rent cars. As such, they will have to rely on other means of transportation to get to Fort Lee. With no reliable public transit to serve this population, Fort Lee Garrison Commander and local officials must work cooperatively with local hotels/motels to solve this problem.

11. Conclusions

The expansion of Fort Lee will provide an economic stimulus for the Primary Impact Area and will help reshape the economy over the next decade. While no single community will bear the brunt of this expansion, some communities such as Prince George County may be pressed to provide services to Fort Lee households. Other communities such as Petersburg, Colonial Heights, Hopewell, and Dinwiddie County will experience more intense growth pressures over the next decade and must be prepared to deal with increased interest in their communities.

By 2013, much of the growth effects of Fort Lee's expansion should be known. The biggest challenges are likely to be school-related impacts, with heavy demands placed on the elementary grades. Housing within the region should be generally affordable to most incoming personnel with some exceptions in Chesterfield County and the City of Colonial Heights. The region's housing market is likely to be viewed as more affordable by personnel coming from Aberdeen, MD, Alexandria, VA, and Newport News, VA, but less affordable to personnel from Huntsville, AL. In addition, the lack of rental housing supplies in some communities and the resistance of other jurisdictions against the construction of new rental housing could be an issue within close proximity to Fort Lee. Currently, Petersburg and Chesterfield County are best positioned to capitalize on this market opportunity.

5

EDUCATION IMPACTS

A. INTRODUCTION

The purpose of this chapter is to provide an analysis of the impact of the expansion of Fort Lee on local school districts. The Fort Lee study area includes Chesterfield County, Dinwiddie County, Prince George County, the City of Colonial Heights, the City of Hopewell, and the City of Petersburg. Many of the schools in this region are projected to increase in enrollment with or without the expansion of Fort Lee. While this chapter primarily assesses impacts on the education system due to the Fort Lee expansion, a projection of the natural growth in school enrollment (excluding Fort Lee) is incorporated into the report to more accurately assess future capacity issues. Additionally, this chapter includes:

- An inventory of all the elementary, middle, and high schools in the study area,
- Current and future school enrollment trends,
- School capacity and construction/expansion plans,
- Projected changes in the special needs population, and
- Projected demand for new instructors.

B. SUMMARY OF MAJOR FINDINGS

Chesterfield County

- Current School Capacity - The elementary and high schools in Chesterfield are currently over-capacity (702 and 177, respectively). Trailers are in place at fourteen of the eighteen schools in the study area. However, the Matoaca Middle School has an excess capacity of 1,091 slots. Matoaca middle school is a large school with an East and West campus. According to interviews with school officials, Matoaca Middle School should have space beyond the 2012 to 2013 school year, barring any new large residential developments.
- Fort Lee Impacts - It is projected that the Fort Lee expansion could add as many as 535 to 555 students to the school district through 2013. The largest increase due to the Fort Lee expansion is in the elementary school cohort (215 to 235 new students).

It is also projected that 120 to 131 middle school students and 174 to 189 high school students may be added to the school district.

- Future School Capacity - Though expansion of new schools are projected to come on-line throughout the study period, the impact of Fort Lee in addition to the current capacity over-load indicate that the elementary schools in the study area may have an overload capacity of 1,202 students in 2012-13. However, middle schools are projected to have an excess capacity throughout the study period (2,052 in 2012-13). The construction and expansion of the new middle schools will help ease capacity issues once the large amount of elementary students move up through the grades.

High schools are projected to have an overload of students throughout the study period (120 in 2012-13). However, the 1,750 slot new high school that will be located near the Branner Station development may help ease capacity issues in the Chesterfield study area into the future.

Dinwiddie County

- Current Capacity - the elementary schools are operating at an overload of slots (309). The exception is Dinwiddie Elementary School and Midway Elementary School, which have a combined excess capacity of 33 slots. The middle school and high schools are both operating at an overload by 210 and 180 students, respectively.
- Fort Lee Impacts - Fort Lee may add 80 to 87 students in Dinwiddie through 2013. Students are projected to arrive in the 2009-10 through 2011-12 school years. Elementary students are projected to experience the largest enrollment increase due to Fort Lee (34 to 37 students). Enrollment for middle schools is projected to increase by 19 to 21 students, and high school enrollment is projected to increase by 28 to 29 students.
- Future School Capacity - The Dinwiddie Public Schools enrollment projections were far more aggressive than the Weldon Cooper Center projections. As such, overload capacity estimates are more severe. According to the Dinwiddie projections, elementary, middle and high schools will all have capacity issues through 2013. Specifically, elementary schools are projected to have an overload of 723 students in 2013, and high schools could have an overload capacity of 333 students in 2013. However, similar to Cooper Center projections, the additional slots that will be added to the middle school cohort level results in excess capacity (695 in 2012-13).

Prince George County

- Current School Capacity - The children of all military personnel who live on Fort Lee will attend schools in Prince George County in addition to those military, civilian, and contractor personnel who choose to live off-base in the County. Elementary schools were 186 slots over-capacity in 2006-07. There were 14 trailers to accommodate the excess students. However, the middle schools have an excess capacity of 457 slots. There are 278 slots at Moore Middle School and 179 slots at Clements middle school. There is one public high school in the area that is over-capacity by 15 slots.
- Fort Lee Impacts - The projections indicate that schools in Prince George may increase by 1,134 students through 2010-11. The high rate of growth reflects new

military housing that is projected to come on-line throughout the study period. Combined Fort Lee and local projections indicate that elementary schools may increase by 701 to 705 students, middle schools by 453 to 455 students and high schools by 384 to 386 students. Though Prince George projections were not available past the 2010-11 school year, the Fort Lee expansion may add another 239 to 245 students may enter the school system through 2012-13.

- Future School Capacity - Elementary schools may remain at an overload capacity throughout the study period. A new elementary school helps to alleviate some of the overload, however the large amount of projected Fort Lee students and natural enrollment growth indicate that elementary schools may reach an overload capacity of 225 to 226 students in 2010-11.

In contrast, the middle schools are projected to have excess capacity throughout the study period. Currently, the Prince George middle schools have an excess capacity of 457 slots. However, the excess number of slots are projected to decrease as more Fort Lee students arrive to the base. In 2010-11, there may only be an excess capacity of 59 to 60 slots. It should be noted that another 52 to 53 middle school students may arrive through the 2011-12 school year, which could create overload issues for the middle schools into the future.

High schools are also operating at an overload capacity. The new students arriving from Fort Lee will put a further strain on the functional capacity of the high schools, which are projected to have an overload capacity of 316 to 317 slots in 2010-11. Fort Lee impacts may add another 77 to 79 students in the 2011-12 academic year.

City of Hopewell

- Current School Capacity - Most of the schools in Hopewell have excess capacity. The exception is Dupont Elementary, which is currently at programmable capacity. There is a total of 70 excess slots in the other two elementary schools, 101 excess slots in the middle school, and 207 excess slots in the high school. The City of Hopewell is also the only school district in the study area that did not need trailers in the 2006-07 school year.
- Fort Lee Impacts - Fort Lee may add 46 to 52 elementary students, 23 to 26 middle school students, and 33 to 36 high school students to the City. Similar to the other jurisdictions in the study area, the largest increase is in elementary school students.
- Future School Capacity - Elementary schools will have excess capacity if the two elementary schools are expanded in the 2009-10 and 2010-11 school years. There may be an excess capacity of 235 to 238 slots by 2012-13. The Table also indicate an excess capacity of middle and high school student slots through 2012-13 (106 and 220, respectively). However, the middle schools may experience an overload of six students in the 2010-11 academic year.

City of Petersburg

- Current School Capacity - Elementary schools were 71 slots over capacity in the 2006-07 school year (Table 5-6). Though elementary schools are currently over-capacity, two elementary schools closed at the start of the 2007-08 academic year. Westview Elementary was converted to an early childhood center and Blandford

elementary was converted to an alternative education center. Unlike most of the elementary schools, the middle and high schools have excess capacity. The middle schools had an excess capacity of 606 students and the high school had an excess capacity of 79 slots in the 2006-07 school year.

- Fort Lee Impacts - Petersburg public school membership declined 810 students from 2002 to 2006. However, the Fort Lee expansion has the potential to reverse this trend. It is projected that Fort Lee could add 110 to 178 students to the school district through 2013. Specifically, elementary school enrollment is projected to increase by 51 to 81 students; middle schools are projected to increase by 23 to 36 students and high schools by 36 to 59 students.
- Future School Capacity - Elementary schools may have excess capacity through the 2009-10 academic year. Though the arrival of Fort Lee students through 2009 to 2012 will add enrollment to the school district, the expansion of the elementary schools helps to ease this increase. In fact, there may be an excess capacity in elementary schools of 149 slots in the 2012-13 academic year. Middle schools are also projected to have excess capacity through the study period (51 slots in 2012-13). High school enrollment is projected to have a large natural decline in enrollment. As such, there may be excess capacity of 452 slots through 2012-13.

City of Colonial Heights

- Current School Capacity - The schools in Colonial Heights, except for North Elementary currently are at capacity or have an overload of students (Table 5-7). There was an overload of nine elementary students in the 2006-07 school year. Both the middle school and high school are currently operating at physical capacity.
- Fort Lee Impact - Fort Lee may add 52 to 54 elementary students to the Colonial Heights school district from 2009 to 2012. There may be an additional 27 to 28 middle school students and 37 to 40 high school students added to the school district during the study period.
- Future School Capacity - Elementary schools may have minor capacity issues even with the expansion Tussing Elementary School (151 slots) which will be completed in August of 2008. Local projections indicate elementary schools may have an overload capacity of 19 students in 2012-13. However, the overload capacity may reach 40 students in 2011-12. The middle schools are currently operating at capacity and are projected to have excess capacity until the arrival of the Fort Lee students beginning in 2009-10. The additional students may cause middle schools to operate at an overload capacity through 2012-13 (-79 students). The high school is currently operating at capacity; however, the expansion may help ease capacity issues. In fact, the high schools may have an excess capacity of 31 slots in 2012-13.

C. SCHOOL INVENTORY

There are 31 elementary schools, 11 middle schools, and 8 high schools in the study area (Figure 5-1). It should be noted that the inventory for Chesterfield County included only those schools that were within a ten-mile radius of Fort Lee. Oftentimes, military personnel need to be on base in the early morning hours for physical training. In order to maximize

their commute time, they tend to locate close to the base. While it is likely that schools outside of the ten-mile radius will experience increased enrollment due to the Fort Lee expansion, it is the consultant's professional opinion, as confirmed by Chesterfield Public Schools Administration, that the majority of growth will occur in the defined Chesterfield study area.

Of all the jurisdictions within the Fort Lee study area, Chesterfield County contained the largest amount of enrolled students (17,901) in the 2007-08 school year (Table 5-1). This is not surprising, as Chesterfield is the main population and employment center for the region. There are eleven elementary schools, four middle schools, and three high schools in the study area. The majority of schools are located on the western side of Interstate 95. However, there are four elementary schools located on the east side of Interstate 95, closer to Fort Lee.

In Dinwiddie County, there were 4,570 total students enrolled in the public school system in the 2006-07 school year. There are five elementary schools, one middle school, and one high school. The majority of schools are located near U.S. Highway 1 in the northern portion of the County. However, there is one elementary school serving the southern portion of the County located at the intersection of U.S. Highway 1 and U.S. Route 40.

The Fort Lee military installation is entirely within Prince George County. As such, any children of military personnel who live on-base will be attending schools in Prince George County, as well as the children of any off-base military, civilian and contractor personnel who choose to locate in the County. Currently, there are 6,160 students enrolled in the school system. There are five elementary schools, two middle schools and one high school. The majority of schools are located close to the base, with Harrison, South, and Moore middle school located the furthest away, near U.S. Highway 460.

There were 2,895 students enrolled in the public school system in the City of Colonial Heights in the 2006-07 academic year. The City contains three elementary schools, one middle and one high school. Two of the elementary schools are located near U.S. Highway 1, and the other elementary school, middle and high school are located near Interstate 95.

Similar to the City of Colonial Heights, there are three elementary schools, one middle and one high school in the City of Hopewell. There were 3,917 students who were enrolled in the school system in the 2006-07 school year. There are two elementary schools and middle schools located near Prince George Drive, and an elementary and high school located near Mesa Drive in the Western portion of the City.

There are four elementary schools currently operating in the City of Petersburg that had a total enrollment of 4,636 in the 2006-07 school year. However, two elementary schools were closed at the start of the 2007-08 school year. The Westview elementary school was turned into an early childhood center and the Blandford elementary school was converted to an alternative education center, which serves troubled youth who could not complete their education in traditional settings. A variety of factors, including decreased enrollment, aging facilities, and budgetary constraints were primary reasons for the school closings. The elementary students that previously attended these two schools were moved into the surrounding elementary schools in Petersburg.

INSERT SCHOOL INVENTORY MAP HERE

FIGURE 5-1

Table 5-1
School Inventory
Fort Lee Study Area; 2006-2007 School Year

| CHESTERFIELD¹ | | DINWIDDIE | | PRINCE GEORGE | | CITY OF PETERSBURG² | |
|---------------------------------------|-------------------|---------------------------------------|-------------------|---------------------------------------|-------------------|---------------------------------------|-------------------|
| ELEMENTARY SCHOOLS | Enrollment |
| Curtis | 743 | Dinwiddie Elementary School | 394 | Beazley | 624 | Robert E Lee | 576 |
| Ecoff | 803 | Midway | 373 | Harrison | 735 | Walnut Hill | 610 |
| Elizabeth N. Scott* | 722 | Rohoic | 531 | North | 315 | AP Hill | 515 |
| Enon | 534 | Southside | 365 | South | 479 | JEB Stuart | 470 |
| Ettrick | 523 | Sunnyside | 319 | Walton | 618 | Total Elementary Enrollment | 2,171 |
| Gates | 858 | Total Elementary Enrollment | 1,982 | Total Elementary Enrollment | 2,771 | MIDDLE SCHOOLS | |
| Harrowgate | 424 | MIDDLE SCHOOLS | | MIDDLE SCHOOLS | | Peabody | 518 |
| Martguerite Christian | 796 | Dinwiddie Middle School | 1,122 | Moore | 972 | Vernon Johns | 526 |
| Matoaca Elementary School | 502 | Total Middle School Enrollment | 1,122 | Clements | 1,021 | Total Middle School Enrollment | 1,044 |
| Salem Church Elementary School | 649 | HIGH SCHOOLS | | Total Middle School Enrollment | 1,993 | HIGH SCHOOLS | |
| Wells | 702 | Dinwiddie High School | 1,466 | HIGH SCHOOLS | | Petersburg High School | 1,421 |
| Total Elementary Enrollment | 7,256 | Total High School Enrollment | 1,466 | Prince George High School | 1,396 | Total High School Enrollment | 1,421 |
| MIDDLE SCHOOLS | | TOTAL ENROLLMENT | 4,570 | Total High School Enrollment | 1,396 | TOTAL ENROLLMENT | 4,636 |
| Carver | 1,261 | CITY OF COLONIAL HEIGHTS | | TOTAL ENROLLMENT | 6,160 | | |
| Chester | 988 | ELEMENTARY SCHOOLS | Enrollment | CITY OF HOPEWELL | | | |
| Matoaca Middle School | 1,135 | Lakeview | 371 | ELEMENTARY SCHOOLS | Enrollment | | |
| Salem Church Middle School | 893 | North | 296 | Patrick Copeland | 683 | | |
| Total Middle School Enrollment | 4,277 | Tussing | 623 | Harry E. James | 627 | | |
| HIGH SCHOOLS | | Total Elementary Enrollment | 1,290 | Dupont | 675 | | |
| L.C. Bird | 1,788 | MIDDLE SCHOOLS | | Total Elementary Enrollment | 1,985 | | |
| Matoaca High School | 1,639 | Colonial Heights Middle School | 714 | MIDDLE SCHOOLS | | | |
| Thomas Dale | 2,434 | Total Middle School Enrollment | 714 | Carter G. Woodson | 889 | | |
| Total High School Enrollment | 5,861 | HIGH SCHOOLS | | Total Middle School Enrollment | 889 | | |
| TOTAL ENROLLMENT | 17,394 | Colonial Heights High School | 891 | HIGH SCHOOLS | | | |
| | | Total High School Enrollment | 891 | Hopewell High School | 1,043 | | |
| | | TOTAL ENROLLMENT | 2,895 | Total High School Enrollment | 1,043 | | |
| | | | | TOTAL ENROLLMENT | 3,917 | | |

1. Chesterfield enrollment reflects the 2007-08 school year.

2. Petersburg enrollment reflects the 2007-08 school year.

Source: RKG Associates, Inc., 2007

D. SCHOOL ENROLLMENT TRENDS AND CAPACITY

This portion of the analysis includes a detailed breakdown of enrollment of students in each jurisdiction as well as the current functional capacity of these schools. This section also includes an analysis of the projected population of students through 2013 that uses projections obtained from each school district.

In many cases, there are plans for the construction of new schools or for currently operating schools to be expanded. The future capacity of the schools in each district was compared with future enrollment projections. The result of this analysis is both a projection scenario of how many students each school district can reasonably expect through 2013 as well as an analysis of the future physical capacity of schools within the study area.

1. Methodology

To understand the impact of the Fort Lee expansion on the distribution of school-aged children within the study area, RKG utilized a survey conducted by Fort Lee personnel in 2006. The consultant assumed a similar population distribution to those currently stationed at Fort Lee in order to assess the amount of children that would enroll in each Fort Lee study area school. Though the survey responses were from the existing personnel and not the incoming workforce, it can reasonably be assumed that the new personnel at Fort Lee will have similar demographic characteristics as those currently stationed at the base. For the purposes of this Chapter, the consultant analyzed the percent of military, civilian and contractor personnel who indicated on the survey that they had children, and the number and age range of these children. The percentage of elementary, middle school and high school students was then applied to the total number of personnel projected to move to the Fort Lee study area (2,507 households).

There are two enrollment projections presented for each jurisdiction. The first projection represents enrollment if 100% of the projected students were to enter public schools. This methodology is a high-end estimate of the amount of children each school district can expect. The second scenario utilizes 2000 U.S. Census data to adjust for the number of students enrolled in private schools. The consultant applied the U.S. Census percentage of children who attended public schools to the students projected to arrive to Fort Lee for each school district. However, it has been indicated through interviews with local school officials that the U.S. Census may have over-estimated the amount of children attending private schools. It should also be noted that no other count of children in private schools by County is prepared in Virginia. As such, the consultant utilized the U.S. Census to show a low-end estimate of school enrollment. The actual enrollment of children due to the Fort Lee expansion will likely fall between these two projections. The result is an analysis that uses the best available data to produce the projected number of students that can be expected to enter the Fort Lee study area school system through 2013.

RKG also assessed the natural enrollment growth that is projected to occur in the region (excluding Fort Lee impacts). Each school district provided the consultant with enrollment projections throughout the study period. Demographic projections in other chapters of the report utilized the nationally recognized Regional Economic Modeling, Inc (REMI) economic model. However, the REMI model does not project school enrollment by grade level. The consultant chose to use the projections made by the local school districts, which report their

data by grade level, in order to remain consistent with the data obtained from the Fort Lee survey. The following projections represent an analysis of school enrollment and capacity using the best available data. All the corresponding enrollment and capacity tables are located at the end of the chapter.

2. Chesterfield County

a.) Current Enrollment and Capacity

The schools within the Chesterfield study area had an enrollment of 17,394 students in the 2007-08 academic year. As mentioned previously, the Chesterfield study area represents only a portion of schools in the County where the majority of growth resulting from the Fort Lee expansion will likely be distributed. In comparison, current enrollment for the entire County was 57,586 in the 2007-08 year. Table 5-2 shows the current enrollment as well as the physical capacity of the schools within the study area.

The elementary and high schools in Chesterfield are currently over-capacity (702 and 177, respectively). Trailers are in place at fourteen of the eighteen schools in the study area. However, the Matoaca Middle School has an excess capacity of 1,091 slots. Matoaca middle school is a large school with an East and West campus. According to interviews with school officials, Matoaca Middle School should have space beyond the 2012 to 2013 school year, barring any new large residential developments.

Table 5-2
Current Enrollment and Capacity
Chesterfield County Schools; Fall 2007/08

| Name of School | Total Student Enrollment | Functional Capacity | # Of Trailers | Excess Capacity/(Over load) |
|-----------------------------------|--------------------------|---------------------|---------------|-----------------------------|
| ELEMENTARY SCHOOLS | | | | |
| Curtis | 743 | 809 | 0 | 66 |
| Ecoff | 803 | 782 | 4 | (21) |
| Elizabeth N. Scott | 722 | 900 | 0 | 178 |
| Enon | 534 | 562 | 3 | 28 |
| Etrick | 523 | 568 | 1 | 45 |
| Gates | 858 | 715 | 8 | (143) |
| Harrowgate | 424 | 535 | 6 | 111 |
| Martguerite Christian | 796 | 688 | 18 | (108) |
| Matoaca Elementary School | 502 | 481 | 2 | (21) |
| Salem Church Elementary School | 649 | 717 | 0 | 68 |
| Wells | 702 | 697 | 2 | (5) |
| Total - Elementary Schools | 7,256 | 6,554 | 44 | (702) |
| MIDDLE SCHOOLS | | | | |
| Carver | 1,261 | 1,229 | 7 | (33) |
| Chester | 988 | 864 | 6 | (124) |
| Matoaca Middle School | 1,135 | 2,226 | 4 | 1,091 |
| Salem Church Middle School | 893 | 1,018 | 4 | 125 |
| Total - Middle Schools | 4,277 | 5,336 | 21 | 1,059 |
| HIGH SCHOOLS | | | | |
| L.C. Bird | 1,788 | 1,722 | 5 | (66) |
| Matoaca High School | 1,639 | 1,594 | 0 | (45) |
| Thomas Dale | 2,434 | 1,851 | 8 | (583) |
| Total - High Schools | 5,861 | 5,684 | 13 | (177) |

Source: Chesterfield Public Schools and RKG Associates, Inc., 2007

b.) Projected Enrollment

The consultant created two methodologies for projecting the number of children that may arrive at Fort Lee (Exhibit 5-1 located at the end of the chapter). The first projection assumes 100% of the Fort Lee incoming students will enroll in public school. The second projection applies the percentage of children who enrolled in public schools according to the U.S. Census to the incoming military, civilian, and contractor personnel at Fort Lee. The Fort Lee impacts were then added to the projections obtained from Chesterfield Public Schools to show the overall growth the school district can expect into the future.

It is projected that the Fort Lee expansion could add as many as 535 to 555 students to the school district through 2013. The largest increase due to the Fort Lee expansion is in the elementary school cohort (215 to 235 new students). It is also projected that 120 to 131 middle school students and 174 to 189 high school students may be added to the school district. The arrival of all students due to Fort Lee is projected to occur from 2009 to 2011.

Chesterfield is a fast growing area, and there are many new residential developments being planned and built. School enrollment projections for the Chesterfield study area reflect the high growth rate of the County. According to Chesterfield projections, elementary school enrollment may increase by 874 students through 2012-13. Middle school enrollment is projected to increase by 482 students and high school enrollment is projected to increase by 248 students. It should be noted that new schools will be opening in Chesterfield during the study period. At the time of report writing, the attendance boundaries for some of these schools have not been drawn. As such, the projections received from Chesterfield Public Schools are preliminary projections and will change based on the final boundaries that the School Board approves for the new schools.

c.) Projected Capacity Including Expansions and New Construction

The Elizabeth N. Scott Elementary School opened in the Chesterfield study area in the 2007-08 school year and added a functional capacity of 900 slots to the district. The new 1,200 capacity Elizabeth B. Davis middle school will open in the 2008-09 school year on the same site as the Elizabeth N. Scott elementary school. Three elementary and high schools will be expanded during the study period. The expansion of Gates Elementary will be complete by the 2012-13 school year (135 to 200 slots) and Ecoff elementary will be complete by the 2009-10 school year (100 to 165 slots). Salem Church Middle School will be expanded by 325 slots and is projected to be complete by the 2012-13 school year.

There is a planned expansion of a high school in the Chesterfield study area. The L.C. Bird High School expansion will open in the 2009-10 school year. A new 1,750 slot high school is planned for the area near the proposed Branner Station developments off Branders Bridge Road. The proposed developments at Branner Station could add about 4,700 units to the area through 2025. However, the completion date of the new high school is 2016, three years after the projected study period.

Trailers have been built to deal with the capacity issues in the short term. However, once a school reaches 109% over the functional capacity levels, a new school is built or expanded or the attendance zones are re-adjusted to accommodate the growth in students. The Thomas Dale High School has exceeded 109% of its current capacity; however, there are plans to adjust the attendance zone of this high school. Some students that currently attend Thomas Dale will be moved to other high schools in the

County that have not exceeded 109% of their functional capacity. It should be noted that there are other schools planned to be built or expanded in Chesterfield County, however they are located outside of the select study area and are therefore not included in this analysis.

Exhibit 5-2 shows the current capacity of the study area schools plus the total projected impact of Fort Lee through 2013. The data indicates that elementary schools may have a capacity issue into the future. The elementary schools currently have an overload of students (720). Though expansion of new schools are projected to come on-line throughout the study period, the impact of Fort Lee in addition to the current capacity over-load indicate that the elementary schools in the study area may have an overload capacity of 1,202 students in 2012-13. However, middle schools are projected to have an excess capacity throughout the study period (2,052 in 2012-13). The construction and expansion of the new middle schools will help ease capacity issues once the large amount of elementary students move up through the grades.

High schools are projected to have an overload of students throughout the study period (120 in 2012-13). However, the 1,750 slot new high school that will be located near the Branner Station development may help ease capacity issues in the Chesterfield study area into the future.

3. Dinwiddie County

a.) Current Enrollment and Capacity

The following capacity estimates shown in Table 5-3 are for the 2006-07 academic year, which was the most current information available for Dinwiddie County. Similar to Chesterfield County, the elementary schools are operating at an overload of slots (309). The exception is Dinwiddie Elementary School and Midway Elementary School, which have a combined excess capacity of 33 slots. The middle school and high schools are both operating at an overload by 210 and 180 students, respectively.

Table 5-3
Current Enrollment and Capacity
Dinwiddie County Schools; Fall 2006/07

| Name of School | Total Student Enrollment | Functional Capacity | # In Trailers | Excess Capacity/Over Capacity |
|-----------------------------------|--------------------------|---------------------|---------------|-------------------------------|
| ELEMENTARY SCHOOLS | | | | |
| Dinwiddie Elementary School | 394 | 400 | 0 | 6 |
| Midway | 373 | 400 | 0 | 27 |
| Rohoic | 531 | 261 | 270 | (270) |
| Southside | 365 | 292 | 73 | (73) |
| Sunnyside | 319 | 239 | 80 | (80) |
| Total - Elementary Schools | 1,982 | 1,592 | 423 | (390) |
| MIDDLE SCHOOLS | | | | |
| Dinwiddie Middle School | 1,122 | 912 | 210 | (210) |
| Total - Middle Schools | 1,122 | 912 | 210 | (210) |
| HIGH SCHOOLS | | | | |
| Dinwiddie High School | 1,466 | 1,286 | 180 | (180) |
| Total - High Schools | 1,466 | 1,286 | 180 | (180) |

Source: RKG Associates, Inc., 2007

b.) Projected Enrollment

Dinwiddie County Public Schools provided the consultant with projection data as a combined sum for all grade cohorts. In order to remain consistent with the analysis, the consultant applied the percentage of elementary, middle and high school students enrolled in the 2006-07 year to the projections made by the school district. Though the adjustment assumes the same proportion of elementary, middle and high school students will enter the school system into the future, the estimates provide a good sense of the projected enrollment through 2013.

The projections received from Dinwiddie Public Schools may be aggressive. According to DemographicsNow, a nationally recognized vendor of demographic information, 858 people (including adults and children) were added to Dinwiddie County from 2000 to 2005. The projections received from Dinwiddie schools indicate a total of 1,550 *students* will move to the area in the next 6 years. This estimate does not include adults and is still almost double historic trends. To provide a range of possible projection scenarios, the consultant included enrollment projections from the Weldon Cooper Center for Public Service, whose mission is to “anticipate and forecast change and to serve as a resource to those who need to recognize and address that change.” The Weldon Cooper Center provides data to the Virginia Department of Education and is one of the State’s main sources for enrollment projections. However, it should be noted that the Weldon Cooper Center only provides projection data through the 2010-11 school year.

Exhibit 5-3, located at the end of this chapter, shows that Fort Lee may add 80 to 87 students in Dinwiddie through 2013. Students are projected to arrive in the 2009-10 through 2011-12 school years. Elementary students are projected to experience the largest enrollment increase due to Fort Lee (34 to 37 students). Enrollment for middle schools is projected to increase by 19 to 21 students, and high school enrollment is projected to increase by 28 to 29 students.

The projections from the Cooper Center indicate that the natural growth of elementary enrollment will increase by 76 students. Both the middle and high schools are projected to experience a decrease in enrollment. The middle school is projected to decrease by 39 students and high school enrollment is projected to decrease by 37 students through the 2010-11 academic year.

The Fort Lee impact combined with Cooper Center projections results in an increased enrollment of 47 to 52 students through the 2010-11 school year. Similar to Chesterfield County, the large increase of elementary students off-set the middle and high school projected declines. It should be noted that another 33 to 37 to students are projected to arrive during the 2011-12 academic year, however total enrollment data from the Cooper Center only project out to the 2010-11 academic year.

Projections obtained from Dinwiddie County Public schools are more aggressive enrollment projections. According to Dinwiddie Public Schools, a total of 1,550 students are projected to enter the school system through 2013. As mentioned above, the Dinwiddie projections were provided as a sum for all cohort levels. In order to analyze the projections by cohort level, the consultant applied the percentage of students enrolled in elementary, middle, and high school students from the 2006-07 academic year to the local projections.

The projections from Dinwiddie County plus Fort Lee impacts result in an overall increase of 1,630 to 1,636 students through 2013. These projections represent the higher end of what Dinwiddie County can expect. The highest amount to growth is projected to be in elementary school students (706 to 710 students).

c.) Projected Capacity Including Expansions and New Construction

According to interviews with school officials, a 600-capacity elementary school will replace Rohoic Elementary School in January of 2008. A new 1,600-capacity high school will open in September of 2008, replacing the current Dinwiddie High School. The schools in Dinwiddie County will be reconfigured when the new high school opens. The new high school will be reconfigured to serve grades 10 through 12. The current Dinwiddie High School will serve grades 8 and 9 and the Dinwiddie Middle School will be reconfigured to serve grades 6 and 7.

Exhibit 5-4 shows the future capacity by year including both Cooper Center and Dinwiddie County estimates. The capacity estimates were derived by subtracting the projected enrollment, including the Fort Lee impacts, for each year by the functional capacity. In the case of a new school or expansion, the functional capacity was adjusted to account for the increased number of slots. It should be noted that the functional capacity data does not account for trailers, as those are short-term solutions to capacity issues.

According to Weldon Cooper Center projections plus Fort Lee impacts, the elementary schools will remain over-capacity through 2013. The opening of the new elementary school results in excess capacity of 16 slots for the 2008-09 school year. However, Fort Lee impacts plus natural growth in elementary students indicate that elementary schools may have capacity issues for the duration of the study period. In fact, it is projected that elementary schools could have an overload of 72 to 73 slots in the 2010-11 academic year.

The transformation of the current Dinwiddie High School to an additional middle school in the 2008-09 school year adds a comparatively large amount of additional slots to the school district. This additional school appears to solve capacity issues for middle schools through 2011. The construction of the new high school also adds additional slots to the school system. The high schools could have an excess capacity of 123 to 124 students in the 2010-11 academic year.

The Dinwiddie Public Schools projections were far more aggressive than the Cooper Center projections. As such, overload capacity estimates are more severe. According to the Dinwiddie projections, elementary, middle and high schools will all have capacity issues through 2013. Specifically, elementary schools are projected to have an overload of 723 students in 2013, and high schools could have an overload capacity of 333 students in 2013. However, similar to Cooper Center projections, the additional slots that will be added to the middle school cohort level results in excess capacity (695 in 2012-13).

4. Prince George County

a.) Current Enrollment and Capacity

As mentioned previously, the children of all military personnel who live on-base will attend schools in Prince George County in addition to those military, civilian, and contractor personnel who choose to live off-base in Prince George County. Elementary

schools were 186 slots over-capacity in 2006-07 (Table 5-4). There were 14 trailers to accommodate the excess students. However, the middle schools have an excess capacity of 457 slots. There are 278 slots at Moore Middle School and 179 slots at Clements middle school. There is one public high school in the area that is over-capacity by 15 slots.

Table 5-4
Current Enrollment and Capacity
Prince George County Schools; Fall 2006/07

| Name of School | Total Student Enrollment | Functional Capacity | # In Trailers | Excess Capacity/(Over load) |
|-----------------------------------|--------------------------|---------------------|---------------|-----------------------------|
| ELEMENTARY SCHOOLS | | | | |
| Beazley | 624 | 622 | 4 | (2) |
| Harrison | 735 | 728 | 0 | (7) |
| North | 315 | 189 | 8 | (126) |
| South | 479 | 470 | 0 | (9) |
| Walton | 618 | 576 | 2 | (42) |
| Total - Elementary Schools | 2,771 | 2,585 | 14 | (186) |
| MIDDLE SCHOOLS | | | | |
| Moore | 972 | 1,250 | 0 | 278 |
| Clements | 1,021 | 1,200 | 0 | 179 |
| Total - Middle Schools | 1,993 | 2,450 | 0 | 457 |
| HIGH SCHOOLS | | | | |
| Prince George High School | 1,396 | 1,381 | 0 | (15) |
| Total - High Schools | 1,396 | 1,381 | 0 | (15) |

Source: Prince George Public Schools and RKG Associates, Inc., 2007

b.) Projected Enrollment

The Fort Lee expansion may add a total of 642 to 657 students to the Prince George school system through the study period (Exhibit 5-5). The comparatively high impacts from Fort Lee include both children of on-base military personnel as well as children of military, civilian and contractor personnel who may choose to live off-base in Prince George County. Elementary schools may experience the greatest increase in enrollment from Fort Lee (300 to 308 new students).

Prince George County Public Schools provided the consultant with projection data as a combined sum for all grade cohorts. In order to remain consistent with the analysis, the consultant applied the percentage of elementary, middle and high school students enrolled in the 2006-07 year to the projections made by the school district. Though the adjustment assumes the same proportion of elementary, middle and high school students will enter the school system into the future, the estimates provide a good sense of the projected enrollment.

The projections indicate that schools in Prince George may increase by 1,134 students through 2010-11. The high rate of growth reflects new military housing that is projected to come on-line throughout the study period. Combined Fort Lee and local projections indicate that elementary schools may increase by 701 to 705 students, middle schools by 453 to 455 students and high schools by 384 to 386 students. Though Prince George

projections were not available past the 2010-11 school year, the Fort Lee expansion may add another 239 to 245 students may enter the school system through 2012-13.

c.) Projected Capacity Including Expansions and New Construction

A new 728-slot middle school will open in the 2009-10 school year. There are no other plans for expansions or construction of new schools at the time of report writing. Exhibit 5-6 shows the future capacity by year using projection estimates provided by the local school district. The capacity estimates were derived by subtracting the projected enrollment, including the Fort Lee impacts, for each year by the functional capacity. In the case of a new school or expansion, the functional capacity was adjusted to account for the increased number of slots. It should be noted that the functional capacity data does not account for trailers, as those are generally short-term solutions to capacity issues.

Exhibit 5-6 indicates elementary schools may remain at an overload capacity throughout the study period. The new elementary school helps to alleviate some of the overload, however the large number of projected Fort Lee students and natural enrollment growth indicate that elementary schools may reach an overload capacity of 225 to 226 students in 2010-11.

In contrast, the middle schools are projected to have excess capacity throughout the study period. Currently, the Prince George middle schools have an excess capacity of 457 slots. However, the excess number of slots are projected to decrease as more Fort Lee students arrive to the base. In 2010-11, there may only be an excess capacity of 59 to 60 slots. It should be noted that another 52 to 53 middle school students may arrive through the 2011-12 school year, which could create overload issues for the middle schools into the future.

The high school is also operating at an overload capacity. The new students arriving from Fort Lee will put a further strain on the functional capacity of the high school, which are projected to have an overload capacity of 316 to 317 slots in 2010-11. Fort Lee impacts may add another 77 to 79 students in the 2011-12 academic year.

