FORT BELVOIR, VIRGINIA

REAL PROPERTY MASTER PLAN

TRANSPORTATION MANAGEMENT PLAN

March 2014

DRAFT

ATKINS

About the Cover...

The illustrative rendering depicts a concept for creating a potential Transit Transfer Center located at the corner of Gunston Road and 12th Street. These transfer centers are intended to be located in places with high commuter demand that support workers, residents and visitors to the Installation. The centers are to be located with convenient access to existing public/private bus service with dedicated bicycle lanes and walkways. The centers will also function as gathering areas for organized carpool and real-time rideshare pickup. The centers will be programmed to include such facilities as:

- An enclosed lighted bus shelter with a paved plaza area
- Group seating areas
- Wayfinding signage (bus route and trails maps)
- Community information kiosk
- Bus schedule with LED display board
- Bike-share areas, bicycle racks, bicycle storage areas
- Nearby eateries

The centers should be adjacent to or near community open space areas to allow a small overflow pedestrian area that could also support special events and/or mobile food vendors.

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March 2014

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Executive Summary

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Fort Belvoir is a strategic sustaining installation for America's Army with a who's who list of Department of Defense (DoD) organizations and over 39,000 civilians and Soldiers working on the Garrison's 8,500 acres. Fort Belvoir is an outstanding place to work, train and live that embraces a culture of diversity, innovation, and challenge while continuing its legacy as a "Beautiful to See" Installation. Fort Belvoir expects to continue to grow since it is located in one of the fastest growing areas of the country and has a waiting list of organizations wanting to move to the Installation. Fort Belvoir can best accomplish its future goals related to growth and transportation through the use of a Transportation Management Plan (TMP).

Fort Belvoir's future transportation vision is to reduce commuter reliance on the single occupancy vehicle (SOV) by establishing a transportation system that imporves multimodal connectivity. Improving multimodal connectivity is one of the guiding principles in the Real Property Master Plan (RPMP). Since transportation is a complex system, especially for a garrison bisected by a public highway, a successful TMP is needed to achieve desired results. In accordance with both Army and National Capital Planning Commission (NCPC) guidance, an Installation-wide TMP is being prepared as part of the series of integrated RPMP documents. The TMP recognizes and will address all the transportation elements needed to successfully reduce commuting trips to the Installation.

The purpose of the TMP is to achieve trip reduction, meet the Army's 60 percent parking allowance for administrative uses (or 1.67 employees/space), and increase mobility options for its employees. These efforts have been ongoing for several years and started prior to the relocation of employees as part of the Base Realignment and Closure Act of 2005 (BRAC) implementation. Several TMP-recommended strategies began in 2008 and are improving employees' commutes. These include: the hiring of a Transportation Demand Management (TDM) Coordinator; establishing regional partnerships with local government that have improved use of Fairfax County Department of Transportation ridesources and employee service program resources; implementation of Telework and Alternate Work Schedule policies for the Garrison; the phasing out of numerous government shuttles in favor of enhanced public bus service, hosting commuter fairs; and implementation of a TMP website as an online resource for commuter information.

The Garrison is committed to achieving greater travel efficiency as it grows by creating specific plans for parking, access, circulation and multimodal transportation options for its empoyees. This Fort Belvoir TMP identifies, evaluates, and selects a set of strategies that influences employee commuting methods, enhances workday trip-making, and increases flexibility for work schedules and commuting. The TMP also establishes a plan for how and when to effectively implement these strategies.

Based on these analyses, as well as a Commuter Survey and Traffic Assessment, Priority Recommendations for implementation of this TMP are described in Section 7 Implementation Plan. An assessment of the traffic impacts and improvements needed for 2017 and 2030 growth levels projected in the RPMP are provided in Section 5 and the Environmental Impact Statement (EIS) that is being submitted separately by others.

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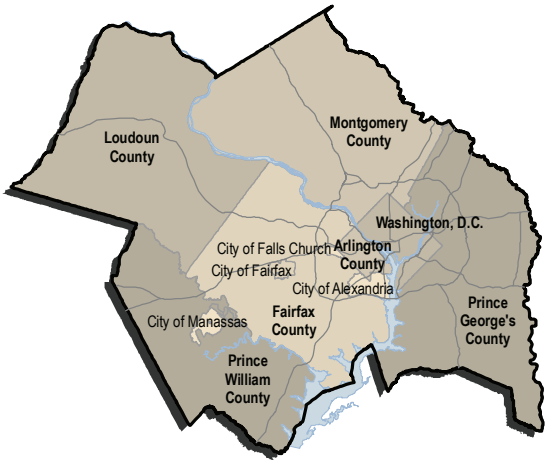
Introduction 1



The National Capital Region

1.1 Purpose

General Purpose of a TMP

The National Capital Planning Commission (NCPC) serves as the central planning and regulating agency for federal activities and interests within the National Capital Region (NCR), which includes Arlington, Loudoun, Prince William and Fairfax counties in Virginia; Prince George's and Montgomery counties in Maryland; and the District of Columbia; as well as the independent cities in both states. One of NCPC's principal responsibilities is coordinating, reviewing, and approving development activities of federal sites within the NCR, including Fort Belvoir. NCPC guidance includes development of a Transportation Management Program (TMP) for federal agencies of over 100 personnel. Similarly, local governments that require Board of Supervisors' approval will provide Travel Demand Management (TDM) measures; however, site plans that can be administratively approved under by-right zoning are not required to prepare a TDM.

Based on the Transportation Element, described in the *Comprehensive Plan for the National Capital Region*, the purpose of a TMP is to document an employer's active program to foster more efficient employee commuting patterns by minimizing single occupancy vehicle (SOV) trips to federal agency work sites, as mandated by federal air quality regulations, local trip reduction ordinances, and regional planning requirements. In general, a TMP:

- Assesses all elements of the existing transportation system within the project area.
- Identifies, evaluates, and selects a set of strategies to positively influence travel behavior.
- Provides a specific plan to implement and promote the strategies.
- Identifies a framework to monitor and evaluate the achievement of goals.

Purpose of the Fort Belvoir TMP

Transportation within Fort Belvoir is a complex system with numerous factors affecting employees' commuting choices. Physical facilities such as gates, roads, parking, and shuttle bus stops influence travel behavior, as do more fluctuating elements such as Installation security and mission needs, coordination with public transit providers, and scheduling policies. The purpose of the Fort Belvoir TMP is to reduce the demand on area roadways by changing commuter behavior and reducing the number of vehicle trips to the Installation.

The Fort Belvoir TMP is not a project- or site-specific document, but rather a comprehensive program to guide the entire Installation and its mission partner agencies. This Fort Belvoir TMP is intended to become the "umbrella" document for the Installation, providing overview and guidance for all of its partner agencies. The Fort Belvoir TMP will assist the preparation and maintenance of agency TMPs. It is not intended to replace or eliminate the need for transportation management programs at individual agencies.

Table 1.1 below shows differences between the two levels of TMPs. In general, the Installation-level TMP addresses macro-level regional resources and mission partner leadership; the agency-level TMP influences employees with site-specific strategies.

Several agencies at Fort Belvoir currently maintain a variety of site-specific transportation management programs and activities. In general, as part of the BRAC 2005 action, agencies that have recently relocated to Fort Belvoir have TMPs, but those that have been long established on Post do not. The information and recommendations in agency-level TMPs will be utilized as Fort Belvoir TMP strategies are developed. Mission partner agencies with TMPs are:

- National Geospatial-Intelligence Agency (NGA), dated 2008
- Missile Defense Agency (MDA), dated 2008
- Office of the Chief, Army Reserve (OCAR), dated 2011
- United States Army Legal Services Agency (USALSA), dated 2011
- Intelligence and Security Command (INSCOM), dated 2013

Table 1.1 Differences between Installation and Agency Transportation Management

Installation Transportation Management will:	Agency Transportation Management will:
Goals and Strategies	
Set Installation-wide goals and objectives	Determine necessary travel mode splits to achieve maximum 60% SOV use and to meet parking requirements
Analyze strategies that Fort Belvoir can implement to reduce trips	Commit to strategies that the agency can implement to reduce trips
Traffic Assessments	
Monitor and evaluate traffic at the Installation-level	Monitor and evaluate traffic at the site and site entrance/exits
Provide necessary improvements to: Installation gates and gate operations; Primary streets and intersections; Connections to regional roadway network; Bicycle and pedestrian trails, lanes, and stops	Mitigate agency traffic impacts to the overall network including: Mission partner gates and operations Secondary streets and intersections Connections to Installation roadway network, such as turn lanes Bicycle and pedestrian facilities at the site
Parking Assessments	
Monitor parking demands and operations at the Installation-level	Monitor parking demands and operations at the site
Evaluate parking ratio for the entire Installation	Determine number and type of parking spaces needed (e.g., carpool/ vanpool designated spaces)
Implement Installation-wide parking standards	Establish procedures for on-site parking passes
Information	
Outreach to all employees by the TDM Coordinator: Installation commuter fairs Installation rideshare website Installation-wide commuter surveys	Outreach to agency employees: Site-specific information dissemination such as kiosks, internal networks Agency-specific scheduling (policies and monitoring)
Coordination	
Engage mission partner agencies	Communicate with the TDM Coordinator on TMP activities and results
Provide resources to agencies	Coordinate with Installation regarding site- and employee-specific needs
Coordinate with regional stakeholders, including transit providers	Report progress toward meeting defined goals to Installation TDM Coordinator
Coordinate efforts that affect numerous agencies	
Report progress toward meeting defined goals to regional stakeholders, including transit providers	

As the landowner, Fort Belvoir is preparing a TMP which is integrated with the Master Plan (see Section 1.2), in accordance with NCPC guidance. The Fort Belvoir TMP will set expectations of agency-level commitments to the Installation TMP. In addition, agencies may be responsible for their own individual TMP documents as they expand or develop as part of the site plan approval process (see **Appendix A**).

1.2 Guiding Documents

Because Fort Belvoir is a federal Army Installation located within NCPC's planning area, pertinent local government documents are included in Table 1.2. The documents shown in Table 1.2 provide guidance and regulations that directly affect the TMP's purpose, goals, and objectives. Other documents that may affect specific strategies, such as Department of Defense (DoD) motor vehicle policies, are not highlighted here but will be discussed in the evaluation and selection process as appropriate. The TMP and the other RPMP documents are internally consistent and mutually supportive of one another.

Table 1.2 Guiding Documents and their Application to the TMP
Submission Guidelines for Master Plans and Site Plans* by NCPC:
Provides TMP content requirements at both the Master Plan and Site Plan level.
Comprehensive Plan for the National Capital - Transportation Element* by NCPC:
Contains itemized policies to guide: Parking Ratios, TMPs, Transportation Demand Management, and Shuttles and Circulators.
Implementing a Successful TMP* by General Services Administration (GSA), Metropolitan Washington Council of Governments (MWCOG), and NCPC:
Provides the "handbook" for TMP implementation. A guide to preparing a TMP, with ideal procedures, strategies, and steps to follow.
Technical Instructions for Design Criteria (TI 800-01)* by U.S. Army Corps of Engineers (USACE):
Provides required parking allocations by facility type for all Army Installations.
Fairfax County Comprehensive Plan ** by Fairfax County:
Promotes Travel Demand Management (TDM) as a means to support efficient use of the existing transportation network. Includes goals for achieving SOV reductions and programmed multimodal improvements. Does not include requirement for TMP development; however, TMPs are typically submitted in the form of proffers as part of the re-zoning approval process.
Final Environmental Impact Statement for Implementation of 2005 Base Realignment and Closure Recommendations and Related Army Actions at Fort Belvoir, Virginia (FEIS) by USACE:
Identifies the development and implementation of a TMP at Fort Belvoir to reduce SOVs.
Record of Decision for the Implementation of 2005 Base Realignment and Closure Recommendations and Related Army Actions at Fort Belvoir, Virginia (ROD) by USACE:
Directs Fort Belvoir to establish and staff a TDM Coordinator position to oversee trip reduction initiatives.
Executive Order 13514 by the President of the United States:
Provides energy reduction and environmental performance requirements for all federal agencies. Includes specific Greenhouse Gas (GHG) reduction goals, as well as non-numerical targets for transportation.
Unified Facilities Criteria (UFC) for Installation Master Planning (DRAFT for public release September 2011) by Department of Defense (DoD):
Provides Master Plan criteria in support of: Sustainable Planning including Compact and Mixed-Use Development, Transit-Oriented Design, and Connected Transportation Networks; and Healthy Community Planning including Planning for Walking, Running, and Biking, and Pedestrian and Cycling Plans.
Better Military Traffic Engineering Pamphlet 55-17 (2011) by Military Surface Deployment and Distribution Command Transportation Engineering Agency:
Responsible for improving highway safety and reducing traffic congestion at DoD installations, including acceptable Levels of Service (LOS) on military roadways.
Telework Enhancement Act of 2010:
A strategy to improve Continuity of Operations during emergency situations, reduce management and transit costs, environmental impact, and to enhance work-life balance for federal employees. More information is available at http://www.telework.gov/telework_enhancement_act/.

** Excerpts from the documents marked with an asterisk are contained in* **Appendix A** *of this report.*

*** Although Fort Belvoir is not required to follow Fairfax County regulations for planning districts, the Installation promotes a good-neighbor policy and works with local government to support regional mobility.*

1.3 Assumptions

- This Fort Belvoir TMP is specific to the Main Post and Fort Belvoir North Area (FBNA). The scope of the descriptions, analyses, and recommendations in this document does not include the following:
  - Mark Center. Constructed as part of BRAC 2005, the Mark Center site is part of Fort Belvoir and located in the City of Alexandria, adjacent to Interstate 395. The facilities are occupied by Washington Headquarters Services, who developed and maintain its own agency-level TMP for the site. Per the Master Plan, no new growth is intended for this site.
  - Rivanna Station. A remotely-located portion of Fort Belvoir near Charlottesville, Virginia. Rivanna Station is outside the boundary of the NCPC planning region and its requirements.
  - Humphreys Engineer Center (HEC). The HEC site is located adjacent to Main Post, but is now operated by the U.S. Army Corps of Engineers. HEC is a separate federal entity, not a part of Fort Belvoir.
- The supporting Master Plan and Environmental Impact Statement (EIS) documents are in parallel with this TMP. The TMP includes an assessment of traffic on Fort Belvoir roads, intersections where those roads intersect the public roads, and selected public roads in the immediate vicinity of Fort Belvoir in accordance with Master Plan development (baseline, 2017, and 2030.) The Traffic Assessment portion of this TMP is being utilized to support the alternative development options in the EIS and to develop the transportation plan in the Installation Vision and Development Plan (VDP) (formerly known as the Long Range Component (LRC)) of the RPMP. The TMP is not intended to serve as the formal transportation analysis of the EIS, but rather is provided as a supplement to the EIS.
- The baseline condition for all analyses (existing and emerging conditions and traffic assessment) is January 2012. Personnel projections are based on 2011 Army stationing plans.
- The trip-reduction strategies that are set forth and analyzed in this TMP focus on administrative facilities at Fort Belvoir, but participation is encouraged by non-administrative drivers as well. Fort Belvoir gate count data reflects that typically 62,000 vehicles enter the Main Post daily. Assuming roughly 85 percent of 40,000 employees drive to work, this would total 34,000 (or 55 percent) that are employment-related. Approximately 28,000 (45 percent) of the trips are for troop activities, training, student, housing and visitor populations. While this population is outside the scope of this document, the TMP is considered all-inclusive, with programs and strategies that can appeal to other users who travel to the Installation.
- The personnel totals represented in Chapter 4 Parking Assessment, reflect confirmed personnel building assignments by agency. The personnel building assignment totals differ slightly (~1 percent) from the Army Stationing and Installation Plan (ASIP) data that reflects the total authorized personnel at Fort Belvoir, which is used in the Master Plan and EIS.

1.4 Document Outline

The remainder of this TMP is organized as follows:

SECTION 2 contains documentation of the existing and emerging conditions that affect Fort Belvoir commuting, including description of regional and internal roads, commuter transit facilities, bicycle and pedestrian accessibility, and Installation and regional planning initiatives underway by state and local government agencies.

SECTION 3 provides background on the travel behavior of Fort Belvoir personnel, including Commuter Survey results and residence distribution.

SECTION 4 contains the Parking Assessment, which includes a full inventory of the number and type of parking spaces on the Installation and the impacts of future development on parking.