5. City of Hopewell

a.) Current Enrollment and Capacity

There were 3,917 students enrolled in Hopewell schools in the 2006-07 school year (Table 5-5). Most of the schools in Hopewell have excess capacity. The exception is Dupont Elementary, which is currently at programmable capacity. There is a total of 70 excess slots in the other two elementary schools, 101 excess slots in the middle school, and 207 excess slots in the high school. The City of Hopewell is also the only school district in the study area that did not need trailers in the 2006-07 school year.

b.) Projected Enrollment

The Fort Lee expansion may add 102 to 114 students to the Hopewell school district throughout the study period (Exhibit 5-7). Specifically, Fort Lee may add 46 to 52 elementary students, 23 to 26 middle school students, and 33 to 36 high school students to the City. Similar to the other jurisdictions in the study area, the largest increase is in elementary school students.

Table 5-5
Current Enrollment and Capacity
City of Hopewell Schools; Fall 2006/07

| Name of School | Total Student Enrollment | Functional Capacity | # In Trailers | Excess Capacity/(Over load) |
|-----------------------------------|--------------------------|---------------------|---------------|-----------------------------|
| ELEMENTARY SCHOOLS | | | | |
| Patrick Copeland | 683 | 690 | 0 | 7 |
| Harry E. James | 627 | 690 | 0 | 63 |
| Dupont | 675 | 675 | 0 | 0 |
| Total - Elementary Schools | 1,985 | 2,055 | 0 | 70 |
| MIDDLE SCHOOLS | | | | |
| Carter G. Woodson | 889 | 990 | 0 | 101 |
| Total - Middle Schools | 889 | 990 | 0 | 101 |
| HIGH SCHOOLS | | | | |
| Hopewell High School | 1,043 | 1,250 | 0 | 207 |
| Total - High Schools | 1,043 | 1,250 | 0 | 207 |

Source: Hopewell Public Schools and RKG Associates, Inc., 2007

The projections received from the City of Hopewell indicate that there will be natural growth in student enrollment (258 new students). Similar to other jurisdictions, elementary enrollment is projected to have the largest increase through 2012-13 (150 students). Middle school enrollment is projected to increase by 57 students and high school enrollment is projected to increase by 51 students.

c.) Projected Capacity Including Expansions and New Construction

According to interviews with school officials, the addition of a new school in the City of Hopewell is not likely, as the City has reached build-out capacity. However, it is possible to expand the existing schools to increase capacity in the future. As of report writing, there is no funding to expand the schools in the City of Hopewell. However, officials are actively looking at funding opportunities and plans for expanding Patrick Copeland Elementary School (150 slots), Harry E. James Elementary School (75 slots), Carter G. Woodson Middle School (200 slots) and Hopewell High School (100 slots).

Exhibit 5-8 shows the future capacity by year using projection estimates provided by Hopewell Public Schools. The capacity estimates were derived by subtracting the projected enrollment, including the Fort Lee impacts, for each year from the functional capacity. In the case of an expansion, the functional capacity was adjusted to account for the increased number of slots. Though completion of the school expansions in the Hopewell school district are unknown, the consultant estimated they will be complete by the peak Fort Lee impact years.

The Table shows that elementary schools will have excess capacity if the two elementary schools are expanded in the 2009-10 and 2010-11 school years. There may be an excess capacity of 235 to 238 slots by 2012-13. The Table also indicate an excess capacity of middle and high school student slots through 2012-13 (106 and 220, respectively). However, the middle schools may experience an overload of six students in the 2010-11 academic year.

6. City of Petersburg

a.) Current Enrollment and Capacity

The City of Petersburg had an enrollment of 4,636 in the 2006-07. Elementary schools were 71 slots over capacity in the 2006-07 school year (Table 5-6). Though elementary schools are currently over-capacity, two elementary schools closed at the start of the 2007-08 academic year. Westview Elementary was converted to an early childhood center and Blandford elementary was converted to an alternative education center. Unlike most of the elementary schools, the middle and high schools have excess capacity. The middle schools had an excess capacity of 606 students and the high school had an excess capacity of 79 slots in the 2006-07 school year.

Table 5-6
Current Enrollment and Capacity
Petersburg Schools; Fall 2007/08

| Name of School | Total Student Enrollment | Functional Capacity | # in Trailers | Excess Capacity/(Over load) |
|-----------------------------------|--------------------------|---------------------|---------------|-----------------------------|
| ELEMENTARY SCHOOLS | | | | |
| Robert E Lee | 576 | 498 | 120 | (78) |
| Walnut Hill | 610 | 619 | 0 | 9 |
| AP Hill | 515 | 544 | 100 | 29 |
| JEB Stuart | 470 | 524 | 0 | 54 |
| Total - Elementary Schools | 2,171 | 2,185 | 220 | 14 |
| MIDDLE SCHOOLS | | | | |
| Peabody | 518 | 526 | 0 | 8 |
| Vernon Johns | 526 | 545 | 0 | 19 |
| Total - Middle Schools | 1,044 | 1,071 | 0 | 27 |
| HIGH SCHOOLS | | | | |
| Petersburg High School | 1,421 | 1,438 | 0 | 17 |
| Total - High Schools | 1,421 | 1,438 | 0 | 17 |

Source: Petersburg Public Schools and RKG Associates, Inc., 2007

b.) Projected Enrollment

Public school membership in Petersburg has historically declined. According to information from the Virginia Department of Education, Petersburg public school membership declined 810 students from 2002 to 2006. However, the Fort Lee expansion has the potential to reverse this trend. It is projected that Fort Lee could add 110 to 178 students to the school district through 2013. Specifically, elementary school enrollment is projected to increase by 51 to 81 students; middle schools are projected to increase by 23 to 36 students and high schools by 36 to 59 students (Exhibit 5-9).

The Petersburg Public School projections indicate an increase of 103 elementary students through 2012-13. However, middle schools are projected to decline by 188 students and high schools are projected to decline by 489 students through 2012-13.

c.) Projected Capacity Including Expansions and New Construction

There are no new schools planned for the Petersburg school district. However, there are plans to expand Robert E. Lee Elementary School by 102 slots, J.E.B. Stuart Elementary School by 76 slots, and A.P. Hill Elementary School by 56 slots.

Exhibit 5-10 shows the future capacity by year using projection estimates provided by Petersburg Public Schools. The capacity estimates were derived by subtracting the projected enrollment, including the Fort Lee impacts, for each year from the functional capacity. In the case of an expansion, the functional capacity was adjusted to account for the increased number of slots.

According to Exhibit 5-10, elementary schools may have excess capacity through the 2009-10 academic year. Though the arrival of Fort Lee students through 2009 to 2012 will add enrollment to the school district, the expansion of the elementary schools helps to ease this increase. In fact, there may be an excess capacity at elementary schools of 149 slots in the 2012-13 academic year.

Middle schools are also projected to have excess capacity through the study period (51 slots in 2012-13). High school enrollment is projected to have a large natural decline in enrollment. As such, there may be excess capacity of 452 slots through 2012-13. However, the natural growth projections do not take into account indirect impacts and job creation that will enter the area as a result of the Fort Lee expansion. According to local officials, there are also many new subdivisions being proposed and built in Petersburg. It is highly likely that the enrollment decline projected for Petersburg may reverse enrollment decline trends.

7. City of Colonial Heights

The schools in Colonial Heights, except for North Elementary currently are at capacity or have an overload of students (Table 5-7). There was an overload of nine elementary students in the 2006-07 school year. Both the middle school and high school are currently operating at physical capacity.

Table 5-7
Colonial Heights City Schools
Enrollment and Capacity Estimates; Fall 2006/07

| Name of School | Total Student Enrollment | Functional Capacity | # In Trailers | Excess Capacity/ (Overload) |
|--------------------------------|--------------------------|---------------------|---------------|--------------------------------|
| ELEMENTARY SCHOOLS | | | | |
| Lakeview | 371 | 364 | 10 | (7) |
| North | 296 | 318 | 7 | 22 |
| Tussing | 623 | 599 | 80 | (24) |
| MIDDLE SCHOOLS | | | | |
| Colonial Heights Middle School | 714 | 714 | 0 | 0 |
| HIGH SCHOOLS | | | | |
| Colonial Heights High School | 891 | 891 | 0 | 0 |

Source: Colonial Heights Public Schools and RKG Associates, Inc., 2007

a.) Projected Enrollment

Similar to other jurisdictions, the majority of enrollment growth due to Fort Lee will be in the elementary school cohort (Exhibit 5-11). Fort Lee may add 52 to 54 elementary students to the Colonial Heights school district from 2009 to 2012. There may be an additional 27 to 28 middle school students and 37 to 40 high school students added to the school district during the study period.

Local projection data indicates elementary schools will increase enrollment by 125 students through 2012-13. Middle schools may also increase in enrollment (122 students). However, high school enrollment is projected to decline by 21 students through the study period. Though the projections indicate a natural decline in high school enrollment, Fort Lee may add 37 to 40 high school students to the school district, thereby reversing the projected enrollment declines.

b.) Projected Capacity Including Expansions and New Construction

Exhibit 5-12 indicates that elementary schools may have minor capacity issues even with the expansion of Tussing Elementary School (151 slots) which will be completed in August of 2008. Local projections indicate elementary schools may have an overload capacity of 19 students in 2012-13. However, the overload capacity may reach 40 students in 2011-12.

The middle school is currently operating at capacity and is projected to have excess capacity until the arrival of Fort Lee students beginning in 2009-10. The additional students may cause the middle school to operate at an overload capacity through 2012-13 (-79 students).

According to interviews with local officials, the maintenance facilities in the high school will be moved out of the building in the 2008-09 academic year, thereby freeing up an additional 45 slots in the school. The high school is currently operating at capacity; however, the expansion may help ease capacity issues. In fact, the high schools may have an excess capacity of 31 slots in 2012-13.

E. SPECIAL NEEDS POPULATION

Children with special needs have different requirements than children without special needs. Depending on the disability, extra teacher assistants or special education teachers often need to be hired. In order to ascertain the number of Fort Lee children that may have special needs, the percentage of children with special needs as reported by each school district was applied to the projected incoming Fort Lee children. The same percentage was also applied to the natural growth estimates to provide a sense of the total projected children with special needs that may enter the school system through 2013.

Appendix tables show the change in the total percentage of children with special needs. It should be noted that the consultant assumed that the same proportion of children with special needs would remain constant throughout the study period. Though it is possible that this proportion may change from year to year, the estimates in the Appendix provide a good sense of the number of children with special needs that may enroll in each school district.

F. FUTURE TEACHER PROJECTIONS

The addition of new students will have impacts beyond increasing the functional capacity of the schools. Some schools with a large amount of projected enrollment growth may need to hire new teachers in order to maintain state funding levels. According to the 2007 Standards of Quality produced by the Virginia Department of Education, each school board needs to assign licensed instructional personnel in a manner that produces division wide ratios of students in average daily membership to full-time equivalent teaching positions, excluding special education teachers, principals, assistant principals, counselors, and librarians, that are not greater than following ratios:

- 24 to one in kindergarten with no class being larger than 29 students; if the average daily membership in any kindergarten class exceeds 24 pupils, a full-time teacher's aide shall be assigned to the class,
- 24 to one in grades one, two, and three with no class being larger than 30 students,
- 25 to one in grades four through six with no class being larger than 35 students, and
- 24 to one in English classes in grades six through 12.

Though the above ratios represent State goals for pupil/teacher ratios, the school districts in the study area typically have their own goals for pupil/teacher ratios, which are often lower than the state standards. To more accurately reflect the number of teachers that may need to be hired, the consultant obtained the desired pupil/teacher ratios from each school district. The actual pupil to teacher ratios involve complicated computations, and may not always fall within the cohorts of elementary, middle and high schools. It should also be noted that the new teacher projections is a theoretical analysis. In some cases, the ratio results will provide estimates for less than a full-time teacher. However, the pupil/teacher ratios used in the report provide a general sense of how many teachers may need to be hired throughout the study period. The tables that show the projected change in new teachers is shown in the Appendix.

In addition to assessing the new teachers that would need to be hired, the consultant also analyzed the number of special needs teachers that may need to be hired through the study period. The consultant used an average special needs pupil/teacher ratio of 8:1. Through interviews with local school officials, it was indicated that certain disabilities require differing pupil/teacher ratios. However, the consultant used an average of 8:1 in order to give a rough sense of the amount of special needs teachers the school districts may need to hire. Appendix tables indicate the change in special needs teachers that may need to be hired *in addition* to the regular schoolteachers presented in the appendix section.

Once the number of new teachers that may need to be hired is determined, it is possible to assess the associated costs of hiring new teachers. For the cost analysis, the consultant received the average teacher salary from each school district in the study area. The cost of new teachers was derived by dividing the projected number of new teachers into the average salary. The consultant added a 3% inflation rate and the cost of benefits were assumed to be 30% of the average teacher salary. The teacher cost analysis for regular and special needs teachers is shown in the appendix section.

1. Chesterfield County

Chesterfield Public Schools maintain a 24:1 ratio for elementary schools and a 25:1 ratio for middle and high schools. The number of new teachers that may need to be hired varies from

year to year. For example, in 2008-09, there may be a need to hire 4.8 new teachers. By the 2012-13 academic year, there may be a need to hire 48.5 to 49.2 teachers. It should be noted the number of new teachers needed in 2012-13 includes all the new teachers that would be hired in the previous years of the study period (2007-08 through 2011-12).

The projected cost of the new teachers was calculated using the average teacher salary provided to the consultant by Chesterfield Public Schools, in addition to a 3% inflation rate and a 30% benefits calculation. The cost of new teachers is projected to range from \$298,643 in 2008-09 to a cumulative \$3.20 to \$3.24 million in 2012-13.

According to the special needs analysis Chesterfield Public Schools may need to hire an additional 38.4 to 39.0 special needs teachers through the study period. The cost of new special needs teachers may be an additional \$236,746 in 2008-09 and a cumulative \$2.53 to \$2.57 million by 2012-13.

2. Dinwiddie County

Dinwiddie Public Schools provided the consultant with two pupil/teacher ratios for elementary, middle and high school students. For those in grades kindergarten through second, there is a goal of maintaining an 18:1 ratio. For third through fifth grades, they try to maintain a 22:1 ratio. For the purposes of this analysis, the higher end ratio of 22:1 ratio was used to determine the need for more elementary school teachers. According to interviews with Dinwiddie Public Schools, the middle and high school ratios vary by subject; however, they try to maintain the 25:1 pupil/teacher ratio.

The Weldon Cooper Center projections plus Fort Lee impacts indicate there may be a need for 6.6 to 6.7 new teachers through 2010-11. The cost of new teachers using Weldon Cooper Center projections could be \$85,964 in 2008-09 and 489,207 to \$497,465 by 2011-12.

According to the special needs analysis using Weldon Cooper Center enrollment projections plus Fort Lee impacts, Dinwiddie Public Schools may need to hire 3.9 to 4.0 new special needs teachers through the 2010-11 school year. The cost of these teachers may be an additional \$62,464 in 2008-09 and \$287,386 to a cumulative \$292,226 by 2010-11.

The projections provided to the consultant from Dinwiddie Public Schools project a more aggressive future enrollment than the Cooper Center. As such, the projected number of new teachers is higher. According to Dinwiddie enrollment projections, there may be a need for 47.4 to 47.5 new teachers throughout the study period. The cost of the new teachers using local projections may be \$712,690 in 2008-09 and a cumulative \$2.90 to \$3.12 million by 2012-13.

Using the local enrollment projections plus Fort Lee impacts, it is possible that the school district will need to hire 28.8 to 28.9 special needs teachers through 2012-13. The cost of these teachers may be an additional \$433,353 in 2008-09 and a cumulative \$1.89 to \$1.90 million by the end of the study period.

3. Prince George County

Interviews with Prince George Public School officials indicate that they try to maintain a 20:1 pupil/teacher ratio in elementary and middle schools. Though ratios will vary by subject at the high school level, they generally maintain a 25:1 high school ratio. It should be noted the Prince George natural growth projections only extend through year 2010-11. As such, the

new teacher analysis includes Fort Lee students who may arrive in 2011-12, but does not account for any natural growth that may occur in 2010-11 and 2011-12. The results indicate there may be a need for 57.5 to 57.7 new teachers through the end of the study period. The total costs of new teachers may range from \$878,092 in 2008-09 to a cumulative cost of \$3.53 to \$3.61 by 2012-13.

According to the special needs analysis Prince George Public Schools may need to hire 23.4 to 23.6 special needs teachers through the study period. The cost of the additional teachers may be range from \$411,736 in 2008-09 to \$1.67 to \$1.69 million in 2011-12.

4. City of Hopewell

Hopewell Public Schools try to maintain a 20:1 ratio for grades kindergarten to third grade, and a 25:1 ratio for fourth and fifth grade classes. For the purposes of this analysis, the consultant used the average ratio of 23:1 for elementary students. Middle and high school class ratios vary, however Hopewell Public Schools generally try to maintain a 23:1 ratio. The local enrollment projections indicate there may be a need for 8.8 to 9.0 new teachers throughout the study period. The total cost of these teachers may be \$133,528 in 2008-09 and a cumulative \$683,971 to \$786,368 by 2012-13.

According to the special needs analysis, Hopewell Public Schools may need to hire 10.1 to 10.3 new special needs teachers through the study period. The new teachers may cost an additional \$154,007 in 2008-09 and a cumulative \$690,627 to \$705,142 by 2012-13.

5. City of Petersburg

Petersburg Public Schools generally try to maintain a 19:1 pupil/teacher ratio for all grade levels. It was indicated to the consultant that some schools within the school district have different pupil/teacher ratios. However, the consultant applied the 19:1 ratio to all elementary schools in order to remain consistent with the analysis. The school district may need to hire 10.9 to 12.5 teachers through the end of the study period. The cost of the new teachers may range from \$113,309 in 2008-09 and a cumulative \$683,971 to \$786,368 by the end of the study period.

According to the special needs analysis, Petersburg Public Schools may need to hire 5.0 to 5.7 special needs teachers through the study period. The new teachers are projected to cost \$51,687 in 2008-09 and \$312,001 to \$358,710 by 2012-13.

6. City of Colonial Heights

The City of Colonial Heights generally maintains a 22:1 pupil/teacher ratio for elementary and middle schools, and a 24:1 ratio for high schools. Colonial Heights Public Schools may need to hire 15.9 to 16.7 new teachers through 2012-13. The cost of the new teachers may be \$254,698 in 2008-09 and a cumulative \$1.12 million to \$1.13 million by the end of the study period.

According to the special needs analysis, it is possible that the school district will need to hire 5.6 special needs teachers through 2012-13. The total annual cost of the special needs teachers is projected to be \$22,631 in 2008-09 and \$390,009 to \$393,665 through the end of the study period.

G. CONCLUSIONS

1. Chesterfield County

Chesterfield is a fast growing County and the schools in the study area are projected to experience a large natural increase in enrollment. The Fort Lee expansion could add an additional 508 to 555 students to the school system. Chesterfield schools currently have an overload of students in elementary and high schools. Two elementary schools and one high school will be expanded, however both elementary and high schools may remain at an overload capacity throughout the study period. Chesterfield Public Schools may need to consider expansion/construction of new elementary and high schools in order to prepare for the projected increase in enrollment. There is a large number of excess slots in the middle schools; however these slots will likely be filled as the elementary students move up through the grade levels.

2. Dinwiddie County

The Weldon Cooper Center projected enrollment in Dinwiddie County to remain relatively flat. However, it was indicated through interviews with school officials that the Weldon Cooper Center projections are a conservative estimate of enrollment. In contrast, projections from the local school district indicate an aggressive increase in enrollment. The actual natural growth increase in enrollment will likely fall between these two projections.

Dinwiddie County is projected to see a modest amount of growth due to the expansion of Fort Lee (80 to 87 students). The schools in Dinwiddie are currently operating at an overload capacity; however construction and expansion of new schools will help ease the capacity overload issues. However, according to the projections received from Dinwiddie Public Schools, elementary schools may have capacity issues into the future. If growth in enrollment is as aggressive as the Dinwiddie projections indicate, it is possible that high schools will also have capacity issues through the 2012-13 school year.

3. Prince George County

Prince George County will likely experience the largest growth in enrollment due to the expansion of Fort Lee (642 to 658 students). Fort Lee is entirely within Prince George County. As such, any children of military personnel that live on-base, as well as children of civilian, military, and contractor personnel who choose to live off-base in Prince George County and attend public schools will enroll in the Prince George County school system. In addition, the number of school-aged children in Prince George are projected to increase due to natural growth (excluding Fort Lee impacts). The comparatively large natural growth in enrollment, coupled with the Fort Lee impacts, could put a severe strain on the capacity of the schools. Currently, the elementary and high schools are operating at an overload capacity and are projected to continue operating at an overload capacity throughout the study period. As such, Prince George Public Schools may need to expand/construct new elementary and high schools in order to prepare for the projected increase in enrollment.

4. City of Hopewell

Local projections indicate that Hopewell Public Schools will have a natural growth increase in enrollment throughout the study period (258 new students). The impact of Fort Lee may add another 102 to 114 students to the school district.

The schools in the City of Hopewell are currently operating at an excess capacity and have additional slots available. Though the City of Hopewell has no room for new construction of schools, there may be plans to expand some of the existing schools. If the expansions come on-line within the study period, it is projected that the schools will continue to have excess capacity. It should be noted that as of report writing, funding has not been acquired for the expansions. As such, there may be capacity issues into the future if the funding for the expansions does not become available.

5. City of Petersburg

City of Petersburg schools historically have declined in enrollment. Data from the local school district indicate this trend will continue. It is important to note that the projections from Petersburg Public Schools do not include growth that may come as a result of the Fort Lee expansion. Direct and indirect growth resulting from Fort Lee may partially reverse the enrollment decline trends. It was also indicated to the consultant that there are many subdivision units awaiting approval or being built that will likely add a significant numbers of residences to the City.

The expansion of Fort Lee may add 111 to 178 students to the school district. Although the elementary schools in Petersburg are currently operating at an overload capacity, the expansion of three elementary schools are projected to produce excess elementary slots in the future. Both the middle and high schools are also projected to have excess capacity throughout the study period. It is important to note that the high school is projected to have 452 excess slots in 2012-13. If enrollment decline trends do not reverse, it may become increasingly difficult to maintain and operate the high school.

6. City of Colonial Heights

Local projections indicate a natural increase in enrollment throughout the study period. The expansion of Fort Lee may add another 116 to 122 students to the school district through 2012-13. The elementary schools currently operate at an overload capacity, and the Fort Lee and natural growth of the area indicate that this cohort may experience minor capacity issues into the future. Middle schools are also projected to operate at an overload capacity through 2012-13. As such, the City may need to consider expansion/construction of middle schools.

Exhibit 5-1

Fort Lee Impact and Local Projections - Yearly Change in Enrollment

Chesterfield County; 2006-07 to 2012-13

| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|---|------------|--------------|-------------|------------|------------|------------|------------|
| ELEMENTARY SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) ¹ | 0 | 0 | 0 | 95 | 47 | 93 | 0 |
| Chesterfield Public School Projections | 89 | (80) | 106 | 134 | 242 | 215 | 168 |
| Total Chesterfield Public Schools Plus Fort Lee Impact Projections | 89 | (80) | 106 | 229 | 289 | 308 | 168 |
| Fort Lee (Adjusted for Private and Home Schooled) ² | 0 | 0 | 0 | 87 | 43 | 85 | 0 |
| Chesterfield Public School Projections | 89 | (80) | 106 | 134 | 242 | 215 | 168 |
| Total Chesterfield Public Schools Plus Fort Lee Impact Projections | 89 | (80) | 106 | 221 | 285 | 300 | 168 |
| MIDDLE SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 52 | 24 | 55 | 0 |
| Chesterfield Public School Projections | 105 | (105) | (30) | 72 | 258 | 79 | 103 |
| Total Chesterfield Public Schools Plus Fort Lee Impact Projections | 105 | (105) | (30) | 124 | 282 | 134 | 103 |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 48 | 22 | 50 | 0 |
| Chesterfield Public School Projections | 105 | (105) | (30) | 72 | 258 | 79 | 103 |
| Total Chesterfield Public Schools Plus Fort Lee Impact Projections | 105 | (105) | (30) | 120 | 280 | 129 | 103 |
| HIGH SCHOOLS | | | | | | | |
| Fort Lee (100% Public School) | 0 | 0 | 0 | 75 | 35 | 80 | 0 |
| Chesterfield Public School Projections | 202 | (172) | 106 | (18) | 35 | 101 | (6) |
| Total Chesterfield Public Schools Plus Fort Lee Impact Projections | 202 | (172) | 106 | 57 | 70 | 181 | (6) |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 69 | 32 | 73 | 0 |
| Chesterfield Public School Projections | 202 | (172) | 106 | (18) | 35 | 101 | (6) |
| Total Chesterfield Public Schools Plus Fort Lee Impact Projections | 202 | (172) | 106 | 51 | 67 | 174 | (6) |
| TOTAL IMPACTS (COMBINED GRADE LEVELS) | | | | | | | |
| Fort Lee (100% Public School) | 0 | 0 | 0 | 222 | 106 | 227 | 0 |
| Chesterfield Public School Projections | 396 | (357) | 182 | 188 | 535 | 395 | 265 |
| Total Chesterfield Public Schools Plus Fort Lee Impact Projections | 396 | (357) | 182 | 404 | 638 | 616 | 265 |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 203 | 97 | 208 | 0 |
| Chesterfield Public School Projections | 396 | (357) | 182 | 188 | 535 | 395 | 265 |
| Total Chesterfield Public Schools Plus Fort Lee Impact Projections | 396 | (357) | 182 | 391 | 632 | 603 | 265 |

BLACK - Increased enrollment

RED - Decreased enrollment

1. Assumes 100% of children that arrive due to the Fort Lee expansion will enroll in public schools

2. Adjusted for private school enrollment based on the 2000 Census

Source: Chesterfield Public Schools and RKG Associates, Inc., 2007

Exhibit 5-2

Existing and Future Capacity

Chesterfield; 2006-07 to 2012-13

| | 2006-07 | 2007-08 ¹ | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|--|--------------|----------------------|--------------|--------------|----------------|----------------|----------------|
| ELEMENTARY SCHOOLS | | | | | | | |
| Functional Capacity | 6,554 | 6,554 | 6,554 | 6,554 | 6,719 | 6,719 | 6,719 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots ² | - | - | - | 165 | - | - | 200 |
| Adjusted Functional Capacity | 5,832 | 6,554 | 6,554 | 6,719 | 6,719 | 6,719 | 6,919 |
| Chesterfield Public Schools Projections | n/a | 7,256 | 7,362 | 7,496 | 7,738 | 7,953 | 8,121 |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 95 | 47 | 93 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) | 0 | 0 | 0 | 87 | 43 | 85 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | n/a | (702) | (808) | (872) | (1,066) | (1,327) | (1,202) |
| Private School Adjustment (Capacity/(Overload)) | n/a | (702) | (808) | (864) | (1,062) | (1,319) | (1,202) |
| MIDDLE SCHOOLS | | | | | | | |
| Functional Capacity | 5,336 | 5,336 | 5,336 | 6,536 | 6,536 | 6,536 | 6,536 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots | - | - | 1,200 | - | - | - | 275 |
| Adjusted Functional Capacity | 5,336 | 5,336 | 6,536 | 6,536 | 6,536 | 6,536 | 6,811 |
| Chesterfield Public Schools Projections | n/a | 4,277 | 4,247 | 4,319 | 4,577 | 4,656 | 4,759 |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 52 | 24 | 55 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) | 0 | 0 | 0 | 48 | 22 | 50 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | n/a | 1,059 | 2,289 | 2,165 | 1,935 | 1,825 | 2,052 |
| Private School Adjustment (Capacity/(Overload)) | n/a | 1,059 | 2,289 | 2,169 | 1,937 | 1,830 | 2,052 |
| HIGH SCHOOLS | | | | | | | |
| Functional Capacity | 5,684 | 5,684 | 5,684 | 5,684 | 5,959 | 5,959 | 5,959 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots | - | - | - | 275 | - | - | - |
| Adjusted Functional Capacity | 5,684 | 5,684 | 5,684 | 5,959 | 5,959 | 5,959 | 5,959 |
| Chesterfield Public Schools Projections | n/a | 5,861 | 5,967 | 5,949 | 5,984 | 6,085 | 6,079 |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 75 | 35 | 80 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) | 0 | 0 | 0 | 69 | 32 | 73 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | n/a | (177) | (283) | (65) | (60) | (206) | (120) |
| Private School Adjustment (Capacity/(Overload)) | n/a | (177) | (283) | (59) | (57) | (199) | (120) |

BLACK - Schools have excess capacity and room for more students

RED - Schools have no excess capacity and are operating at an overload or negative capacity

1. Actual 2007-08 Capacity/(Overload) Data

2. Assumes maximum projected slots

Source: Chesterfield County Public Schools and RKG Associates, Inc., 2007

Exhibit 5-3

Fort Lee Impact on Cooper Center and Local Projections - Yearly Change in Enrollment

Dinwiddie County; 2006-07 to 2012-13

| | 2006-07 ¹ | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|--|----------------------|-------------|-------------|-------------|------------|------------|------------|
| ELEMENTARY SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) ² | 0 | 0 | 0 | 15 | 7 | 15 | 0 |
| Cooper Center Projections | n/a | 8 | (13) | 61 | 20 | n/a | n/a |
| Dinwiddie Public School Projections ³ | n/a | 87 | 87 | 108 | 108 | 152 | 130 |
| Total Cooper Center Plus Fort Lee Impact Projections | n/a | 8 | (13) | 76 | 27 | n/a | n/a |
| Total Dinwiddie Public Schools Plus Fort Lee Impact Projections | n/a | 87 | 87 | 123 | 116 | 167 | 130 |
| Fort Lee (Adjusted for Private and Home Schooled) ⁴ | 0 | 0 | 0 | 14 | 6 | 13 | 0 |
| Cooper Center Projections | n/a | 8 | (13) | 61 | 20 | n/a | n/a |
| Dinwiddie Public School Projections | n/a | 87 | 87 | 108 | 108 | 152 | 130 |
| Total Cooper Center Plus Fort Lee Impact Projections | n/a | 8 | (13) | 75 | 27 | n/a | n/a |
| Total Dinwiddie Public Schools Plus Fort Lee Impact Projections | n/a | 87 | 87 | 122 | 115 | 165 | 130 |
| MIDDLE SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 8 | 4 | 9 | 0 |
| Cooper Center Projections | n/a | (49) | (1) | 16 | (5) | n/a | n/a |
| Dinwiddie Public School Projections | n/a | 49 | 49 | 61 | 61 | 86 | 74 |
| Total Cooper Center Plus Fort Lee Impact Projections | n/a | (49) | (1) | 24 | (1) | n/a | n/a |
| Total Dinwiddie Public Schools Plus Fort Lee Impact Projections | n/a | 49 | 49 | 70 | 65 | 95 | 74 |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 8 | 3 | 8 | 0 |
| Cooper Center Projections | n/a | (49) | (1) | 16 | (5) | n/a | n/a |
| Dinwiddie Public School Projections | n/a | 49 | 49 | 61 | 61 | 86 | 74 |
| Total Cooper Center Plus Fort Lee Impact Projections | n/a | (49) | (1) | 23 | (1) | n/a | n/a |
| Total Dinwiddie Public Schools Plus Fort Lee Impact Projections | n/a | 49 | 49 | 69 | 65 | 94 | 74 |
| HIGH SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 12 | 5 | 13 | 0 |
| Cooper Center Projections | n/a | 51 | (46) | (60) | 18 | n/a | n/a |
| Dinwiddie Public School Projections | n/a | 64 | 64 | 80 | 80 | 112 | 96 |
| Total Cooper Center Plus Fort Lee Impact Projections | n/a | 51 | (46) | (48) | 23 | n/a | n/a |
| Total Dinwiddie Public Schools Plus Fort Lee Impact Projections | n/a | 64 | 64 | 92 | 85 | 125 | 96 |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 11 | 5 | 12 | 0 |
| Cooper Center Projections | n/a | 51 | (46) | (60) | 18 | n/a | n/a |
| Dinwiddie Public School Projections | n/a | 64 | 64 | 80 | 80 | 112 | 96 |
| Total Cooper Center Plus Fort Lee Impact Projections | n/a | 51 | (46) | (49) | 23 | n/a | n/a |
| Total Dinwiddie Public Schools Plus Fort Lee Impact Projections | n/a | 64 | 64 | 91 | 85 | 124 | 96 |
| TOTAL IMPACTS (COMBINED GRADE LEVELS) | | | | | | | |
| Fort Lee (100% Public School) | 0 | 0 | 0 | 35 | 16 | 36 | 0 |
| Cooper Center Projections | n/a | 9 | (59) | 17 | 34 | n/a | n/a |
| Dinwiddie Public School Projections | n/a | 200 | 200 | 250 | 250 | 350 | 300 |
| Total Cooper Center Plus Fort Lee Impact Projections | n/a | 9 | (59) | 52 | 50 | n/a | n/a |
| Total Dinwiddie Public Schools Plus Fort Lee Impact Projections | n/a | 200 | 200 | 284 | 266 | 386 | 300 |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 32 | 15 | 33 | 0 |
| Cooper Center Projections | n/a | 9 | (59) | 17 | 34 | n/a | n/a |
| Dinwiddie Public School Projections | n/a | 200 | 200 | 250 | 250 | 350 | 300 |
| Total Cooper Center Plus Fort Lee Impact Projections | n/a | 9 | (59) | 49 | 48 | n/a | n/a |
| Total Dinwiddie Public Schools Plus Fort Lee Impact Projections | n/a | 200 | 200 | 282 | 265 | 383 | 300 |

BLACK - Increased enrollment

RED - Decreased enrollment

1. Enrollment data by cohort for 2005-06 academic year was not provided by Dinwiddie County and therefore the consultant was not able to show the change to 2006-07
2. Assumes 100% of children that arrive due to the Fort Lee expansion will enroll in public schools
3. Projections for Dinwiddie Public Schools were received as sums for all grade levels. The consultant adjusted the data by cohort based on 2006-07 enrollment percentages
4. Adjusted for private school enrollment based on the 2000 Census

Source: Dinwiddie Public Schools, The Weldon Cooper Center, and RKG Associates, Inc., 2007

Exhibit 5-4

Existing and Future Capacity

Dinwiddie County; 2006-07 to 2012-13

| | 2006-07 ¹ | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|--|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| ELEMENTARY SCHOOLS | | | | | | | |
| Functional Capacity | 1,592 | 1,592 | 1,592 | 1,931 | 1,931 | 1,931 | 1,931 |
| Reduction of Slots | - | - | 261 | - | - | - | - |
| Addition of Slots | - | - | 600 | - | - | - | - |
| Adjusted Functional Capacity | 1,592 | 1,592 | 1,931 | 1,931 | 1,931 | 1,931 | 1,931 |
| Cooper Center Projections | n/a | 1,928 | 1,915 | 1,976 | 1,997 | n/a | n/a |
| 100% Public School Impact (Capacity/(Overload)) ² | n/a | (336) | 16 | (60) | (73) | n/a | n/a |
| Private School Adjustment (Capacity/(Overload)) ³ | n/a | (336) | 16 | (59) | (72) | n/a | n/a |
| Dinwiddie Projections | n/a | 2,069 | 2,155 | 2,264 | 2,372 | 2,524 | 2,654 |
| 100% Public School Impact (Capacity/(Overload)) | (390) | (477) | (224) | (348) | (448) | (608) | (723) |
| Private School Adjustment (Capacity/(Overload)) | n/a | (477) | (224) | (346) | (448) | (607) | (723) |
| MIDDLE SCHOOLS | | | | | | | |
| Functional Capacity | 912 | 912 | 912 | 2,198 | 2,198 | 2,198 | 2,198 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots | - | - | 1,286 | - | - | - | - |
| Adjusted Functional Capacity | 912 | 912 | 2,198 | 2,198 | 2,198 | 2,198 | 2,198 |
| Cooper Center Projections | n/a | 1,103 | 1,102 | 1,117 | 1,113 | n/a | n/a |
| 100% Public School Impact (Capacity/(Overload)) | n/a | (191) | 1,096 | 1,072 | 1,081 | n/a | n/a |
| Private School Adjustment (Capacity/(Overload)) | n/a | (191) | 1,096 | 1,073 | 1,082 | n/a | n/a |
| Dinwiddie Projections | n/a | 1,171 | 1,220 | 1,282 | 1,343 | 1,429 | 1,503 |
| 100% Public School Impact (Capacity/(Overload)) | (210) | (259) | 978 | 908 | 851 | 760 | 695 |
| Private School Adjustment (Capacity/(Overload)) | n/a | (259) | 978 | 909 | 852 | 761 | 695 |
| HIGH SCHOOLS | | | | | | | |
| Functional Capacity | 1,286 | 1,286 | 1,600 | 1,600 | 1,600 | 1,600 | 1,600 |
| Reduction of Slots | - | 1,286 | - | - | - | - | - |
| Addition of Slots | - | 1,600 | - | - | - | - | - |
| Adjusted Functional Capacity | 1,286 | 1,600 | 1,600 | 1,600 | 1,600 | 1,600 | 1,600 |
| Cooper Center Projections | n/a | 1,553 | 1,507 | 1,447 | 1,465 | n/a | n/a |
| 100% Public School Impact (Capacity/(Overload)) | n/a | 47 | 93 | 153 | 123 | n/a | n/a |
| Private School Adjustment (Capacity/(Overload)) | n/a | 47 | 93 | 153 | 124 | n/a | n/a |
| Dinwiddie Projections | n/a | 1,530 | 1,594 | 1,675 | 1,755 | 1,867 | 1,963 |
| 100% Public School Impact (Capacity/(Overload)) | (180) | 70 | 6 | (86) | (160) | (280) | (363) |
| Private School Adjustment (Capacity/(Overload)) | n/a | 70 | 6 | (85) | (160) | (279) | (363) |

BLACK - Schools have excess capacity and room for more students

RED - Schools have no excess capacity and are operating at an overload or negative capacity

1. Actual 2007-07 Capacity/(Overload) Data
2. Assumes 100% of children that arrive due to the Fort Lee expansion will enroll in public schools
3. Adjusted for private school enrollment based on the 2000 Census

Source: Dinwiddie County Public Schools, The Weldon Cooper Center, and RKG Associates, Inc., 2007

Exhibit 5-5

Fort Lee Impact and Local Projections - Yearly Change in Enrollment

Prince George County; 2006-07 to 2012-13

| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|--|------------|------------|------------|------------|------------|------------|------------|
| ELEMENTARY SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) ¹ | 0 | 0 | 0 | 126 | 69 | 113 | 0 |
| Prince George Public School Projections ² | n/a | 64 | 142 | 148 | 156 | n/a | n/a |
| Total Prince George Public Schools Plus Fort Lee Impact Projections | n/a | 64 | 142 | 275 | 225 | n/a | n/a |
| Fort Lee (Adjusted for Private and Home Schooled) ³ | 0 | 0 | 0 | 123 | 67 | 110 | 0 |
| Prince George Public School Projections | n/a | 64 | 142 | 148 | 156 | n/a | n/a |
| Total Prince George Public Schools Plus Fort Lee Impact Projections | n/a | 64 | 142 | 272 | 224 | n/a | n/a |
| MIDDLE SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 58 | 31 | 53 | 0 |
| Prince George Public School Projections | n/a | 46 | 102 | 107 | 112 | n/a | n/a |
| Total Prince George Public Schools Plus Fort Lee Impact Projections | n/a | 46 | 102 | 164 | 143 | n/a | n/a |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 56 | 30 | 52 | 0 |
| Prince George Public School Projections | n/a | 46 | 102 | 107 | 112 | n/a | n/a |
| Total Prince George Public Schools Plus Fort Lee Impact Projections | n/a | 46 | 102 | 163 | 142 | n/a | n/a |
| HIGH SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 85 | 45 | 79 | 0 |
| Prince George Public School Projections | n/a | 32 | 71 | 75 | 79 | n/a | n/a |
| Total Prince George Public Schools Plus Fort Lee Impact Projections | n/a | 32 | 71 | 159 | 124 | n/a | n/a |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 83 | 44 | 77 | 0 |
| Prince George Public School Projections | n/a | 32 | 71 | 75 | 79 | n/a | n/a |
| Total Prince George Public Schools Plus Fort Lee Impact Projections | n/a | 32 | 71 | 157 | 123 | n/a | n/a |
| TOTAL IMPACTS (COMBINED GRADE LEVELS) | | | | | | | |
| Fort Lee (100% Public School) | 0 | 0 | 0 | 268 | 144 | 245 | 0 |
| Prince George Public School Projections | n/a | 142 | 315 | 330 | 347 | n/a | n/a |
| Total Prince George Public Schools Plus Fort Lee Impact Projections | n/a | 142 | 315 | 598 | 491 | n/a | n/a |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 262 | 141 | 239 | 0 |
| Prince George Public School Projections | n/a | 142 | 315 | 330 | 347 | n/a | n/a |
| Total Prince George Public Schools Plus Fort Lee Impact Projections | n/a | 142 | 315 | 592 | 488 | n/a | n/a |

BLACK - Increased enrollment

RED - Decreased enrollment

1. Assumes 100% of children that arrive due to the Fort Lee expansion will enroll in public schools
2. Projections for Prince George Public Schools were received as sums for all grade levels. The consultant adjusted the data to reflect enrollment by cohort level based on 2006-07 enrollment percentages
3. Adjusted for private school enrollment based on the 2000 Census

Source: Prince George Public Schools and RKG Associates, Inc., 2007

Exhibit 5-6

Existing and Future Capacity

Prince George County; 2006-07 to 2012-13

| | 2006-07 ³ | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|--|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| ELEMENTARY SCHOOLS | | | | | | | |
| Functional Capacity | 2,585 | 2,585 | 2,585 | 2,585 | 3,124 | 3,124 | 3,124 |
| Reduction of Slots | - | - | - | 189 | - | - | - |
| Addition of Slots | - | - | - | 728 | - | - | - |
| Adjusted Functional Capacity | 2,585 | 2,585 | 2,585 | 3,124 | 3,124 | 3,124 | 3,124 |
| Prince George Public Schools Projections | 2,771 | 2,835 | 2,977 | 3,125 | 3,281 | n/a | n/a |
| Fort Lee (100% Public School Impact) ¹ | 0 | 0 | 0 | 126 | 69 | 113 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) ² | 0 | 0 | 0 | 123 | 67 | 110 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | (186) | (250) | (392) | (127) | (226) | n/a | n/a |
| Private School Adjustment (Capacity/(Overload)) | n/a | (250) | (392) | (124) | (225) | n/a | n/a |
| MIDDLE SCHOOLS | | | | | | | |
| Functional Capacity | 2,450 | 2,450 | 2,450 | 2,450 | 2,450 | 2,450 | 2,450 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots | - | - | - | - | - | - | - |
| Adjusted Functional Capacity | 2,450 | 2,450 | 2,450 | 2,450 | 2,450 | 2,450 | 2,450 |
| Prince George Public Schools Projections | 1,993 | 2,039 | 2,141 | 2,248 | 2,360 | n/a | n/a |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 58 | 31 | 53 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) | 0 | 0 | 0 | 56 | 30 | 52 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | 457 | 411 | 309 | 145 | 59 | n/a | n/a |
| Private School Adjustment (Capacity/(Overload)) | n/a | 411 | 309 | 146 | 60 | n/a | n/a |
| HIGH SCHOOLS | | | | | | | |
| Functional Capacity | 1,381 | 1,381 | 1,381 | 1,381 | 1,381 | 1,381 | 1,381 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots | - | - | - | - | - | - | - |
| Adjusted Functional Capacity | 1,381 | 1,381 | 1,381 | 1,381 | 1,381 | 1,381 | 1,381 |
| Prince George Public Schools Projections | 1,396 | 1,428 | 1,500 | 1,574 | 1,653 | n/a | n/a |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 85 | 45 | 79 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) | 0 | 0 | 0 | 83 | 44 | 77 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | (15) | (47) | (119) | (278) | (317) | n/a | n/a |
| Private School Adjustment (Capacity/(Overload)) | n/a | (47) | (119) | (276) | (316) | n/a | n/a |

1. Assumes 100% of children that arrive due to the Fort Lee expansion will enroll in public schools

2. Adjusted for private school enrollment based on the 2000 Census

3. Actual 2006-07 Capacity/(Overload) Data

Source: Prince George Public Schools and RKG Associates, Inc., 2007

Exhibit 5-7

Fort Lee Impact and Local Projections - Yearly Change in Enrollment

City of Hopewell; 2006-07 to 2012-13

| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|---|-------------|------------|------------|------------|-----------|-----------|-------------|
| ELEMENTARY SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) ¹ | 0 | 0 | 0 | 22 | 11 | 20 | 0 |
| Hopewell Public School Projections | 49 | 48 | 43 | 1 | 1 | (16) | 24 |
| Total Hopewell Public Schools Plus Fort Lee Impact Projections | 49 | 48 | 43 | 23 | 12 | 4 | 24 |
| Fort Lee (Adjusted for Private and Home Schooled) ² | 0 | 0 | 0 | 19 | 10 | 17 | 0 |
| Hopewell Public School Projections | 49 | 48 | 43 | 1 | 1 | (16) | 24 |
| Total Hopewell Public Schools Plus Fort Lee Impact Projections | 49 | 48 | 43 | 20 | 11 | 1 | 24 |
| MIDDLE SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 11 | 5 | 10 | 0 |
| Hopewell Public School Projections | (80) | 2 | (2) | 67 | 52 | 53 | (35) |
| Total Hopewell Public Schools Plus Fort Lee Impact Projections | (80) | 2 | (2) | 78 | 57 | 63 | (35) |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 10 | 5 | 9 | 0 |
| Hopewell Public School Projections | (80) | 2 | (2) | 67 | 52 | 53 | (35) |
| Total Hopewell Public Schools Plus Fort Lee Impact Projections | (80) | 2 | (2) | 77 | 57 | 62 | (35) |
| HIGH SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 15 | 7 | 14 | 0 |
| Hopewell Public School Projections | 19 | (3) | 10 | 0 | 11 | (6) | 20 |
| Total Hopewell Public Schools Plus Fort Lee Impact Projections | 19 | (3) | 10 | 15 | 18 | 8 | 20 |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 13 | 6 | 13 | 0 |
| Hopewell Public School Projections | 19 | (3) | 10 | 0 | 11 | (6) | 20 |
| Total Hopewell Public Schools Plus Fort Lee Impact Projections | 19 | (3) | 10 | 13 | 17 | 7 | 20 |
| TOTAL IMPACTS (COMBINED GRADE LEVELS) | | | | | | | |
| Fort Lee (100% Public School) | 0 | 0 | 0 | 47 | 23 | 44 | 0 |
| Hopewell Public School Projections | (12) | 47 | 51 | 68 | 64 | 31 | 9 |
| Total Hopewell Public Schools Plus Fort Lee Impact Projections | (12) | 47 | 51 | 114 | 87 | 74 | 9 |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 42 | 21 | 39 | 0 |
| Hopewell Public School Projections | (12) | 47 | 51 | 68 | 64 | 31 | 9 |
| Total Hopewell Public Schools Plus Fort Lee Impact Projections | (12) | 47 | 51 | 110 | 85 | 70 | 9 |

BLACK - Increased enrollment

RED - Decreased enrollment

1. Assumes 100% of children that arrive due to the Fort Lee expansion will enroll in public schools

2. Adjusted for private school enrollment based on the 2000 Census

Source: Hopewell Public Schools and RKG Associates, Inc., 2007

Exhibit 5-8

Existing and Future Capacity

City of Hopewell; 2006-07 to 2012-13

| | 2006-07 ¹ | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|--|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| ELEMENTARY SCHOOLS | | | | | | | |
| Functional Capacity | 2,055 | 2,055 | 2,055 | 2,055 | 2,205 | 2,305 | 2,305 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots ² | - | - | - | 150 | 100 | - | - |
| Adjusted Functional Capacity | 2,055 | 2,055 | 2,055 | 2,205 | 2,305 | 2,305 | 2,305 |
| Hopewell Public Schools Projections | n/a | 1,997 | 2,040 | 2,041 | 2,042 | 2,026 | 2,050 |
| Fort Lee (100% Public School Impact) ³ | 0 | 0 | 0 | 22 | 11 | 20 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) ⁴ | 0 | 0 | 0 | 19 | 10 | 17 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | 70 | 58 | 15 | 142 | 252 | 259 | 255 |
| Private School Adjustment (Capacity/(Overload)) | n/a | 58 | 15 | 183 | 273 | 296 | 255 |
| MIDDLE SCHOOLS | | | | | | | |
| Functional Capacity | 990 | 990 | 990 | 990 | 990 | 990 | 1,115 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots | - | - | - | - | - | 125 | - |
| Adjusted Functional Capacity | 990 | 990 | 990 | 990 | 990 | 1,115 | 1,115 |
| Hopewell Public Schools Projections | n/a | 874 | 872 | 939 | 991 | 1,044 | 1,009 |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 11 | 5 | 10 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) | 0 | 0 | 0 | 10 | 5 | 9 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | 101 | 116 | 118 | 40 | (6) | 61 | 106 |
| Private School Adjustment (Capacity/(Overload)) | n/a | 116 | 118 | 41 | (6) | 62 | 106 |
| HIGH SCHOOLS | | | | | | | |
| Functional Capacity | 1,250 | 1,250 | 1,250 | 1,250 | 1,250 | 1,250 | 1,350 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots | - | - | - | - | - | 100 | - |
| Adjusted Functional Capacity | 1,250 | 1,250 | 1,250 | 1,250 | 1,250 | 1,350 | 1,350 |
| Hopewell Public Schools Projections | n/a | 1,095 | 1,105 | 1,105 | 1,116 | 1,110 | 1,130 |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 15 | 7 | 14 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) | 0 | 0 | 0 | 13 | 6 | 13 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | 207 | 155 | 145 | 130 | 127 | 226 | 220 |
| Private School Adjustment (Capacity/(Overload)) | n/a | 155 | 145 | 132 | 128 | 227 | 220 |

Notes:

BLACK - Schools have excess capacity and room for more students

RED - Schools have no excess capacity and are operating at an overload or negative capacity

1. Actual 2007-07 Capacity/(Overload) Data

2. Actual expansion completion dates for schools are unknown. The consultant estimated expansions will be complete by peak Fort Lee expansion years

3. Assumes 100% of children that arrive due to the Fort Lee expansion will enroll in public schools

4. Adjusted for private school enrollment based on the 2000 Census

Source: Hopewell Public Schools and RKG Associates, Inc., 2007

Exhibit 5-9

Fort Lee Impact and Local Projections - Yearly Change in Enrollment

City of Petersburg; 2006-07 to 2012-13

| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|---|--------------|--------------|--------------|--------------|-------------|-------------|-----------|
| ELEMENTARY SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) ¹ | 0 | 0 | 0 | 33 | 18 | 31 | 0 |
| Petersburg Public School Projections | (1) | 5 | 48 | 19 | 19 | 0 | 13 |
| Total Petersburg Public Schools Plus Fort Lee Impact Projections | (1) | 5 | 48 | 52 | 37 | 31 | 13 |
| Fort Lee (Adjusted for Private and Home Schooled) ² | 0 | 0 | 0 | 21 | 11 | 20 | 0 |
| Petersburg Public School Projections | (1) | 5 | 48 | 19 | 19 | 0 | 13 |
| Total Petersburg Public Schools Plus Fort Lee Impact Projections | (1) | 5 | 48 | 40 | 30 | 20 | 13 |
| MIDDLE SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 15 | 8 | 14 | 0 |
| Petersburg Public School Projections | (87) | (77) | (79) | 8 | (7) | 46 | 8 |
| Total Petersburg Public Schools Plus Fort Lee Impact Projections | (87) | (77) | (79) | 23 | 1 | 60 | 8 |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 9 | 5 | 9 | 0 |
| Petersburg Public School Projections | (87) | (77) | (79) | 8 | (7) | 46 | 8 |
| Total Petersburg Public Schools Plus Fort Lee Impact Projections | (87) | (77) | (79) | 17 | (2) | 55 | 8 |
| HIGH SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 24 | 12 | 23 | 0 |
| Petersburg Public School Projections | (23) | (31) | (157) | (172) | (98) | (32) | 24 |
| Total Petersburg Public Schools Plus Fort Lee Impact Projections | (23) | (31) | (157) | (148) | (86) | (9) | 24 |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 15 | 8 | 14 | 0 |
| Petersburg Public School Projections | (23) | (31) | (157) | (172) | (98) | (32) | 24 |
| Total Petersburg Public Schools Plus Fort Lee Impact Projections | (23) | (31) | (157) | (157) | (90) | (18) | 24 |
| TOTAL IMPACTS (COMBINED GRADE LEVELS) | | | | | | | |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 72 | 38 | 69 | 0 |
| Petersburg Public School Projections | (111) | (103) | (188) | (145) | (86) | 14 | 45 |
| Total Petersburg Public Schools Plus Fort Lee Impact Projections | (111) | (103) | (188) | (82) | (53) | 74 | 45 |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 45 | 23 | 43 | 0 |
| Petersburg Public School Projections | (111) | (103) | (188) | (145) | (86) | 14 | 45 |
| Total Petersburg Public Schools Plus Fort Lee Impact Projections | (111) | (103) | (188) | (100) | (63) | 57 | 45 |

BLACK - Increased enrollment

RED - Decreased enrollment

1. Assumes 100% of children that arrive due to the Fort Lee expansion will enroll in public schools

2. Adjusted for private school enrollment based on the 2000 Census

Source: Petersburg Public Schools and RKG Associates, Inc., 2007

Exhibit 5-10

Existing and Future Capacity

City of Petersburg; 2006-07 to 2012-13

| | 2006-07 | 2007-08 ¹ | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|--|--------------|----------------------|--------------|--------------|--------------|--------------|--------------|
| ELEMENTARY SCHOOLS | | | | | | | |
| Functional Capacity | 2,185 | 2,185 | 2,185 | 2,261 | 2,317 | 2,419 | 2,419 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots | - | - | 76 | 56 | 102 | - | - |
| Adjusted Functional Capacity | 2,185 | 2,185 | 2,261 | 2,317 | 2,419 | 2,419 | 2,419 |
| Petersburg Projections | n/a | 2,171 | 2,219 | 2,238 | 2,257 | 2,257 | 2,270 |
| Fort Lee (100% Public School Impact) ² | 0 | 0 | 0 | 33 | 18 | 31 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) ³ | 0 | 0 | 0 | 21 | 11 | 20 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | n/a | 14 | 42 | 46 | 144 | 131 | 149 |
| Private School Adjustment (Capacity/(Overload)) | n/a | n/a | 42 | 58 | 151 | 142 | 149 |
| MIDDLE SCHOOLS | | | | | | | |
| Functional Capacity | 1,071 | 1,071 | 1,071 | 1,071 | 1,071 | 1,071 | 1,071 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots | - | - | - | - | - | - | - |
| Adjusted Functional Capacity | 1,071 | 1,071 | 1,071 | 1,071 | 1,071 | 1,071 | 1,071 |
| Petersburg Projections | n/a | 965 | 973 | 966 | 1,012 | 1,020 | 1,020 |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 15 | 8 | 14 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) | 0 | 0 | 0 | 9 | 5 | 9 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | n/a | 27 | 98 | 90 | 51 | 37 | 51 |
| Private School Adjustment (Capacity/(Overload)) | n/a | n/a | 98 | 96 | 54 | 42 | 51 |
| HIGH SCHOOLS | | | | | | | |
| Functional Capacity | 1,438 | 1,438 | 1,438 | 1,438 | 1,438 | 1,438 | 1,438 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots | - | - | - | - | - | - | - |
| Adjusted Functional Capacity | 1,438 | 1,438 | 1,438 | 1,438 | 1,438 | 1,438 | 1,438 |
| Petersburg Projections | n/a | 1,264 | 1,092 | 994 | 962 | 986 | 986 |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 24 | 12 | 23 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) | 0 | 0 | 0 | 15 | 8 | 14 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | n/a | 17 | 346 | 420 | 464 | 429 | 452 |
| Private School Adjustment (Capacity/(Overload)) | - | n/a | 346 | 429 | 468 | 438 | 452 |

Notes:

BLACK - Schools have excess capacity and room for more students

RED - Schools have no excess capacity and are operating at an overload or negative capacity

1. Actual 2007-08 Capacity/(Overload) Data
2. Assumes 100% of children that arrive due to the Fort Lee expansion will enroll in public schools
3. Adjusted for private school enrollment based on the 2000 Census

Source: Petersburg Public Schools and RKG Associates, Inc., 2007

Exhibit 5-11

Fort Lee Impact and Local Projections - Yearly Change in Enrollment

City of Colonial Heights; 2006-07 to 2012-13

| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|---|-------------|-------------|-------------|-------------|-----------|-----------|-----------|
| ELEMENTARY SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) ¹ | 0 | 0 | 0 | 22 | 11 | 21 | 0 |
| Colonial Heights Public School Projections | 9 | 18 | 1 | 80 | (5) | 22 | 0 |
| Total Colonial Heights Public Schools Plus Fort Lee Impact Projections | 9 | 18 | 1 | 102 | 6 | 43 | 0 |
| Fort Lee (Adjusted for Private and Home Schooled) ² | 0 | 0 | 0 | 21 | 11 | 20 | 0 |
| Colonial Heights Public School Projections | 9 | 18 | 1 | 80 | (5) | 22 | 0 |
| Total Colonial Heights Public Schools Plus Fort Lee Impact Projections | 9 | 18 | 1 | 101 | 6 | 42 | 0 |
| MIDDLE SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 11 | 5 | 11 | 0 |
| Colonial Heights Public School Projections | 43 | (24) | (20) | 44 | 53 | 21 | 5 |
| Total Colonial Heights Public Schools Plus Fort Lee Impact Projections | 43 | (24) | (20) | 55 | 58 | 32 | 5 |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 11 | 5 | 11 | 0 |
| Colonial Heights Public School Projections | 43 | (24) | (20) | 44 | 53 | 21 | 5 |
| Total Colonial Heights Public Schools Plus Fort Lee Impact Projections | 43 | (24) | (20) | 55 | 58 | 32 | 5 |
| HIGH SCHOOLS | | | | | | | |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 16 | 8 | 16 | 0 |
| Colonial Heights Public School Projections | (40) | 32 | 51 | (111) | 13 | (14) | 48 |
| Total Colonial Heights Public Schools Plus Fort Lee Impact Projections | (40) | 32 | 51 | (95) | 21 | 2 | 48 |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 15 | 7 | 15 | 0 |
| Colonial Heights Public School Projections | (40) | 32 | 51 | (111) | 13 | (14) | 48 |
| Total Colonial Heights Public Schools Plus Fort Lee Impact Projections | (40) | 32 | 51 | (96) | 20 | 1 | 48 |
| TOTAL IMPACTS (COMBINED GRADE LEVELS) | | | | | | | |
| Fort Lee (100% Public School) | 0 | 0 | 0 | 49 | 24 | 48 | 0 |
| Colonial Heights Public School Projections | 12 | 26 | 32 | 13 | 61 | 29 | 53 |
| Total Colonial Heights Public Schools Plus Fort Lee Impact Projections | 12 | 26 | 32 | 61 | 85 | 76 | 53 |
| Fort Lee (Adjusted for Private and Home Schooled) | 0 | 0 | 0 | 47 | 23 | 46 | 0 |
| Colonial Heights Public School Projections | 12 | 26 | 32 | 13 | 61 | 29 | 53 |
| Total Colonial Heights Public Schools Plus Fort Lee Impact Projections | 12 | 26 | 32 | 60 | 84 | 75 | 53 |

BLACK - Increased enrollment

RED - Decreased enrollment

1. Assumes 100% of children that arrive due to the Fort Lee expansion will enroll in public schools

2. Adjusted for private school enrollment based on the 2000 Census

Source: Colonial Heights Public Schools and RKG Associates, Inc., 2007

Exhibit 5-12

Existing and Future Capacity

City of Colonial Heights; 2006-07 to 2012-13

| | 2006-07 ¹ | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
|--|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| ELEMENTARY SCHOOLS | | | | | | | |
| Functional Capacity | 1,281 | 1,281 | 1,281 | 1,387 | 1,387 | 1,387 | 1,387 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots | - | - | 106 | - | - | - | - |
| Adjusted Functional Capacity | 1,281 | 1,281 | 1,387 | 1,387 | 1,387 | 1,387 | 1,387 |
| Colonial Heights Projections | n/a | 1,308 | 1,309 | 1,389 | 1,384 | 1,406 | 1,406 |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 22 | 11 | 21 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) | 0 | 0 | 0 | 21 | 11 | 20 | 0 |
| 100% Public School Impact (Capacity/(Overload)) ² | (9) | (27) | 78 | (24) | (8) | (40) | (19) |
| Private School Adjustment (Capacity/(Overload)) ³ | n/a | (27) | 78 | (23) | (8) | (39) | (19) |
| MIDDLE SCHOOLS | | | | | | | |
| Functional Capacity | 714 | 714 | 714 | 714 | 714 | 714 | 714 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots | - | - | - | - | - | - | - |
| Adjusted Functional Capacity | 714 | 714 | 714 | 714 | 714 | 714 | 714 |
| Colonial Heights Projections | n/a | 690 | 670 | 714 | 767 | 788 | 793 |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 11 | 5 | 11 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) | 0 | 0 | 0 | 11 | 5 | 11 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | 0 | 24 | 44 | (11) | (58) | (85) | (79) |
| Private School Adjustment (Capacity/(Overload)) | n/a | 24 | 44 | (11) | (58) | (85) | (79) |
| HIGH SCHOOLS | | | | | | | |
| Functional Capacity | 891 | 891 | 891 | 936 | 936 | 936 | 936 |
| Reduction of Slots | - | - | - | - | - | - | - |
| Addition of Slots | - | - | 45 | - | - | - | - |
| Adjusted Functional Capacity | 891 | 891 | 936 | 936 | 936 | 936 | 936 |
| Colonial Heights Projections | n/a | 923 | 974 | 863 | 876 | 862 | 905 |
| Fort Lee (100% Public School Impact) | 0 | 0 | 0 | 16 | 8 | 16 | 0 |
| Fort Lee (Private and Home Schooled Adjustment) | 0 | 0 | 0 | 15 | 7 | 15 | 0 |
| 100% Public School Impact (Capacity/(Overload)) | 0 | (32) | (38) | 57 | 52 | 58 | 31 |
| Private School Adjustment (Capacity/(Overload)) | n/a | (32) | (38) | 58 | 53 | 59 | 31 |

Notes:

BLACK - Schools have excess capacity and room for more students

RED - Schools have no excess capacity and are operating at an overload or negative capacity

1. Actual 2006-07 Capacity/(Overload) Data
2. Assumes 100% of children that arrive due to the Fort Lee expansion will enroll in public schools
3. Adjusted for private school enrollment based on the 2000 Census

Source: Colonial Heights Public Schools and RKG Associates, Inc., 2007

6

WORKFORCE DEVELOPMENT

A. INTRODUCTION

Based on RKG's estimates, approximately 2,507 military, civilian, and contractor personnel will relocate to the Fort Lee region by 2011. This number was derived from a larger population of 3,090 personnel, with adjustments made for a percentage of Fort Lee positions that will be filled by people currently within the greater region. For purposes of this analysis, only trailing spouses related to incoming personnel from outside the region are included.

It is a concern upon local leaders that a large portion of the new personnel will have trailing spouses that will be seeking employment opportunities in the area. Based on previous BRAC experiences, ensuring that these spouses have employment options when they arrive, can make the difference in the number of civilian and contractor personnel that eventually will relocate to Fort Lee. Conversely, military personnel assigned to Fort Lee from other installations must report when ordered.

This chapter examines the local workforce training and job placement assistance programs available for military spouses looking for employment and includes:

- An analysis of the projected number of military spouses that will locate to the Fort Lee study area due to the expansion of the base,
- An examination of the types of occupations that are the fastest growing in the region and will likely provide opportunities for incoming workers,
- An inventory of public and private job training and job placement assistance programs, and
- Recommendations on how to best prepare for the new military spouses that will arrive in the Fort Lee study area from 2009 to 2011.

B. SUMMARY OF MAJOR FINDINGS

Trailing Spouses

- Based on this analysis, the consultant estimates that there will be 1,836 trailing spouses of military, civilian, and contractor personnel that will relocate to Fort Lee as part of the BRAC expansion. Approximately 39.6% of the personnel are projected to arrive in 2009. Another 18.9% are projected to relocate to the base in 2010, and the remaining 41.5% are projected to arrive in 2011.

Outreach to Incoming Personnel

- In the spring of 2008, a local contingent from Fort Lee will visit the realigning installations to survey prospective personnel, discuss their relocation issues, and to gauge the needs of trailing spouses. In subsequent visits during 2008 and 2009, additional contingents may be deployed to these installations to conduct job fairs and employment networking with incoming personnel and their spouses.

Occupational Demand

- It is projected that high-skilled white collar workers and low-skilled white collar workers will drive future occupational employment growth in the Crater Region. According to VEC, the number of white-collar workers will increase by 3,495, or 18.2%, through 2014. Low-skilled white collar workers are projected to increase by 2,750, or 15.0% through 2014.
- In contrast, blue-collar workers are projected to grow at a slower rate and add fewer workers than white collar occupations. Of the blue-skilled positions, low-skilled blue collar workers are projected to have the largest increase (12.9%). High-skilled blue collar occupations are projected to grow by only 1.6% (21 workers) through 2014.
- The fastest growth occupations, in terms of percentage growth, are generally white collar positions, with all but one of the top 25 fastest growing occupations falling into this category. In fact, high-skilled white collar occupations account for 13 of these fast growing occupations. Specifically, health, education and service related occupations account for the majority of top growth industries.
- There are a few more blue-collar occupations, such as material moving workers and motor vehicle operators that are projected to add a comparatively large amount of jobs through 2014. Construction trade workers are also projected to see a large amount of growth (287 new jobs). Other occupations that are projected to grow in jobs in terms of net gain include retail sales workers, health related professions, and management occupations.

Occupational Shortages

- According to the U.S. Army Corps of Engineers, small business liaison for the construction efforts at Fort Lee, there has been a historic shortage of mechanical field, concrete finishing and electrical subcontractors. It is possible that there could be a future problem finding subcontractors to fill these positions.

Construction Employment

- Currently, nearly \$268 million on construction contracts have been awarded at Fort Lee and by the end of 2007, \$351 million in construction projects will be under contract.
- Discussions with representatives from the prime contractors indicate that they are having no issues finding subcontractors. Construction firms have also indicated they do not foresee any problems or issues filling subcontracting work in the future. However, it is too early in the process and there could be a need for more construction workers, especially in the mechanical, concrete finishing and electrical fields in the future.

Workforce Training Programs

- NEXT is a program that was developed to provide a resource to professional senior-level executives and managers that are relocating to the Greater Richmond region to directly connect with the business community at an appropriate level. The NEXT program is currently open to military spouses; however interviews with representatives from the Greater Richmond Chamber indicate that they are currently working with the Crater Planning District Commission to help devise a NEXT program that would better fit this population.
- The Military Spouse Training Grant primarily targets spouses of military personnel, particularly entry-level military spouses that are unemployed or under-employed. The grant was funded by the WIA in July of 2007 and will continue to be funded until June 2008.

C. TRAILING SPOUSE PROJECTIONS

RKG Associates obtained demographic information about Fort Lee personnel from the 2006 Fort Lee Workforce survey as described in Chapter 4. Although the survey responses were from the existing Fort Lee workforce and not the incoming workforce, the Garrison Command is proceeding with the assumption that new incoming personnel at Fort Lee will have similar demographic and household characteristics as those currently stationed at the base. For the purposes of this chapter, the consultant analyzed the percentage of military, civilian and contractor personnel who indicated that they were married. The percentage of those who were married was then applied to the estimated number of incoming personnel (2,507) projected to relocate to Fort Lee.

Based on this analysis, the consultant estimates that there will be 1,836 trailing spouses of military, civilian, and contractor personnel that will relocate to Fort Lee as part of the BRAC expansion. Approximately 39.6% of the personnel are projected to arrive in 2009. Another 18.9% are projected to relocate to the base in 2010, and the remaining 41.5% are projected to arrive in 2011. Although it is unknown exactly how many spouses will be seeking employment upon their arrival, the projections provide a baseline estimate for the number of military spouses that may need employment assistance.

C. CURRENT OUTREACH EFFORTS

While it is currently too early for civilian and contractor personnel at other installations to formally commit to relocating to Fort Lee, there are a number of initiatives being planned to improve local understanding about who may eventually move to the region. In the spring of 2008, a local contingent from Fort Lee will visit the realigning installations to survey prospective personnel, discuss their relocation issues, and to gauge the needs of trailing spouses. In subsequent visits during 2008 and 2009, additional contingents may be deployed to these installations to conduct job fairs and employment networking with incoming personnel and their spouses.

D. OCCUPATIONAL OUTLOOK

The following occupational analysis provides a summary of the current occupational distribution as well as those occupations that are projected to see the fastest growth in the Crater Region. Though the skill level and occupations of the incoming military spouses are currently unknown, the following analysis provides base-line data on those occupations that are the fastest growing and will likely have demand for incoming workers.

The Virginia Employment Commission (VEC) does not compile occupation information at the County level, but rather by Workforce Investment Area. As such, RKG Associates used a larger study area, the Crater Region, due to the limitations of this data. The Crater region includes: Dinwiddie, Greensville, Prince George, Surry, Sussex, Colonial Heights, Emporia, Hopewell, and Petersburg. The data contains employment levels for several hundred occupational categories in the Crater Region for 2004 with projections through 2014.

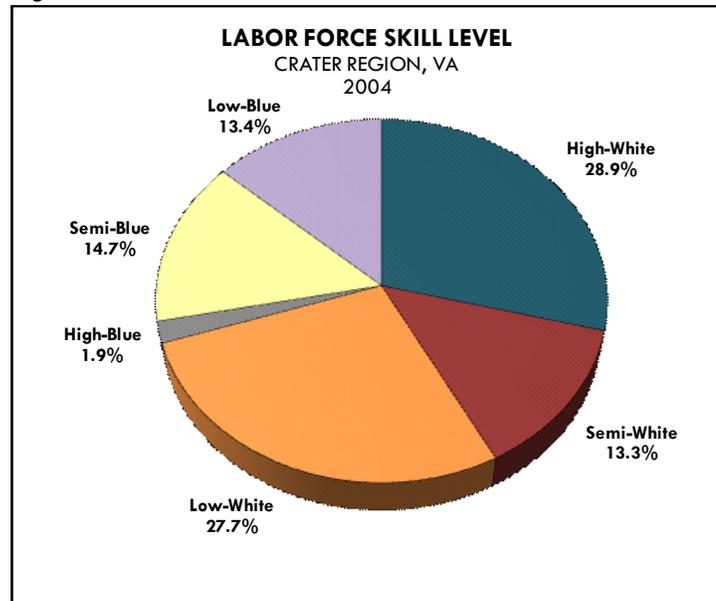
In order to simplify the analysis, the consultants grouped these occupational categories into six broad skill categories. The occupational grouping was subjective, based upon the consultant's common knowledge of typical occupational skill and educational requirements. The regrouped categories and their descriptions are show below:

- Highly-Skilled White Collar (HSWC) - a professional position requiring a college degree, with supervisory/management responsibility or specialized training while working within a white-collar work environment.
- Highly-Skilled Blue Collar (HSBC) - a trade or non-professional position requiring less than an advanced degree, but some post secondary education, a certificate, or specialized training or skill while working within a white collar work environment.
- Semi-Skilled White Collar (SSWC) - a professional position requiring less than an advanced degree, but some post secondary education, a certificate, or specialized training or skill while working within a white collar work environment.
- Semi-Skilled Blue Collar (SSBC) - a trade position requiring less than an advanced or trade school degree but requiring some specialized training or skill, while working within a blue collar environment.

- Low-Skilled White Collar (LSWC) - a position within a white collar work environment requiring no degree or formal schooling beyond high school, but requiring some on-the-job training.
- Low-Skilled Blue Collar (LSBC) - a position within a trade profession requiring no advanced degree or formal schooling, but requiring some on-the-job training.

Although it is difficult to group occupational categories in this manner with great precision, the results provide some indication of the distribution and diversity of skills available within the labor force. According to the VEC, the Crater Region of Virginia had an occupational employment level of 66,269 public and private workers in 2004 (Figure 6-1). The data reflect all private and public workers; however military occupations are not represented in the VEC data.

Figure 6-1



Source: VEC and RKG Associates, Inc., 2007

The Region's occupational employment base is fairly evenly spread amongst the different skill categories. The largest occupational skill group is high-skilled white collar positions (22,669 workers), which comprised 29% of the occupational workforce in 2004. Major occupations within this skill category include primary, secondary, and special education school teachers (2,252 workers), health diagnosing and treating practitioners (1,903 workers) and business operations specialists (1,642 workers). Low-skilled white collar positions comprise the second largest occupational skill category (21,120 workers), totaling 28% of the workforce. The largest concentration of workers in this skill level is retail sales workers (5,576 workers). Material recording, scheduling, dispatching, and distribution (3,128) and building cleaning and pest control workers (1,677 workers) also are the top occupations in this skill level.

Blue collar positions account for a smaller percentage of the total occupational workforce (32.8%). Of blue-collar jobs, the largest occupational group is semi-skilled blue collar workers. Construction trade (2,573 workers) and other installation, maintenance, and repair occupations (1,535 workers) are the largest occupations in this skill category.