SECTION 5 contains the Traffic Assessment, which includes analysis of traffic volumes and operations for baseline (existing conditions), near-term (2017), and long-term (2030) growth. Section 6 evaluates the effect of the TMP on the transportation network when compared to current Fort Belvoir driver behavior (or 85 percent single occupancy vehicle use). The traffic assessment provides general recommendations on the types transportation improvements to support planned growth needed based on levels of TMP effectiveness that may be achieved.

SECTION 6 presents the Transportation Management Strategies, which include goals, objectives and SOV reduction targets for 2017 and 2030, as well as a brief description and analysis of each strategy. Priority strategies from this section will be moved forward to the Implementation Plan.

SECTION 7 includes the Implementation Plan, which identifies how each priority strategy can be successfully implemented based on approximate costs, timetable, roles and responsibilities of the Installation and its mission partners, and recommended actions to support success. Section 7 includes quantifiable targeted mode splits to achieve the SOV reduction goals and strategies described in Section 6.

SECTION 8 provides the Monitoring and Evaluation Plan, which includes the process for monitoring, evaluating, and amending the TMP document.

Existing and Emerging Conditions 2

2.1 Overview

Fort Belvoir, a United States Army Installation, is home to over 140 mission partner agencies and organizations, the majority of which provide administrative, logistics, and operations support for regional and worldwide military missions. As part of the Base Realignment and Closure Act of 2005 (BRAC 2005), the Installation's population almost doubled in size in 2011. As a result, Fort Belvoir has recently undergone a major transformation, expanding in both the number of personnel and associated facilities with supporting infrastructure to serve the new population. In addition to operational support, Fort Belvoir also provides housing to military families in the NCR and community support (medical and recreation) for the military community.

The BRAC Record of Decision (ROD) established the Transportation Demand Manager (TDM) Coordinator position and implementation of a TMP as two of several transportation mitigation measures for BRAC 2005. Specific implementation details such as the percentage of the workforce that will shift from their POVs into other forms of transportation were not identified in the ROD, but rather are appropriately described in this TMP. In addition, the TMP is required by the NCPC for all federal agencies in the NCR and is included with the RPMP updates. The Fort Belvoir TMP complies with NCPC guidelines as outlined in the Master Plans and Site Plans Submission Guidelines, the Transportation Element of the NCPC *Comprehensive Plan for the National Capital,* as well as the GSA/MWCOG/NCPC publication, "*Implementing a Successful TMP*" May 2008. (See **Appendix A** for more information on these guidelines.) The TMP will be consistent with NCPC guidelines for submission and for periodic updates. The TMP describes a process for monitoring, evaluating and reporting progress which fulfills the Army's obligation to monitor the BRAC mitigation measures for effectiveness as required under 32 CFR 651.15.

This section discusses both broad regional influences and specific Installation conditions that affect the implementation of transportation management strategies at Fort Belvoir.

The baseline date used in this study, or starting point, to measure change is based on the workforce population as of January 2012, reflecting a post-BRAC 2005 condition.

2.2 Existing TMP Efforts

Background

Fort Belvoir TMP efforts have been ongoing for several years. Beginning in 2008, the TMP established recommendations and guidelines to implement transportation management at Fort Belvoir. All of the previously selected management strategies have been implemented, as well as other strategies that have been developed since then.

This TMP will analyzes the post-BRAC 2005 condition and provide recommendations that enhance and expand on previous TMP initiatives. The TMP will focus on developing an implementation plan to manage both near-term and long-term transportation requirements.

Table 2.1 2008 Strategies and Current Status	
Previously Recommended Strategies (~2008)	**2012 Status**
Alternate Work Schedules were selected due to their minimal cost and effective SOV reduction if employees and agencies stagger schedules and days off.	Policy complete for Garrison civilian personnel in 2010.
Teleworking is a minimal cost strategy that also proves very effective in reducing SOV trips by staggering telework days.	Policy complete for Garrison civilian personnel in 2010.
A **Rideshare Website** with Installation-specific information and links to regional websites which increases the potential for ridesharing among employees.	Complete. URL is https://www.belvoir.army.mil/rideshare. See **Appendix B1** for more information.
Internal Shuttle Buses are crucial to meeting the projected goals of the other TDM strategies. This particular strategy has a sizeable start-up and operational cost.	Completed. Both internal and external Army buses have been replaced by enhanced public bus service. The internal circulator shuttle buses operated by DOL and external shuttle to the Pentagon operated by OAA began service in the summer of 2011.Thes internal Army shuttles were discontinued in the fall of 2012 in favor of increased bus routes that extended service routes to the 300 Area, the Fort Belvoir Community Hospital, the North Post area and FBNA. The new bus service includes the Fairfax Connector Routes 333, 334, 335 and the Richmond Highway Express (REX).
External Shuttle Buses link the Installation to nearby transit stations. These connections encourage longer distance commuters to use regional rail services.	
A **Parking Management Policy** can be implemented and enforced, in which parking spaces are reserved for carpool and vanpool vehicles.	Ongoing. Fort Belvoir provides Parking Management oversight for all existing and redeveloping agencies. In addition, several DoD mission partners have established their own TMPs to manage and promote the use of designated car and vanpool spaces.

Previous TMP Recommendations

A TDM Working Group (TDMWG) was first brought together in 2008 to brainstorm and analyze ways to reduce SOV trips to the Installation. All mission partners were invited; however, it is important to note that approximately 20 percent of the agencies cover 80 percent of all mission partners on the Installation. Utilizing NCPC guidance, the TDMWG developed a complete list of possible measures. Measures were refined based on survey information and analyzed based on benefit to the Installation as well as cost and time to implement, given the immediate need with the influx of BRAC 2005 employees. Six strategies remained after the screening process was complete. After presentation to the Garrison Commander and staff, the first three were approved for immediate implementation, and the remainder were approved for implementation as funding becomes available. Table 2.1 identifies those original existing and ongoing six strategies, and updates the current status.

Existing TMP Strategies

As directed by the BRAC 2005 Record of Decision (ROD), a TDM Coordinator position was established to oversee trip reduction initiatives. Since 2009, the position has become the Garrison liaison both to the mission partner agencies and to individual employees who have issues or questions. Under the TDM Coordinator, the following initiatives have taken place:

- Ongoing coordination with regional stakeholders, such as Fairfax County and transit agencies, to increase, improve, and modify service to Fort Belvoir.
- Ongoing Installation-wide Commuter Fairs. Regularly scheduled for the past few years, attendance is improving slightly as the fairs continue. These fairs include presentations and representatives from transit agencies, rideshare programs, and county staff to encourage multimodal travel.
- Agency-specific Commuter Workshops. Beginning in 2012, these more targeted workshops include specific personnel from a single agency or group of agencies in an area with common needs and are more formalized than the fairs. INSCOM has conducted commuter workshops to provide TMP information to its workforce and the neighboring DLA campus. This "district-wide" approach may become the more preferred commuter fair model as it is more conducive to rideshare and transit service coordination to a select customer base.
- Monthly TDMWG meetings are currently a collaboration of Garrison staff and representatives from mission partner agencies.
- Implementation of the "Trusted Traveler" Pass Program. The pass allows approved commercial commuter transportation companies carrying Fort Belvoir personnel greater direct access to the entire Installation via both Kingman and Tulley Gates.
- Installation-wide Commuter Survey. In 2011 standard survey questions were developed, and a survey was completed. *A second survey was completed in 2013 (See Section 3.5 2013 Commuter Survey and Appendix D2 for more information on the 2013 survey).*

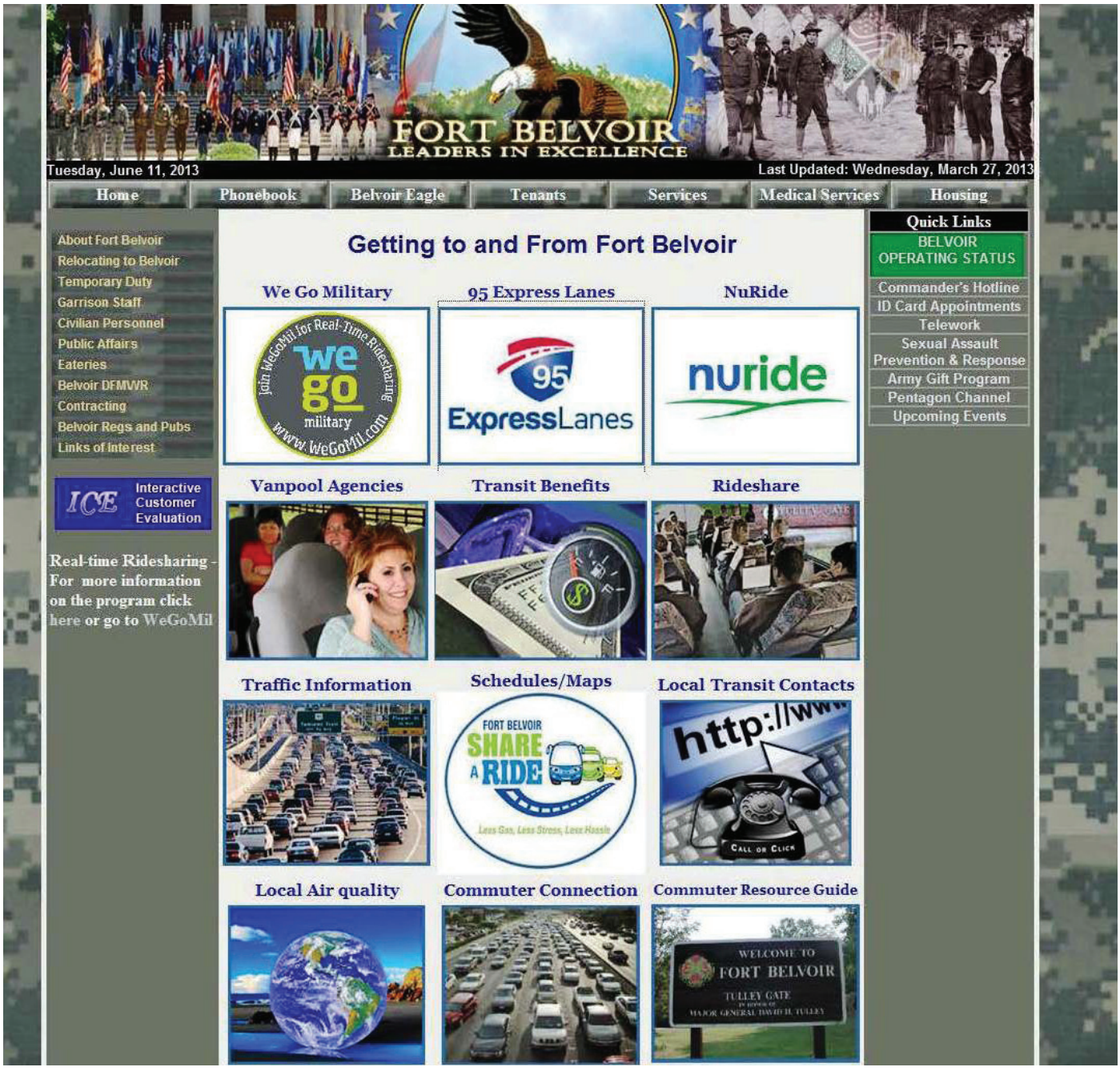
Since completion of the new construction and Installation growth post-BRAC 2005, the Installation has continued to aggressively work with its mission partners to reduce SOV usage by providing a variety of commuting options.

As listed in Table 2.1, a rideshare website has been created and continues to be updated. More information on the website is in **Appendix B1** of this TMP. The website includes more than just "rideshare" information. It links to regional websites that provide commuter benefits for Fort Belvoir personnel. Further information on bus route schedules, the I-95 Express lanes, transit benefits, Share a Ride program, WeGoMil, vanpool agencies, traffic information, and even local air quality can be found at https://www.belvoir.army.mil/rideshare.

The trend of recent agency-level TMPs has set a precedent for agencies to become active partners in Fort Belvoir's transportation system, including designated personnel to monitor traffic and parking impacts. This provides for exchange of information to/from the TDM Coordinator, allowing for holistic assessment of the state of transportation management at Fort Belvoir. While improved Mission Partner/Garrison TMP coordination is encouraging, additional effort will be required. Accordingly, specific short-term strategies under "Agency Coordination" (AC) can be found in Section 7. See Strategies AC-1, AC-2 and AC-3 that describe the process for how the exchange of information and TMP goal setting will occur.

To measure the effectiveness of the TMP strategies, a table is provided in Section 7.8 that establishes specific target goals and projected changes in travel modes for the near-term (2017) and long-term (2030) horizon years. These measurable target goals will be monitored and evaluated as described in Section 8.

The Fort Belvoir Rideshare website offers up-to-date information to daily commuters.



2.3 Fort Belvoir: The Site

Regional Location

The Installation is located in Fairfax County, Virginia, 16 miles southwest of Washington, D.C., and 8 miles southwest of the City of Alexandria. Fairfax County is the most populated jurisdiction in the NCR and is expected to continue to grow according to Fairfax County and Metropolitan Washington Council of Governments (MWCOG) forecasts. With over 39,000 workers, Fort Belvoir is one of the largest employers in the county and therefore is also one of the major traffic generators.

Fort Belvoir consists of approximately 8,500 acres of land stretching north and west from the banks of the Potomac River. The natural environment has a diversity of environmental conditions, habitats, and climate. Fort Belvoir, along with the surrounding region, must continually balance development needs with environmental protection. The site's numerous natural, cultural, and historic resources limit the areas on the Installation that can be developed.

Sub-Areas

Fort Belvoir can be broken down into five functional sub-areas, four on Main Post and one remote site as shown on Figure 2.1. Some employees within these sub-areas work three shifts seven days a week, 24 hours per day, 365 days per year; however, the majority of employees report for duty during the typical weekday work hours. Over 90,000 active and retired military personnel and their dependents live within a 40-mile radius of Fort Belvoir. They are supported through their use of the Commissary, the Post Exchange (PX), Fort Belvoir Community Hospital and other Garrison services.

- **South Post** is an approximate 2,550-acre peninsula that is located south of U.S. Route 1. The first area to be used and developed, South Post contains the majority of the Main Post population and facilities including: Garrison administration and support, Fort Belvoir Community Hospital, education, family housing, research and development, and community and recreational facilities. South Post currently supports approximately 16,200 personnel.
- **North Post** is an approximate 2,250-acre site that is located north of U.S. Route 1 and east of the Fairfax County Parkway. The development density of the lower portion of North Post is similar to South Post. The upper portion of North Post houses major mission partner organizations that require secure campuses. This area also contains a golf course and a clustering of community facilities that include the PX and Commissary. North Post currently supports approximately 13,400 personnel.
- **Davison Army Airfield (DAAF)** is an 800-acre site located west of the Fairfax County Parkway and north of U.S. Route 1. DAAF contains an active airfield with daily flights and provides training and support facilities for fixed/rotary wing aircraft. Approximately 600 personnel work in this area.
- **Southwest Area** is roughly 2,100 acres located south of U.S. Route 1 and west of South Post. It contains undeveloped areas for training and recreational use. Only a few personnel (~5 or fewer) work or live in this area.
- **Fort Belvoir North Area (FBNA)** is an approximate 800-acre site that is separate from Main Post, located adjacent to Interstate 95 and two miles northwest of Main Post. It currently contains a single secure campus with approximately 8,500 personnel as of September 2011.
- **Humphreys Engineer Center (HEC)** *is not part of Fort Belvoir. As a federal agency, HEC is required to comply with the Comprehensive Plan of the District for Master Plans and TMPs.*

There are currently 2,156 resident housing units on the Installation (including swing space housing used for renovations) that are maintained by Residential Communities Initiative (RCI). Of this total, 614 housing units are located on North Post, and 1,542 housing units are on South Post. This total does not include the Soldier barracks (McRee) and transient lodging accommodations, such as Officer Lodging, Privatized Army Lodging (PAL) sites, the Warrior Transition campus and the recently completed Fisher House; all of these total approximately 793 rooms.