Low-skilled blue collar positions make up a smaller portion of occupational workforce (13%) than semi-skilled blue collar workers. Material moving (3,948 workers) and motor vehicle operators (2,762 workers) are the largest occupations in this skill level. Lastly, only 2% of the occupational workforce is in high-skilled blue collar positions. These positions typically pay more than semi-skilled or low-skilled white collar and blue collar positions.

It is projected that high-skilled white collar workers and low-skilled white collar workers will drive future occupational employment growth in the Crater Region. According to VEC, the number of white-collar workers will increase by 3,495, or 18.2%, through 2014 (Table 6-1). Low-skilled white collar workers are projected to increase by 2,750, or 15.0% through 2014.

Table 6-1
Occupational Skill Demand Forecasts
Crater Region; 2004-2014

| Skill Level | 2004 | 2014 | Change | % Change |
|---------------------------|---------------|---------------|--------------|--------------|
| High-Skilled White Collar | 19,174 | 22,669 | 3,495 | 18.2% |
| Semi-Skilled White Collar | 8,816 | 9,636 | 820 | 9.3% |
| Low-Skilled White Collar | 18,370 | 21,120 | 2,750 | 15.0% |
| TOTAL | 46,360 | 53,425 | 7,065 | 15.2% |
| High-Skilled Blue Collar | 1,276 | 1,297 | 21 | 1.6% |
| Semi-Skilled Blue Collar | 9,771 | 10,463 | 692 | 7.1% |
| Low-Skilled Blue Collar | 8,862 | 10,008 | 1,146 | 12.9% |
| TOTAL | 19,909 | 21,768 | 1,859 | 9.3% |

Source: Virginia Employment Commission and RKG Associates, Inc., 2007

In contrast, blue-collar workers are projected to grow at a slower rate and add fewer workers than white collar occupations. Of the blue-skilled positions, low-skilled blue collar workers are projected to have the largest increase (12.9%). High-skilled blue collar occupations are projected to grow by only 1.6% (21 workers) through 2014.

The fastest growth occupations, in terms of percentage growth, are generally white collar positions, with all but one of the top 25 fastest growing occupations falling into this category. In fact, high-skilled white collar occupations account for 13 of these fast growing occupations (Table 6-2). Specifically, health, education and service related occupations account for the majority of top growth industries. This finding is consistent with national trends, as employment transitions from production to service-oriented occupations.

The occupations that have experienced the largest net gain in jobs are shown in Table 6-3. There are a few more blue-collar occupations, such as material moving workers and motor vehicle operators that are projected to add a comparatively large amount of jobs through 2014. Construction trade workers are also projected to see a large amount of growth (287 new jobs). Other occupations that are projected to grow in jobs in terms of net gain include retail sales workers, health related professions, and management occupations.

Table 6-2
Top 25 Fastest Growing Occupations
Crater Region; 2004-2014

| Occupation | Skill Level | 2004 | 2014 | Change | % Change |
|---|-------------|-------|-------|--------|----------|
| Postsecondary Teachers | HSWC | 371 | 497 | 126 | 34.0% |
| Other Personal Care and Service Workers | LSWC | 856 | 1,133 | 277 | 32.4% |
| Nursing, Psychiatric, and Home Health Aides | HSWC | 1,378 | 1,808 | 430 | 31.2% |
| Lawyers, Judges, and Related Workers | HSWC | 71 | 93 | 22 | 31.0% |
| Computer Specialists | HSWC | 708 | 924 | 216 | 30.5% |
| Counselors, Social Workers, and Other Community and Social Services | HSWC | 1,158 | 1,505 | 347 | 30.0% |
| Other Construction and Related Workers | SSBC | 248 | 319 | 71 | 28.6% |
| Health Diagnosing and Treating Practitioners | HSWC | 1,903 | 2,390 | 487 | 25.6% |
| Fire Fighting and Prevention Workers | SSWC | 245 | 307 | 62 | 25.3% |
| Other Teachers and Instructors | HSWC | 545 | 676 | 131 | 24.0% |
| Architects, Surveyors, and Cartographers | HSWC | 50 | 62 | 12 | 24.0% |
| Food and Beverage Serving Workers | LSWC | 2,420 | 3,000 | 580 | 24.0% |
| Other Healthcare Support Occupations | SSWC | 359 | 445 | 86 | 24.0% |
| Life Scientists | HSWC | 84 | 104 | 20 | 23.8% |
| Supervisors, Food Preparation and Serving Workers | SSWC | 451 | 557 | 106 | 23.5% |
| Cooks and Food Preparation Workers | LSWC | 1,325 | 1,632 | 307 | 23.2% |
| Other Food Preparation and Serving Related Workers | LSWC | 577 | 705 | 128 | 22.2% |
| Entertainment Attendants and Related Workers | LSWC | 148 | 180 | 32 | 21.6% |
| Other Education, Training, and Library Occupations | HSWC | 740 | 895 | 155 | 20.9% |
| First-Line Supervisors/Managers, Protective Service Workers | HSWC | 146 | 176 | 30 | 20.5% |
| Law Enforcement Workers | SSWC | 988 | 1,189 | 201 | 20.3% |
| Building Cleaning and Pest Control Workers | LSWC | 1,677 | 2,017 | 340 | 20.3% |
| Supervisors, Building and Grounds Cleaning and Maintenance Workers | SSWC | 121 | 145 | 24 | 19.8% |
| Health Technologists and Technicians | HSWC | 1,349 | 1,607 | 258 | 19.1% |
| Primary, Secondary, and Special Education School Teachers | HSWC | 2,252 | 2,672 | 420 | 18.7% |

Note: The Crater Region includes Dinwiddie, Greensville, Prince George and Sussex Counties, and portions of Chesterfield and Surry Counties of Colonial Heights, Emporia, Hopewell, Petersburg.

Source: Virginia Employment Commission and RKG Associates, Inc., 2007

Table 6-3
Top 25 Largest Growing Occupations
Crater Region; 2004-2014

| Occupation | Skill Level | 2004 | 2014 | Change | % Change |
|---|-------------|-------|-------|--------|----------|
| Material Moving Workers | LSBC | 3,948 | 4,578 | 630 | 16.0% |
| Retail Sales Workers | LSWC | 5,576 | 6,182 | 606 | 10.9% |
| Food and Beverage Serving Workers | LSWC | 2,420 | 3,000 | 580 | 24.0% |
| Motor Vehicle Operators | LSBC | 2,762 | 3,254 | 492 | 17.8% |
| Health Diagnosing and Treating Practitioners | HSWC | 1,903 | 2,390 | 487 | 25.6% |
| Nursing, Psychiatric, and Home Health Aides | HSWC | 1,378 | 1,808 | 430 | 31.2% |
| Primary, Secondary, and Special Education School Teachers | HSWC | 2,252 | 2,672 | 420 | 18.7% |
| Counselors, Social Workers, and Other Community and Social Services | HSWC | 1,158 | 1,505 | 347 | 30.0% |
| Building Cleaning and Pest Control Workers | LSWC | 1,677 | 2,017 | 340 | 20.3% |
| Material Recording, Scheduling, Dispatching, and Distributing | LSWC | 3,128 | 3,462 | 334 | 10.7% |
| Cooks and Food Preparation Workers | LSWC | 1,325 | 1,632 | 307 | 23.2% |
| Construction Trades Workers | SSBC | 2,573 | 2,860 | 287 | 11.2% |
| Other Personal Care and Service Workers | LSWC | 856 | 1,133 | 277 | 32.4% |
| Health Technologists and Technicians | HSWC | 1,349 | 1,607 | 258 | 19.1% |
| Business Operations Specialists | HSWC | 1,642 | 1,872 | 230 | 14.0% |
| Computer Specialists | HSWC | 708 | 924 | 216 | 30.5% |
| Law Enforcement Workers | SSWC | 988 | 1,189 | 201 | 20.3% |
| Other Management Occupations | HSWC | 1,272 | 1,431 | 159 | 12.5% |
| Other Education, Training, and Library Occupations | HSWC | 740 | 895 | 155 | 20.9% |
| Other Office and Administrative Support Workers | SSWC | 2,121 | 2,260 | 139 | 6.6% |
| Vehicle and Mobile Equipment Mechanics, Installers | SSBC | 857 | 995 | 138 | 16.1% |
| Other Teachers and Instructors | HSWC | 545 | 676 | 131 | 24.0% |
| Other Food Preparation and Serving Related Workers | LSWC | 577 | 705 | 128 | 22.2% |
| Postsecondary Teachers | HSWC | 371 | 497 | 126 | 34.0% |
| Other Installation, Maintenance, and Repair Occupations | SSBC | 1,535 | 1,644 | 109 | 7.1% |

Note: The Crater Region includes Dinwiddie, Greensville, Prince George and Sussex Counties, and portions of Chesterfield and Surry Counties of Colonial Heights, Emporia, Hopewell, Petersburg.

Source: Virginia Employment Commission and RKG Associates, Inc., 2007

D. CONSTRUCTION TRADE

As mentioned previously, construction related activities are projected to be among the top 25 fastest growing occupations. In terms of percent growth, "other construction and related workers" is the only blue-collar occupation among the top 25 fastest growing occupations. In addition, material moving workers and construction trade workers are projected to add a large number of jobs in terms of net gain (917 new jobs). The expansion at Fort Lee will likely further increase the demand for construction trade workers.

RKG Associates interviewed construction contract managers as well as representatives from the prime construction companies to assess the future capacity of this sector to accommodate the construction projects planned for Fort Lee. The Crater Procurement Assistance Center (CPAC) helps link the prime construction companies at Fort Lee with subcontractors within the region. Essentially, CPAC organizes a series of "meet and greet" sessions with the prime contractors and invites potential subcontracting firms. One such meeting was held in November of 2007 and similar sessions will be held once every six months. Interviews with the Crater Procurement Assistance Center indicate that there has been interest from many of the region's subcontractors to fill open positions, however Fort Lee's prime contractor reports that it is too early in the process to know if all their future construction needs will be met. According to the U.S. Army Corps of Engineers, small business liaison for the construction efforts at Fort Lee, there has been a historic shortage of mechanical field, concrete finishing and electrical subcontractors. It is possible that there could be a future problem finding subcontractors to fill these positions. Currently, nearly \$268 million in construction contracts have been awarded at Fort Lee and by the end of 2007, \$351 million in construction projects will be under contract.

Fort Lee Construction Contract Awards (2007)

| Project Name | Prime Contractor | Value of Contract |
|--|--------------------------------|-------------------|
| Sustainment Center of Excellence | Tompkins Builders | \$ 49,600,000 |
| Logistics University | Balfour Beatty | \$ 110,100,000 |
| Soldier Support Center | Rocky Hill Contracting | \$ 23,000,000 |
| Ordnance Campus Infrastructure Project | Fort Sill Apache | \$ 38,000,000 |
| | Dominion Virginia Power | |
| Tactical Service Equipment Depot | Hensel Phelps Construction Co. | \$ 47,000,000 |
| Total Contract Value | | \$ 267,700,000 |

Source: Crater Procurement Assistance Center, 2007

Outreach for the Fort Lee construction projects is done primarily through the "meet and greet" sessions with subcontractors as well as advertisements in newspapers and websites. According to one prime construction firm, they intend to hold at least five major "meet and greet" sessions a year which are organized in-house or with organizations such as the Crater Procurement Assistance Center and Association of Building Contractors. Discussions with representatives from the prime contractors indicate that they are having no issues finding subcontractors. In fact, one construction firm indicated that they have been "flooded with calls, e-mails and faxes," for Fort Lee contract work. Construction firms have also indicated they do not foresee any problems or issues filling subcontracting work in the future. However, it is too early in the process and there could be a need for more construction workers, especially in the mechanical, concrete finishing and electrical fields in the future.

E. WORKFORCE DEVELOPMENT ORGANIZATIONS

The Workforce Investment Act of 1998 (WIA) is the main planning, organizational and funding mechanism for workforce development programs and provides the framework for the national workforce preparation and employment system. Specifically, the WIA offers funding for a comprehensive range of workforce development activities through statewide and local organizations. The organizations in the Fort Lee study area that deliver workforce development programs include:

- Army Community Services - The first step for spouses of military personnel seeking employment or training is to contact Army Community Services (ACS) at Fort Lee. In addition to offering military spouses relocation assistance such as job training and employment services, the ACS coordinates family social support services such as child care and counseling.
- Virginia Employment Commission (VEC) - The VEC is a state agency that promotes economic growth and stability by delivering and coordinating workforce services. The ACS refers each military spouse seeking employment to the VEC. A case file is then created on the military spouse and job placement assistance or training is then provided based on their needs.
- Virginia's Gateway Region - Virginia's Gateway Region organization was created to enhance the economic development opportunities for the Crater region. Virginia's Gateway Region primarily works with new or existing businesses in enhancing economic development opportunities.
- The Crater Regional Workforce Investment Group (CRWIG) - The mission of this organization is to "link businesses to people, local officials, public and private agencies, and training providers for economic development to build a highly trained and motivated workforce." This organization works with both the Virginia Gateway Region and Virginia Employment Commission to provide comprehensive workforce support.
- Community College Workforce Alliance (CCWA) - The CCWA is a partnership between J. Sargeant Reynolds and John Tyler Community Colleges. The CCWA provides non-credit training, consulting and educational program development for those seeking skills training. This organization is described in more detail in the Public and Private Workforce Training Institutions section of this chapter.
- Virginia Workforce Network (VWN) - The VWN is a partnership between government, private industry, and community leaders. Specifically, the VWN works with various organizations to provide employment and training programs throughout the state.

The above organizations partner together to provide program coordination and assistance for employment seekers. The training programs coordinated by these entities are described in more detail in the following section.

F. PUBLIC AND PRIVATE WORKFORCE TRAINING INSTITUTIONS

There are a variety of public and private workforce training programs that will be available to incoming trailing spouses that wish to further their education or gain workplace skills. Most programs, aside from the Military Spouse Training Grant, are open to anyone wishing to enhance their education or skill-set. The following section provides an overview of those programs that are available in the Fort Lee study area.

1. Community College Workforce Alliance

Many of those wishing to receive additional training are referred by the VEC to the Community College Workforce Alliance (CCWA). As mentioned previously, this organization is a partnership between J. Sargeant Reynolds and John Tyler Community Colleges and offers a variety of non-credit workforce development programs and training in areas such as truck-driving, food protection management, and computer applications. There are also apprenticeship programs and customized training available for those wishing to pursue a specific skill-set. Many of the programs teach technical skills that can easily be transferred from location to location. These types of transferable skills in particular provide opportunities for spouses of military personnel, who often need to relocate to other military bases.

2. Private Technical Programs

In addition to CCWA, there are also private institutions that offer technical training. Table 6-4 shows a partial inventory of private institutions and schools that offer workforce training in a variety of disciplines. The following inventory represents the most current data available and was obtained from the Virginia Workforce Network and Virginia's Gateway Region. As shown in the table, a majority of the schools and training programs are located in Chesterfield County and the City of Petersburg. This is likely due to the higher concentrations of population and employment in these areas. Similar to the CCWA program, the private technical schools are geared toward those wishing to be trained in a specific skill set.

3. Network for Executives in Transition (NEXT)

NEXT is a program of the Greater Richmond Chamber. It was developed to provide a resource to professional senior-level executives and managers that are relocating to the Greater Richmond region to directly connect with the business community at an appropriate level. Additionally, the program is open to trailing spouses of executives. Those who sign-up for NEXT are interviewed by a skilled professional to help identify the individual's interests and job skills. After the identification session, a customized networking plan is created which includes one-on-one meetings with select employers or leaders in the community.

Table 6-4
Workforce Training Program Inventory
Fort Lee Study Area

| Provider Name* | Major Programs/Courses |
|---|---|
| CHESTERFIELD | |
| Beta Tech Richmond | Medical Assistant, Network Technician |
| Bryant and Stratton College | Accounting, Business, Criminal Justice, Medical Assistant, Medical Billing, Paralegal Studies |
| Chesterfield Technical Center | Practical Nursing, Medical Assistant, Construction |
| ECPI Technical College | Computer Network Technology, Information Technology, Microsoft Certified Systems Engineer |
| Medical Careers Institute | Massage Therapy, Medical Admin, Medical Assisting, Practical Nursing |
| Swift Driving Academy | Truck Driving |
| Trojan Beauty College | Barbering, Cosmetology |
| COLONIAL HEIGHTS | |
| The US Truck Drive Training Program | Tractor Trailer Truck Driver |
| PRINCE GEORGE COUNTY | |
| Rowanty Technical Center | Practical Nursing, Cosmetology, Electricity, Automotive Technology |
| PETERSBURG | |
| Career Connections Education Center | Clinical Medical Assistant, Phlebotomy Technician-Certified |
| Central Virginia Medical Education Center | Phlebotomy |
| Health Care Solutions | Adult CPR, Nursing Assistant |
| Richard Bland College | Associate Degree Programs |
| Southside Regional Medical Center | Nursing, radiation sciences |

* No providers listed for City of Hopewell or Prince George County

Source: Virginia Workforce Network, Virginia's Gateway Region, and RKG Associates, Inc., 2007

The NEXT program is currently open to military spouses; however interviews with representatives from the Greater Richmond Chamber indicate that they are currently working with the Crater Planning District Commission to help devise a NEXT program that would better fit this population. However, this program cannot be implemented until data on the skill level and occupational interest of the incoming spouses is obtained. A survey will be distributed to collect this information once the arrival date (2009) of the first round of relocated workers becomes closer. Once the Chamber has this information, they will begin targeting employers to accommodate the specific employment needs of the incoming military spouses. Interviews with the Greater Richmond Chamber indicate that although this program will likely incorporate basic training in resume writing and interview practice, it will be targeted to those spouses that have a mid-to-high level of education or skills.

4. Military Spouse Training Grant

The Crater Planning District Commission, John Tyler Community College, Community College Workforce Alliance, Virginia Employment Commission, and the Virginia Workforce Network have partnered together to offer military spouse training programs under the Military Spouse Training Grant. Unlike the other training programs, the Military Spouse Training Grant primarily targets spouses of military personnel, particularly entry-level military spouses that are unemployed or under-employed. The grant was funded by the WIA in July of 2007 and will continue to be funded until June 2008. The "Work Skills 101" and Career Readiness Certificate are the two main programs funded under this grant. There are no qualifiers or income restrictions and the programs are open to all military spouses who are US citizens or have the right to work. In addition to training and employment assistance, the \$200,000 grant also provides free child-care and transportation services to military spouses so they can more easily access the training classes.

a.) "Work Skills 101"

"Work Skills 101" is a 2-week training program that teaches participants basic job skills such as interview preparation, resume writing, and PC basics such as Microsoft

Word, Excel, Internet and e-mail. Each 2-week training session can accommodate a maximum of twenty students and all classes are held at John Tyler Community College. There is funding for nine training sessions to be held until June 2008. As of report writing, three classes have been conducted since July of 2007 and enrollment has averaged twelve students per class.

b.) Career Readiness Certificate (CRC)

The Career Readiness Certificate is a nationally recognized certificate that is obtained by passing the WorkKeys examination. WorkKeys was developed by ACT, an international educational assessment company, and is a job assessment system that measures workplace skills that are desired by employers. The WorkKeys test includes three main subjects; applied mathematics, reading for information, and locating information (reading charts and graphs). In order to receive the certificate, the participant must pass all three subjects. Once the certificate is received, the military spouse can use it as an attachment to their resume to show employers that they are proficient in basic job skills.

To prepare and study for the WorkKeys test, the Military Spouse Training Grant provides funding for the distribution of KeyTrain on-line and print curriculum material. The on-line curriculum is available to the military spouse for one-year. Those entering the "Work Skills 101" course are automatically given the KeyTrain curriculum to help the participant study for the WorkKeys test if they should desire to take it. To date, 26 participants that enrolled in the "Work Skills 101" class have taken the WorkKeys test and 24 participants have passed it and received their Career Readiness Certificate. In addition to providing "Work Skills 101" participants with WorkKeys and KeyTrain materials, there is funding for up to 150 additional spouses who do not want to take part in the work skills classes to be put through the CRC process.

c.) Future Funding

According to the Military Spouse Training Grant administrator, everyone that has gone through the "Work Skills 101" program has found a job. Though funding for classes and services will end in June of 2008, the partner organizations are in the process of writing a multi-year grant that would include increased funding to accommodate the Fort Lee expansion. The grant has not been submitted at the time of report writing, however it is expected that, based on the success and need for the program due to the expansion of Fort Lee, the military spouse training program will continue to be funded into the future. In fact, interviews with program coordinators indicate that the success of the program at Fort Lee may lead to the creation of similar military spouse training programs on other bases in Virginia in the near future.

5. Conclusions

According to the occupational projections, health, education, construction, retail and service related industries will be the fastest growing industries through 2014. The following section provides a brief summary of the training programs in the Fort Lee study area and how they serve these fast growing occupations.

Health diagnosing and treating practitioners are projected to add 487 jobs to the region through 2014. Nursing, psychiatric, and home health aides (430), and health technologists and technicians (258) are also projected to grow. In addition to the occupational analysis, interviews with local workforce development organizations indicate the health industry is one of the fastest growing fields in the region. Out of the inventory of fourteen private colleges in the region, nine offer technical training in health related professions such as medical assisting and practical nursing. Outreach and marketing of these programs will help military spouses become more aware of these health related training opportunities.

Computer specialists are also projected to grow through 2014. Specifically, computer specialists are projected to add 216 jobs. The ECPI Technical College offers computer technology and information degrees to help train employment seekers for these types of positions. Although there is one technical college that offers degrees in computer technology, there may be opportunities for other schools or programs to offer classes in this field.

Motor vehicle operators are projected to add 492 jobs through 2014. Interstates 95 and 85 run through the Fort Lee study area. These major interstates are used by distribution and logistics companies to transport goods up and down the eastern seaboard. In addition, Fort Lee will be expanding as a logistical center. It is likely that this will further increase the need for transportation related activities. Currently, there are three programs in the Fort Lee study area that focus on truck driving training. They are the Swift Driving Academy, the US Truck Driver Training Program, and truck driving classes that are available through the CCWA.

A variety of education occupations are projected to see large amounts of growth through 2014. Specifically, primary, secondary, and special education school teachers are projected to add 420 jobs, other teachers and instructors are projected to add 131 jobs, and other education, training, and library occupations are projected to add 155 positions. Based on the inventory of private institutions and other programs, there does not appear to be many programs geared towards degrees or certificates in education. New programs that specialize in educational training may need to be developed to help fill this future occupational demand.

Construction related occupations such as material moving workers (630 new jobs) and construction trade workers (287 new jobs) will have a high demand through 2014. As mentioned previously, the construction field will likely grow and add even more positions due to the Fort Lee expansion. The CCWA offers certificates in construction related fields as well as apprenticeship programs to help meet this need.

Lastly, low-white collar positions such as retail sales workers, food and beverage workers, and personal care and service workers are projected to add positions through 2014. The programs available under the Military Spouse Training Grant help prepare military spouses for these types of entry-level positions. In addition, there are job readiness classes offered at CCWA.

As discussed in the previous sections, there are a variety programs in place that can help military spouses with training and employment assistance. However, there are opportunities for further improving the existing programs and for developing new

programs to target military spouses that will be seeking employment in the Fort Lee study area. The following section outlines key program recommendations which are drawn from interviews with workforce development leaders and the analysis of occupational needs of the region.

a.) Continuation of Existing Training Programs

The Community College Workforce Alliance program will continue to be an asset for those military spouses that wish to further their education or technical ability. However, occupations in health and education are projected to be among the fastest growing in the region. The CCWA might want to focus outreach, classes and training programs on these types of industries. In addition, there may be a future need for more mechanical, concrete finishing and electrical construction workers. The CCWA might want to also have a targeted apprenticeship program that trains workers specifically in those construction fields that may have issues being filled in the near future.

The programs offered under the Military Spouse Training Grant are the only programs that are targeted specifically towards military spouses. The grant specifically provides opportunities for the younger spouse, or spouse with minimal job experience and provides opportunities for entry-level spouses that would like to enter the workforce. Continuation of the programs offered under this grant will be a vital resource for military spouses seeking employment. Currently, organizational partners are in the process of writing an expanded grant to obtain multi-year funding of these programs.

b.) Development of New Programs

As mentioned previously, the NEXT program developed by the Greater Richmond Chamber is an employment connection tool that will target mid-level military spouses. Currently, the program is targeted towards corporate executives and their spouses; however military spouses can also utilize the program. A representative from the Chamber indicated that once more information is known about the employment interests of future spouses locating to the Fort Lee study area, the NEXT program will be developed to specifically target this population.

According to interviews with the Crater Planning District Commission, a survey is currently being created that will collect information from the incoming military personnel regarding job needs, skill level and education. This survey will be distributed to Aberdeen Proving Ground, Fort Eustis, and the Defense Contract Management Agency in Alexandria, VA and will be used to better understand the skill set of the incoming military spouses. The Greater Richmond Chamber and other organizations will then be able to use this information to develop programs that target specific employers. However, the survey will not be implemented until 2008, when the exact number of personnel that choose to relocate to Fort Lee is determined.

Though training and employment services are available to entry-level spouses through the Military Spouse Training Grant and there are programs available to mid to highly educated spouses such as the NEXT program, there may be more assistance needed for those spouses that already have technical trade or more blue collar skills

such as drafters or electrical and equipment mechanics. Currently spouses with technical skills looking for employment visit the ACS and register with the Virginia Employment Commission in order to gain access to their on-line database. However, there are no specific programs geared towards getting technically skilled trade spouses connected with employers. Depending on the skills of the incoming spouses, it is recommended a program similar to the NEXT program be developed to link spouses with technical ability to employers.

c.) Job Fairs and Welcoming Events

Other types of services such as job fairs and welcoming events may help military spouses and their families transition to the Fort Lee area. The Greater Richmond Chamber has helped major companies such as Philip Morris, Wachovia, and MeadWestvaco with relocation services. Specifically, the Chamber distributed welcome package materials, helped conduct a series of welcoming meetings, and helped re-located workers and families become better familiar with their new surroundings. The welcoming meetings covered a variety of topics such as childcare, school locations, and other social service information, and remained flexible according to the workers needs and questions. The Chamber is currently interested in a similar type of program for the relocated military personnel and their families at Fort Lee. It is recommended that a series of events be held over time in order to best serve personnel that will be relocating to Fort Lee from 2009 to 2011.

Job fairs held at Fort Lee will also be an asset military spouses can utilize once they have moved to the Fort Lee area. Similar to the welcoming events, it is recommended that job fairs, which would be open to the general public but held at Fort Lee, be staggered over time in order to reach all of the rounds of relocated spouses. The survey, which will be distributed by the Crater District Planning Commission in 2008, will help define which employers to target for the job fair. Though actual implementation of the job fairs and welcoming events will likely not occur until 2008, it is recommended that planning and initial program development take place in order to prepare for the incoming workers.

7

TRANSPORTATION IMPACTS

A. INTRODUCTION

Fort Lee is planning for the arrival and creation of thousands of new jobs resulting from BRAC, beginning in 2009. Directly related to this growth in the workforce, an estimated 6 to 7 million square feet of new construction will occur, not including the transportation infrastructure. At the time this study was performed, it was unknown how many of the new employees would be transfers from other states versus employees from the regional population.

Many of the Army transfers to Fort Lee will be temporary trainees housed on-base for a period of weeks and months. The traffic impacts associated with trainees living on base and traveling around the Greater Fort Lee region can only be assumed at this time, since Fort Lee officials have not yet determined where all trainees will be housed and which soldiers will be assigned to the Fort.

This chapter considers the potential impacts of BRAC on the existing transportation infrastructure in the Greater Fort Lee region, and explores the potential applications of mass transit, para-transit, and other ride-sharing opportunities.

B. SUMMARY OF MAJOR FINDINGS

- Roadway improvement projects in the MPO's 2031 project list need to be revisited to confirm that traffic needs will be met following BRAC expansion. Several projects were removed from the MPO's 2026 project list during the 2031 update process that were originally programmed because of the projected level of increased traffic.
- A combination of two transit alternatives may be the best solution for the region - a partnership between Fort Lee and Ridefinders and expansion of Petersburg Area Transit (PAT). The significant advantage of pursuing Ridefinders is that vanpooling services provide greater flexibility for the base, and should therefore be the higher priority for further action by Fort Lee.
- Several transit providers across the country have formal agreements or partnerships with military bases. These partnerships range from simply allowing public transit

vehicles on base to contributing funding for transit and assisting in the on-base route planning process.

C. BACKGROUND

1. Fort Lee Expansion Traffic Study

The Virginia Department of Transportation (VDOT), the Tri-Cities Metropolitan Planning Organization (MPO), and Fort Lee contracted with Michael Baker Jr., Inc. to conduct a traffic study for the BRAC expansion. The final report published in January 2007, documents traffic conditions, safety and capacity deficiencies, planned land use and operational changes on Fort Lee, and suggested potential roadway improvements. Traffic operations were analyzed for the years 2006 and 2026. Suggested improvements were prioritized (short-, mid-, and long-term) and total close to \$20 million in 2006 dollars.

The expansion traffic study included the following comments:

“Priority was based on level of congestion, when the improvement is needed, and cost. Generally, improvements that addressed the most severe congestion should be implemented first and received the highest priority. Those that address an existing problem or could be done for a lower cost also received higher priority. Utilizing these prioritized lists, VDOT and the local jurisdictions must work toward a system determining when and how these improvements should be advanced through the project development process.”

A potential process methodology for realizing Fort Lee improvements is discussed in the Transportation Improvements section of this document. An expensive intermediate improvement may be a better use of resources than a collection of several inexpensive, short-term improvements, so a prioritization system needs to be adopted to give the Fort Lee area the best return on roadway investments. This study builds on the findings of the Baker report by addressing regional needs brought on by BRAC expansions coming to Fort Lee beginning in 2009 and continuing through 2031.

The Crater PDC staff updated the original list of projects recommended in the Baker study, including revised cost estimates provided by VDOT. This data is presented in Table 7-1. The column labeled “DAR” refers to the Defense Access Road program for roadway improvements. The total estimated cost of improvements listed in Table 1 is close to \$23 million.

Table 7-1 Recommended Roadway Improvements
Fort Lee Expansion Traffic Study

| Location | Description | RSTP or CMAQ | State 6-Year Program | DAR | Total Cost | Notes |
|---|---|--------------|----------------------|-----|--|--|
| Short – Term Roadway & Intersection Improvements | | | | | | |
| Shop Rd. Gate & Jefferson Park Road UPC 85970 | Signal Installation | X | | | 230,000 | 230,000 in RSTP Plus 100,000 by Fort Lee for improvements to Shop Gate Rd. storage lane Completed |
| Hickory Hill Improvements (Route 109) UPC 84728 | Additional lane into Fort Lee & intersection improvements at Route 460 | X | | | 3,250,000 | 750,000 from VMSRF and 2,500,000 in RSTP PE Underway RW 2009 CN 2010 |
| Subtotal | | | | | 3,480,000 | |
| Intermediate Roadway & Intersection Improvements | | | | | | |
| Temple Ave. & Oaklawn Blvd. (Rts. 144 & 36) UPC T4870 | Construct Split Intersection | X | | | 3,500,000 | 2,000,000 in RSTP & 1,500,000 in VMSRF Funding Approved No Schedule |
| Oaklawn Blvd. (Rt. 36) UPC T5033 | Add EB traffic lane between Sisisky Blvd. & Jefferson Park Rd. | | X | | 1,900,000 | State Funds Available, No Schedule |
| Oaklawn Blvd. & Jefferson Park UPC 19003 | Add turn lane at intersection & modify traffic signal | X | | | 360,000 | Project scope being refined and will likely be funded by MPO w/CMAQ |
| Temple Ave. & Puddledock Rd. | Construct turn lanes & modify signal | | | | 1,210,000 | |
| Oaklawn/Hill/Lee Oaklawn Blvd. & River Rd. County Dr. & Courthouse Rd. (Rts. 460 & 106) | Modify Signal Construct Turn Lane & Install Signal Modify Signal | | | | 10,000 440,000 10,000 | Fort Lee Mil. Con. project as River Rd. is closed to the general public |
| Jefferson Park Rd./Allin Rd./ Adams Ave./Bull Hill Rd. | Construct Roundabout | | | X | 4,540,000 VDOT revised cost estimate 11/14/2007 | Fort Lee Application for DAR Funding Pending |
| Jefferson Park Rd. & Middle Rd. | Add NB thru lane and install signal | | | | 510,000 | |
| Courthouse Rd. & Bull Hill Rd. | Realign roadway to create split intersection, new signals, add turn lanes | | | | 2,760,000 | |
| Subtotal | | | | | 15,240,000 | |
| Long – Term Roadway and Intersection Improvements | | | | | | |
| Washington St. & Puddledock Rd. | Modify signal | | | | 10,000 | |
| Courthouse Rd. & Bull Hill Rd. | Modify Signal | | | | 10,000 | |
| County Dr. & Baxter Rd. | Install Signal | | | | 270,000 | |
| Courthouse Rd. & Baxter Rd. | Install Signal | | | | 270,000 | |
| Jefferson Park Road | Widen Jefferson Park Rd. – 1 lane for turn lanes | | | | 1,900,000 | |
| Middle Road | Widen Middle Rd. – 1 lane for turn lanes | | | | 1,550,000 | |
| Subtotal | | | | | 4,010,000 | |
| Total | | | | | 22,730,000 | |

D. REMI MODEL PROJECTION METHODOLOGY

In order to project the potential Fort Lee growth impacts on the region's transportation network, RKG made numerous assumptions regarding where Fort Lee growth, both population and employment, would likely occur in the future, with an emphasis on the 2007-2013 expansion period. While the projections were made to the year 2031 to remain consistent with the Tri-Cities MPO's regional transportation demand modeling horizon, projecting regional growth patterns beyond a few years is more art than science.

RKG Associates population projections were primarily driven by future changes in the number of new occupied dwelling units for each jurisdiction. Changes in the number of dwelling units drove changes in the number of occupied households, which in turn drove population growth. RKG's factors for such things as average household size, housing vacancy rates, automobile usage, number of students and military personnel, and employment at the traffic analysis zone (TAZ) level were taken directly from the MPO regional demand model's implied assumptions. TAZ geography is used in transportation demand modeling to divide complex regions into smaller traffic zones, which are populated with their own mix of households, population, and employment, etc. Each traffic zone creates a different demand for vehicle trips based on its development characteristics.

The methodology used to make growth projections for each jurisdiction is contained below.

1. Population Projections

RKG Associates, Inc. projected population impacts associated with Fort Lee out to the Year 2031 for the Fort Lee study area communities. These projections utilized the baseline population and household data contained in the Tri-Cities MPO regional transportation demand model for the same period. Future population growth associated with Fort's expansion was added to the baseline data, resulting in a growth stimulus during the years 2007 to 2013. Beyond 2013, RKG yielded to the natural growth assumptions contained in the region's transportation demand model.

In order to project the number of new occupied dwelling units, RKG relied on estimates of approved residential lots provided by each community's planning department. Since assembling this data in early 2007, significant projects in southern Chesterfield County and Petersburg have progressed through the approval process and will add to their inventories. However, due to the timing of this analysis, it was not possible for the consultants to update its approved lot inventory for each community throughout 2007. As such, RKG's projections are based off early 2007 approved lot estimates.

Approved lots were considered the most ready for development and varied in number for each jurisdiction. Communities that are largely built-out and have very few approved building lots have limitations on their ability to capture growth from Fort Lee. The potential for new housing growth through redevelopment will take longer in these communities and is very difficult to project.

RKG allocated approved housing lots in each jurisdiction by TAZ to correspond with the regional transportation demand model. Approved lots that were not located in an existing TAZ zone were allocated to existing census tracts. Then it was assumed that these approved lots would be developed during the 2007-2013 timeframe to correspond with the expansion of Fort Lee. While it's quite likely that other subdivisions moving through the planning

process will receive approvals during this time frame, RKG did not speculate how many and where those new subdivision lots would be located. In total, roughly 4,500 approved lots were allocated to TAZ in the six jurisdictions.

New lots were converted into new housing units and then RKG applied unit vacancy rates and average household size (by TAZ) to these new units to derive an estimate of the number of new occupied households and the resulting population to be added to each TAZ. While this growth allocation process cannot capture all future growth, it must be restated that the regional transportation demand model made baseline growth assumptions in all the other TAZ not adjusted by RKG. In that regard, the region's natural growth rate is represented in the existing baseline projections.

From these new occupied households, the transportation demand model applied multipliers for automobile usage, which was used to drive future trip generation based on where new households were located.

Major Employment Sectors

- Forestry, Fishing, Other
- Mining
- Utilities
- Construction
- Manufacturing
- Wholesale Trade
- Retail Trade
- Transp, Warehousing
- Information
- Finance, Insurance
- Real Estate, Rental, Leasing
- Profess, Tech Services
- Mngmt of Co, Enter
- Admin, Waste Services
- Educational Services
- Health Care, Social Asst
- Arts, Enter, Rec
- Accom, Food Services
- Other Services (excl Gov)

2. Employment Projections

One of the outputs of the REMI Model was the projected change in employment levels over the 2007-2031 projection period. Using the underlying Fort Lee growth to drive the REMI Model, RKG produced the annual new employment growth for each jurisdiction in 19 major employment sectors. This employment data was used by the Tri-Cities MPO to establish the employment growth assumptions related to Fort Lee's expansion.

3. Transportation Network Model

a.) 2031 Traffic Model

The Richmond/Crater Regional Model was used to determine the regional transportation impacts of the current BRAC expansion for Fort Lee. Fort Lee is comprised of seven traffic analysis zones (TAZs) in the regional model (206, 213, 214, 216-219). The Richmond and Crater regions are illustrated in Figures 7-1 and 7-2. The change in land use assumptions between the 2026 and the 2031 Fort Lee assumptions are shown in the following table.

The Fort Lee land use growth was inputted into the regional REMI model (Table 7-2). The Crater Planning District Commission used the results to allocate the jurisdictional REMI results to TAZs in the

Table 7-2 Fort Lee Land Use Assumptions

| Land Use | 2031 with | | Difference |
|----------------|-----------|----------|------------|
| | 2026 | Fort Lee | |
| Households | 955 | 1,338 | 383 |
| Employment | 1,809 | 7,581 | 5,772 |
| Population | 3,272 | 4,589 | 1,317 |
| Autos | 1,457 | 3,620 | 2,163 |
| Group Quarters | 2,330 | 10,856 | 8,526 |

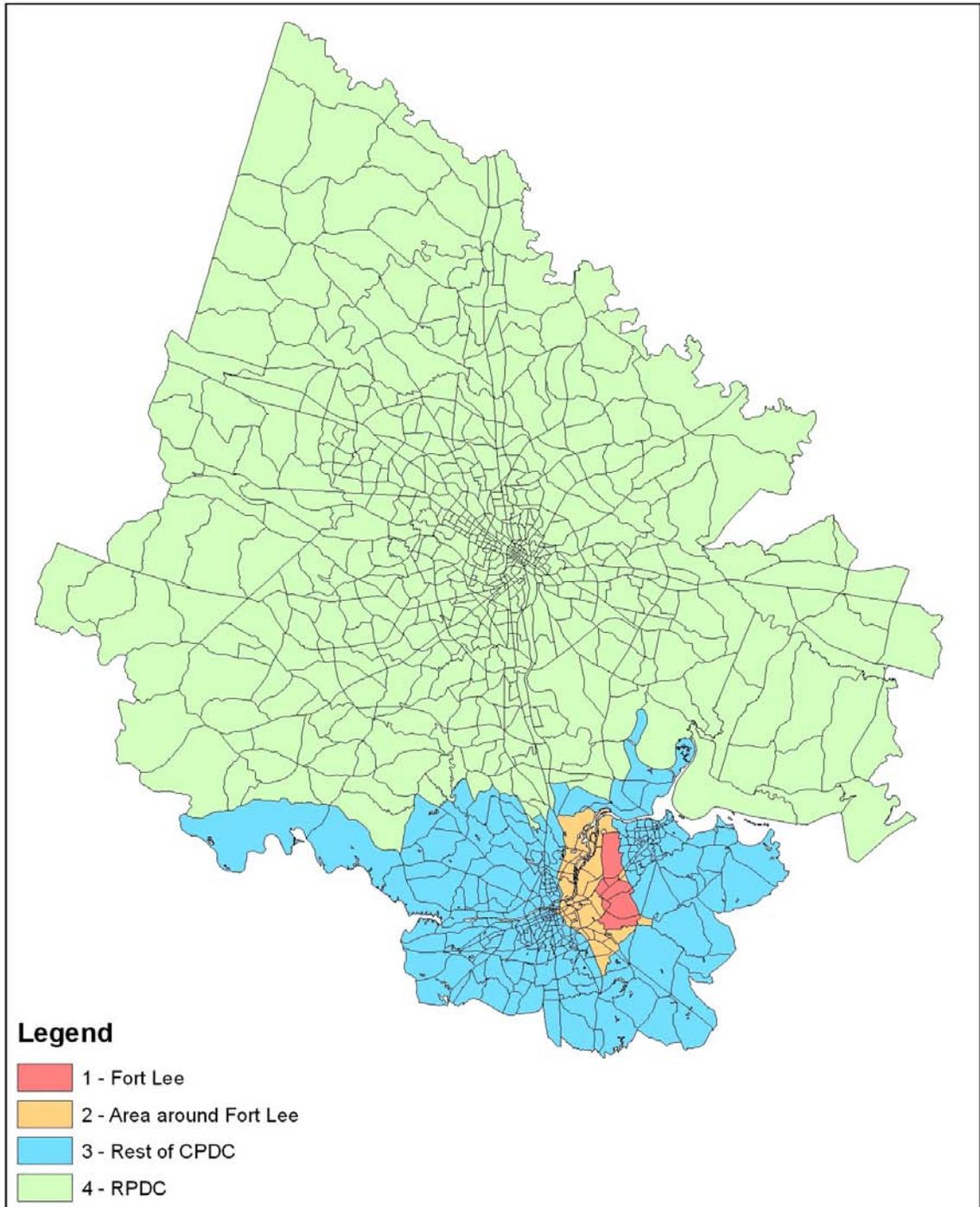
Source: Crater PDC and RKG Associates, Inc., 2007

region. Once the land use was adjusted the regional model was rerun. The 2026 and 2031 Fort Lee loaded networks as well as the daily trip table were reviewed in order to determine the regional and local impact of the expansion. In order to understand how the number of trips changed with the Fort Lee expansion the daily trip tables were reviewed. Tables 7-3 through 7-5 show the trip tables for the 2026 condition, the 2031 Fort Lee condition and the difference between the two.

The addition of Fort Lee development in the regional model results in the following changes to the regional daily trip table:

- The total number of trips in the region increase by 1.9 percent (83,308/4,422,818)
- The total number of trips traveling within Fort Lee TAZs increase from 2,252 trips to 17,245 trips (increase of 14,993).
- About half of the Fort Lee to Fort Lee trips are actually intra-zonal trips and therefore are never loaded onto the highway network.

Figure 7-1 Richmond/Crater Regional TAZs



Data Source: GIS file from VDOT

Figure 7-2 Fort Lee and Surrounding TAZs

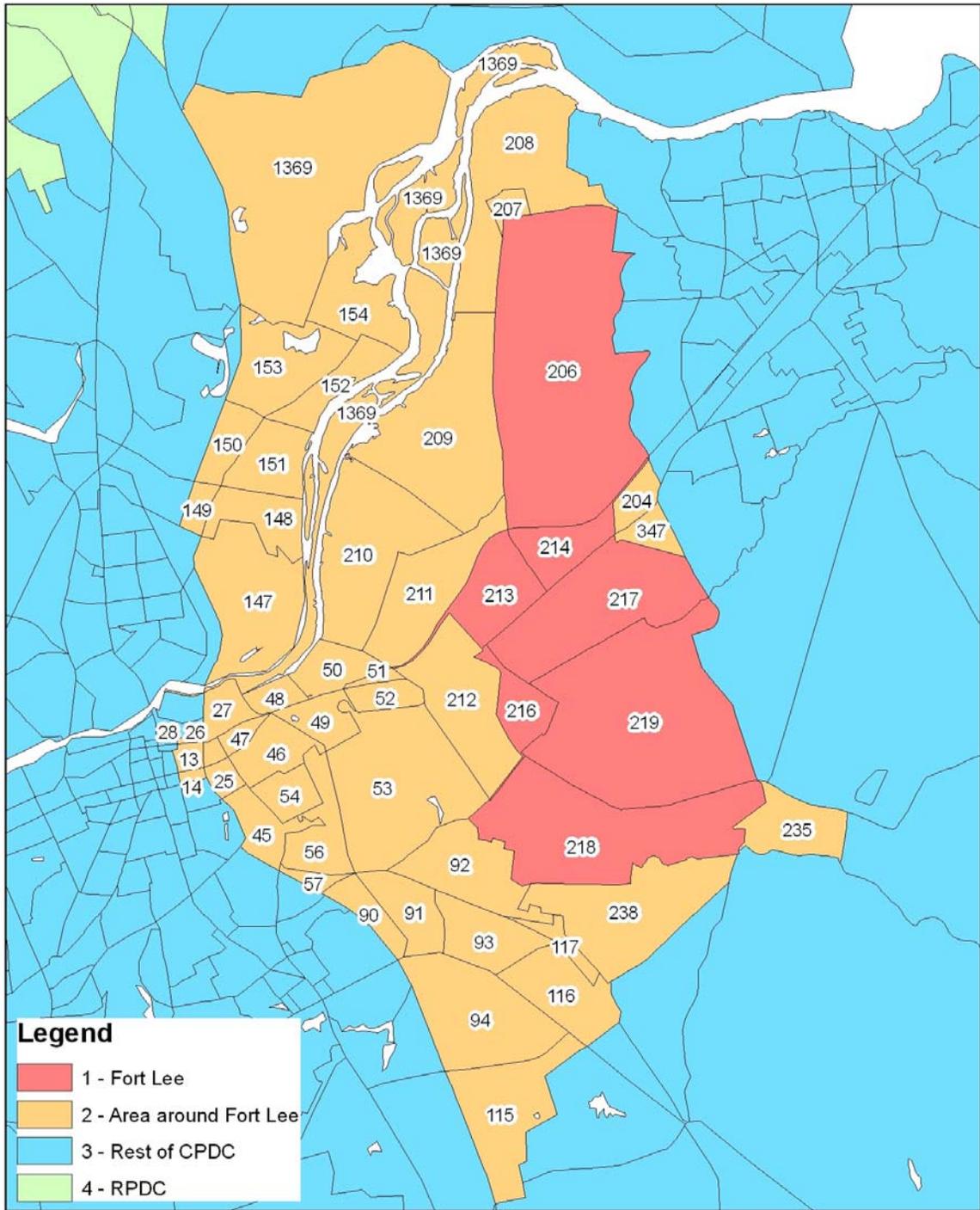


Table 7-3 2026 Daily Trip Table

| Area | Area | | | | | Total |
|-----------------------------------|---------------|-----------------|----------------|------------------|----------------------------|------------------|
| | Fort Lee TAZs | around Fort Lee | Rest of CPDC | RPDC | External TAZs ² | |
| Fort Lee TAZs | 2,252 | 2,771 | 3,627 | 2,607 | 742 | 11,999 |
| Area around Fort Lee ¹ | 2,771 | 18,852 | 30,040 | 9,344 | 3,417 | 64,422 |
| Rest of CPDC | 3,627 | 30,040 | 219,643 | 68,792 | 20,166 | 342,267 |
| RPDC | 2,607 | 9,344 | 68,792 | 3,336,360 | 249,874 | 3,666,977 |
| External TAZs | 742 | 3,417 | 20,166 | 249,874 | 62,953 | 337,152 |
| Total | 11,999 | 64,422 | 342,267 | 3,666,977 | 337,152 | 4,422,818 |

Table 7-4 2031 Fort Lee Daily Trip Table

| Area | Area | | | | | Total |
|-----------------------------------|---------------|-----------------|----------------|------------------|----------------|------------------|
| | Fort Lee TAZs | around Fort Lee | Rest of CPDC | RPDC | External TAZs | |
| Fort Lee TAZs | 17,245 | 5,578 | 9,451 | 4,749 | 2,055 | 39,078 |
| Area around Fort Lee ¹ | 5,578 | 18,616 | 31,855 | 8,648 | 3,830 | 68,527 |
| Rest of CPDC | 9,451 | 31,855 | 252,437 | 81,957 | 24,072 | 399,772 |
| RPDC | 4,749 | 8,648 | 81,957 | 3,322,013 | 244,236 | 3,661,603 |
| External TAZs | 2,055 | 3,830 | 24,072 | 244,236 | 62,953 | 337,146 |
| Total | 39,078 | 68,527 | 399,772 | 3,661,603 | 337,146 | 4,506,126 |

Table 7-5 Change in Daily Trip Table

| Area | Area | | | | | Total |
|-----------------------------------|---------------|-----------------|---------------|---------------|---------------|---------------|
| | Fort Lee TAZs | around Fort Lee | Rest of CPDC | RPDC | External TAZs | |
| Fort Lee TAZs | 14,993 | 2,807 | 5,824 | 2,142 | 1,313 | 27,079 |
| Area around Fort Lee ¹ | 2,807 | -236 | 1,816 | -695 | 413 | 4,105 |
| Rest of CPDC | 5,824 | 1,816 | 32,795 | 13,165 | 3,906 | 57,505 |
| RPDC | 2,142 | -695 | 13,165 | -14,347 | -5,639 | -5,374 |
| External TAZs | 1,313 | 413 | 3,906 | -5,639 | 0 | -6 |
| Total | 27,079 | 4,105 | 57,505 | -5,374 | -6 | 83,308 |

Source: VHB, Inc., 2007

Note: [1] - Area bordered by I-95, I-295 and Chesterfield County border excluding Fort Lee TAZs shown in Figure 7-3

[2] - External TAZs represent trips with originating or destined outside the model boundary.

They are based on the AADT at the MPO boundaries.

- Only 18,558 $((5,824+2,142+1,313)*2)$ additional daily trips to and from Fort Lee are added to the regional network which is only about 0.4% of the total regional trips in the model.
- 87 percent $((14,993+2,807+5,824)/27,079)$ of the additional trips traveling to and from Fort Lee travel within the Crater MPO area.
- The redistribution of land use because of the Fort Lee expansion decreases travel within the Richmond MPO and between the external TAZs and the Richmond MPO.

- The Fort Lee TAZs are capturing a larger percent of the external traffic, trips coming or going outside the model boundary.
- As a result of these trip table changes the volumes on the regional model roadways increased in the Fort Lee area.
- The volumes along River Road, Saratoga Drive and Adams Avenue approximately double.
- The volumes along Mahone Avenue and Hickory Hill Avenue increase by about 60 percent.
- The volumes along Oaklawn Boulevard (west of Fort Lee) and East Washington Street increase by about 10 to 16 percent.
- The volumes along Oaklawn Boulevard (east of Fort Lee) do not change or slightly decrease.
- The volumes along Temple Avenue increase by about 15 percent.
- The volumes along Enon Church Road increase by about 66 percent due to the model assigning traffic from parallel Point of Rocks Road to Eon Church Road. The net modeled traffic increase is about 0 percent.
- The volumes along Shop Road increase by about 12 percent.

Table 7-6 shows how the increase in traffic is leaving the Fort Lee area. Based on the region model about 68 percent of the traffic increase is heading to the west and I-95.

Table 7-6 Distribution of Increased Traffic Leaving Fort Lee

| Land Use | To/From | Percent |
|------------------------|-----------|---------|
| Temple Avenue | West | 27% |
| East Washington Street | West | 23% |
| Mahone Avenue | Southwest | 18% |
| Adams Avenue | Southeast | 10% |
| Oaklawn Boulevard | East | 20% |
| River Road | North | 2% |

Source: VHB, Inc., 2007

E. TRANSIT & VANPOOLING OPPORTUNITIES

1. Current Public Transit Opportunities Serving the Region

Residents of the Petersburg area are currently served by Petersburg Area Transit (PAT) which operates nine local routes named PAT 1 through 9. Transit service is offered Mondays through Saturdays from approximately 5:45 AM to 8:00 PM. Route 7 provides 30-minute service between the downtown transfer point and Fort Lee for a \$1 fare.

In addition to providing local service, PAT is partnering with the Greater Richmond Transit Company (GRTC) to operate express weekday service between Petersburg and Richmond,

including a stop at the John Tyler Community College campus on Jefferson Davis Highway south of State Route 10.

Finally, Ridefinders, a division of GRTC, provides carpooling and vanpooling opportunities to residents and employers in Central Virginia, including long-distance commuters headed to Washington, D.C. and Blackstone, VA (Fort Pickett) and from Charlottesville, Hampton, Fredericksburg and Williamsburg. Ridefinders will assist individuals in finding a carpool match or starting a new carpool. The agency will also assist individuals with finding a vanpool (7 or more people) or starting a new vanpool. Ridefinders will help employers organize and promote commute alternatives.

2. Future Markets

By 2009/2010, Fort Lee plans to process new trainees every 8 to 16 weeks. Until on-base lodging can be provided, trainees will be housed off base at local hotels. Funding for some on-base lodging is expected to be available by the 2009/2010, but the construction of new units could take a couple of years to complete. Contracts are currently being negotiated with local lodging establishments, so specific transit routes could not be analyzed at the time of this study. In addition, Fort Lee plans to add new residential units and thousands of new jobs on base. Minimal public transit currently exists to and from the base, so it will be a focus for at least five (5) potential transit markets described below. These markets will require different types and levels of service.

a.) Trainees from Local Hotels to Fort Lee

Trainees may be accommodated by a shuttle route between the hotels and the base. Since trainees will be required to be on base for a certain period of time during the day, a shuttle route or vanpooling could be established to fit training schedules and save costs by operating only during the morning and evening periods when trainees are beginning and ending their daily programs on base. Vanpooling or a shuttle service would also allow for people to be processed at the entry gates in significantly fewer vehicles, saving time and resources for both trainees and Fort Lee.

Another option would be for Fort Lee to expand their contract with the hotels that provide off-base housing to provide transportation to and from the hotels. Existing PAT routes could also be explored to determine if modified or additional service could meet the transportation needs of the trainees.

b.) Commuters from Off-base to Fort Lee

If civilian commuters traveling to the base work the same hours as trainees, then it may be possible to utilize the shuttle or vanpooling program described above. If Fort Lee command negotiates for military lodging at area hotels that are located near or adjacent to residential communities, then a park-and-ride lot could be established at the hotel as part of the Fort's negotiations. If the civilian hours differ from trainee hours or hotels are not convenient to most residential communities, then vanpooling could still be utilized assuming appropriate park-and-ride locations were established near primary residential communities.

PAT expansion could also accommodate off-base civilian commuters. An analysis of routes would have to follow the arrival of transferring civilians and/or new hiring of local civilians. Since transit is most effective serving higher densities, specific PAT routes can be analyzed following the arrival of civilian transfers.

c.) Commuters from Base to Off-base (spouses of personnel residing on base seeking off-base employment)

Spouses of on-base personnel may choose to pursue employment opportunities in the region, but not have a personal vehicle for commuting. Assuming security issues are managed, a PAT route that extends into Fort Lee stopping at appropriate residence locations may adequately serve those commuters. Once a reasonable estimate of spouses housed on base is known, this potential market could be explored further. If future a study determines that several commuters from base to off-base locations work or are likely to work in the same vicinity, a vanpooling service may be advantageous. The vanpooling or shuttle service could operate only during standard morning and evening periods, such as 7:00 AM – 9:00 AM and 4:00 PM – 6:00 PM.

d.) Base Residents Seeking Recreational Opportunities

Base residents traveling to locations off-base may be accommodated by a bus route running during the day to shopping destinations or the downtown PAT transfer center. This market group could also be served by a vanpooling or shuttle service that connected to the downtown PAT transfer center, or running directly to major shopping and entertainment centers. This market group addresses quality of life as opposed to strict functionality of delivering a working populace to their jobsite.

e.) Base Visitors via Train, Airport, Bus Station, etc.

Visitors to Fort Lee may be accommodated by an on-call van that would make round trips between the base and area transportation hubs such as Richmond International Airport. This type of service would be most effective if the Fort experienced a substantial number of out-of-town visitors traveling to the base. An on-call service would require a vehicle operator to be available during designated hours of service (7:00 AM – 7:00 PM, for example). Depending on the level of usage, the operator may be a part-time position.

Figures 7-1 and 7-2 on the following pages illustrate the areas projected to experience the greatest increase in morning commuter trips to Fort Lee following the BRAC expansion. The Fort Lee boundary is shown with a solid black line. Figure 7-3 illustrates the impact of home-based work trips, which include military personnel and civilians traveling from off-base to Fort Lee each day for work. Figure 7-4 illustrates the impact of all morning commuter trips in the region, home-based commuters and trainees housed off-base at local or regional hotels.

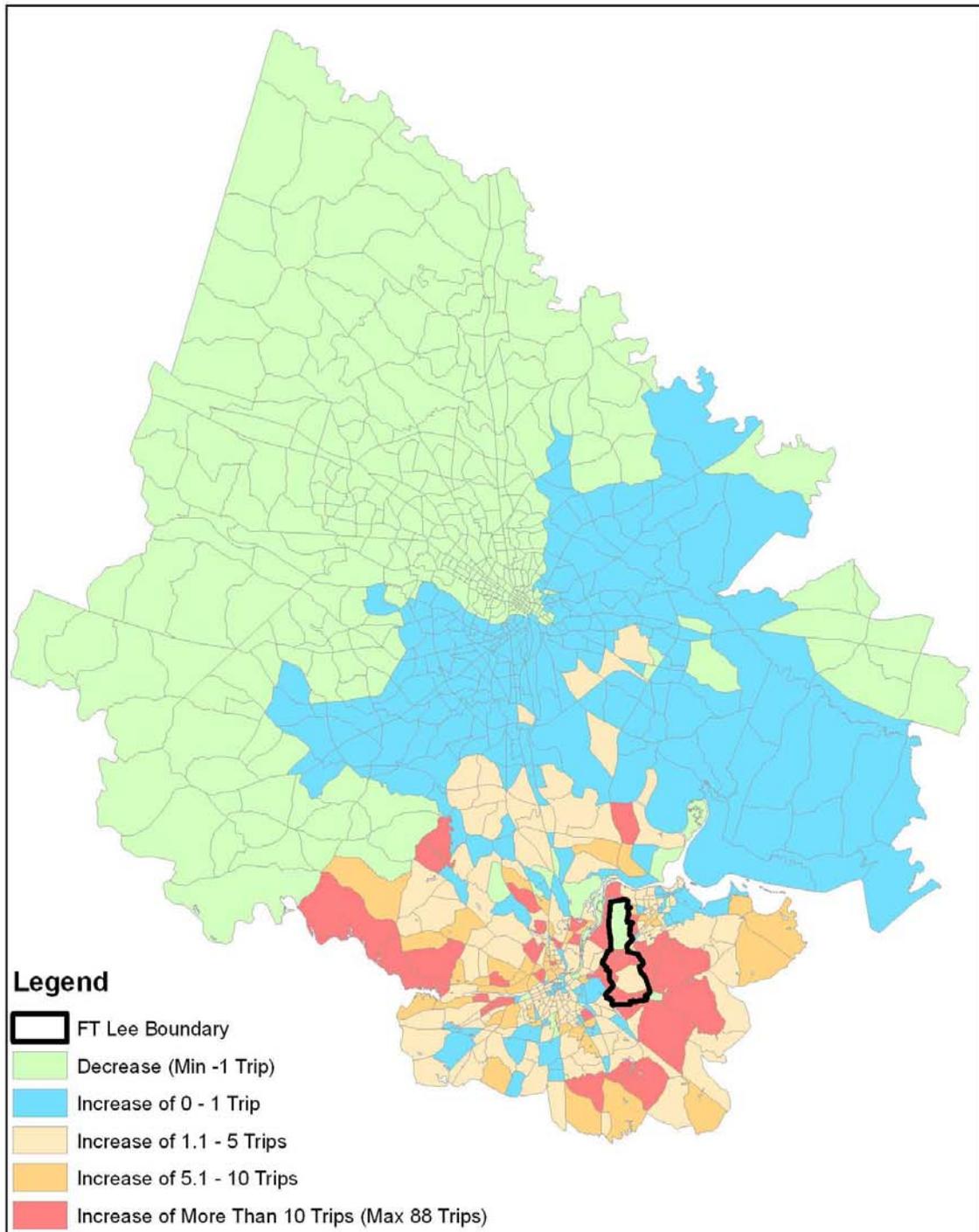
These figures will help Fort Lee, local and regional governing agencies, and transit providers identify specific transit opportunities based on the density of trips to the base following the BRAC expansion. Since transit and ridesharing are best served within higher density locations, the zones shaded in dark pink on Figures 7-3 and 7-4 would be the zones prioritized first for further examination.

The majority of the Crater PDC is not served by local transit routes and only one route, PAT 7, operates to Fort Lee. As the region continues to grow with the addition of Fort Lee, transit can play a vital support role to a successful, thriving community.

Figure 7-1 Growth of Morning Peak Hour Home-Based Work Trips to Fort Lee

Growth of Morning Peak Hour HBW Trips to FT Lee

11/20/07



Legend

- FT Lee Boundary
- Decrease (Min -1 Trip)
- Increase of 0 - 1 Trip
- Increase of 1.1 - 5 Trips
- Increase of 5.1 - 10 Trips
- Increase of More Than 10 Trips (Max 88 Trips)

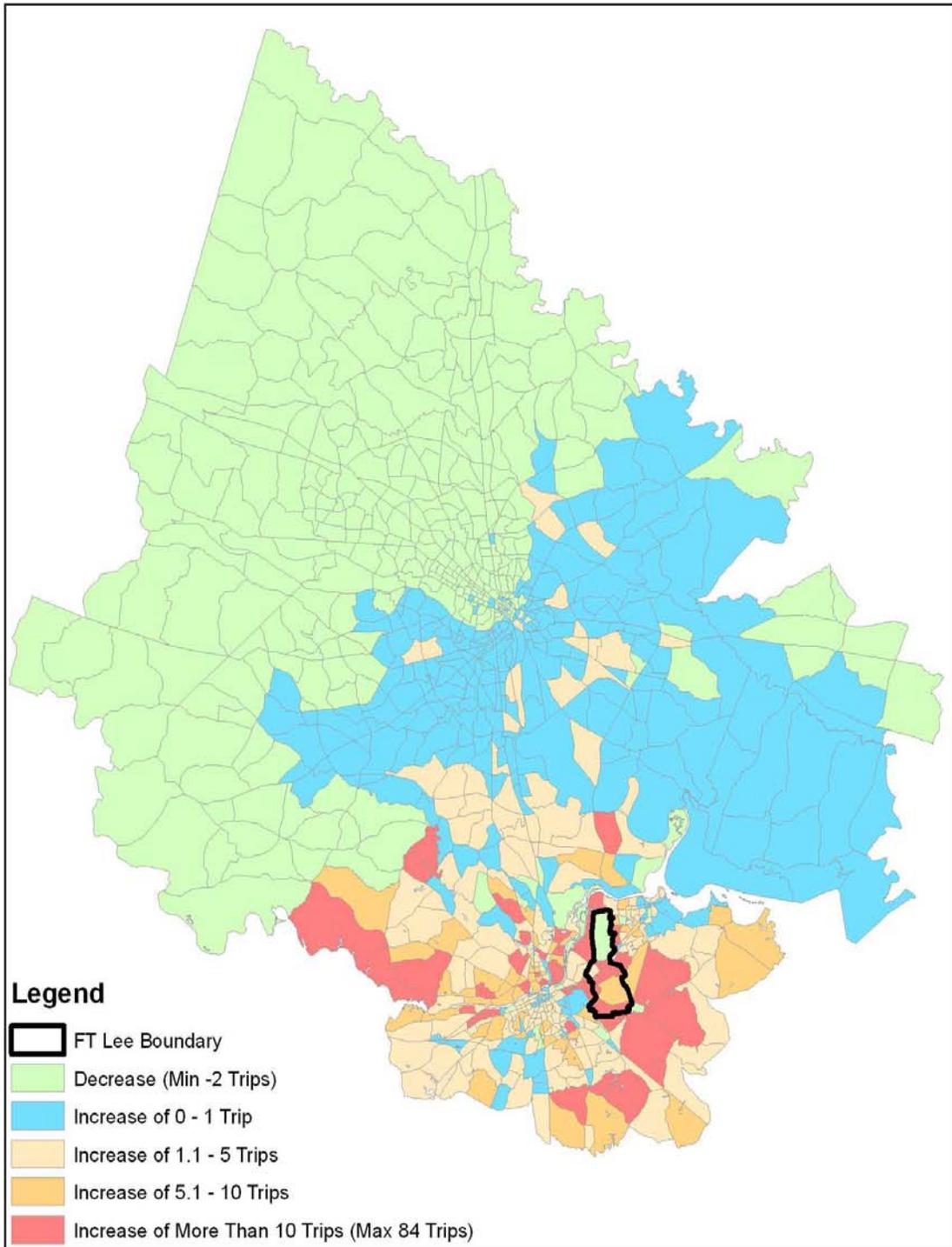
Data Source: GIS file and trip tables were obtained from VDOT



Figure 7-2 Growth of Morning Peak Hour Total Trips to Fort Lee

Growth of Morning Peak Hour Total Trips to FT Lee

11/20/07



Legend

- FT Lee Boundary
- Decrease (Min -2 Trips)
- Increase of 0 - 1 Trip
- Increase of 1.1 - 5 Trips
- Increase of 5.1 - 10 Trips
- Increase of More Than 10 Trips (Max 84 Trips)

Data Source: GIS file and trip tables were obtained from VDOT



3. Analyses of Transit Options

VHB identified military bases across the nation at which there is successful cooperation between the base and the local transit provider. VHB then interviewed these agencies to learn more about the specific programs and actions. Interview questions included:

- Is there a formal arrangement for services between the transit provider(s) and the base, or is the gate simply another drop-off point? (On base service, base-to-grocery stores, etc.)
- If service is provided to base, do they contribute any funding?
- How have security issues been overcome? (Passenger ID checks, no buses on base, etc.)

The agencies provided examples of services aimed at persons commuting to the base, as well as to persons residing on the base commuting to off-base jobs or requiring recreational transportation. Table 7-7 provides a sample of our interview results. Of significant importance are issues of security and funding between the transit agencies and the military bases. The following section highlights some examples of agency activities nationwide.

a.) Transit Cooperation with Military Bases

Examples of cooperation between transit providers and military bases based on VHB's interviews are summarized for six (6) of the bases. These examples provide a geographic cross-section and also had the most relevant information to share.

- *Fort Huachuca (Arizona)* - A fixed route exists to the base with curbside service for handicapped and elderly riders. Passenger IDs are checked at the gate where riders then board a separate bus that operates exclusively on base. Weekend service is provided to local services. The base does not contribute any funding to the transit operation, but land for a new transfer station was donated by the military.
- *Luke Air Force Base (Arizona)* - The "Luke Link" began service in 1996, in response to a request from the base. Transportation was originally provided only to those carrying a valid military ID, but was expanded to the general public in 1999. The general public is allowed to ride in non-secure areas of the base only. Transit costs are shared by the base and city of Glendale, Arizona based on monthly trip estimates.
- *MacDill Air Force Base (Florida)* - Round trip express routes exist between the base and predominantly military residential subdivisions. A non-express route operates on weekends. The area transit provider works closely with the base officials, including regular planning meetings. There are approximately 200 active riders in the system. Monthly transit passes are sold on base at a discount to military personnel through a federal program, but MacDill does not directly contribute any funding for transit services.
- *Fort Sill (Oklahoma)* - The local transit provider works closely with Fort Sill officials, periodically reviewing routes to make sure the needs of military personnel and civilian employees are adequately met. One regular route extends within the base perimeter, while others stop at the gate.

- *Fort Campbell (Tennessee)* - Transit service is provided to the general public on base between 5:00 AM and 9:00 PM. Fort Campbell does not provide any direct funding for transit services, but there is a Federal/State matching program utilized for the urbanized region that includes the base.
- *Bremerton Navy Base (Washington)* - Vanpooling services are available at Bremerton. A Navy yard employee (part-time position) operates a transit agency bus as a vanpool vehicle. Previously established park-and-ride lots in the area are used as pick-up/drop-off points for the commuters.

Table 7-7 Military Base Transit Agency Contacts

| State | Base Name | Transit Provider | Contact Person | Telephone | E-mail |
|----------------|--------------------------------------|---|-------------------------------|--------------|--|
| Arizona | Fort Huachuca | Sierra Vista Public Transit System | Sam Chavez (AZDOT) | 602-712-7465 | schavez@azdot.gov |
| Arizona | Fort Huachuca | Sierra Vista Public Transit System | Steve Tyminski (Sierra Vista) | 520-458-5775 | |
| Arizona | Luke Air Force Base | Sierra Vista Public Transit System | Cathy Colbath (Glendale) | 623-930-3508 | ccolbath@glendaleaz.com |
| California | Marine Corps Air Station | San Diego Metropolitan Transit System | Mark Miller (Cal-Berkeley) | 415-250-5415 | mamiller@path.berkeley.edu |
| California | Naval Air Station | San Diego Metropolitan Transit System | Brent Boyd | 619-595-4983 | brent.boyd@sdmts.com |
| California | Camp Pendleton | North County Transit District | Stefan Marks | 760-966-6500 | smarks@nctd.org |
| Florida | MacDill Air Force Base | Hillsborough Area Regional Transit | Bob Potts (HART) | 813-623-5835 | |
| Florida | MacDill Air Force Base | Hillsborough Area Regional Transit | Donna Chen (HART) | 813-223-6831 | |
| Florida | (military base) | Escambia County Area Transit | Dawn Groters | 850-595-3228 | |
| Florida | (military base) | Escambia County Area Transit | Richard Deibler | 850-554-2868 | richard_deibler@co.escambia.fl.us |
| Idaho | Mountain Home Air Force Base | Treasure Valley Transit | Beldon 'Butch' Ragsdale | 208.334.8282 | |
| Illinois | Scott Air Force Base | Metro St. Louis Metrolink | Jerry Valley | 314-231-2345 | |
| Michigan | (national guard & coast guard bases) | MDOT | Kim Johnson (MDOT) | 517-373-0471 | |
| Michigan | (national guard & coast guard bases) | Crawford County Transportation Authority | Julee Dean | 989-348-8215 | ccta@verizon.net |
| Michigan | (national guard & coast guard bases) | Bay Metropolitan Transportation Authority | Michael Stoner | 989-894-2900 | mstoner@baymetro.com |
| Michigan | (national guard & coast guard bases) | Adrian Dial-A-Ride | Marcia Bohannon | 517-264-4849 | marciab@ci.adrian.mi.us |
| Michigan | (national guard bases) | Eaton County Transportation Authority | Linda Tokar | 517-371-3313 | ltokar@ameritech.net |
| New York | Fort Hamilton | MTA-NYCT | Paul Gawkowski | | |
| Oklahoma | Fort Sill | Lawton | Pauline Garrett (LATS) | 580-248-5252 | |
| South Carolina | Fort Jackson | CMRTA | Mitzi Javers | 803-255-7133 | mitzij@gocmrt.com |
| Tennessee | Fort Campbell | City of Clarksville | Jimmy Smith | 931-553-2430 | jsmith@cityofclarksville.com |
| Virginia | Naval Station Norfolk | Hampton Roads Transit | (Base Website) | | |
| Washington | Bremerton Navy Base | Mason Transit | Dave O'Connell | 360-426-9434 | |
| Washington | Fort Lewis Air Force Base | Pierce Transit | Stephen Abernathy (WSDOT) | 360-705-7960 | abernas@wsdot.wa.gov |

Source: VHB, Inc., 2007

b.) Base Security Issues

Transit services to military bases require additional security measures, especially post-9/11. The Sierra Vista Public Transit System in Sierra Vista, Arizona and the Luke Link transit service in Glendale, Arizona provide examples of services to military installations, but with restricted access on base. The Sierra Vista Public Transit System has provided services within the city limits of Sierra Vista and to Fort Huachuca Military Reservation. For passengers entering into Fort Huachuca, IDs are checked at the gate and a separate bus operates exclusively on base.

The Luke Link transit service in Glendale carries over 100 riders a day between downtown Glendale and the Luke Air Force Base commissary and hospital. Luke Link began service in 1996 in response to request from the base to provide transportation for military personnel who had no other means. Luke Link operates a single bus stop just outside a secure area of base and requires a valid military ID.

Other systems offer on-base service with additional security measures in place. In Lawton, Oklahoma, the Lawton Area Transit (LAT) service operates a regular route that enters Fort Sill. The bus stops at the entrance gate where all passenger IDs are checked. At MacDill Air Force Base south of Tampa, Florida, guards check all passenger IDs who board the Hillsborough Area Regional Transit (HART) and sweep under the bus before allowing access to the base.