Future Growth

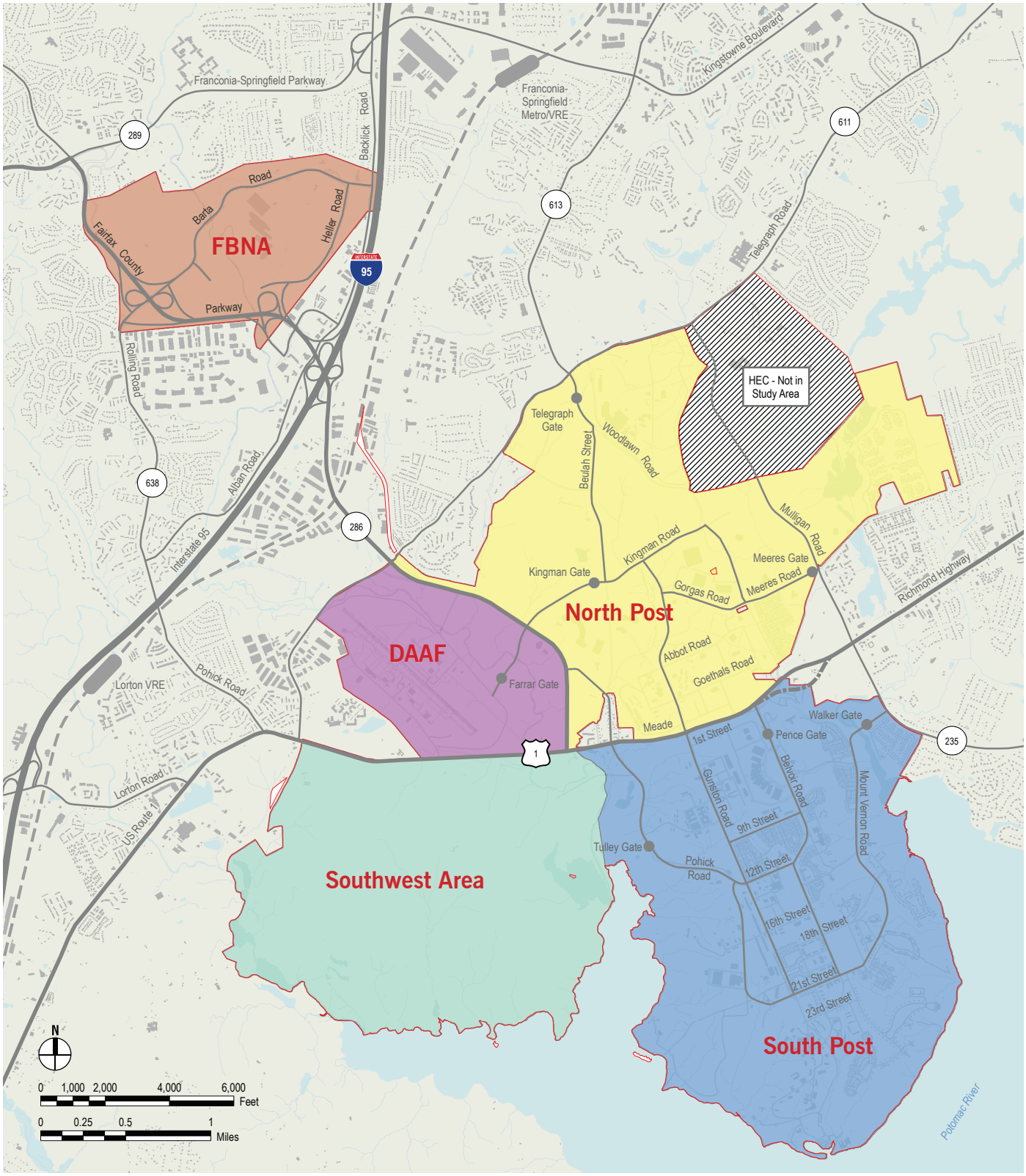
As developed in the Master Plan and analyzed in the Environmental Impact Statement, the population growth anticipated at the Installation is shown in Table 2.2. **Appendix C** contains a map of the locations and populations for future projects. The number of residences is not projected to experience significant growth in the future.

Table 2.2 Projected Population Growth (based on 2011 stationing plan)

Year	Population	Growth
2012	39,000	-
2017	44,000	+/- 5,000
2030	56,000	+/- 17,000

Note: The Master Plan land capacity analysis projects a potential future build out population level for 2040 and beyond. This TMP is designed to meet the maximum 60 percent SOV use by 2030 and assess the traffic impacts associated with the projected 2017 and 2030 growth levels.

Figure 2.1 Functional Areas



2.4 Regional Roadway Network

Background

Fort Belvoir is located in a rapidly growing suburban area with a heavily congested regional transportation system. Moving personnel on and off the Garrison every day will become increasingly challenging in upcoming years as regional traffic substantially increases over the next several decades. The Fairfax County population alone is expected to increase 23 percent from 2005 to 2030. (Source: http://www.fairfaxcounty.gov/demograph/gendemo.htm and the *Virginia Community Profile: Fairfax County* prepared by the Virginia Employment Commission at http://virginialmi.com/report_center/community_profiles/5104000059.pdf). This increase will contribute significant impacts to the regional transportation system that serves Fort Belvoir and will affect Fort Belvoir personnel's commutes.

Off-site regional transportation improvements within the I-95 and Route 1 corridors and the areas surrounding Fort Belvoir are key to supporting its employees' mobility. Both local and state government agencies recognize that future growth demands in the region will require extensive transportation improvements, and have identified needed improvements in their planned and programmed initiatives (refer to Relevant Planning Initiatives Section 2.9). The analysis and evaluation of these future regional improvements are beyond the scope of this TMP; however, the Installation continues to work closely with local government officials to monitor the effect that these future improvements will have on commuter behavior. The Installation supports regional transportation improvements, such as the I-95 Express Lanes for HOV/HOT use, that will encourage more rideshare and will enhance the mobility of travelers throughout northern Virginia and the NCR. Fort Belvoir, in partnership with state and local governments, contributed to the construction of significant improvements both on-post and off-post to improve capacity including the reservation of public right-of-way on Installation land for the Route 1 widening (on Main Post) and the future Fairfax County Parkway intersection and ramp improvements (on FBNA).

Vehicles travel on southbound Interstate 95/395 approaching the Fort Belvoir exit.

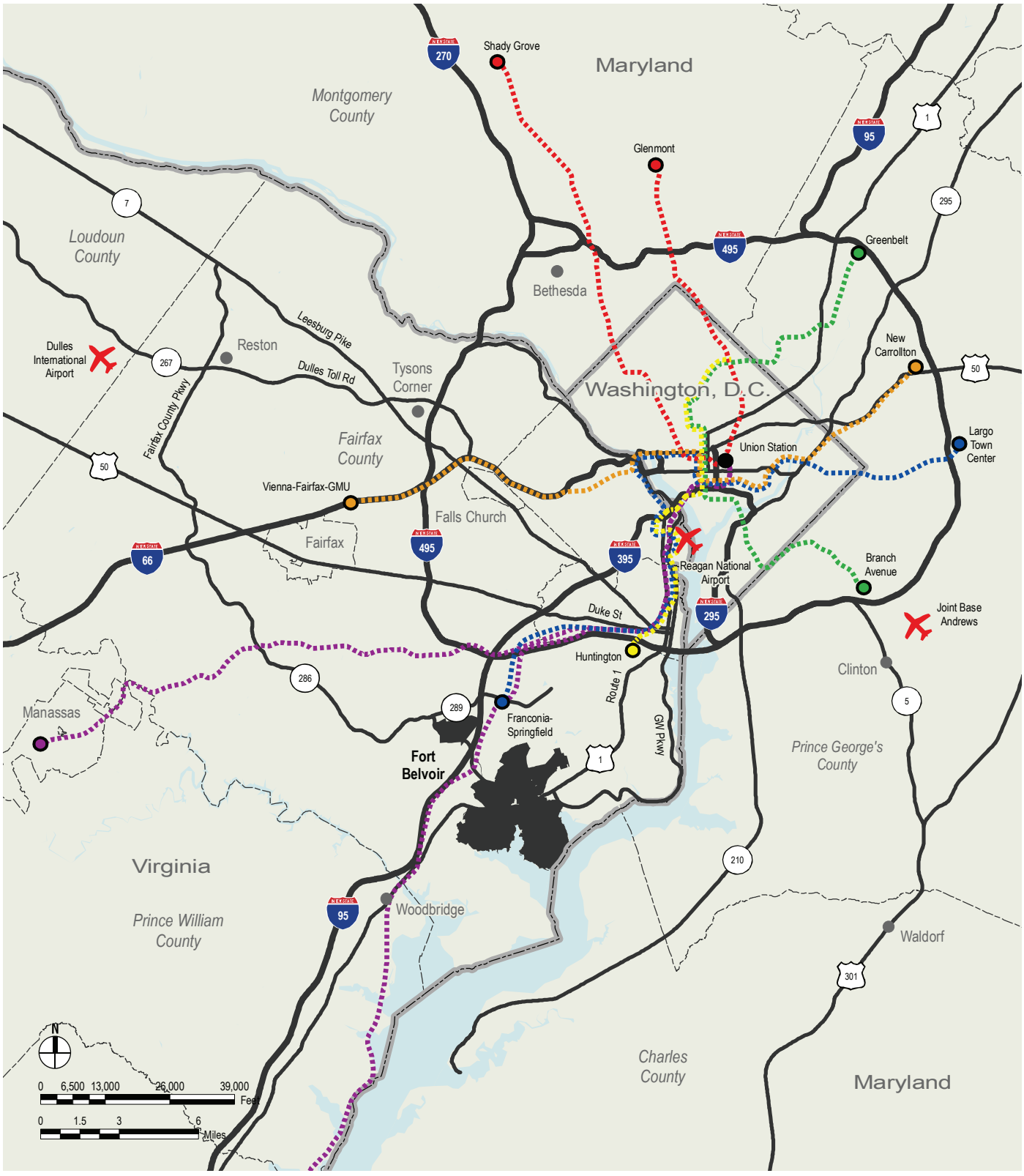
Regional Roadway Description

Both Main Post and FBNA are well-served by their proximity to the regional roadway network (see Figure 2.2); however, a number of these interstate highways and local roadways currently operate above design capacity. Congestion on these facilities is a daily occurrence. Refer to Section 5 Traffic Assessment for details on traffic volumes and operations in the vicinity of Fort Belvoir.

Several urban interstates are located close to Fort Belvoir, as described below. In addition to indirectly serving traffic to both Main Post and FBNA, these facilities are major commuter corridors for the entire Washington, D.C. National Capital Region as well as serving long-distance traffic along the Eastern Seaboard.

- **Interstate 95 (I-95 Express Lanes)** serves region-wide commuter traffic from predominately residential counties to the south to major employment centers in Washington, D.C. and Arlington County. It runs between the two Fort Belvoir sites: to the northwest of Main Post and south-southeast of FBNA. A dedicated ramp from I-95 South provides direct access into FBNA. I-95 has reversible High Occupancy Vehicle (HOV) lanes in the center of the facility. I-95 is one of the busiest, most congested transportation corridors in the country and is routinely congested in the peak commute times in the direction of travel. I-95 was recently widened to four lanes in each direction, with an additional general purpose lane between Fairfax County Parkway and Route 123 to the south. Ongoing or planned improvements that affect Fort Belvoir include:
  - After extensive study by numerous agencies, the I-95 Express Lanes project is moving forward. The project is funded, currently under construction, and completion could be as early as 2014. This extension will construct 29 miles of HOV/Express lanes from the Edsall Road area in Fairfax County south to Garrisonville Road in Stafford County. Carpools with three or more people, vanpools, and transit vehicles will have free access to the HOV/Express lanes network; otherwise, vehicles will be subject to dynamic tolling that will adjust rates based on real-time traffic conditions.
  - The existing northbound HOV to the northbound general purpose lanes flyover ramp, located just to the east of FBNA, will be reconfigured to allow HOV ingress into FBNA in the morning, and egress to southbound HOV and northbound general purpose lanes in the afternoon. Construction of this ramp is related to the I-95/I-495 Express lanes project that it ties into; completion is currently scheduled for 2014.

Figure 2.2 Regional Roadway Network



- **Interstate 95/495 (I-95/I-495; Capital Beltway)** serves the entire Washington, D.C. metropolitan area and provides a similar service as I-95 described previously. Approaching Alexandria, the Capital Beltway is five lanes in each direction, and the 14-mile segment between the Springfield Interchange and the area just north of the Dulles Toll Road was widened in 2012 to add two HOV/Express lanes in each direction. Carpools with three or more people, vanpools, and transit vehicles can utilize the Express lanes network for free; otherwise vehicles are subject to dynamic tolling that will adjust the rates based on real-time traffic conditions.
- The 14-mile roadway referred to as the "**I-495 Express Lanes**" along with the planned I-95 Express lanes operate alongside the existing highway lanes. These express lanes will provide Fort Belvoir commuters a faster and more reliable travel option and one that should encourage the increased demand for car and vanpool uses, particularly for those workers who live south of the Installation.

In addition to these urban interstates, two urban principal arterial highways not only facilitate traffic throughout the region, but provide direct entry access to both Main Post and FBNA.

- **U.S. Route 1 (Richmond Highway, Jefferson Davis Highway)** is a north-south principal artery that primarily serves local trips but can be utilized as an alternate route to I-95 since it runs parallel to the interstate. Route 1 physically divides Fort Belvoir Main Post and is the primary access to the Installation. It is currently four lanes as it passes through Fort Belvoir and is often congested due to heavy demand by both the region and Fort Belvoir, which limits accessibility to/from the Installation. As such, Route 1 is undergoing several initiatives to add capacity and to transform it into a more accessible, multimodal corridor including:
  - The U.S. Office of Economic Adjustment selected the project of widening Route 1 from four to six lanes from Telegraph Road to Mount Vernon Road to receive funding of $180 million for construction, anticipated to start in 2014 with completion as early as mid-2017. This widening will significantly improve the level of commuters' service along Route 1, for both Fort Belvoir and the region.
  - The widening project will also provide a 5-foot sidewalk, 10-foot multipurpose trail that connects to a regional trail network and on-road bicycle lanes in both directions as well as a 32-foot median reserved for future public transit use. VDOT has established a website so the public can track construction progress during the Route 1 widening project at http://rt1ftbelvoir.com.
  - Fairfax County designated Route 1 as an Enhanced Public Transit Corridor (EPTC) that could support viable "future transit" options. Several transit studies are ongoing to determine what future type of transit can best serve Route 1. With dedicated transit, such as light rail or bus rapid transit, in the new center median as well as supporting facilities such as transfer centers and park and ride lots, Route 1 will transform into a true multimodal corridor.
  - In order to implement the abovementioned improvements and plans, the Army signed a Memorandum of Agreement (MOA) with the Virginia Department of Transportation (VDOT) to preserve land in Fort Belvoir to accommodate all elements including the widening, transit corridor, and expanded cross-sections for turn lanes of Route 1.
- **Virginia Route 286 (formerly Virginia Route 7100, Fairfax County Parkway)** is an east-west limited-access urban principal artery that was recently completed as part of the construction of FBNA and has significantly reduced the travel time and increased accessibility between the North Post and South Post to points west in Fairfax County. It directly serves both Fort Belvoir sites as the main access to I-95; the roadway bisects northern Main Post and is the eastern boundary of FBNA. This cross-county route runs from Route 1 north toward the Dulles Airport corridor. It is predominantly a four-lane facility.

Route 1 and portions of the Fairfax County Parkway are part of the National Highway System and are important to the nation's economy, defense, and mobility. A portion of the Fairfax County Parkway through Main Post is part of the Strategic Highway Network, a network of highways that are vital to the United States' strategic defense policy.

As part of its Transportation Plan, Fairfax County has identified improvements along the entire segment that serves Fort Belvoir, including widening the parkway to six lanes; and potential interchange improvements at every main intersection including with Route 1, John J. Kingman Road, Telegraph Road, I-95, and Rolling Road, subject to further study.

Two regional arterial roadways indirectly facilitate traffic to Fort Belvoir:

- **Virginia Route 289 (formerly Virginia Route 7900, Franconia-Springfield Parkway)** is an east-west urban minor arterial highway that is six lanes along its entire length and includes several interchanges as well as some signalized and non-signalized intersections. It is located just north of FBNA. Potential improvements identified within the Fairfax County Transportation Plan include: interchange at Bonniemill Lane/Neuman Street to address congestion that occurs at this intersection; and longer-term, widening this parkway to provide for HOV lanes to access the HOV/Express lanes on I-95.
- **The George Washington Memorial Parkway (GW Parkway)** is a four-lane urban principal arterial parkway adjacent to the Potomac River west and south of Washington, D.C. and is accessible from all major travel routes from the south and west of Washington, including I-495, I-95, and I-66. Via Mount Vernon Road on Post, The GW Parkway does not directly connect to the installation; it can be accessed via Mount Vernon Road on Post to Mount Vernon Memorial Highway which provides an additional access route to Alexandria and destination points to the north.

Both Main Post and FBNA are served by additional local minor regional roadways. Main Post is directly served by four minor urban arterial highways:

- **Virginia Route 611 (Telegraph Road)** generally parallels Route 1 until its terminus south of Fort Belvoir and serves as the northern boundary of Main Post. It links the City of Alexandria to residential areas of Fairfax County, including Fort Belvoir, and serves both local and commuter traffic. The southern half of this highway is currently four lanes, while the northern half is two lanes. With the improvements associated with the construction of Mulligan Road and the Hilltop Village Center; however, all of Telegraph Road will be four lanes in the vicinity of Main Post.
- **Virginia Route 235 (Mount Vernon Memorial Highway)** connects to Route 1 from the southeast Mount Vernon area and the southern end of the George Washington Memorial Parkway. This roadway is two lanes and is the western boundary of southern Main Post.
- **Virginia Route 613 (Beulah Street)** is a north-south highway that links Telegraph Road and Fort Belvoir to Franconia Road. It is a four-lane highway that serves both local and commuter traffic. Several intersections operate at or above capacity during the peak periods.
- **Mulligan Road** is a new four-lane divided highway, with completion scheduled by 2014, on the eastern edge of Main Post, that will link Telegraph Road to Route 1 for the general public. The completion of Mulligan Road will address the community need for movement between Telegraph Road and Route 1 which was made more difficult when local traffic was barred from using Beulah Street after 11 September 2001. The relocation of this detoured traffic to Mulligan Road will decrease the traffic volume on Route 1, Fairfax County Parkway, and their intersecting roadways. Additionally, Telegraph Road will be widened to four lanes in the vicinity of Mulligan. This widening is funded by FHWA in coorperation with DoD, Fort Belvoir, VDOT and Fairfax County. A section of land at the intersection of Telegraph and Belvoir Roads is a proffered improvement to be constructed by the developers of Hilltop Village Center.

Mulligan Road expansion, showing Piney Run Bridge
Photo provided by FHWA.

FBNA is directly served by two minor urban arterial highways (see Figure 2.4):

- **Virginia Route 617 (Backlick Road)** parallels I-95 through Springfield and ends at the Fairfax County Parkway, where it meets Alban Road. Backlick Road is a four-lane roadway next to FBNA, and is congested through the Springfield area to the north. Currently there are no plans for major improvements, but as redevelopment occurs in Springfield, segments may be improved to provide better access and turn lanes.
- **Virginia Route 638 (Rolling Road)** serves local and commuter traffic and runs along the western border of FBNA. It runs in a northwest-southeast direction between Braddock Road and the intersection of Pohick/Alban Road. This facility is currently two lanes, though the County wants this roadway to be four lanes from Old Keene Mill Road to U.S. Route 1, but some sections have local opposition to any widening.

2.5 Fort Belvoir Roadway Network

Background

The existing on-post roadway (see Figure 2.3) network provides mobility and connectivity to support the current workforce. Regional peak hour traffic where the Installation roads connect with public roadways creates inbound and outbound congestion during peak periods. Once inside the security gates, there is no major congestion within the Installation. As part of BRAC 2005, infrastructure throughout the Post was improved including roadway-related elements such as widenings, turn lanes, traffic signals, and a new traffic circle. These improvements increased Installation roadway capacity to accommodate current and projected demand. There are no new major roadway projects presently programmed except for Lieber Gate. Construction of any new buildings on-post may require minor intersection/roadway improvements such as new signals, signal timing improvements, and minor intersection and/or site access turn lane improvements. These types of site-specific roadway enhancements will increase traffic flow and site access, not capacity, and will be determined based on project type, size, location, and timing for completion. These minor internal roadway projects will be ongoing and provided as-needed for new projects.

North Post Roadway Network

Route 1 physically bisects Main Post into North Post and South Post. **Gunston Road** is the major north-south roadway and is the only throughway that connects the Installation over Route 1. Gunston Road, recently widened as part of the BRAC 2005 improvements, is a four-lane section from 12th Street to Kingman Road with continuous left turn lanes between Abbot Road to 12th Street. Gunston Road from Abbot to Kingman is four lanes with right and left turn lanes at Gorgas Road. South of 12th Street, Gunston Road is a two-lane roadway. The four-lane section of Gunston Road includes dedicated on-street bicycle lanes.

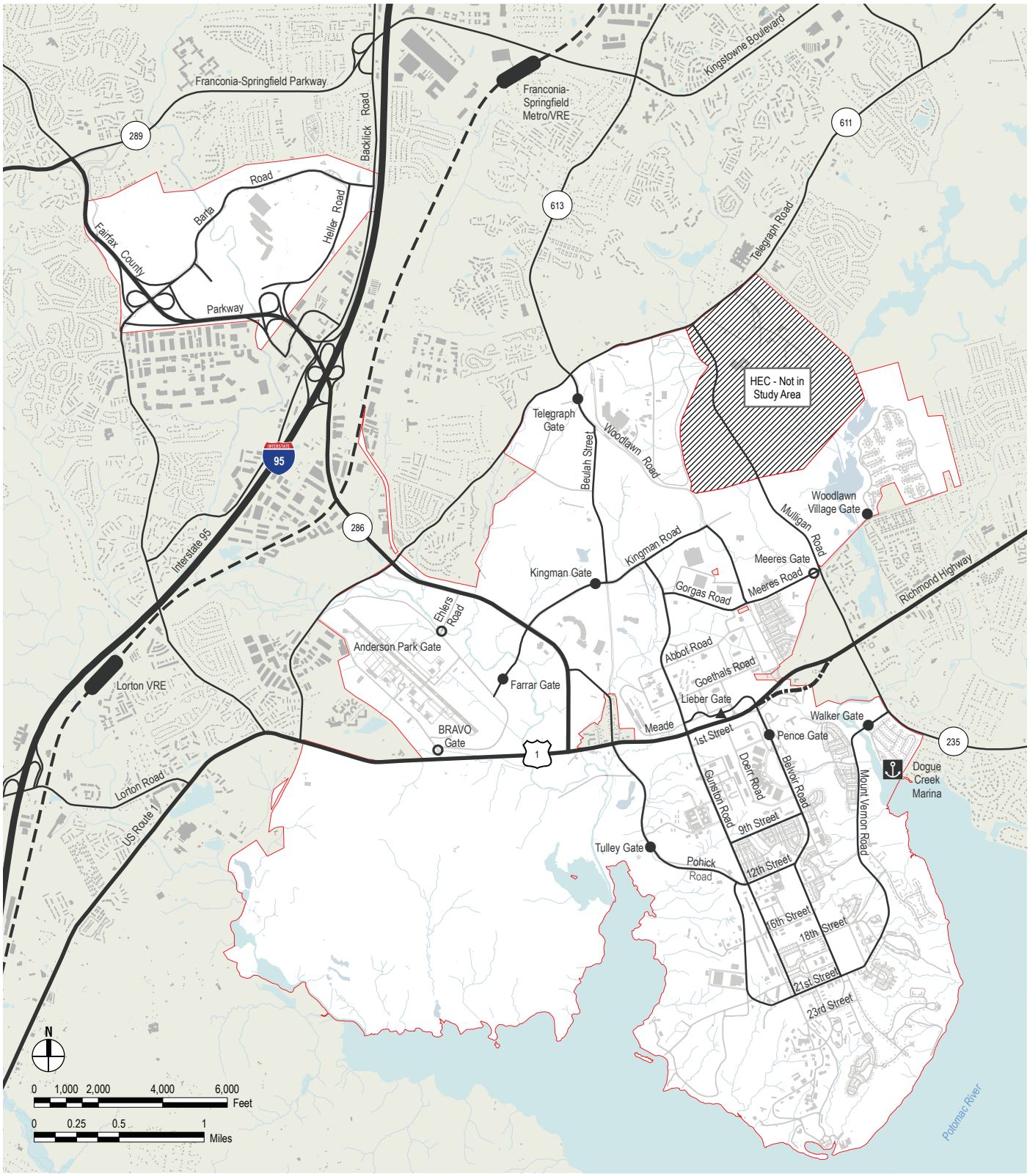
In addition to Gunston Road, North Post circulation is primarily provided by several two-lane roadways, the layout of which is defined by the existing uses as described below.

- John J. Kingman Road (**Kingman Road**) provides access from Fairfax County Parkway. As the primary access to North Post, it sees heavy inbound and outbound traffic during peak periods. The Kingman Road and Fairfax County Parkway intersection is currently an at-grade, signalized intersection. Traffic entering the gate is served by dual left turn lanes; traffic exiting the Post is served by a single dedicated right and left turn lane and a combined through/turn lane. Inside the gate, Kingman Road directly intersects with Gunston Road, the north-south spine linking North and South Posts. Kingman Road is currently four lanes west of Gunston Road but transitions to two lanes east of Gunston Road.
- **Beulah Street** is a north-south roadway that provides access to North Post from Telegraph Road and connects to Kingman Road. Traffic entering the gate is served by a single right or dual left turn lanes on Telegraph Road; traffic exiting the Installation at the intersection of Beulah Street and Telegraph Road is served by a left turn lane, two through lanes, and a right turn lane. Beulah Street is two lanes along the North Post Golf Course and then transitions to four lanes north to Telegraph Road. South of Kingman Road, Beulah Street retains its two-lane characteristics, but predominately serves as the key access to INSCOM and along the back of the Defense Logistics Agency (DLA) facility (no direct access to the site), before reaching a dead end. It does not provide direct access to Route 1.

Woodlawn, Meade, Goethals, Abbot, Gorgas, and Meeres Roads provide internal circulation within North Post from Gunston and Kingman Roads.

- **Woodlawn Road** is a two-lane roadway that provides mobility between North Post and Kingman Road. It was formerly part of the public roadway network as a way to travel between Telegraph/Beulah and Route 1, but was closed after the terrorist attacks of 11 September 2001. Since then, the external portions of the road have been closed: between Beulah and Kingman Roads as well as from Goethals/Lambert Road to Route 1. The latter was given to Woodlawn Plantation as part of the land swap for the means to construct Mulligan Road to the east.
- **Gorgas Road** is currently a two-lane roadway with additional turn lanes, but will expand as part of the PX/Commissary construction. Gorgas Road will provide the access to the new facility, in addition to Kingman Road. Gorgas Road runs between Gunston and Woodlawn Roads; east of Woodlawn Road, its name changes to Meeres Road.
- **Meeres Road** is a two-lane roadway that provides access to the school and residential neighborhoods, and is often used as an egress point onto Old Mill Road for afternoon peak period traffic. Ingress to the Installation is denied under current conditions.
- **Goethals and Abbot Roads** are two-lane roadways that connect to Gunston and Woodlawn Roads and provide internal access to facilities.
- **Meade Road** is a short roadway that parallels Route 1, and is programmed to be converted into Lieber Gate.
- **Farrar Drive i**s opposite of Kingman Road at the Fairfax County Parkway intersection. This two-lane roadway provides gated access to DAAF.

Figure 2.3 Internal Roadway Network

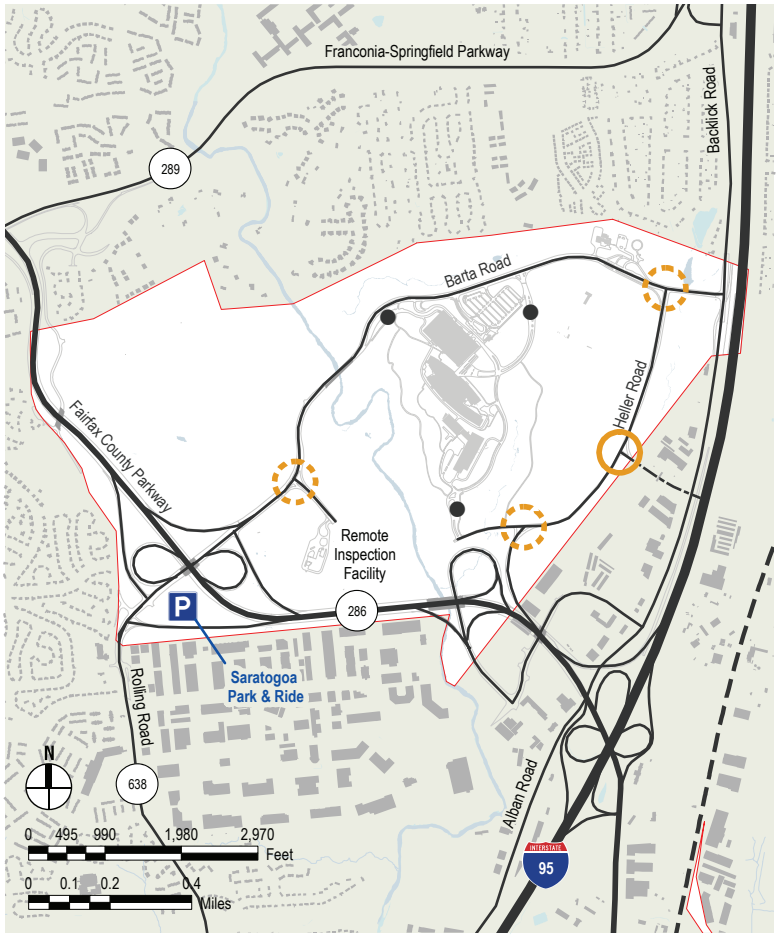


South Post Roadway Network

South Post circulation is provided by two- and four-lane roadways in a grid network connecting major employment and community areas. Two roadways, Gunston Road (see page 2-9) and Belvoir Road, provide the main north-south connections, while a series of numbered roadways provide the east-west grid.

- **Belvoir Road** is a four-lane road that connects Route 1 through the traffic circle that is located just south of Pence Gate adjacent to the Fort Belvoir Community Hospital; this section of roadway includes dedicated left turn and right turn lanes at the intersection of Belvoir Road and Route 1. Belvoir Road is four lanes from the traffic circle to 12th Street (with left turn lanes at the south Hospital entrance and at Ninth Street) and transitions to a two-lane road from 12th Street to 21st Street. The four-lane section of Belvoir Road includes dedicated bicycle lanes. Belvoir Road provides access to South Post from Route 1 via Pence Gate.

Figure 2.4 FBNA Roadway Network



- **1st, 9th, 12th, 16th, 18th, 21st and 23rd Streets** provide east-west movement on South Post and connect Gunston Road with Belvoir Road. Ninth Street is four lanes and includes dedicated bicycle lanes; 1st Street has been widened to 28 feet and to add sidewalks.

Circulation from Route 1 to this grid network on South Post is provided via two roadways: Pohick Road and Tulley Gate to the west, and Mount Vernon Road and Walker Gate to the east.

- **Pohick Road** is a four-lane roadway with dedicated on-street bicycle lanes that provides access to South Post from U.S. Route 1 via Tulley Gate, where visitors enter and are processed at the Staff Sergeant John D. Linde Visitor Center. Pohick Road includes dedicated left and right turn lanes at the Route 1 and Gunston Road intersections. **Theote Road** is a two-lane roadway that intersects Pohick Road near Gunston Road and provides direct access to the industrial area and the secure administrative campus on South Post. It directly intersects 21st Street, which accesses Mount Vernon Road. This system of roads provides an outer loop-type network from Tulley Gate to Walker Gate around the Town Center on South Post.
- **Mount Vernon Road** provides access to South Post from Mount Vernon Memorial Highway via Walker Gate. Mount Vernon is a two-lane road with an adjacent multi-purpose hiker/biker trail.

FBNA Roadway Network

Circulation within FBNA is provided by a partial loop roadway that is comprised of Barta Road and Heller Road (see Figure 2.4).

- **Barta Road** is an east-west, four-lane divided roadway that crosses the Accotink Creek and runs along the northern side of the campus within FBNA. It connects FBNA directly to the Fairfax County Parkway to the west, and to I-95 to the east, and to one TCP at Route 617 and Heller Road (inbound only) to control and direct traffic flow. FBNA will add a fourth TCP with the completion of the FBNA Defense Access HOV Ramp. The TCPs are unmanned and are designed to allow the road to be closed in cases of high threat levels.
- **Heller Road i**s a two-lane roadway that intersects Barta Road near I-95. It runs along the eastern side of FBNA and provides access to the southern side of the campus as well as to/from I-95. At this time, it does not cross Accotink Creek, but may at a future date if additional development occurs at FBNA. Right-of-way was dedicated to widen Heller Loop to four lanes, if needed.