Central Midlands Regional Transportation Authority (CMRTA) provides service in the Columbia, South Carolina region to Fort Jackson to meet the needs of the civilian workforce working on the base. The buses are permitted to access the base at only one location where a Military Police officer boards and escorts the bus to the multiple drop-off locations on base. Civilian workers are required to provide proper identification to access points on base. A similar security policy is in effect at Fort Campbell in Tennessee where Military Police officers board buses at the gate and ride the duration of the on-base trip, performing random passenger ID checks.

c.) Transit Cost Model

VHB developed a cost model for PAT based on data available in the FTA's FY 2006 National Transit Database. Table 7-8 lists PAT annual operating costs broken down by vehicle operations, vehicle maintenance, non-vehicle maintenance and general administration. The total operating budget in FY06 was approximately \$2.2 million. Table 7-9 lists total operating miles, hours, and vehicles broken down by revenue hour (bus in service and carrying passengers) and platform hour (total running time of bus including revenue time, non-revenue time, layovers, travel time to garage, etc).

Table 7-8 Petersburg Area Transit FY06 Operating Costs

| Cost Item | Vehicle Operations | Vehicle Maintenance | Non-Vehicle Maintenance | General Administration | Total |
|------------------------------|--------------------|---------------------|-------------------------|------------------------|--------------------|
| Operators Salaries | \$649,996 | \$0 | \$0 | \$0 | \$649,996 |
| Other Salaries | \$0 | \$112,344 | \$28,489 | \$136,181 | \$277,014 |
| Fringe Benefits | \$161,180 | \$26,035 | \$7,100 | \$65,323 | \$259,638 |
| Service Costs | \$0 | \$2,725 | \$0 | \$74,906 | \$77,631 |
| Fuel and Lubricants | \$286,121 | \$0 | \$0 | \$0 | \$286,121 |
| Tires and Tubes | \$39,369 | \$0 | \$0 | \$0 | \$39,369 |
| Other Materials and Supplies | \$10,260 | \$250,342 | \$0 | \$76,202 | \$336,804 |
| Utilities | \$8,568 | \$0 | \$0 | \$77,112 | \$85,680 |
| Casualty and Liability | \$0 | \$15,735 | \$0 | \$0 | \$15,735 |
| Miscellaneous | \$150,507 | \$0 | \$0 | \$72,751 | \$223,258 |
| Total | \$1,306,001 | \$407,181 | \$35,589 | \$502,475 | \$2,251,246 |

Source: Petersburg Area Transit, 2006

Tables 7-8 and 7-9 were used to develop Table 7-10 which summarizes costs per mile, hour, and vehicle. The unit costs were derived by dividing the total

Table 7-9 PAT Operating Miles, Hours, and Vehicles

| | Platform | Revenue |
|-------------------------------|----------|---------|
| Vehicle Hours | 44,788 | 43,248 |
| Vehicle Miles | 466,360 | 455,688 |
| Max Operating Vehicles (peak) | 14 | 14 |

Source: Petersburg Area Transit, 2006

operating cost by the respective unit. \$2,251,246 divided by 14 vehicles equals \$160,803.29 per vehicle. The coefficients in Table 7-10 are intended to be used as multipliers to determine planning-level costs. Based on the factors below, if PAT added two (2) new buses to its fleet, the cost would be estimated as follows:

- Capital Cost (2 new vehicles @ \$300,000 each) = \$600,000
- Annual Operating Cost: (12 hours per day) x (300 operating days per year) x (\$52.05 per revenue hour) = \$187,380

Funding from Federal Transit Administration (FTA) Capital grants and VDRPT programs should be available to support a large portion of the capital cost for new equipment. Since these vehicles would be added primarily to operate on routes serving Fort Lee, the possibility of obtaining support for the Fort to cover the local share of the purchase costs should be explored.

FTA grants do not cover operating costs. However, VDRPT projects significant new funds to support transit operations to become available in FY 2009. As a result the share of transit operating costs supported by the State may increase. If this occurs it may be possible for PAT to expand service to Fort Lee without requiring additional funding from local sources.

d.) Summary of Transit Options

If PAT and Fort Lee were to form a partnership and develop additional service to the base, costs can be easily computed using Table 7-10. The ballpark figure for Monday through Saturday service (300 days excluding Sundays and holidays) for 12 hours a day, equates to 3,600 revenue hours or approximately \$190,000 per vehicle, as described above. The multiplying factor for this estimate is per revenue hour and excludes the purchase of additional vehicles, if needed, and other costs. It also assumes only one route and therefore limits recreational destinations and off-base job sites for base residents, as well as non-base commute origins.

Table 7-10 PAT Single Factor Model Coefficients

| | Platform | | Revenue | |
|-------------|----------|--------------|---------|--------------|
| | Units | Unit Cost | Units | Unit Cost |
| Per Hour | 44,788 | \$50.26 | 43,248 | \$52.05 |
| Per Mile | 466,360 | \$4.83 | 455,688 | \$4.94 |
| Per Vehicle | 14 | \$160,803.29 | 14 | \$160,803.29 |

Source: VHB, Inc., 2007

The purpose of the cost model and resulting coefficients is to provide a relative scale while considering transit opportunities in the region. Actual costs and financial responsibilities would be negotiated between the transit agency and Fort Lee.

Another transit alternative for Fort Lee is Ridefinders. Ridefinders is a division of the GRTC that works with local governments and companies to promote carpooling and vanpooling. Ridefinders offers both promotional materials and matching services to assist travelers in finding suitable ridesharing opportunities. In addition to their carpooling, vanpooling and excellent employer assistance programs, Ridefinders has been an active participant in this study. They understand the base's need to provide both high quality and secure transportation service to trainees. The agency has offered to maintain a separate vanpooling database in order to secure Fort Lee's pickup and drop off data. This is a great opportunity to serve the transportation needs of commuters to the base, as well as trainees. However, this option does not meet the needs of many non-commuters or atypical commuters, such as a base resident who needs midday service to shopping or to a shift-work job. If the base were to develop a partnership with Ridefinders, Fort Lee would need to provide vanpool parking on the base and incentives to riders such as assistance with the monthly fees to Ridefinders which include the cost of the vehicle, insurance, maintenance, fuels and sales tax.

4. Transportation Improvements

The Tri-Cities 2031 Draft Transportation Plan Project List was reviewed to determine if some of the projects would become more important given the increase in Fort Lee traffic. The list was reviewed in each of the 6 jurisdictions listed below:

1. Chesterfield County
2. Colonial Heights
3. Dinwiddie County
4. Hopewell
5. Petersburg

6. Prince George County

Table 7-11 lists, for each jurisdiction, the project locations where model volumes increase by more than three percent because of the Fort Lee expansion. Several transportation projects were part of the MPO's 2026 project list but removed from the 2031 draft project list. Those projects which the MPO should revisit are highlighted in Table 11. The Traffic Increase column shows a projected percentage growth for the MPO to use during their prioritization of the final 2031 project list.

There were no applicable projects in Dinwiddie County. There are a number of projects where the model decreases with the Fort Lee expansion however in reality these links probably would have an increase in volume. The projects include the following:

- Project 49 - Route 36 between Temple Ave and Jefferson Park
- Project 58 - Route 106 and Route 603
- Project 60 - Route 646 from Jefferson Park Road to Takach Road

5. Funding Opportunities

a.) Transit

Funding was one of the primary discussion points during the interview process with transit providers across the country. Costs for the Luke Link service in Glendale, Arizona are shared by the base and the City based on the estimated monthly number of trips made to the base. The base pays the city accordingly per month.

The City of Mountain Home, Idaho, contributes \$25,000 local match and the Air Force contributes \$60-90,000 to the Treasure Valley Transit and Commuteride services to coordinate their hourly circulator bus routes between the city and Mountain Home Air Force Base.

Hampton Roads Transit in Hampton, Virginia, has begun operating a free shuttle service within Naval Station Norfolk to designated areas on the base. Federal Congestion Mitigation/Air Quality (CMAQ) funds provided 80 percent of the total \$168,300 cost of the shuttle, while the Navy provided the remainder.

Table 7-11 Projects Increasing Model Traffic by Greater than 3 Percent

| Project | From | To | Dist. | Description | Traffic Increase |
|--|--|------------------------------|-----------------|---------------------------------|------------------|
| County of Chesterfield | | | | | |
| Rt. 10 | I-295 | Hopewell NCL | 3.22 Mi. | Widened 4 to 6 lanes | 13% |
| Rt. 746 Enon Church Rd | Rt. 10 Hundred Rd. East | I-295 | .93 Mi. | Widened 2 to 4 lanes | 66% |
| Rt. 626 Laveview Rd | Woodpecker Rd. Rt. 626 | Colonial Heights CL | 0.57 Mi. | Reconstruct | 7% |
| Rt. 628 Hickory Rd. | Southlawn Ave. Rt. 812 | Old Town Creek | N/A | Reconstruct | 10% |
| <i>Branders Bridge Rd.</i> | <i>Rt. 626 Lakeview Dr.</i> | <i>Colonial Heights CL</i> | <i>1.1 Mi.</i> | <i>Reconstruct</i> | <i>4%</i> |
| <i>Dupuy St. Rt. 1106</i> | <i>Loyal Ave. Rt. 1103</i> | <i>E. River Rd. Rt. 1107</i> | <i>0.53 Mi.</i> | <i>Reconstruct</i> | <i>6%</i> |
| <i>E. River Rd. Rt. 1107</i> | <i>Loyal Ave. Rt. 1103</i> | <i>Colonial Heights CL</i> | <i>0.42 Mi.</i> | <i>Reconstruct</i> | <i>6%</i> |
| Rt. 1 | at Old Bermuda Hundred Rd. | | | Vertical Realignment & Tls | 7% |
| City of Colonial Heights | | | | | |
| <i>Rt. 144 (Temple Ave.)</i> | 95 | | <i>N/A</i> | <i>Demolition</i> | 13% |
| I-95 | Temple Ave. | | N/A | Interchange Improv. | 12% |
| I-95 | Temple Ave. | | N/A | Interchange Improv. | 12% |
| City of Hopewell | | | | | |
| Cedar Level Road | Kippax Dr. | Mesa Dr. | 1.2 Mi. | Widening | 37% |
| Courthouse/ Berry | Oaklawn Blvd. | High Ave. | 1.4 Mi. | Widening | 18% |
| Miles Ave. | Winston Churchill Dr. | Courthouse Road | N/A | Widening | 22% |
| <i>Sunnyside/ Oaklawn/ 15th</i> | <i>Churchill Dr.</i> | <i>N&W R.R.</i> | <i>.7 Mi.</i> | <i>Widening</i> | <i>5%</i> |
| Route 36 @ Colonial Crossing | | | N/A | Turn Lanes | 18% |
| City of Petersburg | | | | | |
| <i>Graham Rd.</i> | <i>Jefferson St.</i> | <i>S. Crater Rd.</i> | <i>.78 Mi.</i> | <i>Widening</i> | <i>2%</i> |
| Rives Rd. | S. Crater Rd. | Interstate 95 | .57 Mi. | Reconstruct | 9% |
| I-85/I-95 Ramps | | | N/A | Phase 1 thru 4 | 8% |
| Rt. 36 E, Washington St | Puddledock Rd | Petersburg ECL | .50 Mi. | Reconstruct | 13% |
| Rt. 36 E, Washington St | E. Bank St. | Puddledock Rd. | .76 Mi. | Reconstruct | 11% |
| Rt. 36 E, Washington St. | Amelia St. (Wythe St.) | E. Bank St. | .20 Mi. | Reconstruct | 5% |
| <i>I-95 Int. @ Rives Rd.</i> | | | <i>N/A</i> | <i>Reconstruct & Reloc.</i> | <i>13%</i> |
| Route 36 | Washington Street | Puddledock Road | N/A | Signal Mod. @ Intersec | 10-13% |
| County of Prince George | | | | | |
| <i>Route 460</i> | <i>.20 Mi. S. I-295</i> | <i>4.59 Mi. S. I-295</i> | <i>4.39 Mi.</i> | <i>Reconstruct</i> | <i>3%</i> |
| Route 36 | I-295 | Petersburg E.C.L. | 2.84 Mi. | Widening | 5% |
| <i>I-295</i> | <i>Rt. 106 Relocation & Interchange at I-295</i> | | <i>N/A</i> | <i>New Location</i> | <i>14%</i> |
| Rt 630 Jefferson Park Rd | Rt 646 Middle Rd | .4 Mi N Rt 646 | 0.4 Mi. | Reconstruct | 11% |
| Rt 630 Jefferson Park Rd | Bridge Widening at Baileys Creek | | N/A | Reconstruct | 11% |
| Rt. 630 Bull Hill Rd. | Rt. 634 Allin Rd. | Rt. 106 Courthouse Rd. | 1.0 Mi. | Reconstruct | 7% |
| <i>Rt. 630 Hill Rd</i> | <i>Rt. 106 Courthouse Rd.</i> | <i>Rt. 460 County Dr.</i> | <i>2.11 Mi.</i> | <i>Reconstruct</i> | <i>23%</i> |
| Rt. 629 Rives Rd. | Rt. 460 County Dr. | Petersburg S.C.L. | 1.60 Mi. | Widening | 10% |
| Rt. 646 Middle Rd. | Rt. 630 Jefferson Pk. Rd. | Rt. 156 Prince George Dr. | 2.0 Mi. | Reconstruct | 4% |
| Rt 629 West Quaker Rd | Rt 460 County Dr | Rt. 156 Prince George Dr. | 2.8 Mi | Reconstruct | 31% |
| Rt 36 Interchange | Temple Ave & 6th Street Intersection | | N/A | Interchange Improvement | 14% |
| Route 36 | Temple Avenue | Jefferson Park Road | N/A | Add EB Lane on Oaklawn | 0% |
| Rt. 144 & Rt. 645 | Temple Avenue @ Puddledock Road | | N/A | Turn Lanes & Sig. Mod. | 14% |
| Route 36 | Oaklawn Boulevard @ Hill Drive/Lee Avenue | | N/A | Mod. Sig. @ Lee Ave. | 10% |
| Route 36 | Oaklawn Boulevard @ River Road | | N/A | Add LTL & Signal | 10% |
| Route 460 | County Drive @ Courthouse Road | | N/A | Mod. Sig. @ Courthouse | 4% |
| Jefferson Park Rd./Allin Rd./Adams Ave./Bull Hill Rd. Roundabout | | | N/A | Construct Roundabout | 7% |
| Rt. 630 @ Rt. 646 | | | N/A | Install Sig. & Turn La. | 9% |
| Rt. 106 & Rt. 630 | | | N/A | Split Inter. & Add Sig. | 10% |
| Rt. 106 & Rt. 630 | | | N/A | Modify Signal | 10% |
| Rt. 106 & Rt. 603 | | | | Install Traffic Signal | 0% |
| Route 630 | Middle Road | Adams Avenue | N/A | Widen Jeff. Park | 4% |
| Route 646 | Jefferson Park Road | Takach Road | N/A | Widen Middle Road | 0% |

Source: Regional Transportation Demand Model and VHB, Inc., 2007

NOTE: Highlighted rows in Table 11 are part of the Updated 2026 Project List, but not the Preliminary 2031 Project List.

Employees of the Department of Defense are eligible for the Transportation Incentive Program. Under this program, employees are able to receive up to \$110/month to cover commuting costs related to bus, ferry, or vanpool services. Kitsap Transit based in Bremerton, Washington utilizes this program to enable workers at area military bases to benefit from using mass transit.

b.) Roadway

Highway funding for the most part is through VDOT. Table 7-12 reflects a stratified estimate of funding forecasted by VDOT through FY 2031, as presented at the January 2008 MPO meeting. The year of expenditure forecasts have been converted into year 2008 values in order to compare multiple columns relative to each other. The funding for 2008-2013 reflects the portion assigned to the Tri-Cities Metropolitan Area portion of the Crater Planning District Metropolitan Area from the current VDOT Six Year Improvement Program. The mathematical assumptions used by VDOT to calculate future expenditures and the distribution of various funds are included in the notes following Table 7-12.

Table 7-12 Financing Assumptions & Year of Expenditure Forecast (Tri-Cities 2031 Transportation Plan)

| Program/Type | Locality | 6-Yr Program 2008-2013 | 2008 VALUE OF ESTIMATED REVENUES | | | | | 2008-2031 2008 Value Total |
|--------------------------|------------------|---------------------------|----------------------------------|---------------------|---------------------|---------------------|----------------------|-------------------------------|
| | | | 2014-2018 | 2019-2023 | 2024-2028 | 2029-2031 | | |
| Bridge | MPO | \$0 | \$4,197,592 | \$3,175,423 | \$78,340 | \$0 | \$7,451,354 | |
| Bridge Match | MPO | \$0 | \$1,049,398 | \$793,856 | \$19,585 | \$0 | \$1,862,839 | |
| CMAQ 60302 | MPO | \$3,709,338 | \$3,938,931 | \$3,772,130 | \$3,609,531 | \$2,359,706 | \$17,389,636 | |
| CMAQ-Match | MPO | \$1,010,700 | \$984,733 | \$943,033 | \$902,383 | \$589,927 | \$4,430,775 | |
| Enhancement | MPO | \$1,777,829 | \$1,272,449 | \$1,192,227 | \$1,118,392 | \$720,589 | \$6,081,486 | |
| HPP-F | MPO | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | |
| HPP-R | MPO | \$35,661 | \$0 | \$0 | \$0 | \$0 | \$35,661 | |
| Rail Highway Crossings | MPO | \$174,918 | \$0 | \$0 | \$0 | \$0 | \$174,918 | |
| Rail Hwy Crossings match | MPO | \$19,435 | \$0 | \$0 | \$0 | \$0 | \$19,435 | |
| Safety | MPO | \$3,524,186 | \$2,483,407 | \$2,373,611 | \$2,267,349 | \$1,480,408 | \$12,128,960 | |
| Safety Match | MPO | \$75,461 | \$0 | \$0 | \$0 | \$0 | \$75,461 | |
| State Match SAFETEA-LU | MPO | \$16,447 | \$0 | \$0 | \$0 | \$0 | \$16,447 | |
| STP Regional | MPO | \$4,993,380 | \$6,249,099 | \$5,938,571 | \$5,643,474 | \$3,670,993 | \$26,495,517 | |
| STP Regional-Match | MPO | \$1,248,326 | \$1,562,275 | \$1,484,643 | \$1,410,869 | \$917,748 | \$6,623,861 | |
| TERMS | MPO | \$55,912 | \$0 | \$0 | \$0 | \$0 | \$55,912 | |
| TERMS Match | MPO | \$13,978 | \$0 | \$0 | \$0 | \$0 | \$13,978 | |
| Interstate | MPO | \$13,112,961 | \$37,213,118 | \$33,606,252 | \$26,441,786 | \$12,727,715 | \$123,101,832 | |
| Primary | MPO | \$34,148,849 | \$9,220,953 | \$6,003,482 | \$4,639,666 | \$2,083,516 | \$56,096,466 | |
| Secondary | Prince George | \$5,316,324 | \$2,418,965 | \$1,550,950 | \$1,195,842 | \$629,791 | \$11,111,872 | |
| Secondary | Dinwiddie | \$2,967,986 | \$1,379,184 | \$845,708 | \$647,630 | \$332,139 | \$6,172,648 | |
| Secondary | Chesterfield | \$4,741,686 | \$2,236,827 | \$1,439,519 | \$1,108,318 | \$613,196 | \$10,139,546 | |
| Urban | Petersburg | \$9,867,987 | \$4,454,041 | \$2,838,785 | \$2,213,604 | \$906,956 | \$20,281,373 | |
| Urban | Hopewell | \$6,288,565 | \$3,238,785 | \$2,046,270 | \$1,586,313 | \$637,457 | \$13,797,390 | |
| Urban | Colonial Heights | \$4,682,095 | \$2,491,121 | \$1,573,893 | \$1,220,117 | \$490,301 | \$10,457,527 | |
| Transit | Petersburg | \$11,598,000 | \$12,410,000 | \$10,320,000 | \$15,520,000 | ---- | \$49,848,000 | |
| Total | | \$109,380,027 | \$96,800,877 | \$79,898,352 | \$69,623,198 | \$28,160,442 | \$383,862,894 | |

Source: Tri-Cities Metropolitan Planning Organization (MPO), 2007

Notes:

Data provided to Crater PDC by VDOT-Central Office Fiscal Division that has been converted by the VDOT District Office to 2008 present worth values. Original numbers were generated using the following assumptions.

ASSUMPTIONS:

- 1) Maintenance allocations will increase 4% annually.
- 2) State revenues for 2014 - 2031 will grow by the average of the growth rate from FY 2008 - 2013 Six-Year Financial Plan.
- 3) Federal revenue annual growth is forecasted at the rate of increase in taxable gallons of gas as estimated by the Virginia Department of Taxation, which is 2.05%.
- 4) After the HB3202 bond issuance period has ended, it is assumed that there will be \$300 million of new bond revenue, with its associated debt, each year beyond 2017 that will be distributed in the same manner as was the previous bond proceeds.
- 5) Non-interstate NHS is not assumed beyond 2013, with all distributed as Interstate funds.
- 6) It is assumed that future federal reauthorizations will follow the current funding scheme and base levels.
- 7) Transit revenue shown for 2024-2028 also includes revenue for 2029-2031 period.

DISTRIBUTION METHODOLOGY:

Beyond 2013

- a. Federal discretionary funds (Equity Bonus, Bridge, CMAQ, STP Regional, etc.) are held in Statewide Construction and not distributed to the construction systems but are distributed to the respective MPOs.
- b. When not specifically dedicated to a MPO, funds for a locality are determined by the percentage of the population residing in an urbanized area to determine the funds going to that MPO.
- c. Interstate funds were distributed to districts based on needs percentage provided by the Transportation Mobility Division of VDOT related to VTRANS 2025.
- d. Construction Federal Bridge funds were distributed based on primary needs percentages provided by the Structure & Bridge Division of VDOT.
- e. Planning & Research, Maintenance, Construction Administration, City Street Payments, and Administration are

A review of Table 7-12 shows that the region's anticipated highway funding in current 2008 dollars is decreasing between 2014 and 2031. Without additional revenue sources, the VDOT construction program will not be able to meet the growing regional transportation needs being documented in the updating of the Regional 2031 Transportation Plan. It is important to note that jurisdictions statewide are facing this problem of low anticipated future funding beyond the current Six Year Improvement Program.

As noted in the Fort Lee Expansion Traffic Study published in January 2007, the Defense Access Road (DAR) and Virginia National Defense Industrial Authority (VNDIA) are two potential funding sources for improvements in and around Fort Lee.

The following DAR summary and more detailed information can be found online (www.fhwa.dot.gov/flh/defense.htm):

"The Defense Access Road (DAR) Program provides a means for the military to pay their fair share of the cost of public highway improvements necessary to mitigate an unusual impact of a defense activity. An unusual impact could be a significant increase in personnel at a military installation, relocation of an access gate, or the deployment of an oversized or overweight military vehicle or transporter unit.

To initiate a DAR project, the local military base identifies the access or mobility needs and brings these deficiencies to the attention of the Military Surface Deployment and Distribution Command (SDDC). The MTMC will either prepare a needs evaluation or request the FHWA to make an evaluation, in accordance with 23 CFR, Part 660E, of improvements that are necessary, develop a cost estimate, and determine the scope of work.

An onsite meeting is usually held before the evaluation begins to explain the DAR program, the process for performing the needs evaluation, identify possible alternates, and the assignment of

work. The FHWA will forward the needs evaluation to the MTMC for their review and the review of the appropriate military service.

The MTMC will determine if the proposed work/project/improvements are eligible for DAR funds and certify the road as important to the national defense. The military service then requests funding for the project through their normal budgeting process. Once the funds are provided by Congress they are transferred to FHWA and allocated to the agency administering the project. Title 23 Federal-aid procedures are followed in the design and construction of the project."

The following VNDIA summary and more detailed information is also available online (www.vndia.org):

"Virginia National Industrial Defense Authority (VNDIA) was created through an act of the 2005 Virginia General Assembly to continue the work of supporting future defense and military-related opportunities in the Commonwealth. The mission of this newly-funded, 16-member Authority is to assist Virginia installations and communities in meeting the challenges of, and pursuing the opportunities inherent in the 2005 BRAC implementation process and beyond. It seeks to work in partnership with the U.S. Department of Defense and Virginia communities to strengthen and expand military operations throughout Virginia."

6. Conclusions

BRAC will bring about dramatic changes at Fort Lee beginning in 2009, impacting the region's transportation network. Funding for transportation projects is limited and therefore very competitive, so transit or formal ridesharing programs offer a clear benefit to the local communities surrounding the base. Based on the research and analysis performed for this study, the following are recommended:

1. **Fort Lee and RideFinders establish partnership for carpooling/ vanpooling services to base commuters and trainees.** RideFinders would maintain separate database for Fort Lee to secure pickup and drop-off data. Fort Lee would provide vanpool parking on base and rider incentives.
2. **Fort Lee and Petersburg Area Transit (PAT) establish partnership for transit services to atypical commuters and non-commuters.** Planning level costs can be calculated using the factors listed in Table 5 of this report. Additional routes and/or PAT buses would be finalized once BRAC details are finalized (off-base housing, number of new civilians transferring, etc.).
3. **The Tri-Cities MPO should re-examine Table 11 in light of the projected traffic increases produced by the 2031 regional traffic model.** A comparison of the 2026 Tri-Cities Regional Plan list of major highway projects with the preliminary 2031 major highway projects shows significant traffic increases in the five year period. The traffic increases are due to the impact of the BRAC Fort Lee realignment along with five years of normal historical traffic growth in the Crater Planning District.

8

CHILD CARE SERVICES

A. INTRODUCTION

This chapter examines the existing supply and demand of child care facilities in the Fort Lee study area. The primary focus of the analysis was to determine how the anticipated expansion of personnel associated with the installation may impact the regional delivery system for providing child care services.

Although the regulatory definition of child care in Virginia encompasses children up to the age of 13, this analysis has focused more specifically on the needs of children under the age of six, although some discussion of before-and-after school programs is also included.

The chapter first discusses the types of child care facilities that exist in the study area and the state's role in regulating these facilities. This is followed by an assessment of the existing regional supply of child care slots currently operating, both on Fort Lee and outside the installation, by type, location, costs, and other characteristics. This analysis is concluded by a determination regarding the adequacy of the available supply to support projected demand.

The chapter concludes with a discussion about the overall quality of child care in the region and the current efforts and initiatives to improve the existing system.

B. SUMMARY OF MAJOR FINDINGS

Types of Child Care

- Child care is an umbrella term that is typically applied to a variety of services or programs geared for children ranging from infants to those under 13 years of age. The Virginia Department of Social Services (DSS) is the primary public agency responsible for monitoring child care facilities throughout the state.
- There are six primary types of child care facilities recognized by the DSS, however, only two, child day centers (CDC) and family day homes (FDH), require licensing. The licensing standards address a number of areas including staff qualifications and training, building standards, staffing levels (staff-to-child ratios), daily program activities, food services, and health/medical requirements. Child care programs

permitted to operate as registered but unlicensed facilities include religiously exempt faith-based establishments (CCE), voluntary registered family day homes (VR), and certified preschools (CNS).

- The total number of child care slots in the six study area communities is approximately 20,000, which are based at roughly 300 child care centers or in-home providers. The greatest concentration of child care slots is located in Chesterfield County, which has over 15,000, or 75%. Total child care slots in the remaining communities are as follows: Petersburg, 1,460; Colonial Heights, 1,244; Hopewell, 1,108; Prince George, 815; and Dinwiddie, 358. Of the total facilities, 66% operate under the licensing program administered by the state while 34% are exempt or voluntary participants.

Child Care Availability

- The utilization rate, or the current amount of available space for existing child care slots, is estimated to range between 10%-15%. This suggests that total slots, which may be available at any given time, are approximately 2,000 to 2,500. However, demand for child care is a very fluid situation that can readily shift on a daily or seasonal basis.
- Availability of child care is limited by facilities operating on a part-day versus full-day basis, with full-day consisting of hours that generally bracket a typical workday. Of the total child care slots in the study area, only 14,280 are estimated to be full-day facilities. This reduces the available slots to a range of approximately 1,430 to 2,142.
- Other limitations within the area's child care supply include insufficient slots for infants and toddlers (under two years of age), lack of early morning and extended day coverage, and very limited weekend care. The latter two items are particular issues with regard to active duty military personnel whose job requirements often necessitate child care services during these times.
- Fort Lee provides on-post child care at its Child Development Center, which has a capacity of 198 slots for children between ages six weeks and 5 years. The facility is operating at capacity and also maintains a waiting list with the highest demand in the infant and toddler age groups. Approximately 75% of the children served at this facility reside on-post while 25% reside in communities outside the installation. Services at the Center are available to active duty personnel, as well as civilian employees and contractors who work on-post. Additional on-post child care is available in homes on the installation that presently accommodate an additional 80 children.

Future Child Care Demand

- Future demand for child care related to projected growth at Fort Lee is anticipated to be approximately 385 additional slots. This increase represents only the direct growth associated with active duty personnel, civilians and contractors employed at the post. Estimates of available full-day child care slots within 15 miles of the post range between 657 and 985. Approximately 100 of these available slots will be on-post as part of an expanded Child Development Center that is expected to be under construction in 2007.

- Outside the post, a comparison of child care projections to estimated available capacity suggests that four of the six study area communities will be able to reasonably absorb expected demand, even when compared to the lower end of the range of available slots. These include Chesterfield County, Colonial Heights, Hopewell, and Petersburg. However, estimates suggest that Dinwiddie and Prince George Counties will have a much tighter demand-to-capacity scenario that may result a redistribution of this demand to other communities within the study area.

Regional Cost of Services

- Cost of child care at Fort Lee is established on a sliding scale that is determined by family income. The monthly costs range from \$196 to \$550 for full-day care, from 5:15 a.m. to 6 p.m., Monday through Friday. Families with incomes under \$28,000 receive a considerably higher discounted rate than other income brackets with the top bracket having incomes of \$70,000 or greater.
- Off-post child care costs are not provided on a sliding scale but vary by the age of the child, with infant care being the most costly and decreasing for older children. Overall, costs in Chester tend to be anywhere from 20% to 40% higher than other communities in the study area. Rates can vary significantly between in-home providers and child care centers with the former having rates at the lower end of the range. Lower costs are also typically charged by religiously exempt facilities.
- Comparison of the regional child care rates to those established for Fort Lee reveals, from an average cost perspective, the rates charged in Chester exceed the on-post rates for all income categories except those making in excess of \$70,000. However, the comparison between on- and off-post child care rates indicates that average costs are similar between the two except for the lowest income categories (those making less than \$34,000) that are subsidized by the military. Aside from these, other income categories do have opportunity to find child care at generally comparably prices in the adjoining communities. What cannot be determined from the available data is how many child care slots may exist in total at the more affordable rates.

Child Care Quality

- The state licensing standards for child care facilities, regarding the provision of a quality child care or early learning environment, are generally considered to be minimum operational requirements. Higher standards established by the NAEYC, a national education and accreditation organization, are generally considered the desirable industry standard. Only several child care providers in the Fort Lee study area have such accreditation. There are subsidies available through the Department of Defense (DoD) to assist off-post active duty personnel with child care costs. However, in order to qualify for such assistance child care must be provided by an accredited facility, which significantly limits the usefulness of this program in the Fort Lee area.
- At the state level, efforts are underway to improve child care quality, which are being spearheaded through the Governor's Working Group for Early Childhood Initiatives. The Governor's Office, in conjunction with a consortium of state agencies and child care professionals, has established standards and a rating system, the *Star*

Quality Rating Initiative that will form the cornerstone for the improved quality of care. These standards are presently being tested in a pilot program of some 200 communities throughout the state with requests for funding expected to be forthcoming in the next legislative session.

C. CHILD CARE SERVICES

Child care is an umbrella term that is typically applied to a variety of services or programs geared for children ranging from infants to those under 13 years of age. These programs normally provide oversight in the absence of parental supervision and can function in a variety of ways regarding length of day (i.e. hours of operation), time of year (i.e. year-round or seasonal), the nature of the program (e.g. structured learning, general supervision, recreation), and the physical environment (i.e. in-home or at a center) in which the program is located. The term “child care” may also be used in reference to before-and-after school programs that operate around the school day and support only school-age children.

The Virginia Department of Social Services (DSS) is the primary public agency responsible for monitoring child care facilities throughout the state. The DSS is responsible for implementing child care regulations, which are promulgated in the Code of Virginia law, through a licensing and inspection program of child care providers. These regulations are based on standards adopted by the Child Day-Care Council. This set of standards are for centers serving children under the age of 13 and are intended to “ensure that the activities, services, and facilities of child day centers are conducive to the well-being and development of children and to reduce health and safety risks in the caregiving environment.”¹ Requirements for licensing vary based on the type of child care facility, as do the standards for operation prescribed under state law, as discussed below.

1. Types of Child Care Facilities

Six primary types of child care facilities or services are recognized by the DSS; however, only two - child day centers (CDC) and family day homes (FDH) - require licensing. The licensing standards for a child day center (CDC) address a number of areas. These include items such as staff qualifications and training, building standards, staffing levels (staff-to-child ratios), daily program activities, food services, and health/medical requirements. Licensing standards for family day homes (FDH) encompass the same primary types of requirements as those noted for a CDC but are much less stringent and comprehensive given that the child care is provided in a private home.

Unlicensed child care includes child care that is not required by law to be registered or certified. This type of child care includes religious exempt child day centers, voluntarily registered family day homes and certified preschools. All but the certified preschool types of facilities are located in the Fort Lee study area and are briefly described below.

a.) Licensed Child Care

Child Day Center - Child day centers (CDC) are child day programs offered to: (1) two or more children under the age of 13 years in a facility that is not the residence of the provider or of any of the children in care; or, (2) 13 or more children at any location.

¹ *Standards for Licensed Child Day Center*, Department of Social Services, Commonwealth of Virginia, 7/07.

During the absence of a parent or guardian, the operator of the child day center has agreed to assume responsibility for the supervision, protection and well-being of children under the age of 13 years for less than a 24-hour period. By law, a child day center may be granted a six-month conditional license, a six-month provisional license or a two-year license. Licensed programs must meet the standards promulgated by the Child Day-Care Council. The Virginia Department of Social Services enforces these standards by inspecting centers at least twice a year and investigating complaints.

Family Day Home - Family day homes (FDH) provide care for six to 12 children (exclusive of the provider's own children and any children who reside in the home). The care may be offered for less than 24 hours in the home of the provider or in the home of any of the children in care. Licensure (or voluntary registration) also is required when care is provided to more than four children less than two years of age, including the provider's own children and children who live in the home. This latter alternative is considered an unlicensed facility.

Short-Term Child Day Center - Short-term child day centers (CCS) are child day centers that operate for part of the year only.

b.) Unlicensed Childcare

Religious Exempt Child Day Center - Religious exempt child day centers (CCE) are child day centers operated by religious institutions that are exempt from licensure if the facility is sponsored by an institution that is exempt from federal taxes for religious purposes or is exempt from paying local real estate taxes on the property owned by the sponsoring religious institution. These facilities must be registered with the DSS and are subject to annual inspections but follow-up inspections only occur if a complaint is filed.

Voluntary Registered Day Homes - Voluntary registration (VR) is a form of regulation offered to family day homes that are not required to be licensed. These homes have fewer than six children in care, not including provider's own children and any children who reside in the home. Voluntary registration is not available in areas where local ordinances regulate unlicensed providers (Arlington, Fairfax and Alexandria). Inspections are conducted by a state-contracting agency that visits the home to confirm that basic safeguards are in place to protect children in care.

Certified Pre-School - Certified preschools (CNS) are those operated by private schools that are accredited by any statewide accrediting organization recognized by the Board of Education, or a private school or preschool that offers to preschool-aged children a program accredited by organizations as listed in the Code of Virginia and recognized by the Board of Education to be exempt from licensure. Such entities are exempt from licensure by the DSS.

2. Other Child Care Standards

Some child care centers may also be recognized as *accredited* facilities, which is different from the licensing standards and not administered by the DSS or any other state agency. The accrediting institution may be state or nationally based and the standards that they prescribe can vary significantly. Obtaining accreditation generally denotes the provision of a more rigorous standard of operation than those required under the state's licensing regulations, which are considered by some child care professionals to be minimum operating standards.

Perhaps the most prominently recognized child care accrediting institution is the National Association for the Education of Young Children (NAEYC) located in Washington, D.C. The NAEYC has two locally affiliated organizations in Virginia whose regions encompass the Fort Lee study area. These include the Richmond Early Childhood Association and the Southside Association of Early Childhood Education (AECE). Only several of the study area's child care facilities currently possess NAEYC accreditation.

There are also a number of child advocacy groups that are involved to some degree in the monitoring of child care services. One such organization that operates in the study area is the non-profit ChildSavers, which is part of the Memorial Child Guidance Clinic located in Richmond, which offers child care guidance and referrals as part of its broader medical services program for children. This center is part of the Virginia Child Care Resource and Referral Network (VACCRRN), which is partially funded by the DSS and dedicated to serving children's needs throughout the state.