There are two Traffic Control Points (TCPs) located along Barta Road to direct traffic flow. Unlike the Installation and mission partner gates, these TCPs are not manned by security.

2.6 Access Control Points

Background

Fort Belvoir regularly operates eight Access Control Points (ACPs), all of which are at-grade intersections – six onto Main Post, one into Woodlawn Village, and one onto Davison Army Airfield (see Figure 2.3). FBNA access is monitored at Traffic Control Points and mission partner gates within the site (see Figure 2.4). These facilities, in addition to several closed gates and one future ACP, are described in further detail below.

These ACPs do not include several mission partner-operated gates to monitor access to secure facilities within the Installation boundary. Currently, Telegraph, Pence, and Tulley Gates are compliant with Army Unified Facilities Criteria (UFC). The majority of the gates described below operate at or above operating capacity during peak inbound (morning) periods; however, this could change in the future with the expected use of automated entry (also described in further detail below). To use the non-visitor ACPs, at least one occupant of the vehicle must present valid DoD identification in order to be processed through the gate.

Access to/from Route 1

Currently, there is no direct connection from Route 1 to the North Post. Three ACPs provide access between Route 1 and South Post:

- **Tulley Gate** controls entry on Pohick Road from Route 1. With four inbound processing lanes and two outbound lanes, it is the larger of two ACPs that serve traffic entering the Installation directly from Route 1. This gate is open from 0500-2100, 7 days per week. During these times, all visitors and commercial traffic entering Fort Belvoir must use this gate. Drivers must present a valid driver's license, and all occupants must provide photo identification. The Staff Sergeant John D. Linde Visitor Center is located at Tulley Gate and issues temporary passes for sponsored visitors requiring long-term access.
- **Pence Gate** controls entry on Belvoir Road from Route 1 and is open 24 hours per day, 7 days per week. From 2100-0500 while Tulley Gate is closed, it processes visitors; otherwise, Pence Gate is designated for DoD-identified personnel only. It has two inbound lanes with three processing lanes, and two outbound lanes.
- **Walker Gate** controls entry from the Mount Vernon Memorial Highway. It is the only gate with a direct connection to the Mount Vernon Memorial Highway, thus indirectly serving traffic to/from Route 1. It is closed to visitor and commercial traffic and has one inbound and one outbound lane. This gate operates from 0500-2100, 7 days per week.

One ACP is currently restricted to outbound traffic only and connects Mulligan Road via Meeres Road and Old Mill Road:

- **Meeres Gate** denies entry onto Meeres Road. To relieve congestion at other gates, it is open to outbound traffic only during the afternoon peak period to allow for Lower North Post traffic to avoid congestion at the gates on South Post. This gate operates under capacity and is open to outbound traffic only 1500–1800 (closed Saturday, Sunday, and holidays).

Additionally, the Woodlawn Village housing area is located north of Route 1 and has two dedicated gates, but is isolated from Main Post and does not serve any commuter traffic:

- **Woodlawn Village Gate** (front) controls entry into the Woodlawn Village housing area at its western intersection with Pole Road. This gate operates 24 hours per day, 7 days per week (holidays included).
- There is a back gate that denies entry on Plantation Drive at its eastern intersection with Pole Road but is currently closed (not shown on any figures).

Access to/from Fairfax County Parkway

The Fairfax County Parkway is accessed by two ACPs:

- **Kingman Gate** controls entry on Kingman Road for DoD-identified personnel only. This gate provides access directly to/from the Fairfax County Parkway and has two inbound and two outbound lanes. This gate operates from 0500-2100, 7 days per week.
- **Telegraph Gate** controls entry on Beulah Street for DoD-identified personnel only. This gate is the most direct connection to the Fairfax County Parkway via Telegraph Road and is on the most direct route to/from the Franconia-Springfield Metro Station. It has two inbound lanes and one outbound lane. This gate operates from 0500-1900, Monday – Friday (closed Saturday, Sunday, and holidays).

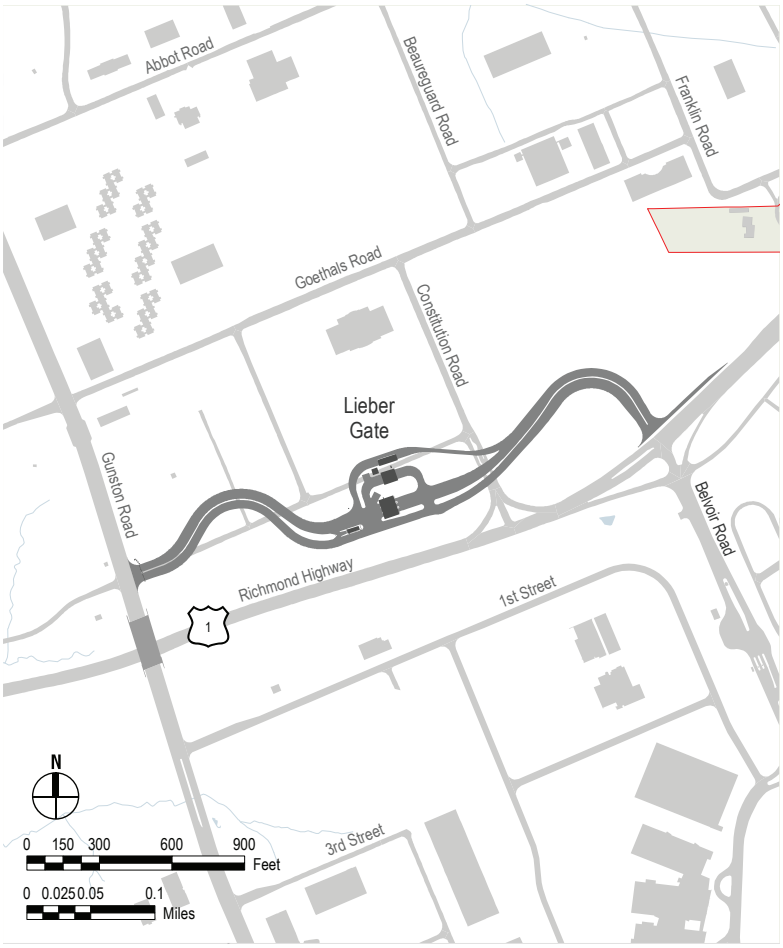
Vehicles queuing through ACP during afternoon congestion.

Airfield Access

Three gates provide access to/from Davison Army Airfield:

- **Farrar Gate** controls entry to Davison Army Airfield on Farrar Drive. It is the primary ACP for the airfield and is the only airfield gate open under normal operation. With one inbound and one outbound lane, it is open to visitor and commercial traffic. This gate operates 24 hours per day, 7 days per week (holidays included).
- **BRAVO Gate**, denying entry on Britten Drive from Route 1, and **Anderson Park Gate**, denying entry on Ehlers Road from Fairfax County Parkway, are both limited use gates with limited infrastructure and are only open in situations when the Installation is unable to use Farrar Gate.

Figure 2.5 Proposed Lieber Gate



FBNA Access

FBNA is directly served by Fairfax County Parkway, I-95, and Backlick Road, but vehicular access to FBNA is monitored at Traffic Control Points (TCPs) that are located within the site along Barta Road: from the east at the Barta Road/Heller Loop intersection, and to the west off the Fairfax County Parkway. The TCPs can be closed to the public in the event of a high threat level. Barta Road is restricted to non-commercial traffic; all trucks must be processed through a separate Remote Inspection Facility (RIF) before entering FBNA. The mission partner controls access to its campus through secure gates that are located in the entry driveways interior to Barta Road; these gates are owned, operated, and maintained by the DoD mission partner.

Future ACP Improvements

AUTOMATED INSTALLATION ENTRY SYSTEM

Traffic congestion at the ACPs can be reduced by increasing the number of vehicles that can be processed through each inspection lane. Work completed in conjunction with BRAC improvements provided necessary infrastructure to support Automated Installation Entry (AIE) systems at Fort Belvoir. Providing entry to pre-approved vehicles via radio-frequency identification (RFID) equipment (similar to the EZ-Pass system) can significantly reduce vehicle processing times at the Main Post gates. This reduction in processing times can reduce the lengths of the queues that form at the gates, minimizing traffic backup.

Presently, Fort Belvoir is part of a pilot program to automate entry at the gates. The AIE system works with a DoD ID card reader and an automatic barrier arm at the gate. Drivers approach the AIE pedestal scanner and scan their card. Once the card is read, the individual's credentials will be instanteously validated against records in the database. In the event of any difficulty, guards will still be present to validate access as appropriate.

AIE implementation will begin in 2014 at Davison Army Airfield's Farrar Gate, followed by other gates' systems that will be activated as the situation dictates. More than 1.4 million cardholders in 4,000 ZIP codes will be automatically added to the AIE system database. This system allows Fort Belvoir to improve force protection and security for Post facilities and personnel. All drivers entering Fort Belvoir will eventually be subject to the scanning process. Non-DoD ID card holders will have to register with the Visitor Center for a pass.

NEW LIEBER GATE

Design plans are underway for a future Lieber Gate and access control point and roadway to be located on the northern side of Route 1 at the existing signalized intersection of Belvoir Road (see Figure 2.5). Plans will complete the four-leg intersection and provide full access between Route 1 and Gunston Road on North Post, a connection that is not currently provided. Today, traffic from Route 1 that is destined to North Post must travel through South Post via the bridge on Gunston Road. Opening Lieber Gate will reduce traffic on South Post roadways as well as congestion along regional roadways at the ACPs. Construction is scheduled to begin in 2014, with completion anticipated by September 2015.

2.7 Commuter Transit Accessibility

Background

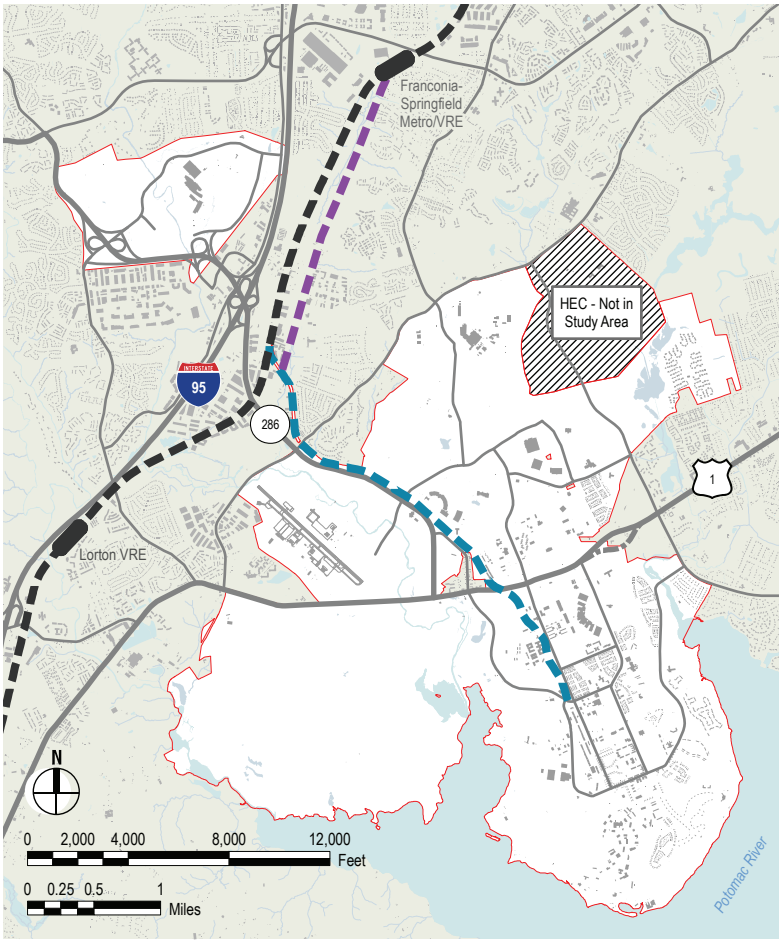
There are a variety of multimodal transportation options throughout the region, with several serving Fort Belvoir commuters in some capacity. Rail transit does not directly connect to Fort Belvoir while buses serve the Post both directly and indirectly. The Fairfax Connector Route 335 ("The Eagle"), Route 333 (Patriot Ridge-Saratoga Circulator) and Route 334 (DLA Circulator) all provide direct service to the Franconia-Springfield Transit Transfer Center. While these new bus services represent a significant improvement, Installation personnel face challenges using transit as a viable commuting option due to the fragmented nature of the services, such as multiple transfers and lack of mid-day mobility options. Regional, state, and local agencies, in addition to Fort Belvoir, recognize that the high cost of road improvements and the loss of land for roadway widening are neither desirable nor sustainable. The way forward lies in continuing to improve transit options by working closely with local and regional stakeholders; this will provide an integrated series of mobility choices that truly reflects the multimodal vision shared by the Installation and the community.

As part of that vision for the future, Fort Belvoir is reserving right-of-way from the historic military railroad track bed for potential use to connect the Post directly to rail transit (see Figure 2.6). The historic military railroad corridor runs approximately 3.5 miles from the intersection of Pohick and Gunston Road on North Post to the Virginia Rail Express (VRE) line north of the Installation. The historic military rail line is approximately 100 feet at its narrowest point connecting to the VRE, which operates within right-of-way that is controlled by the CSX freight line. Future connections have been discussed with Fairfax County Department of Transportation (FCDOT) staff, but right-of-way is complicated; one option could use Cinder Bed Road, a two-lane road that runs north and ends before Franconia-Springfield Metrorail Station, as a potential connection.

In addition, the future Route 1 widening design drawings include a dedicated 32-foot wide transit corridor located in the center median strip. The U.S. Route 1 Corridor and Fort Belvoir's abandoned rail line are presently being evaluated for transit service as part of the Fairfax County Transit Network Study.

The transit options that currently serve Fort Belvoir are described in detail in the following section and shown on Figure 2.7.

Figure 2.6 Historic Military Rail Corridor Connections



Rail

While no rail transit provides service directly to Fort Belvoir, both the Washington Metropolitan Area Transit Authority (WMATA) Metrorail and the VRE are located less than a mile from both the Main Post and FBNA boundaries and serve rail stations within a few miles of Fort Belvoir:

- WMATA's **Metrorail** system has two stations that provide access to Fort Belvoir. The Franconia-Springfield Station, the southernmost station on Metrorail's Blue Line, is located approximately three miles north of Fort Belvoir. Huntington Station, the southernmost station on the Yellow Line, is located approximately seven miles northeast of the Post. Both the Blue and Yellow Lines provide service to Ronald Reagan National Airport and the Pentagon, as well as the central core area of Washington, D.C., with connections to every other Metrorail line.
- The Fort Belvoir area of Fairfax County is served by **VRE**'s Fredericksburg Line. The Fredericksburg Line operates between Fredericksburg and Union Station in Washington, D.C. from locations in Stafford County, Prince William County, Fairfax County, Alexandria, and Arlington County. Two VRE stations are located in the general vicinity of Fort Belvoir. The Lorton Station is located approximately 1.5 miles west of Fort Belvoir, east of I-95, and south of Pohick Road. The Franconia-Springfield Station is located adjacent to WMATA's Franconia-Springfield Metrorail Station, approximately three miles north of Fort Belvoir. The VRE's Manassas Line serves the eastern portions of Prince William and Loudoun Counties, with two stations within approximately five miles of FBNA: the Rolling Road Station and the Backlick Road Station.
- VRE allows bicycles on its trains subject to the policy stated in http://www.vre.org/service/bike_policy.html. In short, collapsible bicycles are permitted on all cars, on all trains. These bicycles must be completely folded and safely stored in overhead luggage racks, under seats or in some other place that is not an inconvenience to other passengers. Full-sized bicycles will only be allowed on the last three northbound, the midday, any reverse flow, and the last three southbound trains on each line. Specifically these trains are:

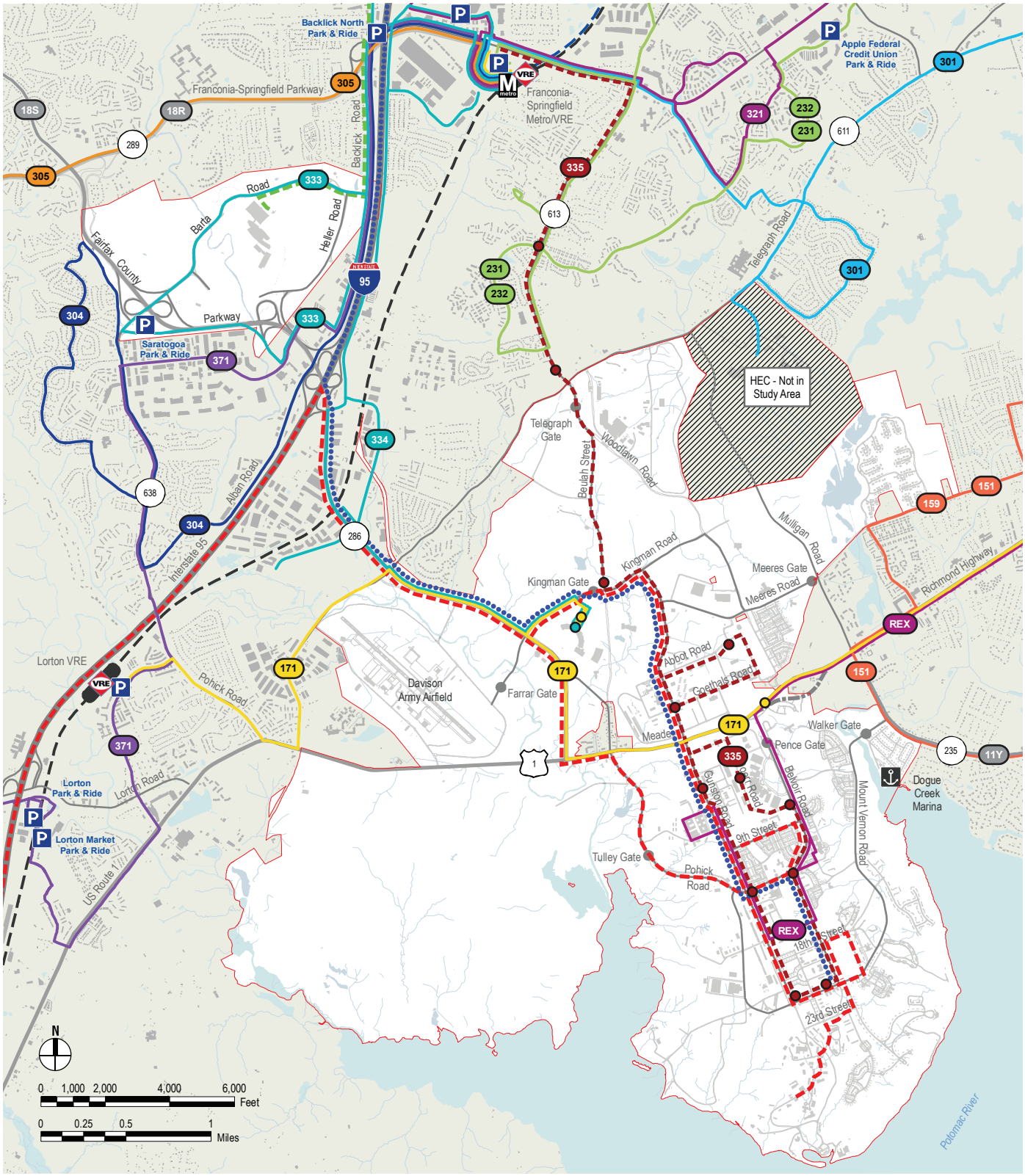
  Fredericksburg Line -
  Northbound 308, 310, 312
  Southbound 301, 309, 311, 313

  Manassas Line -
  Northbound 328, 330, 332, 336, 338
  Southbound 321, 325, 333,335, 337

  Full-sized bicycles must board at the northernmost car on the train and use the southern half of the car. In addition, no more than two full-sized bicycles are allowed on the car. If the car already has two bicycles, you cannot bring your bicycle on the train and must wait for the next one.

Congressmen Jim Moran and Gerry Connolly introduced the Northern Virginia Metrorail Extension Act (H.R. 907) in the U.S. House of Representatives in February 2013 to authorize project developments for the extension of Metrorail to western Fairfax County; along the Route 1 corridor, including Fort Belvoir, in Fairfax and Prince William Counties; and along the I-95 corridor, including FBNA, through Woodbridge to Potomac Mills in Prince William County.

Figure 2.7 Commuter Transit



Train Station
Park and Ride Lot
VRE Rail Line
Metro Blue Line

Bus Service (On Post All Day)
REX 334
333 171
FBNA Shuttle

Bus Service (On Post Peak Hours Only)
335
Private Bus Company

Bus Service (On Post Mid-Day Hours Only)
Route 18 OAA Shuttle

Bus Service (Off Post All Day)
11Y 151 232 305
18R 159 301 321
18S 231 304 371

Buses and Shuttles

Figure 2.7 and the text below illustrate existing bus services in the Fort Belvoir Main Post and FBNA sections of Fairfax County. Several bus routes directly serve portions of Fort Belvoir; more operate within the vicinity of Fort Belvoir, either terminating immediately outside the boundaries of the Post or passing nearby. Many recent changes to service, such as Route 335 ("The Eagle"), Route 333 (Patriot Ridge-Saratoga Circulator), and Route 334 (DLA Circulator) have been implemented as a result of the BRAC 2005 changes and Fairfax County's recommendations in their comprehensive Transit Development Plan. Fort Belvoir actively coordinates with Fairfax County as well as WMATA to increase ridership and provide more direct service to its personnel.

Main Post and its mission partners are currently served directly by WMATA Metrobus and Fairfax Connector routes, all but one of which connect the Installation to the Franconia-Springfield Transit Center or the Lorton VRE Station. Both Main Post and FBNA are served by public bus services. The public buses operate either all day, mid-day only, or peak-hour only.

The following routes directly provide Fort Belvoir with **all day service**:

- Metrobus REX (Richmond Highway Express) – The route provides service between Fort Belvoir and the King Street Metrorail Station in Alexandria via Route 1. Stops inside Main Post include along Gunston Road, 12th Street, and Belvoir Road.
- Fairfax Connector Route 171 (Richmond Highway Line) – This route provides service between the Huntington Metrorail Station and the Lorton VRE Station, via Route 1 and Fairfax County Parkway through Main Post. The only Installation stop is located at the DLA facility on North Post. (The bus does not travel through Main Post gates.)
- Fairfax Connector Route 334 (DLA Circulator) – This route provides weekday loop service between the Franconia-Springfield Metro Station and the Defense Logistics Agency (DLA) accessing the Installation at Kingman Gate, with additional stops including the Springfield Mall Park and Ride lot and the Medical Education Campus at Northern Virginia Community College. The Connector Route 334 route and schedule were modified in October 2012 to provide a more direct service to DLA. In the future, it is the intent of this route to be modified to include a stop at the programmed National Museum of the U.S. Army (NMUSA) on North Post.
- Fairfax Connector Route 333 (Patriot Ridge-Saratoga Circulator) – This route provides a weekday loop service between Franconia-Springfield Metro Station and the FBNA campus with additional stops at Saratoga Park and Ride lot and Patriot Ridge. The route was modified in October 2012 to provide a more direct service to the FBNA campus.
- The FBNA shuttle provides service throughout the day (0535 to 1915 M-F) to the Backlick Road VRE Station at 6900 Hechinger Drive, Springfield and the Backlick Park and Ride lot. The FBNA shuttle schedule is timed to complement the VRE train schedule, so the shuttle is there to meet arriving FBNA rail commuters.

The following route provides service at Fort Belvoir during **mid-day only**:

- Route 18 – The Office of the Administrative Assistant (OAA) manages resources for the Army, including managing the mass transit benefit program and providing ground transportation within the NCR. OAA provides a mid-day shuttle service from Main Post to the Pentagon during the work day to allow personnel to attend meetings there.

The following routes provide service to and within Fort Belvoir during **peak-hour only**:

- Fairfax Connector Route 335 ("The Eagle") – This route was established in August 2011 to specifically serve the Fort Belvoir workforce and provides weekday rush-hour service between Franconia-Springfield Metrorail Station and Fort Belvoir. Currently there are 13 stops inside Main Post. "The Eagle" enters the Installation at Telegraph Gate, serves North Post, and provides service on South Post as far south as 21st Street and includes service to the Fort Belvoir Community Hospital and the Warrior Transition (WT) Complex. Additionally, Route 335 makes two stops outside the Installation along Beulah Street en route to the Transit Station. To gain more ridership, Route 335 added stops in 2012 to Graves Fitness Center on Abbot Road, the U.S. Post Office on 21st Street, and the existing WT clinic at the old DeWitt Hospital. "The Eagle" schedule is synchronized with the arrival and departure times for Metrorail's Blue Line to minimize transfer times for connecting commuters. Fares are $1.60 with a SmarTrip card or $1.80 with cash, with VRE riders receiving a free transfer and Metrorail riders receiving a $0.50 transfer credit.
- A private bus company (Rest and Ride Vans) provides service from Fredericksburg and Prince William County to the 300 Area on South Post.

Additionally, numerous public bus routes currently operate in the vicinity of both Main Post and FBNA without serving the Post. This off-Post service represents a potential resource for expanding bus transit service to Fort Belvoir. Such routes include but are not limited to:

- Metrobus Route 11Y (Mount Vernon Express Line) – This route provides express service between the Mount Vernon area and Farragut Square in downtown Washington, D.C. via the George Washington Memorial Parkway. The 11Y terminates on Mount Vernon Memorial Highway on the eastern edge of Main Post.
- Fairfax Connector Route 151 (Woodlawn Line) – This route loops between the Mount Vernon area and Huntington Metrorail Station via Mount Vernon Memorial Highway, along the eastern border of Main Post and the Woodlawn Village.
- Fairfax Connector Routes 231/232 (Kingstowne Line) – These loop routes operate between the Van Dorn Metrorail Station and Franconia-Springfield Metrorail Station, north of Main Post.
- Fairfax Connector Route 301 (Telegraph Road Line) – This route operates local weekday, peak period service between Franconia-Springfield Metrorail Station and the Huntington Metrorail Station. It serves Humphreys Engineer Center (HEC), which is not part of this TMP.

Fort Belvoir Eagle Express (now called "The Eagle") picks up a commuter in front of the Fort Belvoir Community Hospital. The hospital stop was moved in the fall of 2012 from the front of the facility to the rear to provide better service to several employee facilities between Third and Sixth Streets.

- Fairfax Connector Route 305 (Newington Forest Line) – This route operates weekday rush-hour service between Franconia-Springfield Metrorail Station and the Lorton VRE Station, along the Franconia-Springfield Parkway just north of FBNA.
- Fairfax Connector Route 371 (Lorton – Fullerton Road Line) – This route operates between Franconia-Springfield Metro Station and Lorton, including the VRE station, along Backlick Road just south of FBNA.
- Fairfax Connector Route 394 (Saratoga-Pentagon Express) – This route is a rush-hour shuttle replacing Route 304 and stops at the Saratoga Shopping Center at Rolling Road, the Saratoga Park and Ride, and the North Backlick Road Park and Ride.
- Fairfax Connector Route 493 (Lorton VRE) – This route operates between Lorton VRE and Tysons Galleria, with a stop at the Saratoga Park and Ride lot.
- Metrobus Routes 18R and 18S (Burke Center Line) – These routes operate from the Franconia-Springfield Metrorail Station along the Franconia-Springfield Parkway and Rolling Road.

Fort Belvoir has worked closely with FCDOT and local officials to track bus demand. As a result of recent changes to Fairfax Connector Routes 333, 334 and 335, for example, Fairfax County has reported an increase in bus commuter ridership. The increased ridership (over 10,100 riders in November 2012) is related to both the elimination of the Garrison internal shuttles and eliminating external local bus stops outside the Installation resulting in more direct service from major DoD employment centers to the Franconia-Springfield Transit Transfer Center.

Park and Ride Lots

There are numerous park and ride facilities located throughout the metro area that serve commuters. Several lots are within proximity to Fort Belvoir, as shown on Figure 2.7, and are located at or near the Lorton and Franconia-Springfield transit stations. These are generally free facilities that are maintained by VDOT, VRE, or Fairfax County, and are additionally served by bus service.

The new 515-space Saratoga Park and Ride lot located at Barta Road and the Fairfax County Parkway opened in December 2012. The lot provides direct access to several express bus routes to Fort Belvoir and major employment centers in Fort Belvoir, the Pentagon, and Fairfax County, such as Tysons Corner. Existing and planned walkways within the lot allow the local community to take advantage of the bus service without having to drive to the lot.

Air

Davison Army Airfield (DAAF) is an operational airfield and training facility that is located north of Route 1 and west of the Fairfax County Parkway. Currently, DAAF provides operational support airlift to the Army and supports the Garrison with both helicopter and fixed wing aircraft, including travel between military installations. Joint Base Andrews Naval Air Facility, located 25 miles to the northeast, is the closest military installation with major air passenger and cargo facilities.

Several commercial and passenger airports also serve the region. Closest to Fort Belvoir is Reagan National Airport, 15 miles north in Arlington, Virginia. Washington Dulles International Airport is located 35 miles northeast in Virginia, and the Baltimore-Washington International Thurgood Marshall Airport is located 50 miles northeast just outside of Baltimore, Maryland.

Existing facilities at DAAF are not presently served by commuter transit.

Saratoga Park and Ride lot opened in 2012

Navigable Waterways

Fort Belvoir's Main Post is located along the Potomac River, a navigable waterway that feeds into the Chesapeake Bay. The Dogue Creek Marina, located on the east side of the Main Post, is maintained and operated for strictly recreational use of military/military retirees. There are no commercial, commuter, or port facilities at this site, and the water is very shallow at this location. Ongoing regional pursuits have assessed the feasibility of a commuter ferry to government sites along the Potomac and Anacostia Rivers including Main Post. After carefully considering the feasibility of environmental impacts, dock locations, commuter parking, shuttle connectivity, physical security concerns, and high operation costs, Fort Belvoir does not consider the use of its water frontage to be a realistic option for transportation.

The two closest commercial water ports to Fort Belvoir are the Helen Delich Bentley Port of Baltimore, located approximately 50 miles overland, and the Port of Virginia Norfolk International Terminals, located approximately 175 miles overland in the Hampton Roads area where the Chesapeake Bay opens into the Atlantic Ocean. Both ports provide seaport facilities for passengers and cargo.

Signing and striping for on-street bicycle lanes on Belvoir Road. Existing bicycle lanes on Belvoir Road and Pohick Road will connect to planned on-road bicycle lanes with the widening of Route 1. This will greatly improve mobility for commuters that bike to work.

A multimodal roadway on-Post with on-street parking.

2.8 Bicycle and Pedestrian Accessibility

On Post

Fort Belvoir has a fairly well-developed network of pedestrian trails and more recently has completed the construction of on-street dedicated bicycle lanes as part of BRAC 2005 (see Figure 2.9). The primary roadways include both sidewalk and on-street bicycle accommodations on Belvoir, Gunston, Pohick, and Mount Vernon Roads and 9th Street on Main Post and Heller Road and Barta Road on FBNA. Construction of additional sidewalk and bicycle facilities will be included as part of any future roadway improvements and new projects in accordance with the Master Plan and Installation Planning Standards (IPS) (formerly Installation Design Guide (IDG)) to provide a comprehensive pedestrian circulation network.

Countywide Trails Plan

The Installation's network of pedestrian and bicycle lanes will tie into a regional network of similar facilities shown on the adopted Fairfax County Trails Plan. The Countywide Trails Plan is a component of the Fairfax County Comprehensive Plan and reflects both existing and planned trail segments. Connecting on-Post bicycle and pedestrian facilities with off-Post existing and planned facilities will further support and encourage alternative travel modes that will benefit both Fort Belvoir and the local community.

Fairfax County Bike Trails

An excellent resource for commuters who cycle to Fort Belvoir can be found on the Bike Fairfax Interactive Map. The Fairfax County Department of Transportation (FCDOT) released the first countywide bicycle route map on May 16, 2008 for Bike to Work Day, and the map is regularly updated. The printed Fairfax County Bicycle Map shows bicycle-friendly routes connecting all of Fairfax County. This map identifies a network of both on- and off-road routes to assist bicyclists in navigating Fairfax County and depicts the locations of preferred roadways. The map highlights the most desirable routes and major trails for recreational and commuter bicyclists (based on traffic conditions and/or existence of on-road bicycle lanes and connecting trails).