D. AVAILABILITY OF REGIONAL CHILD CARE SERVICES

The availability of child care facilities in the Fort Lee study area was determined based on the database of providers maintained by the State's Department of Social Services (DSS). As noted in the preceding section, the DSS is responsible for licensing child day centers (CDC) and family day homes (FDH) but also regulates, to varying degrees, other facilities that are exempt from the licensing process. In light of this, the DSS database offers insight into the total number of child care facilities by type, as well as their location, total capacity (number of child care slots), and hours of operation. The data does not, however, include the number of vacancies, generally referred to as utilization rates, at a given facility. The DSS, as well as other child care agencies generally do not attempt to track utilization rates since they can fluctuate considerably on a daily or seasonal basis. Therefore, utilization rates had to be estimated based on other sources of information.

As illustrated in Table 8-1, the total number of child care slots in the study area communities is approximately 20,000, and are based at roughly 300 centers or homes within the region. Of the total number of facilities, 66% operate under the licensing program administered by the state while 34% are exempt or voluntary participants.

The distribution of these facilities throughout the study area is further illustrated in Figure 8-1. Overall, the greatest concentration of child care facilities is located in Chesterfield County, which has 60% of the facilities and 75% of the available child care slots totaling over 15,000. This is to be expected since the county also contains roughly 68% of the study area's total population. The City of Petersburg contains the second largest number of facilities with 57 and approximately 1,460 slots. Petersburg also tends to have smaller sized child care facilities with the average number of slots at 24 (data not shown). This is reflective of a larger number of family day homes (FDH) in the city that can have no more than 12 total children.

Table 8-1 Existing Study Area Child Care Facilities

| Location | Child Care Facilities by Type | | | | | | Total | % Total |
|------------------|-------------------------------|------------|-----------|------------|------------|-------------|-------------|---------|
| | Licensed | | | Unlicensed | | | | |
| | CDC | FDH | CCS | CCE | VR | | | |
| Chesterfield | 68 | 61 | 2 | 34 | 20 | 185 | 60% | |
| Colonial Heights | 7 | 0 | 0 | 4 | 2 | 13 | 4% | |
| Dinwiddie | 2 | 6 | 0 | 1 | 7 | 16 | 5% | |
| Hopewell | 8 | 7 | 0 | 6 | 2 | 23 | 7% | |
| Petersburg | 12 | 19 | 0 | 4 | 22 | 57 | 19% | |
| Prince George | 6 | 4 | 0 | 4 | - | 14 | 5% | |
| Total | 103 | 97 | 2 | 53 | 53 | 308 | 100% | |
| % Total | 33% | 31% | 1% | 17% | 17% | 100% | | |

| Location | Child Care Slots by Type | | | | | | Total | % Total |
|------------------|--------------------------|--------------|------------|--------------|------------|---------------|-------------|---------|
| | Licensed | | | Unlicensed | | | | |
| | CDC | FDH | CCS | CCE | VR* | | | |
| Chesterfield | 10,305 | 703 | 230 | 3,705 | 80 | 15,023 | 75% | |
| Colonial Heights | 637 | 0 | 0 | 599 | 8 | 1,244 | 6% | |
| Dinwiddie | 247 | 61 | 0 | 22 | 28 | 358 | 2% | |
| Hopewell | 668 | 79 | 0 | 353 | 8 | 1,108 | 6% | |
| Petersburg | 820 | 196 | 0 | 355 | 88 | 1,459 | 7% | |
| Prince George | 618 | 43 | 0 | 154 | 0 | 815 | 4% | |
| Total | 13,295 | 1,082 | 230 | 5,188 | 212 | 20,007 | 100% | |
| % Total | 66% | 5% | 1% | 26% | 1% | 100% | | |

KEY:
 CDC - Child Day Center
 FDH - Family Day Home
 CCS - Child Day Center Seasonal
 CCE - Child Day Center Exempt
 VR - Family Day Home Voluntary Registration

* Estimated number of slots
 Source: VA Department of Social Services

Colonial Heights and Hopewell have somewhat fewer child care slots than Petersburg with approximate totals of 1,245 and 1,110, respectively, with all three averaging 6%-7% of the study area's total slots. In contrast, Prince George and Dinwiddie Counties contain only 2% to 4% of total child care slots with 815 and 358, respectively.

Overall, it can be concluded from the DSS data that the majority of total child care slots in the study area are concentrated in the tri-cities and the northern extent of Chesterfield County, as noted above and illustrated in Figure 8-1. Another characteristic of the available child care slots presented in the figure, and summarized in Table 8-2, is their proximity to Fort Lee, which is denoted by distance rings of 10 and 15 miles. Although these distances have no particular relevance regarding child care standards, they do illustrate relative levels of travel time required to access off-post child care for families associated with the installation. As the data show, over 6,700 child care slots, or 34% of the study area total, are located within 10 miles of Fort Lee. Another 2,165 are between 10-15 miles bringing the total child care slots within 15 miles of the post to almost 8,900, or 45% of the total. The supply of child care slots located outside the 15 mile radius exceeds the inner region and totals over 11,130, almost all of which are in Chesterfield County.

Table 8-2 Child Care Facilities by Distance to Fort Lee

| Distance to Fort Lee | Child Care Facilities by Type | | | | | | Total | % Total |
|----------------------|-------------------------------|-----------|----------|------------|-----------|------------|-------------|---------|
| | Licensed | | | Unlicensed | | | | |
| | CDC | FDH | CCS | CCE | VR | | | |
| <10 miles | 48 | 41 | 0 | 22 | 33 | 144 | 47% | |
| 10-15 miles | 9 | 14 | 0 | 4 | 8 | 35 | 11% | |
| >15 miles | 46 | 42 | 2 | 27 | 12 | 129 | 42% | |
| Total | 103 | 97 | 2 | 53 | 53 | 308 | 100% | |

| Distance to Fort Lee | Child Care Slots by Type | | | | | | Total | % Total |
|----------------------|--------------------------|--------------|------------|--------------|------------|---------------|-------------|---------|
| | Licensed | | | Unlicensed | | | | |
| | CDC | FDH | CCS | CCE | VR* | | | |
| <10 miles | 4,388 | 439 | 0 | 1,761 | 132 | 6,720 | 34% | |
| 10-15 miles | 1,536 | 157 | 0 | 440 | 32 | 2,165 | 11% | |
| >15 miles | 7,371 | 486 | 230 | 2,987 | 48 | 11,122 | 56% | |
| Total | 13,295 | 1,082 | 230 | 5,188 | 212 | 20,007 | 100% | |

* Estimated number of slots
 Source: VA Department of Social Services

INSERT FIGURE 8-1.....

Another consideration when assessing the total supply of child care slots would be the unrecorded services offered in private homes that are not included in the DSS database of facilities. Individually, these would serve only a few children, probably fewer than six, and may or may not be done for a fee, meaning they may be provided by a friend or family member. Although there is no direct way of estimating how much child care is provided in this manner, discussions with child care professionals suggest that the total amount is not insignificant and plays an important role in supporting the variable conditions that affect demand for child care.

1. Characteristics of the Child Care Supply

Although the data discussed above indicates that the study area is host to a relatively large supply of total child care slots there are several important distinctions that need to be considered regarding the adequacy of this supply to service increased demands related to Fort Lee, as well as the region in general. These factors include the hours (or season) of operation and the ages of children served at various facilities. The hours of operation relate to whether a child care facility is a full-day or only a part-day center, which would affect the usefulness of said facility to serve the workforce during a typical nine-to-five work day. The other factor, age of children served, denotes the fact that many facilities do not serve all age groups, particularly those under the age of two (infants and toddlers). Therefore, child care support for families with children in these age groups is generally more limited.

When these factors are superimposed over the total available supply of child care in the study area it suggests that some segments of the population may be under served. For example, an examination of the child care database reveals that only 71% of the total child care slots offer full-day coverage, which means that the service offers continuous child care from morning to evening with hours that bracket the 9-to-5 workday. Overall, 5,665 of the area's total 20,000 child care slots offer only part-day coverage. The majority of these limited service facilities are in the child care exempt (CCE) category, which are operated by faith-based entities. However, this figure also includes some seasonally operated facilities, as well as before-and-after school programs that operate on a segmented schedule (i.e. morning and afternoon periods separated by the school day session), which is the case for a good portion of the available child care slots located in Prince George County. The data in Table 8-3 illustrates the estimated supply of full-day child care slots in each of the study area communities. From this perspective, the largest decrease in total child care slots is found in Prince George County where only 41% are estimated to offer full-day service. Conversely, Colonial Heights' total child care slots are comprised of 81% offering full-day service. The remaining communities all have approximately 70% full-day service child care slots.

Table 8-3 also presents an estimate of utilization rates, or available child care slots, within each community. Based on discussions with area child care professionals and providers, the current utilization rate is estimated

Table 8-3 Available Child Care by Community

| Location | Full-Day Child Care Facilities | | | Est. Avail. Slots | |
|------------------|--------------------------------|---------------|----------------|-------------------|--------------|
| | Facilities | Slots | % Total Slots* | Low | High |
| Chesterfield | 139 | 10,869 | 72% | 1,087 | 1,630 |
| Colonial Heights | 8 | 1,013 | 81% | 101 | 152 |
| Dinwiddie | 10 | 248 | 69% | 25 | 37 |
| Hopewell | 17 | 787 | 71% | 79 | 118 |
| Petersburg | 49 | 1,033 | 71% | 103 | 155 |
| Prince George | 6 | 332 | 41% | 33 | 50 |
| Total | 229 | 14,282 | 71% | 1,428 | 2,142 |

* % of total slots in each community

Source: VA Department of Social Services and RKG Associates

to range between 85% to 90%, which means that 10% to 15% of the supply is generally available to support increased demand. These utilization rates also correspond fairly consistently with the recently completed *Child Care Workforce Study*² prepared for the Richmond metropolitan area. As noted previously, child care demand is a very fluid situation that can readily shift on a daily or seasonal basis due to the myriad of circumstances that affect family life. In addition, utilization rates will vary based on the size and location of the child care facility such that larger day care centers may tend to have somewhat higher availability than smaller day homes, while facilities located in areas of dense population development may tend to have less. The proximity of competing day care centers is also likely to be a factor in the availability of vacant slots in a given geographic location.

Given the factors noted above, the 10% to 15% range is considered to be a generally representative but coarse estimate of availability. Based on this, the available supply of child care slots is estimated between 1,400 and 2,100. This is also a somewhat conservative figure since it represents only full-day child care facilities and those that are listed in the DSS database. If the entire DSS-registered supply is considered, available slots would range between 2,000 and 2,500.

A second limiting factor regarding availability of child care slots is related to age groups accepted at various facilities. Child care facilities may not accept younger age groups for a variety of reasons related to state licensing requirements, staffing demands, the types of program activities provided, and higher costs. Because of these factors there is generally a shortage of child care slots available for infants in particular (age birth to 16 months), as well as toddlers (age 16 to 24 months). State licensing regulations require staff-to-child ratios of 1:4 and 1:5, respectively, for these age groups versus a ratio of 1:8 for two years old and 1:10 for three and four year olds. Therefore, offering services for infants and toddlers can reduce the total capacity of a child care facility and thus, are more costly to provide. Even at facilities that offer infant and toddler care the space allocated to these age groups tends to be limited, as reported in the *Child Care Workforce Study*, with more space allocated towards children pre-school age and older (age two and above). This study reported that center-based child care tended to devote less space to these younger age groups than home-based providers that dedicated a significant portion of capacity to the care of infants and toddlers (ranging between 16%-33%).

Within the study area, the number of facilities offering services for infants and toddlers is estimated to be just over 200 (this includes both full- and part-day facilities). This number is estimated because unlicensed home care providers who register voluntarily with the DSS are not required to specify age groups served at their facilities. Overall, the total child care capacity of the 200 facilities that serve infants and toddlers is approximately 10,900. Based on the average capacity specifically reserved for these age groups that was reported in the Workforce Study, it is estimated the study area has between 1,160 – 1,860 slots dedicated to infants and toddlers at registered child care facilities. As noted previously, there are also unlisted facilities supporting this need as well, although there are no estimates of how many slots this may represent. In any event, based on discussions with area child care professionals and providers, the total supply in the study area is considered insufficient to meet total demand.

² *Child Care Workforce Study, Metro Richmond Area (Richmond City, Chesterfield, and Henrico)*, prepared by Lyndsi Hicks, Center of Research and Evaluation, United Way of Greater Richmond and Petersburg, for the Early Child Development Coalition, April 2005.

Other limiting factors that affect the adequacy of child care facilities, particularly as it pertains to serving military-related families, are the length of day and days of the week during which they operate. Although the specific number is not known, some portion of the military workforce is required to support shifts outside of the traditional nine-to-five workday and must report to physical training (PT) before 5:30 a.m. Furthermore, some of the on-post positions operate on weekends requiring child care beyond the typical five-day work week. Of the 308 child care facilities located in the study area (that are listed in the DSS database), only 21 indicated that they operated either six or seven days a week, and most of these are in-home care establishments that have smaller capacity. Regarding hours of operation, only 24 had start times before 6 a.m. and only 41 stayed open in the evening beyond 7 p.m. It should be noted that most of the unlicensed in-home child care facilities listed in the database did not specify their hours of operation, which may mean that the figures noted above are in fact, somewhat higher. In addition, there is also a supply of unregistered in-home providers that operate in the region that are also likely to support the demand for extended hours and days; however, there is no way to measure this additional supply. Despite this fact, the known supply of child care facilities offering extended hours and days of the week is quite limited and is unlikely to offer the flexibility needed to support existing and future military-related families assigned to Fort Lee.

2. Child Care Services at Fort Lee

Fort Lee currently provides on-post child care services through the Child and Youth Services Division (CYSD) under the auspices of the Directorate of Morale, Welfare and Recreation (MWR). The CYSD offers a variety of programs for children up to the age of 18 that include full-day child care, part-day preschool, before and after school programs, summer camp, and hourly care. The services provided through CYSD are available to all active duty military personnel, as well as Department of Defense (DoD) civilians and contractors working at Fort Lee.

a.) Child Care Services

Full-day child care programs that serve children between 6 months and 5 years of age are based at the installation's Child Development Center (CDC). The CDC has a total capacity of 198 child care slots with staff numbers ranging between 55 to 60 personnel. The age distribution of total child care slots is as follows: 18 infants; 29 toddlers; 35 two year olds; 40 three to five year olds; 30 five year olds; 30 before/after school; and 14 hourly care. The CDC operates in accordance with DoD standards and accreditation requirements and is not subject to state DSS licensing requirements. The facility operates 365 days a year and is open between the hours of 5:15 a.m. and 6 p.m.

Presently, the CDC is operating at 100% of its designated capacity and is maintaining a waiting list. No information was available regarding the size of or the length of time for the waiting list, but the demand for infant care, similar to that noted for civilian off-post facilities, is reportedly the highest and most consistent. Estimates provided by staff suggest that approximately 75% of the children served at the facility reside on-post while 25% reside off-post. In order to address the anticipated increase in demand for child care on-post the military is planning to build a new building that will add 100 slots to the existing CDC's capacity. This new facility has reportedly been approved and funded with construction expected to begin in 2007. A request for an additional facility of the

same size is also being considered for construction in FY09, but the likelihood of final approval and funding of this second expansion is indeterminate at this time.

Fort Lee child care needs are also supported through the Family Child Care (FCC) program, which is coordinated through the CYSD, and involves caring for children in private homes of military-related households. Presently, there are 15 on-post and 3 off-post households participating in the program. FCC participating households can have up to 6 children and presently serve approximately 80 children in total. The impending growth at Fort Lee is expected to increase the number of FCC households to around 20, according to CYSD staff.

Other than the identified lack of capacity, Fort Lee's child care demands also have issues associated with the need for early start times related to training or certain job responsibilities, extended evening hours, care on weekends, long-term care for extended deployments, and care for special needs children. According to CYSD personnel, the potential for providing expanded service in these areas is presently being evaluated by the military from a demand and cost-availability perspective.

b.) Before and After School Program

The before and after school program (B&A) operated by the CYSD, which serves children in grades one through five, has a rated capacity of 105 children. This capacity is reportedly adequate to serve existing demand although increasing population is creating pressure on this program to expand. The B&A school program is provided in a shared facility that also serves the youth recreation program for grades six and up. The mixing of younger and older children is not considered an optimum operating environment. This fact, combined with growth in the lower grade levels, has caused program administrators to request construction of a new youth services facility with a capacity of 150 to 200 children. This would allow separation of the younger and older age groups and additional capacity to support at least a portion of future growth. However, no action has been taken, or is known to be pending, on this request.

Some portion of the demand for B&A school programs created by on-post families is also accommodated in the Prince George County school system, which serves all public school children who reside on Fort Lee. The B&A school program for grades one through five is called Champions and is operated at all five of the district's elementary schools. The services are provided under private contract with Knowledge Learning Corporation (KLC) with fees paid directly by parents to the provider.

The three elementary schools that serve on-post children (grades K-5) are Harrison, South and Walton elementary schools. The current enrollment/capacity for B&A school programs at these facilities are 52/50, 79/80, and 70/80, respectively. These figures suggest that all three programs are either at, or close to, current capacity ratings. However, according to the program's administrator there is potential to increase this capacity rating, which is set by the state, within the existing school building space allocated for these programs. The maximum capacity that could be achieved is unknown at this time but would also require the hiring of additional child care staff. According to the program's administrator, enrollment in the B&A school program is up approximately 10% from last year with a combined total of 306 at all five schools. No data was available to determine how many on-post children are presently enrolled in the B&A school programs in Prince George County. It is anticipated that current demand,

combined with projected growth at Fort Lee, will necessitate a restructuring and/or expansion of B&A school programs offered in the county.

As noted in the previous section, Fort Lee households also tend to need an earlier starting time for child care due to training and other on-post service requirements. Presently, the B&A school program begins at 7 a.m. but consideration is being given to an earlier start time of 6 – 6:30 a.m. to provide better service for military personnel.

E. FUTURE DEMAND FOR CHILD CARE

The future demand for child care related to Fort Lee’s projected growth has been estimated based on the average number of children per household (under 6 years of age) that have historically been generated by the military and civilian personnel associated with the installation. These multipliers, which were derived from a recent survey³ of existing personnel, were calculated for households on-post, as well as off-post within the six study area communities. These growth estimates represent only the increase that is directly attributable to enlisted personnel, civilians, and contractors who are expected to work on the post. They do not reflect any indirect or secondary growth within the region that may accompany the military expansion.

Table 8-4 presents a comparison of the projected demand for child care to the estimated available slots in each community, as well as on Fort Lee. The total available slots represent only full-day child care facilities, which were discussed in a previous section, that are located within a 15 mile radius of Fort Lee. This is considered the distance that the majority of future personnel are likely to consider most favorable if housing is available. For the most part, this 15 mile radius includes all of the full-day facilities that were noted previously (in Table 8-3) with the exception of those located in Chesterfield County. In this county, the number of full-day slots is reduced by approximately two-thirds.

As the data in Table 8-4 illustrate, the total projected demand for child care related to growth at Fort Lee is 385 additional slots. This would be the total demand resulting from full expansion of the installation by 2011 although most of the increase is expected to occur in 2009 and 2010. The total number of full-day child care slots within 15 miles is approximately 6,570, which, based on current utilization rates, would provide an estimated availability of 657 to 985 slots, representing 10%-15% of the supply.

Table 8-4 Projected Demand for Child Care Related to Fort

| Location | Projected Demand | Total Slots | Est. Avail. Slots | |
|------------------|------------------|--------------|-------------------|------------|
| | | | Low | High |
| Chesterfield | 120 | 3,054 | 305 | 458 |
| Colonial Heights | 27 | 1,013 | 101 | 152 |
| Dinwiddie | 19 | 248 | 25 | 37 |
| Hopewell | 27 | 787 | 79 | 118 |
| Petersburg | 41 | 1,033 | 103 | 155 |
| Prince George | 48 | 332 | 33 | 50 |
| Fort Lee* | 103 | 100 | 100 | 100 |
| Total | 385 | 6,567 | 657 | 985 |

* Estimated availability at Fort Lee assumes new facility construction

Source: VA Department of Social Services and RKG Associates

It appears that the projected increase on Fort Lee of 103 children requiring day care will be accommodated when construction of the new proposed CDC facility with 100 slots is

³ Fort Lee Workforce Survey, Fort Lee Garrison Command, 2006.

completed. However, the fact that this is such a close demand-to-capacity projection suggests that even a relatively moderate increase in growth above the projected level could result in a continued shortage of on-post child care slots, similar to that which exists presently. Such a shortage could lead to an increased demand off-post that would affect availability within other communities in the study area.

Outside the post, the comparison of child care projections to estimated available capacity suggests that four of the six study area communities will be able to reasonably absorb expected demand, even when compared to the lower end of the range of available slots. These include Chesterfield County, Colonial Heights, Hopewell, and Petersburg. However, estimates suggest that Dinwiddie and Prince George Counties will have a much tighter demand-to-capacity scenario that may be accommodated within existing facilities, but may also necessitate a redistribution of this demand to other communities within the study area.

Another factor that may shift demand from one community to another is the need for child care in the infant and toddler age groups. Although specific projections were not prepared by age group, it is reasonable to assume that some portion of the growth will create a demand for such care. Given that services for this age group are already in relatively short supply, as discussed previously, it may lead to further displaced demand between communities to secure otherwise limited slots.

F. COST OF CHILD CARE

This section presents an overview of child care costs within the study area with a particular focus of fees charged at Fort Lee versus those charged at off-post facilities. It should be noted that a direct comparison of on-post and off-post fees is complicated somewhat due to the fact that Fort Lee's fees are charged on a sliding scale that reflects household income levels. Private child care facilities do not charge on a sliding scale but do adjust rates based on the age of the child (e.g. costs for infants are highest and less for older children). Although these factors limit a direct comparison, it is possible to derive the general overall variation between the two cost-scale structures.

The costs for child care at Fort Lee used in this analysis are those charged for full-day care at the Child Development Center (CDC), for children under the age of 6, which is offered five days a week between the hours of 5:15 a.m. and 6 p.m. There are additional fee scales for part-day programs, before and after school programs, and school-age services that have not been evaluated here.

Table 8-5 presents Fort Lee's child care costs that are established based on six income categories ranging from under \$28,000 to more than \$70,000. The table also illustrates the change in cost between income levels from an actual and percentage basis. The monthly fee for families with incomes under \$28,000 is \$196. This income group receives the largest discount as illustrated by the fact that the next income

Table 8-5 Child Care Rates on Fort Lee

| Income Category | Family Income | Monthly Cost | Step Increase | % Increase |
|-----------------|--------------------|--------------|---------------|------------|
| 1 | Up to \$28,000 | \$196 | - | - |
| 2 | \$28,001-\$34,000 | \$314 | \$118 | 60% |
| 3 | \$34,001-\$44,000 | \$368 | \$54 | 17% |
| 4 | \$44,001-\$55,000 | \$424 | \$56 | 15% |
| 5 | \$55,001-\$70,000 | \$504 | \$80 | 19% |
| 6 | More than \$70,000 | \$550 | \$46 | 9% |

Source: Fort Lee CYSD

category, \$28,001-\$34,000, must pay \$314 per month, which is 60% higher than those required for the lowest income level. The next several income categories, up to \$70,000, have relatively comparable step increases of 15%-19%. However, the last step for incomes over \$70,000 represents an increase of only 9%.

A sampling of off-post child care costs in the vicinity of Fort Lee is presented in Table 8.6. This data was gathered by ChildSavers, a child advocacy group in Richmond, as part of its annual survey of area child care providers. The number of facilities included is approximately 130, which are comprised of child care centers and in-home providers. The rate data is gathered via a mail-back survey with a variable sample size in each community that ranges from 13 in Colonial Heights to 56 in Petersburg. Response rates also vary by community, which can affect the overall findings. Although the data does not include Dinwiddie County⁴, it does provide a cross-sectional perspective within the region regarding the general range of costs. In addition, the rates shown for Chesterfield County represent only the southern portion of the county and are generally found to increase between 5%-10% further to the north.

The data in Table 8-6 identifies the total average, as well as the average minimum and maximum monthly child care costs for Chester, Colonial Heights, Prince George County Petersburg, and Hopewell. The data illustrates that average costs in Chester tend to be anywhere from 20% to 40% higher than those in the other four communities. It also shows that the minimum and maximum rates exhibit very large variations, particularly for the younger age groups, in all locations. These variations are generally attributable to the fact that the data includes rates for both in-home providers and child care centers with the former having rates at the lower end of the ranges. Lower costs are also typically charged by religiously exempt facilities that are also included in the sample data.

Table 8-6 Child Care Rates in the Fort Lee Study Area

| Age Group | Average Monthly Rates | | | | | | | | | | | | | | |
|----------------|-----------------------|-------|-------|------------------|-------|-------|---------------|-------|-------|------------|-------|-------|----------|-------|-------|
| | Chester* | | | Colonial Heights | | | Prince George | | | Petersburg | | | Hopewell | | |
| | Min. | Max. | Avg. | Min. | Max. | Avg. | Min. | Max. | Avg. | Min. | Max. | Avg. | Min. | Max. | Avg. |
| 0 - 12 Months | \$282 | \$867 | \$588 | \$433 | \$542 | \$469 | \$303 | \$520 | \$423 | \$303 | \$433 | \$396 | \$433 | \$433 | \$433 |
| 13 - 15 Months | \$282 | \$832 | \$527 | \$238 | \$542 | \$352 | \$303 | \$477 | \$384 | \$303 | \$433 | \$388 | \$347 | \$433 | \$374 |
| 16 - 23 Months | \$303 | \$819 | \$543 | \$238 | \$542 | \$348 | \$260 | \$412 | \$334 | \$217 | \$433 | \$362 | \$282 | \$347 | \$323 |
| 2 - 3 Years | \$303 | \$685 | \$523 | \$238 | \$498 | \$329 | \$325 | \$390 | \$354 | \$217 | \$433 | \$341 | \$325 | \$325 | \$325 |
| 4 - 5 Years | \$303 | \$667 | \$522 | \$303 | \$349 | \$326 | \$325 | \$368 | \$339 | \$282 | \$403 | \$339 | \$325 | \$325 | \$325 |

* Represents only the southern portion of Chesterfield County
 Source: ChildSavers of Richmond

Comparison of the regional child care rates to those established for the CDC on Fort Lee reveals several findings. From an average cost perspective, the rates charged in Chester exceed the on-post rates for all income categories except those making in excess of \$70,000. However, average rates in other communities are generally equivalent to, or less than, the on-post rates levied for income categories 3 through 6. In other words, the data suggests that military families making \$34,000 or more, who would pay at least \$368/month on-post, could expect to find relatively comparable child care rates in these communities, on an average basis. However, families with an annual income of less than \$28,000 paying

⁴ Dinwiddie County is included in the survey but no responses were received as part of the most recent update by ChildSavers.

\$196/month in child care on-post would have a difficult time finding comparable rates in any of the study area communities.

Overall, the comparison between on- and off-post child care rates indicates that average costs are similar between the two except for the lowest income categories (those making less than \$34,000) that are subsidized by the military. Aside from these, other income categories do have opportunity to find child care at generally comparable prices in the adjoining communities. This fact is illustrated by average minimum rates collected in the cost survey that shows relatively comparable rates to those paid on-post for all income categories except those under \$28,000. What cannot be determined from the available data, however, is how many child care slots may exist in total at the more affordable, minimum average rates. This could only be determined through a more in-depth survey of area child care providers that is beyond the scope of this analysis.

Some child care subsidies are available from the DoD to assist active duty personnel who reside off-post. These subsidies are dispersed through a partnership between the DoD and the National Association of Child Care Resource and Referral Agencies (NACCRRRA) whose local affiliates include ChildSavers and the United Way (Success by 6). The DoD program is called Military Child Care in Your Neighborhood (MCCIYN) and is intended to support military families with the cost of *high quality child care* outside military installations. The term “high quality” means that a child care center must be accredited by either the National Association for the Education of Young Children (NAEYC) or National Accreditation Commission (NAC). For in-home child care, the provider must have a Child Development Associate (CDA) credential or Early Childhood Education degree. These standards limit the usefulness of the program in the study area since only several are accredited and only one is in close proximity to the post (in the Chester area). Furthermore, there are no in-home providers who possess a CDA or required degree active in the study area, according to the responsible referral agency (ChildSavers), although six are presently working toward a CDA with grant assistance.

Eligibility and the subsidy provided through the MCCIYN program is based on rank/income, the number of children requiring child care, and the actual rates charged by the selected child care provider. Reportedly, only eight families from Fort Lee were successfully assisted through this program within the last year, although a larger number of inquiries were recorded. Exceptions can be made for the *high quality* standard if the family has a member who is deployed, in which case a non-accredited or credentialed child care facility may be considered.

G. QUALITY OF CHILD CARE

The need for improving the quality of child care is an important issue not only in the Fort Lee study area but also throughout the Commonwealth of Virginia as a whole. It is an issue that has been recognized not only by professionals in the child care field but at the highest levels of state government as well. Although addressing improved child care quality will require a broader and more long lasting mechanism than this growth management plan, this document does offer a suitable forum for framing the issues and opportunities that decision-makers in the region may want to consider for the future.

Although the intricacies and specifics surrounding what is involved with improving child care quality are complex, there are several broad categories that essentially encompass the

overall goals. Generally, the efforts to improve quality recognize that child care forms an extension, or precursor, of the education system that does not begin from an institutional perspective until kindergarten or first grade. Therefore, a cornerstone of improved quality is based on the concept that early learning standards should be incorporated as part of the child care system for preschool children. These standards revolve around both the education and training levels of the child care professionals, as well as the physical environment of the child care facility.

Several reports have recently been prepared by a consortium of child care professionals, under the auspices of the Governor's Working Group for Early Childhood Initiatives and the Department of Social Services (DSS), that identify these needs and a strategy to address them. The reports include *Competencies for Early Childhood Professionals*, *Milestones of Child Development*, and *Foundation Blocks for Early Learning Standards for 4 Year Olds*. In addition to these documents, a rating system has also been developed by the state, called *Virginia's Star Quality Initiative* that is intended to provide a continuous and standardized method for comparison of classroom-based programs of child care providers. The *Star Quality Initiative* is presently being evaluated in a pilot program of approximately 200 child care facilities throughout the state. The Governor has also instituted *Start Strong*, a preschool program that is specifically geared toward better preparing four-year olds to enter the school system.

Virginia's *Competencies for Early Childhood Professionals* specifies eight core areas of competency that correspond to traditional curricular areas in early childhood education. Each area describes the knowledge and skills professionals need in order to support optimal growth and learning of children from birth to kindergarten. The eight core areas are as follows.

- Health, Safety, and Nutritional Practices
- Understanding Child Growth and Development
- Appropriate Classroom Observation and Assessment
- Partnering with Families and Communities
- Learning Environment
- Effective Interactions
- Program Management
- Teacher Qualifications and Professional Development

It is recommended that all early childhood professionals working with children from birth to kindergarten, regardless of role or setting, need to master the core body of knowledge within these eight areas. In addition, four competency levels are presented to establish a continuum from preliminary skills to an advanced level of academic preparation that can be used to evaluate a professional's progress from one level to the next.

The *Milestones of Child Development* provides a set of child development indicators and strategies to support the growth and development of young children from birth to kindergarten. The milestones are organized in a hierarchical system with domain areas (e.g., Social and Emotional Development) at the top, with each domain area encompassing related strands (e.g., Relationship with Others) and indicators, examples, and strategies arranged in a gradual progression by approximate age range. This system is intended to assist adults of

varying roles (e.g. early childhood professionals, child care directors, parents and families) in gaining a better understanding of and supporting the continuum of young children's growth and development.

The proposed improvements in child care quality discussed in this section, as with any expanded or upgraded service that is offered to the public, will likely result in some level of increased costs. These increased costs could make it more difficult for some portion of the region's households to afford the improved levels of child care. Therefore, participation in both the *Star Quality Rating Initiative* and the *Start Strong* programs by child care providers, or early childhood educational facilities, will occur on a voluntary basis. This will essentially allow for the programs to be market-based, as opposed to regulatory, with the eventual transition being driven by consumers (the parents) selecting higher quality services where possible. In addition, the Governor's continuing efforts to improve child care and early learning are expected to be supported with requests to the State Legislature for increased funding to help finance not only the program's administration at the state level, but to also assist providers in paying for additional education for child care professionals, expanding curriculum resources, and upgrading facilities. Some funding is presently available in these areas through DSS and other organizations.

Finally, the results that could be achieved from improved child care standards would certainly be expected to offer positive benefits regarding the overall social well-being of the region. However, the importance of such improvements from an economic development perspective should also not be overlooked. The availability of high quality child care could be marketed as another quality-of-life attribute used to attract new businesses and employees to the region and provide an incentive to retain those presently located there.

9

HEALTH CARE SERVICES

A. INTRODUCTION

The intent of this chapter is to provide an overview of existing medical facilities, both on Fort Lee and in its region of influence, in order to outline a framework for future, more detailed assessment regarding the adequacy of the medical services delivery system.

The first portion of the chapter focuses on health care services available on Fort Lee at the Kenner Army Health Clinic (KAHC). The information presented discusses recent changes at the clinic and the Army's efforts to plan for the impacts anticipated from the BRAC expansion. Following that is a general overview of issues currently affecting the state's overall health care system and how these conditions, as well as some of the key factors, are being manifested within a more localized area around Fort Lee.

The chapter concludes with a summary of a number of fundamental observations that are intended to form the basis for a continuing strategic evaluation of the existing medical services system and the potential ramifications associated with long-term growth impacts.

B. SUMMARY OF MAJOR FINDINGS

Fort Lee Medical Facilities

- Fort Lee's on-post medical services are administered at the Kenner Army Health Clinic (KAHC). This facility services all permanent party, active duty personnel and their dependents, as well as retirees and their dependents, within a 20-mile radius of the facility. The facility also services Advanced Individual Trainees (AIT) students stationed at the post.
- The KAHC functions as an outpatient treatment facility only. Therefore, acute care, specialty services, and long-term medical needs for military families enrolled in the clinic's health care network are referred to off-post civilian (or military) hospitals and practitioners.
- The Army has invested (or approved funding) for over \$35 million in improvements to the KAHC since 2004. This includes renovation and reconfiguration of the existing facility, as well as construction of a new Troop Medical Clinic (TMC) to

serve in-coming AIT personnel. However, construction of the new TMC will not be complete until 2011 and funding for a temporary pre-fabricated structure is still pending final approval.

Fort Lee Medical Staff

- Staff at the KAHC will be expanded by over 100 as of 2011 to address anticipated increase in demand. This additional staff will include 25 medical professionals comprised of physicians (or physicians' assistants/nurse practitioners), nurses and technicians. Despite these increases, the need for further support is still expected in the areas of dermatology, orthopedics, behavioral health, and dentistry due to high levels of demand.
- The Army's actions to upgrade and staff the on-post medical facility as an outpatient clinic only, illustrates a calculated decision to rely on civilian hospital facilities in the area in order to obtain a cost-effective, high quality of service. In addition, no changes have been instituted at the KAHC to address the needs of retirees and their dependents within the region, which may also lead to increased demand for services at civilian facilities.

Demand for Off-post Medical Services

- Primary demand for off-post medical services related to Fort Lee personnel are focused in the areas of emergency/urgent care, orthopedics, behavioral health, obstetrics, and dermatology. Both local hospital providers, John Randolph Medical Center in Hopewell and Southside Regional Medical Center in Petersburg, believe their facilities have adequate capacity to absorb increased demand generated locally by Fort Lee. However, the emergency departments of both facilities are cited as service bottlenecks that are likely to be exacerbated by the post's expansion.
- The Fort Lee study area, like the country in general, is struggling with the need to both attract and retain an adequate supply of doctors and nurses. This situation will be exacerbated to some degree by an increase in demand related to Fort Lee.
- Obstetrics and pediatric care are areas of relatively high demand for Fort Lee's families. John Randolph Medical Center no longer provides this obstetrical service (as of 2006). However, the Southside Regional Medical Center's new facility (anticipated to open in 2008) will have expanded obstetrical services and is expected to have ample capacity to absorb any increased demand.

Medical Reimbursement

- The TRICARE medical payment system was identified as being viewed by the private sector as problematic due to lower levels of reimbursement. This factor, combined with a continued shortage of health care professionals throughout the region and state, could result in a diminished level of available services for military families who rely on TRICARE.

Future Demand for Services

- Population concentration and growth to the north of Fort Lee seems to be attracting more new medical facilities to that area. This may result in the southern part of the study area being underserved and requiring longer travel by residents for medical services.
- Fort Lee officials have indicated that on-post growth of housing and non-residential development will result in higher demands on the facility's emergency medical services such as fire, police, and ambulance. These circumstances are also expected to strain existing mutual aid agreements with area communities.