The Bike Fairfax Interactive Map displays the same useful information found on the printed version of the Fairfax County Bicycle Map in an interactive online format.

Up-to-date information can be found at http://www.fairfaxcounty.gov/fcdot/bike/bikemap/.

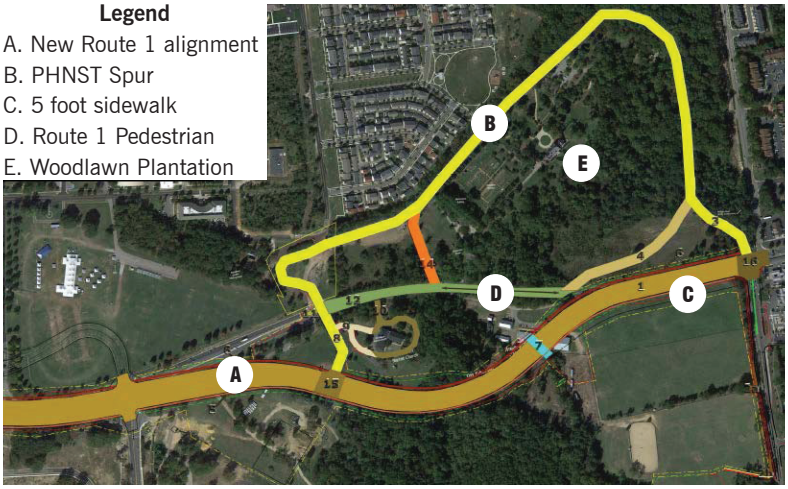
Fort Belvoir bicycle commuters can use resources such as the Interactive Bike Map to plan the best cycling routes to places such as the Metro/VRE transit stations; however, bicycles are not permitted on Metro or VRE during rush hour.

National Park Service Trail Initiatives

There are two significant National Park Service bicycle trails in close vicinity of Fort Belvoir. The recently installed sidewalks, trails, and bicycle lanes constructed as part of BRAC 2005 will connect to the **Potomac Heritage National Scenic Trail** (PHNST) subject to future agreement between the Installation and the National Park Service. The planned route and spur in the vicinity of Fort Belvoir is shown in Figure 2.8. The PHNST is a planned multi-purpose hiker/biker trail, part of which will connect the Main Post to destination points north and south upon completion. The alignment of the PHNST depends on meeting the physical security requirements of the Installation boundary and the location of the planned perimeter fence.

Figure 2.8 Potomac Heritage National Scenic Trail, planned route and spur

Legend
A. New Route 1 alignment
B. PHNST Spur
C. 5 foot sidewalk
D. Route 1 Pedestrian
E. Woodlawn Plantation



(Source: FHWA presentation to Woodlawn Historic District, February 2013)

The **Washington-Rochambeau Revolutionary Route National Historic Trail** (W3R-NHT) encompasses over 680 miles of land and water trails through Massachusetts, Rhode Island, Connecticut, New York, new Jersey, Pennsylvania, Delaware, Maryland, **Virginia, and Washington, D.C**. The W3R National Historic Trail identifies, interprets, and celebrates the French and American alliance in the War for Independence.

From 9-12 September 1781 (during the Revolutionary War), Gen. George Washington and his French counterpart, Jean Baptiste de Vimeur, comte de Rochambeau, camped at Mount Vernon (after Washington's six-year absence) on their way to Yorktown, Virginia to meet Gen. Charles Cornwallis of the British Army in what would be the last major military action of the Revolutionary War. The route also includes the mark of the French Army in 1782, as it returned back north to Boston.

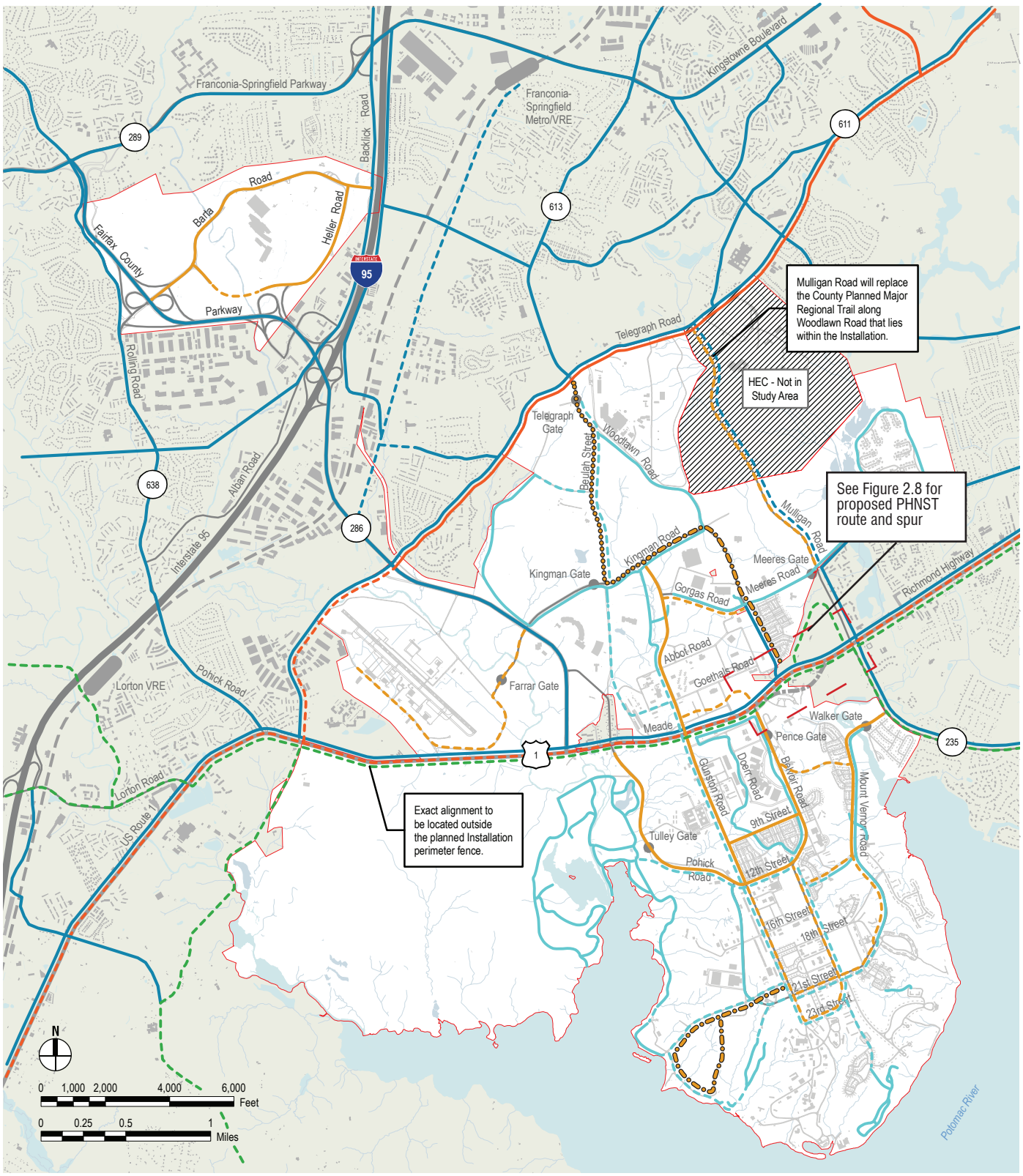
Other Regional Trail Initiatives

U.S. Bicycle Route 1 is a cross-country bicycle route that will run the length of the U.S. eastern seaboard from Florida to Maine. Bike Route 1 is one of the two original U.S. Bicycle Routes, the other being U.S. Bicycle Route 76. The American Association of State Highway and Transportation Officials (AASHTO) recognizes the segments in North Carolina, Virginia, New Hampshire, and Maine as being the only segments of U.S. Bicycle Route 1. The other segments, even if signed or mapped, have not yet been submitted by the states to AASHTO for formal inclusion or recognition of the U.S. Bicycle Route system. The New Hampshire and Maine sections of U.S. Bicycle Route 1 were approved in May 2011, with the New Hampshire section following the East Coast Greenway. Also approved was an alternate route, U.S. Bicycle Route 1A that runs closer to the coast through a portion of Maine.
[Source: Wikipedia, "U.S. Bicycle Route 1"]

Bicycle Route 1 will serve towns/locations in Virginia that include Prince William County, Fairfax County, Springfield, Fort Belvoir, Mount Vernon, Alexandria, and Arlington. VDOT is evaluating a new realignment in the Northern Virginia area, however, as a result of new development in the area. See Section 2.9 for more information on the U.S. Bike Route 1 Study.

Another cross-country path is the **East Coast Greenway** (ECG). This continuous, 3,000 mile, traffic-free National Park Service (NPS) path runs between Calais, Maine and Key West, Florida. Many of the ECG paths in the region of Massachusetts through Virginia follow or parallel the W3R. According to the ECG website (http://www.greenway.org/va.aspx), the **ECG enters Virginia from Washington, D.C. along the Mount Vernon Trail**, which follows the Potomac River and George Washington Parkway south to Mount Vernon. From Mount Vernon, the ECG continues on the road to Fredericksburg along the route of the future Potomac Heritage National Scenic Trail.

Figure 2.9 Bicycle and Pedestrian Circulation



Existing 12th Street Town Center

Conceptual rendering of future National Museum of the United States Army, courtesy of Skidmore, Owings, & Merrill, LLP

2.9 Relevant Planning Initiatives

Background

Both local and state government agencies recognize that future growth will require extensive transportation improvements, and numerous initiatives are planned and programmed. Fort Belvoir supports the multimodal and roadway initiatives that improve regional mobility. The following lists and associated maps (Figures 2.10 and 2.11) represent the infrastructure and facility projects that have the potential to positively impact the success of the TMP strategies and their implementation.

Relevant Fort Belvoir Planning Initiatives

1. **Lieber Gate.** This new Access Control Point and entrance roadway will provide a direct connection from Route 1 to North Post. It will align with Belvoir Road/ Pence Gate to create a four-way intersection and will connect with Gunston Road inside the Installation.

2. **National Museum of the United States Army (Museum).** This new facility will be located on North Post along the Fairfax County Parkway and will become a regional/national attraction. Future improvements associated with this facility may eventually include a new full grade-separated interchange.

3. **PX/Commissary.** The first phase of the future North Post Town Center includes a new PX and Commissary to replace those currently in operation with a more walkable pedestrian-oriented center. Fort Belvoir celebrated the grand opening of the new 270,262 SF Post Exchange on Kingman Road on 19 June 2013. A planned mix of retail, restaurant and housing uses will be able to take advantage of public bus service, such as Route 335 (“The Eagle”), that provides access to the Town Center, to places within the Installation, and to the Franconia-Springfield Transit Station.

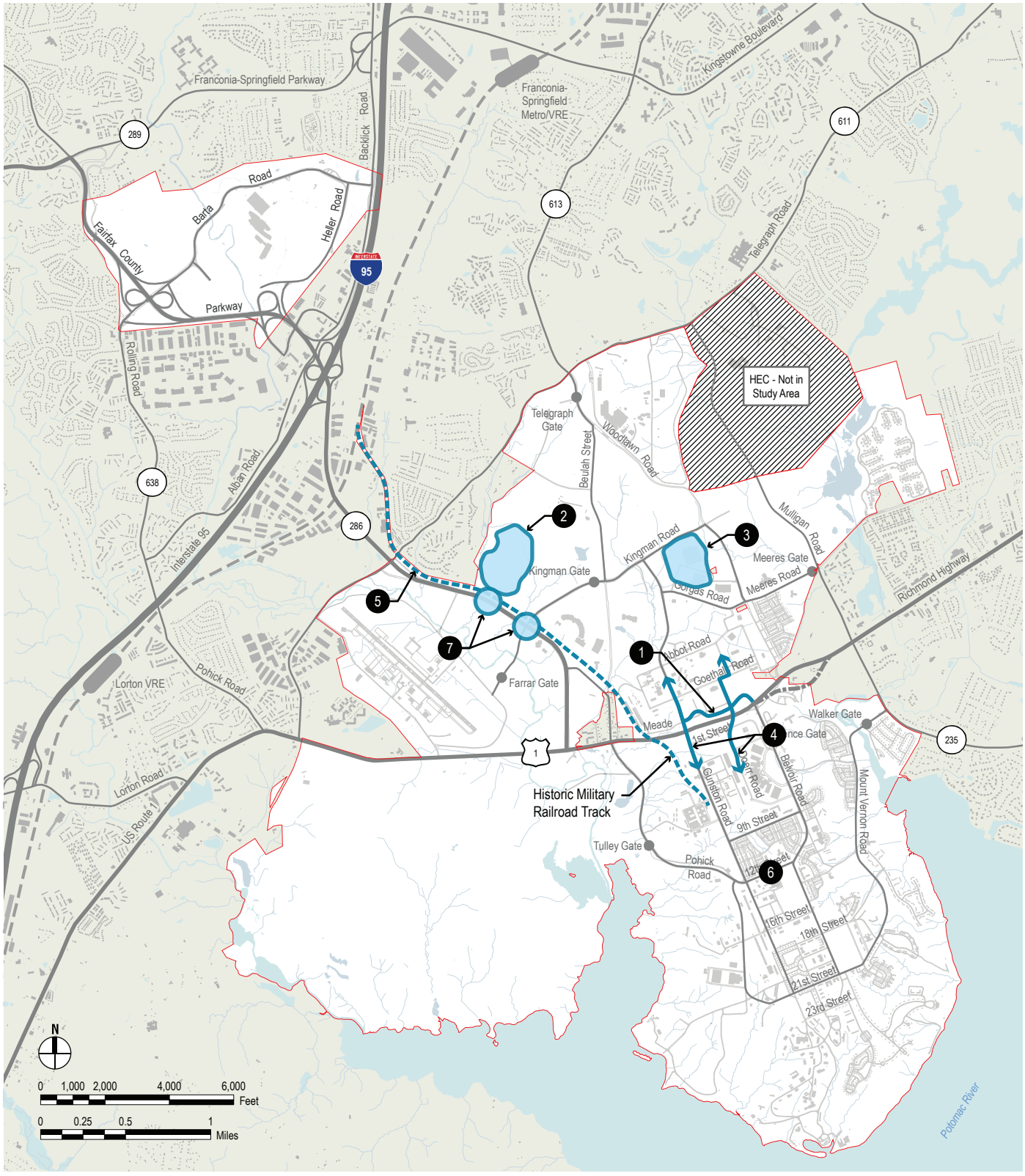
4. **Linking North and South Post.** To support long-term development, the Master Plan includes provision of an additional primary roadway connection (overpass or underpass) between North and South Post, to be located in the area between Gunston and Mulligan Roads. Currently, with a single connection between the two, there is no redundancy in a critical crossing that facilitates movement across Route 1.

5. **Historic Rail Line Corridor.** Fort Belvoir hopes to partner with regional stakeholders to transform the historic military railroad that connects Main Post to the regional rail system into a dedicated transit and/or shared-use trail corridor. This would directly connect the Installation to the Franconia-Springfield Transit Station as well as the County regional trail network. Any use of the historic rail line corridor for transportation would require additional study to assess the costs, alignment, environmental and security implications.

6. **South Post Town Center.** There is a desire to build upon the successful mixed-use development on 12th Street to include a mix of shops, restaurants, housing, and other community services.

7. **Kingman Road/Fairfax County Parkway/NMUSA Entry Intersection Improvements**. Fort Belvoir has completed several studies to evaluate grade-separated intersection options and future right-of-way requirements at the intersection of Kingman Road and Fairfax County Parkway and the future point of access to the National Museum of the U.S. Army (NMUSA). In August 2011, the Department of the Army and the Commonwealth of Virginia entered in a Memorandum of Agreement (MOA) for the design and construction of a signalized access road to NMUSA and a raised interchange at Fairfax County Parkway and Kingman Road. Fort Belvoir has committed to apply for Defense Access Roads (DAR) funding to make the improvements at this intersection location.