C. MEDICAL SERVICES AT FORT LEE

The provision of medical services for military personnel and their families associated with Fort Lee is administered in a two-tiered system. The first tier involves the direct delivery of services at the on-post medical facility, the Kenner Army Health Clinic (KAHC). This facility, which is described in the following section, provides an array of primary care and other ancillary services that are comparable to a typical civilian outpatient clinic with a particular focus on specific needs of active duty military personnel.

The second tier of the system involves referrals for medical service to off-post facilities through the military's health care network, Health Net Federal Services, which administers the TRICARE medical reimbursement system. These referrals may be related to any number of acute care, specialty, or long-term medical services that are not available at the KAHC. Referrals are obtained through the Referral Management Center at the KAHC when the patient's primary care manager determines that required services are not available at the on-post facility. The location of the off-post referral medical facility is determined based on several factors including where the patient resides, the patient's level of TRICARE coverage, and whether the primary care manager is military or civilian. Given the fact that approximately 70% of the personnel associated with Fort Lee reside off-post, the referral portion of the medical services delivery system takes on an important significance when considering potential impacts to medical services in the region.

1. Facilities and Staffing

The provision of on-post medical services is administered from the Kenner Army Health Clinic (KAHC). This facility opened in 1962 as the Kenner Army Hospital with a 100-bed capacity. In 1976, a new 43,900 sq. ft. outpatient addition was constructed with a major renovation to a portion (21,800 sq. ft.) of the hospital's existing building space completed in 1977. The facility presently contains 146,400 sq. ft. but its status has been downgraded from hospital to ambulatory outpatient clinic due to the systematic reconfiguration and renovation activities that have been implemented since 1995. The most significant changes that have occurred to the physical plant include elimination of the emergency department, operating rooms, inpatient wards, and dining facilities, as well as removal of systems required to provide centralized medical gases and sterilization services.

Prior to Fort Lee's designation as a BRAC expansion facility, approximately \$10 million in capital improvements were funded for various projects designed to renovate or readapt existing building space within the Kenner Clinic. In 2004, upgrading of the primary care

clinic, as well as the orthopedics and physical therapy facilities were completed. In 2006, the pharmacy and pediatrics areas were expanded by approximately 30% to 50% and in 2007, upgrading of the information management division was completed.

Following the BRAC designation and an analysis of anticipated future demand for medical services, \$5.2 million was approved for additional renovation/reconfiguration projects. These improvements will upgrade portions of the KAHC related to the active duty clinic, preventative medicine, optometry, and substance abuse programs. An additional \$20+ million in BRAC funding has also been approved for construction of a new consolidated Troop Medical Clinic (TMC) and dental clinic that has a proposed location along the Route 36 corridor. The TMC is the initial point of contact for Advanced Individual Trainee (AIT) students requiring medical attention, which is the active duty population expected to increase the most as part of the BRAC expansion. Construction of this facility is not expected to be completed before 2011, although the surge in demand for services is expected in the two years prior. Therefore, use of a temporary prefabricated medical/dental clinic costing approximately \$7 million has been proposed as an interim measure. This interim measure has been approved at the command level but funding has not yet been authorized. Administrative personnel at the clinic indicate that this facility should be on-line by the end of 2007 in order to accommodate anticipated increases in demand. This suggests that there will be a gap in service that will place increased stress on the existing clinic with some spillover possible to off-post medical facilities.

The recent changes made to the Kenner Clinic, as represented by its reconfiguration from hospital to clinic, illustrate that the military has made a calculated decision to rely on civilian medical facilities as part of the system for delivering medical services to military-related personnel. Overall, the Army has determined that it is more cost-effective to obtain the requisite quality of services at area hospitals, including military facilities, rather than operate the on-post facility as a centralized provider.

Increases in staffing levels at the Kenner Clinic will be implemented due to anticipated increases in demand for service resulting from BRAC related expansion.

Table 9-1 illustrates the planned increases in key professional and technical staff positions that are expected to be in place by 2011. These include Providers (doctors, nurse practitioners or physicians assistants), Registered Nurses (RN), and Other technical or professional personnel. As shown, an additional 10 providers are expected to be available at the clinic by 2011 with the majority positioned in primary care and at the Troop Medical Clinic. The RN staff is expected to increase by nine nurses, along with six other professional staff personnel. Overall, the clinic's staff is planned to increase by 109 as of full BRAC expansion, which means that, in addition to the 25 professional medical personnel noted here, 84 will be added in a variety of support positions such as human resources, resource management, information services, clinic operations, and managed care.

Despite this planned staff expansion, clinic administrators anticipate that additional support could be used in areas related to dermatology, orthopedics, behavioral health, and dentistry due to high levels of demand for these services.

Table 9-1 Proposed Medical Staffing for Kenner Army Health Clinic

| Medical Dept. | Kenner Clinic Staffing Requirements* | | | | | | | | |
|-------------------|--------------------------------------|-----------|-----------|---------------|----------|----------|-----------------|-----------|-----------|
| | Existing as of 2007 | | | Addtl by 2011 | | | Post BRAC Total | | |
| | Provider | RN | Other | Provider | RN | Other | Provider | RN | Other |
| Primary Care | 14 | 6 | | 2 | 1 | | 16 | 7 | |
| Troop Med. Clinic | 3 | 1 | | 7 | 3 | | 10 | 4 | |
| Pediatrics | 5 | 3 | | | | | 5 | 3 | |
| Behavioral Health | 1 | | 9 | 1 | | 3 | 2 | | 12 |
| Managed Care | | 2 | | | 3 | | | 5 | |
| Comm. Health | | 1 | | | 1 | | | 2 | |
| Occup. Health | 1 | 2 | | | 1 | | 1 | 3 | |
| Orthopedics | 1 | | | | | | 1 | | |
| Physical Therapy | | | 2 | | | 1 | | | 3 |
| Optometry | | | 2 | | | 1 | | | 3 |
| Radiology | | | 2 | | | | | | 2 |
| Pharmacy | | | 7 | | | 1 | | | 8 |
| Total | 25 | 15 | 22 | 10 | 9 | 6 | 35 | 24 | 28 |

Source:KAHC Resource Management - Sept. 2007

* Does not reflect all facility staffing only key professional staff

Primary Care = Fam Prac, Int Med, ADC

Source:KAHC Resource Management

2. Demand for Services

Services provided by the KAHC are available to active duty permanent personnel (including National Guard and Reserves) and their dependents, as well as retired military personnel and their dependents. The designated service catchment area for Fort Lee is generally defined by a 20-mile radius around the installation. Within that radius, the *eligible* population totals approximately 32,000; however, only 18,518, or 58%, of these people are presently *enrolled* in the facility's medical services plan, Health Net Federal Services (HNFS), indicating that they have, or may, seek service at the clinic. In addition to the enrolled population, the KAHC also serves approximately 3,500 AIT students who are stationed on the post and required to use the Troop Medical Clinic (TMC) as their primary medical facility. Table 9-2 provides a comparison between the eligible and enrolled population presently served by the Kenner Clinic. Determining all of the underlying reasons for the discrepancy between the eligible and enrolled populations would require a more in-depth analysis of the data than can be accomplished here. However, according to clinic administrators, it is most likely related to several factors related to the how the eligible population is estimated, including the fact that some are receiving medical services elsewhere in the region, some have never needed the services, while others may still be listed in the database but no longer reside in the area. In addition, others who do not reside near Fort Lee may find lengthy travel demands for a referral to be a disincentive to use the on-post clinic, especially if they have access to insurance other than TRICARE, such as Medicare or other private Health Medical Organization (HMO) services.

Table 9-2 Eligible and Enrolled Population (2007) -

| | AD | ADFM | RET | RFM | TOTAL |
|------------|-------|-------|-------|--------|--------|
| Eligible | 7,100 | 8,509 | 6,271 | 10,146 | 32,026 |
| % Total | 22% | 27% | 20% | 32% | 100% |
| Enrolled | 4,914 | 7,276 | 2,309 | 4,019 | 18,518 |
| % Total | 27% | 39% | 12% | 22% | 100% |
| % Eligible | 69% | 86% | 37% | 40% | 58% |

AD - Active Duty

ADFM - Active Duty Family Member

RET - Retired Military

RFM - Retired Family Member

Source:KAHC Resource Management - Sept. 2007

Approximately 66% of the *enrolled* population is active duty and family members, while 34% are retirees and their family members. However, the distribution of the *eligible* population is closer to 50/50, active duty versus retirees. There are no plans to increase services geared toward retirees as part of the BRAC related expansion of facilities and staffing. Therefore, future growth in this segment of the population may have greater impact on off-post medical facilities. The highest percentage of enrollees is found in the active duty family members category where 86%, or over 7,200 people, are potentially receiving service at the clinic.

Visits to the KAHC over the last fiscal year (2007) are summarized in Table 9-4. As illustrated, the clinic accommodated over 138,400 visits, which are presented in 19 various categories. The largest requests for service were recorded in Family Practice (22,280), Active Duty (24,153), and Troop Medical (22,730) clinics, all of which may represent any number of general medical needs. However, more specific requests for service were required for Pediatrics (almost 17,000 visits representing over 12% of the total), as well as Physical Therapy (10,839), Psychiatry/Mental Health (7,985), and the ASAP program (6,242).

Referrals for off-post medical services are presented in Table 9-3. This data represent the number of military personnel, or their dependents, which were authorized to obtain medical services at civilian medical facilities within the regional network of authorized providers associated with the Health Network Federal Service (HNFS).

Table 9-3 Referrals to Off-Post Medical Network from the KAHC – FY2007

| Type of Service | Total |
|---------------------|---------------|
| Orthopedics | 868 |
| Gastroenterology | 847 |
| Dermatology | 761 |
| Cardiology | 642 |
| General Surgery | 624 |
| Urgent Care Center | 612 |
| Durable Med. Equip. | 603 |
| Psychiatry | 179 |
| Radiology | 166 |
| All Other | 6954 |
| Total | 12,256 |

Source: HNFS MTF Overview

Table 9-4 Kenner Clinic Visits by Type – FY2007

| Type of Service | Visits | % Total | Type of Service | Visits | % Total |
|-------------------|--------|---------|------------------------|----------------|-------------|
| Internal Medicine | 1,964 | 1.4% | Family Practice Clinic | 28,280 | 20.4% |
| Nutrition | 37 | 0.0% | SRP Clinic | 2,163 | 1.6% |
| Pediatrics | 16,961 | 12.2% | Active Duty Clinic | 24,153 | 17.4% |
| EFMP | 1,411 | 1.0% | Troop Medical Clinic | 22,730 | 16.4% |
| Orthopedics | 3,336 | 2.4% | Optometry | 7,840 | 5.7% |
| Psychiatry | 3,821 | 2.8% | Comm Health | 828 | 0.6% |
| Mental Health | 4,161 | 3.0% | Occup. Health | 2,344 | 1.7% |
| Social Work | 409 | 0.3% | Physical Therapy | 10,839 | 7.8% |
| FAP | 427 | 0.3% | Hearing Conservation | 533 | 0.4% |
| ASAP | 6,242 | 4.5% | | | |
| | | | Total | 138,479 | 100% |

Source: KAHC Resource Management

EFMP - Exceptional Family Member Program

FAP - Family Advocacy Program

ASAP - Alcohol/Substance Abuse Program

SRP - Soldier Readiness Program

D. STATE AND REGIONAL HEALTH CARE DELIVERY SYSTEM

Planning and administration of the statewide health care delivery system is the responsibility of the Virginia Department of Health and Human Resources (HHR). The HHR oversees twelve agencies that manage or regulate a myriad of health care related services for various segments of the state's population. In 2006, the Governor established the Health Reform Commission tasked with recommending ways to improve the healthcare system in the Commonwealth. The Commission's tasks included examining the healthcare workforce, affordability, quality, and accessibility of healthcare in the Commonwealth, the transparency of health information, prevention and wellness efforts, and long-term care. In 2007, the Commission released its report, under the auspices of the Secretary of Health and Human Resources, entitled *Roadmap for Virginia's Health*. Although this report addresses many long-term health care issues that extend beyond the impacts related to Fort Lee, a number of the Commission's findings, such as those related to accessibility and workforce, are relevant to the provision of medical services in the study area and are noted below.

- It is estimated that by 2020 there will be a shortage of approximately 1,500 physicians in the Commonwealth. Physician retention is the primary issue in the supply of physicians in the Commonwealth.
- The demand for full-time equivalent RNs in Virginia is expected to increase by roughly 43 percent between 2000 and 2020; meanwhile supply of RNs is not expected to keep pace. By 2020, it is expected that in the Commonwealth there will be a shortage of 22,600 RNs or 32.6 percent. To meet this demand it is expected that RN supply will have to increase by 60 percent.
- More than 1.1 million Virginians—15.5 percent of residents—are uninsured. One in five adults lack coverage compared to one in eleven children. While the vast majority of privately insured Virginians secure their coverage through their employers, there has been erosion of employer-based coverage during the past ten years.
- Over the last decade, there has been a push for increased transparency and accountability in the healthcare sector regarding pricing and quality, yet these issues often remain a mystery to most consumers. This is due to the complex nature of the pricing system found in the sector. When discussing healthcare pricing, charges are often discussed, yet most people do not pay based upon charges. For those with insurance, their insurer may have negotiated a specific discount on the charges, or may pay based on a percent of charges, a per diem rate, or other negotiated rate. For those without insurance, most providers are working to provide similar discounts or care is provided for free. This makes pricing transparency extremely challenging because providing information on charges does not really mean anything to most consumers, and asking insurers and providers to provide detailed information on what is actually paid gets at the heart of contract negotiations and may be considered proprietary information.

1. Regional Health Care System

Planning for medical facilities in Virginia is accomplished by the state's health planning agencies and advisory planning groups that attempt to balance statewide health care on a

regional basis through licensing and other regulations. These medical facilities are comprised of a cooperative system that encompasses primary care providers, specialists, clinics, outpatient centers and urgent care facilities, acute care general hospitals, perinatal services, diagnostic imaging services, cardiac services, medical rehabilitation services, and psychiatric/substance abuse services.

All of the above-noted facilities are significant with regard to servicing the existing and projected population associated with Fort Lee. However, the availability of adequate hospital facilities is of particular relevance given that Fort Lee's Kenner Clinic no longer functions in this capacity. Data regarding available hospitals in the region is gathered by Virginia Health Information (VHI), a nonprofit public/private partnership, under contract with the Commonwealth of Virginia. The VHI database was used to provide the following overview of hospital facilities in the Fort Lee area.

The VHI *Virginia's Hospitals Guide* groups Fort Lee within the Central Region, a broad portion of the state encompassing 27 counties and cities, including the six study area communities. This region contains in excess of 25 hospitals, 12 of which are located in Richmond and five in the Fort Lee study area. Many of these facilities are larger acute care general hospitals, although some are smaller community hospitals or specialized acute care facilities (e.g. children's hospital, rehabilitation or psychiatric facility, teaching hospital). Acute care general hospitals are facilities equipped and staffed to provide short-term, inpatient medical and surgical services for many different conditions and illnesses and provide continuous nursing services. Acute care general hospitals are open 24 hours a day, 365 days a year to provide around-the-clock emergency care services. Within the greater Richmond area, there are approximately 3,000 staffed beds available at general acute care and community hospital facilities that are within an estimated 30 to 40 minute drive of Fort Lee. Study area residents in Dinwiddie and Prince George Counties would have somewhat longer drive times to facilities in Richmond.

One of the primary regulatory tools used to manage these facilities is the Virginia Certificate of Public Need (COPN) program that requires owners and sponsors of proposed medical care facility projects to secure a COPN from the State Health Commissioner prior to initiating projects such as general acute care services, diagnostic imaging services, cardiac services, general surgical services, organ transplantation services, medical rehabilitation services, and psychiatric/substance abuse services, among others. The program is intended to contain health care costs while ensuring financial viability and access to health care at a reasonable cost.

No certificate of public need may be issued unless the Commissioner has determined that a public need for the project, or portion thereof, exists and has been demonstrated. There are twenty criteria or factors used in determining whether a public need exists. The criteria include: (1) the relationship of the project to the long-term health care state plan, (2) the need for enhanced facilities to serve the population of an area, (3) the extent to which the project is accessible to all residents in the proposed area and the immediate economic impact and financial feasibility of the project.

2. Local Health Care Facilities

Although the hospital availability statistics noted above indicate a significant supply of facilities overall, further and more detailed assessment will be required to determine if this

supply is adequate to serve the incoming Fort Lee population, as well as the region as a whole. However, discussions with representatives from the hospitals in immediate proximity to Fort Lee, as well as other health care professionals, offer some insights into issues specifically related to the military installation. These hospitals include John Randolph Medical Center in Hopewell and Southside Regional Medical Center in Petersburg.

John Randolph Medical Center (JRMC) is an acute care facility licensed for 147 beds and currently staffed for 130. Southside Regional Medical Center (SRMC) is presently in the process of constructing a new 300-bed facility in Petersburg (the existing facility has 408 beds) with anticipated staffing for 270 beds (approximately the same as the existing facility). This new facility is expected to open in 2008.

Administrators from both hospitals indicate that existing demand for service related to Fort Lee is a relatively small percentage of their total hospital operations. This demand, which ranges between 5% and 10% of the hospitals' total volume of business, is based on estimates obtained from the tracking of TRICARE claims.

The primary services provided by both hospitals to Fort Lee personnel or family members occur in four areas: urgent care/emergency department services, orthopedics, behavioral or psychiatric services, and obstetrics (births). This last category is now only addressed at SRMC since JRMC discontinued its obstetrics (OB) department in 2006 citing declining demand. Accordingly, SRMC experienced an increase of approximately 500 births at the facility and will be increasing Labor/Delivery/Recovery (LDR) rooms from seven to eight in the new facility. The SRMC's administrator believes that this facility can accommodate OB demand related to Fort Lee. However, it is very possible that some portion of childbirths associated with Fort Lee will occur at other facilities in the region based on place of residence and personal preference.

The need for behavioral health and psychiatric treatment facilities to assist Fort Lee personnel, as noted previously, is expected to be a growing concern as it is generally for military personnel and their families due to on-going conflict in the Middle East. However, there are no reported plans to expand these services at either hospital at this time.

The need for emergency services, or urgent care, at hospital emergency departments' (EDs) has been identified as one of the primary demands for service related to Fort Lee personnel. The ED is often a bottleneck for services at many hospitals in general since this is the point of admissions for a large portion of patients. The JRMC has approximately 32,000 ED visits per year in its ED, which represents more than half of the total patients admitted to the facility. The SRMC has approximately 46,000 ED visits annually (almost 70% of total admissions) and expects this to increase to 50,000 at the new facility. Both hospital administrators indicate that measures continue to be implemented to improve service in the ED either through expansion or through technological advances. However, waiting time at these facilities can still be extensive (over 3 hours) and are subject to periodic diversions, or temporary closures, due to excessive demand during peak periods (typical in the winter months).

Another method being implemented by both hospitals, and one that is also representative of general industry trends across the country, is the move to reduce inpatient stays in the hospital by providing more outpatient care at freestanding regional facilities. Outpatient services generally include treatments or procedures that do not require overnight, medically supervised care, which allows patients to return home while recovering. Some of the outpatient services provided by most acute care general hospitals usually include: surgical

department services and facilities; emergency room facilities and services; diagnostic services such as x-ray, ultrasound, and laboratory services; some respiratory services; and wellness services. Both SRMC and JPMC operate outpatient urgent care facilities in Chester and Colonial Heights, and JPMC is reportedly considering opening a second in Colonial Heights that would help to serve Fort Lee's population. It should be noted, however, that these outpatient facilities are generally not open 24 hours a day and therefore, after-hours service needs will still be addressed at a local hospital ED.

One issue that has been cited as problematic for Fort Lee related medical services is the transfer and/or tracking of patient records. The communication of this information (e.g. laboratory reports, x-rays, etc.) as "hard copies" is inefficient and can slow the patient's treatment or care. Therefore, efforts are underway to transfer this information electronically in order to expedite services to military personnel.

Finally, the issues surrounding the need for additional doctors and nurses noted in the previous section, was echoed by both local hospital administrators. The SRMC has approximately 150 doctors with active privileges while JPMC has roughly 100 (Note: only 10 to 12 doctors are actual employees at either hospital). Both facilities are actively seeking to attract 12 to 16 additional physicians in a variety of subspecialties. However, both administrators acknowledge that the competition is very difficult and suggest that the dynamics of the local economy (i.e. income potential) and other operational factors (e.g. smaller sizes of medical practices require more on-call time for doctors) make it more difficult to attract and retain new physicians.

Difficulty in attracting and retaining nurses is reported to be particularly difficult. Nurses are in short supply locally even though SRMC operates its own on-site nursing school with an enrollment of approximately 140 students. Both hospitals are presently attempting to recruit 25 to 30 nurses each and are offering various incentives in order to be more competitive with other areas of the country. Efforts to recruit from overseas are also becoming more prevalent.

Overall, both hospital administrators indicated that any direct impacts related to increases in military personnel could be readily accommodated within their respective service delivery systems. From a business operations perspective this may in fact be a reasonable determination. However, in terms of desired quality of service from the patient's standpoint a more thorough assessment may be warranted as actual demands increase in the future.

3. Health Care Costs

This escalation of health care costs and the ability to obtain adequate insurance to cover those costs is an issue across the entire country. Continuing increases in expanded medical technology over the past 20 years have significantly improved service and treatments, but these state-of-the-art facilities also have a high price tag. In an effort to control rising costs, insurers, led by the Medicare and Medicaid programs, began to transition during this time period from traditional payment of fees-for-service to a regionalized fixed-fee system that establishes reimbursement levels based on a payment schedule that does not generally cover the entire cost established by the provider. This results in costs being passed to the patient or absorbed by the provider as non-payment. It has also resulted in many hospitals and doctors' practices taking a more "business oriented" approach to providing medical services

that has led to, among other measures, the move toward more outpatient treatment, as noted in the previous section.

While the complexities of the medical insurance reimbursement system are well beyond the scope of this analysis, these issues are relevant to Fort Lee as it relates to the TRICARE system that is used by military personnel and their families. The TRICARE program has several different plan options (such as TRICARE Prime, Standard, Extra, and Life) that offer different levels and types of services with deductibles and co-payments that vary accordingly. Health care providers in the Fort Lee study area have indicated that the TRICARE system offers some of the lowest reimbursement levels with regard to regional costs for medical services. In fact, one of the local hospital administrators indicated that his facility expects to record a \$1.2 million loss next year due to TRICARE related services.

The levels of reimbursement provided through the TRICARE system are established by the insurance provider and are beyond the control of Fort Lee's administrators. However, the potential impact that this system may have on area health care costs bears closer scrutiny as part of a more comprehensive regional or statewide assessment of medical services. It is possible that deficient reimbursements from this program could result in higher costs for other insurers and patients. It may also contribute to reduced access to quality medical service for military families if the program is not readily accepted throughout the region. This could become particularly relevant as demand for health care services increases due to the post's expansion if the supply of services is not expanded commensurately.

E. CONCLUSIONS

The delivery of medical services in the Fort Lee area is part of an integrated regional network of facilities and professionals that is influenced by factors occurring at broader levels in both the statewide and national health care systems. A thorough and useful assessment of a service system as complex as the medical services industry is beyond the scope of analysis that can be provided within this growth management strategy. In light of this, information presented in this chapter was intended to identify key issues related to the provision of health care services within the study area with the goal of outlining a framework for a future, more detailed assessment of regional health care services and the potential impacts related to an expanded Fort Lee population.

Based on discussions with area health care professionals, as well as a review of previous research on this topic, a number of salient observations and conclusions are apparent regarding the health care delivery system. The potential impacts associated with provision of on-post medical services at the Kenner Army Health Clinic (KAHC) are likely to be more readily apparent and immediate within the local health care system. However, other issues will be slower to materialize as the military-related population is absorbed within the region and integrated into the medical services delivery system. Furthermore, some of the issues that will affect Fort Lee's growth are systemic issues that already exist within the regional and statewide medical services system that will require a more holistic and long-term approach to address.

- Delay in construction of the second Troop Medical Center (TMC) at Fort Lee may result in demand for services that exceeds the capacity of existing on-post medical facilities. This could lead to reduced quality of service at the KAHC as well as potential spillover demand to civilian medical facilities.

- Planning and implementing BRAC recommendations at the local level, both for Fort Lee's administrators and the adjoining communities, is being complicated by the fact that decision-making and funding support at higher echelons within the military is presently subject to continually changing and often uncertain conditions. Therefore, addressing regional demand for medical services created by military growth will require close and continuous cooperation between military and civilian administrators, possibly through establishment of a standing joint committee.
- The recommended continuation of joint medical planning noted in the previous paragraph will need to be supported by more comprehensive and detailed data regarding the regional health care system. Therefore, consideration should be given to implementing a follow-up survey and assessment of the health care infrastructure, as it relates to facilities, staffing, and costs, as a subsequent step to this growth strategy. In particular, a comparison of supply and demand of specialty medical services needed to serve Fort Lee should be included. This analysis might also be used as a vehicle for establishing parameters that define acceptable levels of *quality health care* within the region that would dovetail with ongoing statewide assessment of this issue.
- Emergency departments at the two local hospitals, John Randolph and Southside Regional Medical Centers, will continue to be a focal point of service demand for Fort Lee personnel. This will exacerbate conditions at the two facilities presently considered by some to be exceeding desirable service capacity. There may not be a rapid private sector response to this demand and therefore, public involvement may be required.
- Fort Lee's expansion will result in more referrals for medical services to the off-post network of civilian medical providers. Particularly high demand exists in the areas of orthopedics, gastroenterology, dermatology, and cardiology, with increases expected in psychiatric services. Future evaluation of the regional medical system should give particular focus on the adequacy of practitioners and facilities related to these specialties.
- A review of the impacts related to the TRICARE medical reimbursement system should be included in future assessment of regional, as well as statewide medical services network. A lower willingness by civilian medical facilities and practitioners to accept this system has been cited as an issue by area health professionals. The lower reimbursement levels typically offered by this system may result in diminished access to medical care for military families, as well as an impact on the overall costs for medical services within the region and the state.
- The anticipated growth of population, housing and facilities on Fort Lee will place higher demands on the post's Emergency Management Services (EMS). The military has indicated that this situation will affect mutual aid services with adjoining communities and as such, will warrant a re-assessment of those agreements and the potential need for upgrading local services.
- The need to attract and retain medical professionals, doctors and nurses in particular, is an issue of both regional and statewide concern. Addressing this need within the Fort Lee study area may necessitate more public/private partnerships in

the future in order to maximize regional planning efforts related to these limited resources. Adequate health care is significant from both an economic development and quality of life perspective.

Fort Lee Growth Management Plan 2008

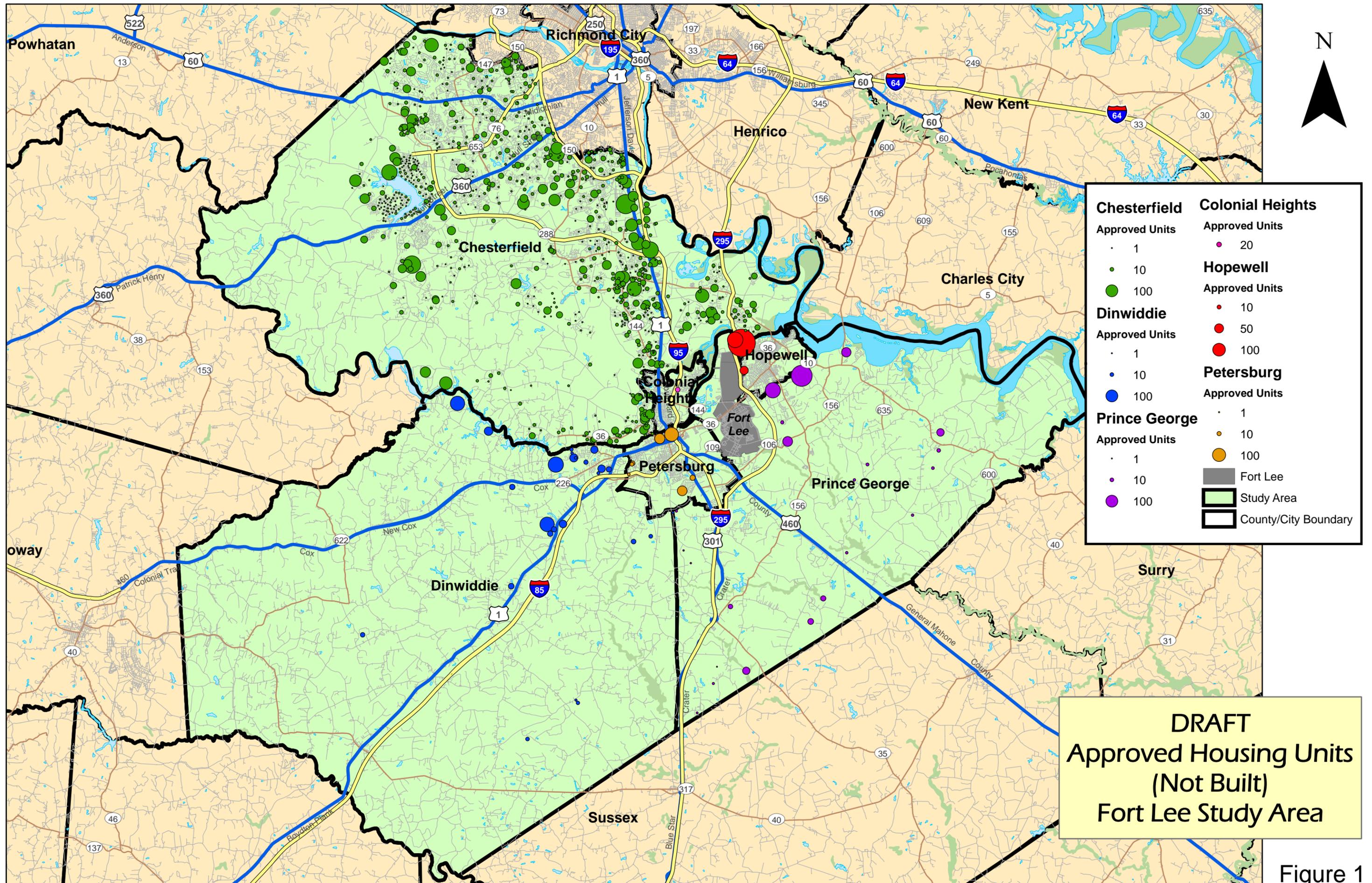
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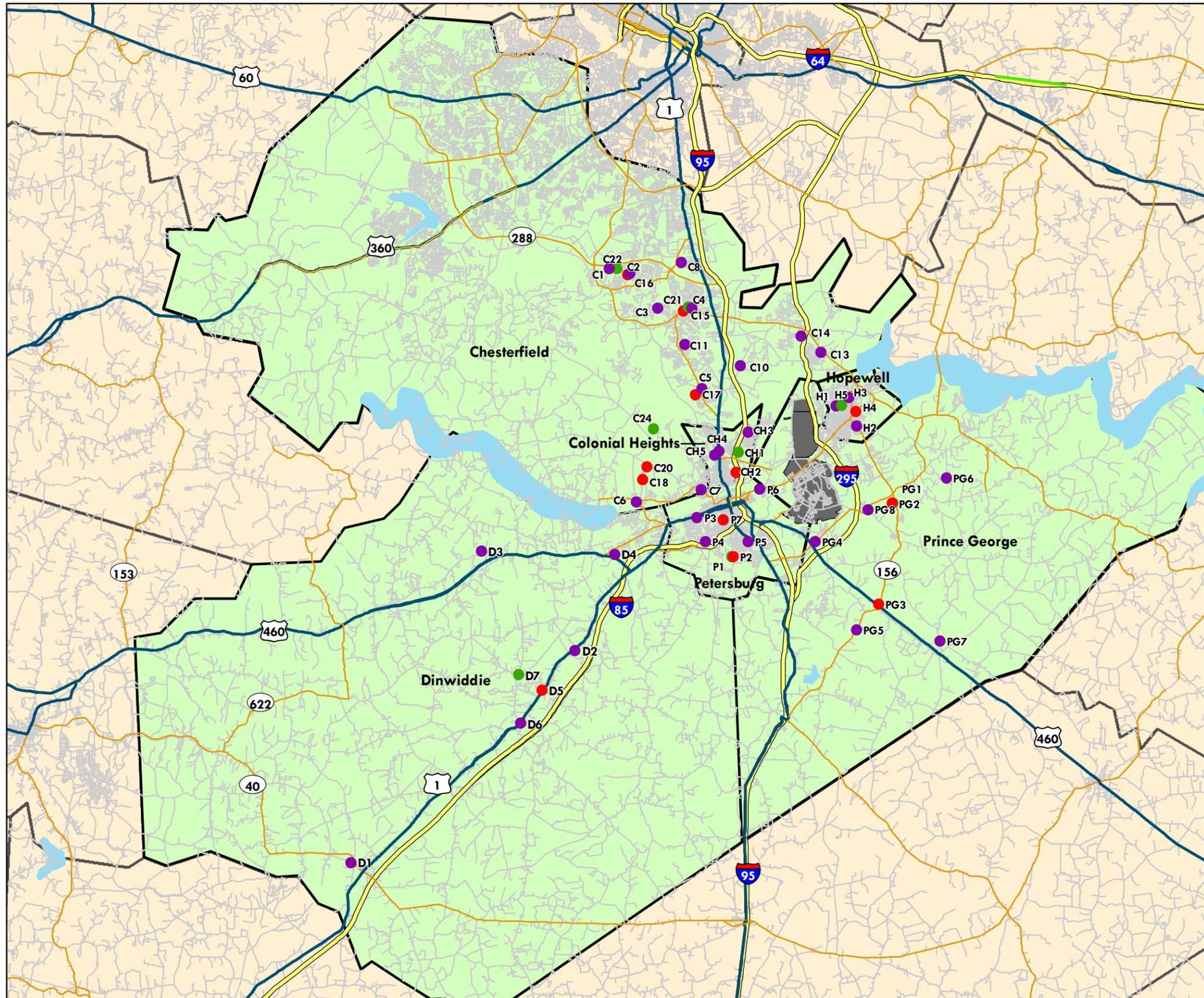
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Fax: (703) 604-5843**





DRAFT
Approved Housing Units
(Not Built)
Fort Lee Study Area

Figure 1



- CHESTERFIELD ELEMENTARY**
 C1 - O.B. Gates
 C2 - Salem Church
 C3 - Ecoff
 C4 - Curtis
 C5 - Harrowgate
 C6 - Matoaca
 C7 - Ettrick
 C8 - Bellwood
 C10 - Marguerite Christian
 C11 - C.C. Wells
 C13 - Enon
- CHESTERFIELD MIDDLE**
 C15 - Chester
 C16 - Salem Church
 C17 - Carver
 C18 - Matoaca
 C20 - Matoaca East
- CHESTERFIELD HIGH**
 C21 - Thomas Dale
 C22 - Lloyd C. Bird
 C24 - Matoaca
- COLONIAL HEIGHTS ELEMENTARY**
 CH3 - Tussing
 CH4 - North
 CH5 - Lakeview
- COLONIAL HEIGHTS MIDDLE**
 CH2 - Colonial Heights Middle School
- COLONIAL HEIGHTS HIGH**
 CH1 - Colonial Heights High School
- PETERSBURG ELEMENTARY**
 P3 - J.E.B. Stuart
 P4 - A.P. Hill
 P5 - Walnut Hill
 P6 - Robert E. Lee
- PETERSBURG MIDDLE**
 P7 - Peabody
 P2 - Vernon Johns
- PETERSBURG HIGH**
 P1 - Petersburg High School

- DINWIDDIE ELEMENTARY**
 D1 - Sunnyside
 D2 - Southside
 D3 - Midway
 D4 - Rohoic
 D6 - Dinwiddie Elementary School
- DINWIDDIE MIDDLE**
 D5 - Dinwiddie County Middle School
- DINWIDDIE HIGH**
 D7 - Dinwiddie High School
- HOPEWELL ELEMENTARY**
 H1 - Patrick Copeland
 H2 - Harry E. James
 H3 - Dupont
- HOPEWELL MIDDLE**
 H4 - Carter G. Woodson
- HOPEWELL HIGH**
 H5 - Hopewell High School
- PRINCE GEORGE ELEMENTARY**
 PG4 - Walton
 PG5 - South
 PG6 - North
 PG7 - Harrison
 PG8 - Beazly
- PRINCE GEORGE MIDDLE**
 PG2 - N.B. Clements
 PG3 - Moore
- PRINCE GEORGE HIGH**
 PG1 - Prince George High School

- Elementary Schools
- Middle Schools
- High Schools
- Fort Lee
- Study Area
- Surrounding Counties

DRAFT
School Inventory
Fort Lee Study Area

Fort Lee Growth Management Study

Figure 5-1