Figure 2.10 Relevant Internal Planning Initiatives



Relevant Regional Plans and Improvements

1. **Fairfax County Comprehensive Plan.** The County has numerous initiatives to transform this area to a multimodal destination in addition to roadway improvements to increase capacity. Four of these are:
   - a. Identification of Route 1, the Historic Military Railroad Track and I-95 as Enhanced Public Transportation Corridors (EPTCs) – a corridor in which major transit, such as light rail or bus rapid transit, and associated service facilities are the prime component.
   - b. Identification of two transit transfer stations along Route 1 to serve the EPTC network.
   - c. Identification of two park and ride lot locations, the Saratoga Park and Ride lot at FBNA (now complete) and a future lot near Main Post.
   - d. Identification of future intersection improvements along Fairfax County Parkway, Route 1, and surrounding FBNA all require further study, but potential improvements include interchanges.

2. **U.S. Route 1 Improvements.** Route 1 will undergo extensive improvements near Main Post. The widening project, to be completed by 2017, will expand this roadway to six lanes to increase capacity. In addition to the roadway lanes, the construction will provide pedestrian and bicycle improvements, as well as space for a dedicated future transit lane. Additionally, and separate from the widening, Route 1 is being studied to find alternatives that will incorporate enhanced transit service along the corridor.

3. **I-95 Express Lanes.** This extension to the existing HOV facilities will construct 29 miles of Express lanes from the Edsall Road area in Fairfax County south to Garrisonville Road in Stafford County. Fort Belvoir vehicles that use I-95 will be served by this new extension. Vehicles carrying three or more people will be allowed to use the I-95 Express lanes without charge. Others can buy access to them, but tolls will fluctuate according to traffic conditions.

4. **SUPERNoVA Transit/TDM Vision Plan.** Recognizing that commuting challenges connect beyond jurisdictional boundaries, the Commonwealth of Virginia has developed a Transit and Transportation Demand Management Vision Plan for the Northern Virginia area, including Fort Belvoir. The Final Vision Plan was completed in 2012 and lays out strategies for improving mobility in the short-, mid-, and long-term. The SUPERNoVA plan makes specific transit service mode recommendations for the Route 1 corridor along Fort Belvoir for either light rail or Bus Rapid Transit, with a recommendation to conduct an Alternative Analysis. *Not shown on map.*

5. **Mulligan Road.** This facility is a new four-lane divided public highway on the eastern edge of Main Post that is under construction and will link Telegraph Road to Route 1. No direct full access between Mulligan Road and the Post was planned; however, discussions are ongoing for an egress-only gate to ease traffic leaving the Installation.

6. **2010 Fairfax County Bicycle Master Plan Study**. Phase II will include the Fort Belvoir area and include provisions for on-street dedicated bicycle lanes and new pedestrian trails. Fairfax County has recently added the Beulah Road Trail to its Capital Improvement Plan (under CIP 2012-2016 funded enhancement grant). *Not shown on map.*

7. **FBNA Defense Access HOV Ramp.** The ramp will carry traffic from the Fort Belvoir North Area to I-95 Express lanes south or to the I-95 General Purpose Lanes North. Completion is expected in December 2014. Note: The FBNA HOV Ramp will be phased construction. Phase I improvement is currently under construction and will be completed in 2014. This improvement allows outbound (egress only) traffic to I-95 South HOV lanes. This improvement is included in the near-term traffic analysis for FBNA. Phase II (future) would allow left turn access from the southbound HOV lanes to FBNA. This inbound ramp would require reconstruction of the existing bridge that connects to the new ramp. Phase II is not presently funded, but will be considered for the long-term traffic analysis.

8. **VDOT Fairfax County Parkway Interchange Improvements.** Following the 2010 I-95 Improvements Environmental Assessment findings, VDOT prepared preliminary design plans for improving access at two locations on the Fairfax County Parkway for northbound I-95 and Rolling Road to help meet projected increases in future traffic demands. These improvements are described below:

   - Construct a flyover ramp from northbound I-95 to northbound Fairfax County Parkway. (See Figure 2.12.) This improvement would enable traffic to continue to access northbound Backlick Road and the future interchange at Boudinot Drive. The project will eliminate the existing loop ramp and build left-turn lanes at the end of the ramp at Fairfax County Parkway and Loisdale Road.
   - Widen the one-lane loop ramp to two lanes from north and southbound Rolling Road to Fairfax County Parkway north. (See Figure 2.13.)

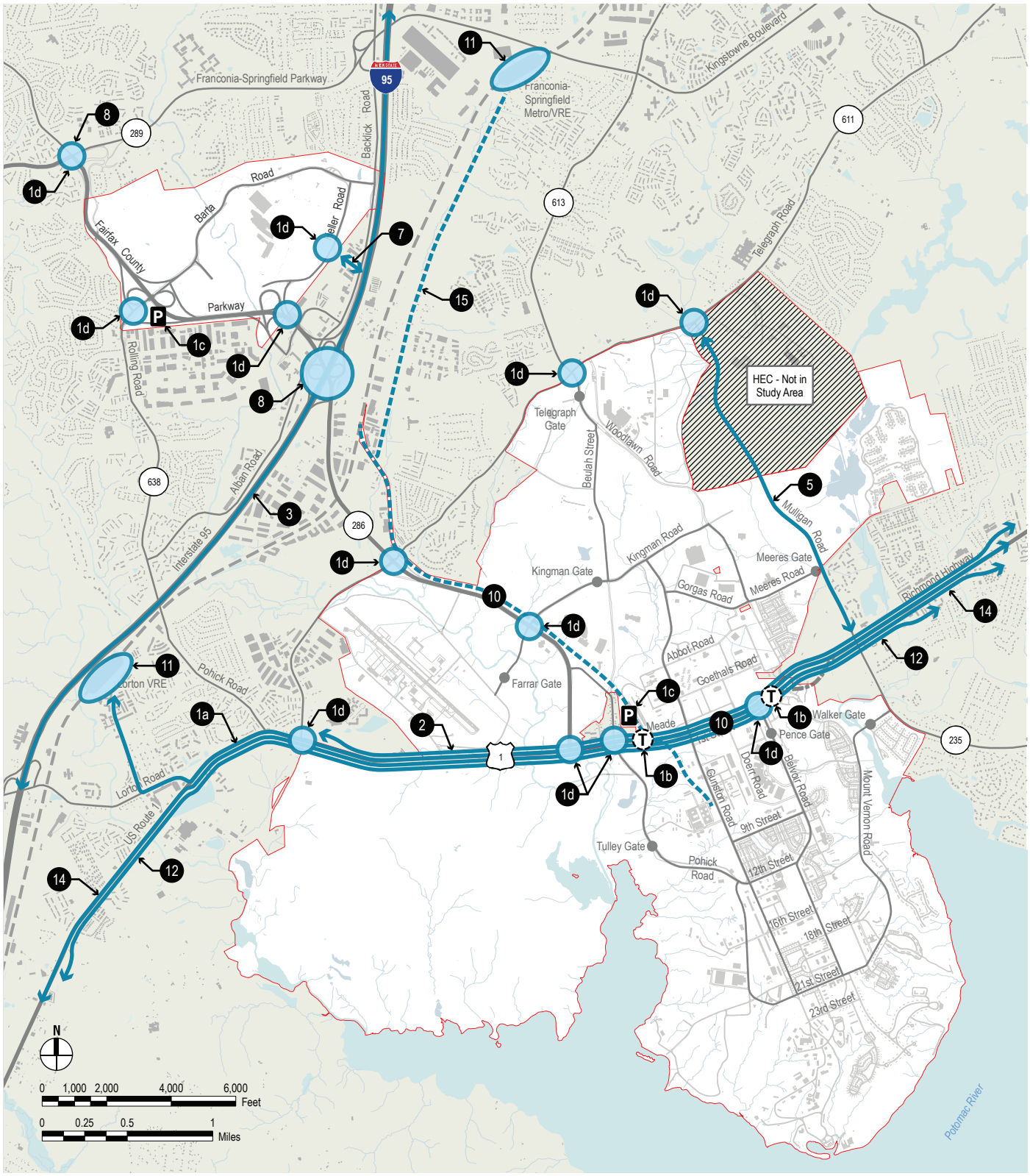
   Per VDOT's website, Alternative E was selected, which will eliminate the existing free flow right exit onto the loop by bringing the northbound right-turn lanes to a signalized intersection. This would address a safety conflict between traffic entering the loop from the northbound direction and traffic entering the loop from the southbound direction.

   Schedule and Cost: The total cost is currently estimated to be from $96.4 to $105.5 million, including $8.6 million for engineering, $24 million for right-of-way and utilities, and $63.8 to $72.9 million for construction. A project construction schedule will be developed once funding has been identified.

   Environmental Impacts: The environmental assessment prepared and approved by FHWA for this project included a full listing of considered impacts and additional findings from the environmental evaluation.

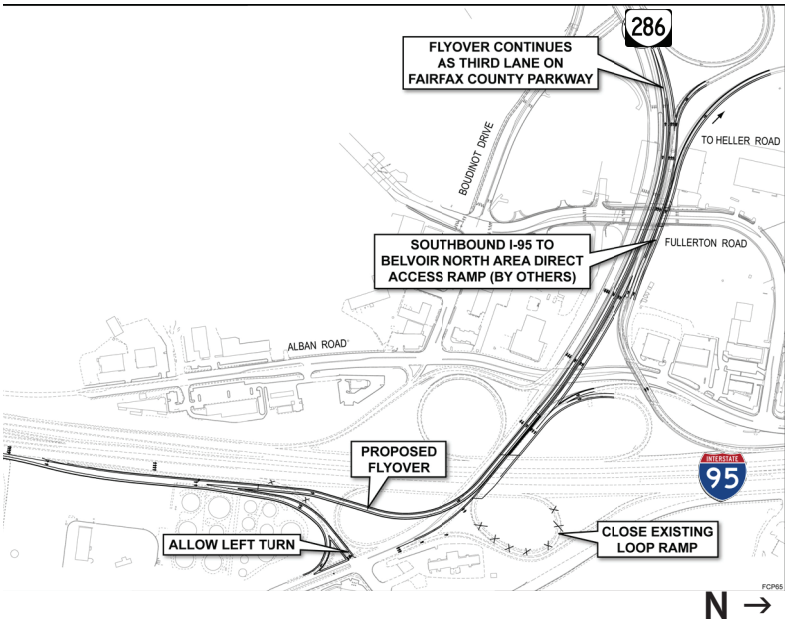
   Additional information on the project can be found at: http://www.virginiadot.org/projects/northernvirginia/fairfax_county_parkway_interchange_improvements.asp.

Figure 2.11 Relevant Regional Plans and Studies



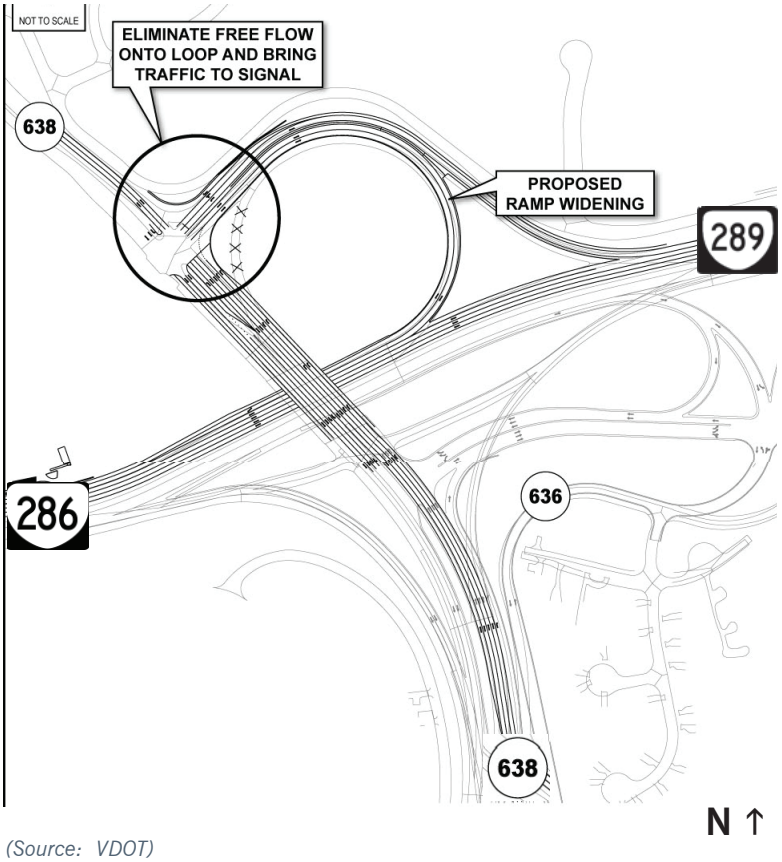
4 6 9 13 Projects not shown on map

Figure 2.12 Proposed I-95 Interchange Improvements



(Source: VDOT)

Figure 2.13 Proposed Rolling Road Alternative E



(Source: VDOT)

9 **Commuter Ferry**. The Northern Virginia Regional Commission (NVRC) is evaluating the feasibility of a Commuter Ferry to operate to government sites along the Potomac and Anacostia Rivers, of which the Main Post is a candidate. In the long term, this could serve commuters to the Installation if appropriate transfer facilities, security, and environmental requirements are met.

The Commuter Ferry Study Area targets several DoD facilities including the Washington Navy Yard, Department of Homeland Security Headquarters (USCG), Joint Base Anacostia-Bolling (JBAB), U.S. Marine Corps Base Quantico, and Naval Support Facility (NSF) Indian Head. Presently, the study has narrowed its efforts on evaluating two main corridors based on market demand and feasibility. These corridors are:

- Joint Base Anacostia-Bolling/Homeland Security HQ - Old Town Alexandria, Reagan National Airport
- Fort Belvoir - NSF Indian Head, JBAB, Southwest/ Southeast D.C.

The Commuter Ferry Study concluded in the fall of 2013 that only 4 routes out of the potential 26 routes evaluated had the market potential to support a passenger ferry service. The most likely route would be between Alexandria and Joint Base Anacostia-Bolling in Southeast Washington, D.C. This route could provide a Virginia to D.C. crossing for DoD workers who work on the Naval base or for Department of Homeland Security staff on the former Saint Elizabeths Hospital grounds. Practical security concerns raised by Fort Belvoir over the use of the water frontage and high operation costs do not make this a viable option for the Installation. *Not shown on map.*

10 **Fairfax County Transit Network Study.** The Fairfax County Department of Transportation (FCDOT) is conducting a Countywide Transit Network Study to determine the types of transit systems needed to support its existing and future population. Based on travel patterns and demands in the County, the study will include specific recommendations for select high volume corridors. The study will describe where Metrorail should be extended, and/or where streetcar, light rail systems or bus rapid transit (BRT) or other services are appropriate. BRT could entail dedicated lanes that allow buses to move faster and with fewer stops than local routes. The study began in January 2012 and was planned to be completed in the fall of 2013, but was put on hold pending completion of the Route 1 Multimodal study. Belvoir DPW is engaging with FCDOT to evaluate the specific type of enhanced transit facilities that would be ideally suited and recommended for the Route 1 median (reserved in the current widening plans) and possibly along the historic rail line corridor. More information can be found at http://www.fairfaxcounty.gov/fcdot/2050transitstudy/.

11 **Virginia Railway Express (VRE) Future Plans.** VRE's 2040 System Plan presently under development will identify future service and infrastructure needs.

Future VRE improvements under consideration are:

- Reverse peak/bi-directional service
- Mid-day service
- Non-traditional service delivery options:
  - New alignments such as highway median or abandoned rail alignments

The Fort Belvoir TDM Coordinator and VRE planners have discussed VRE changes that can benefit the Installation's commuters. This includes platform extensions and the addition of a second platform at Lorton Station, and the addition of up to ten passenger rail cars for the Fredericksburg and Manassas Routes. VRE has indicated that they have seen a "spike" in outbound ridership service from Backlick Station to Manassas Station since BRAC. VRE will be engaging Fort Belvoir leadership for input to be used for its pending 2040 System Plan update. Up-to-date information on VRE improvement projects can be found at http://www.vre.org/about/projects.html.

12 **Virginia DRPT Route 1 Multimodal Alternative Analysis.** Launched in 2013, DRPT is conducting an Alternative Analysis (AA) that is focused on a 14-mile portion of Route 1 that extends from the I-95/I-495 Beltway, through Fairfax County, to Route 123 at Woodbridge in Prince William County. (See Figure 2.14 for Study Area Map.) The study will clearly define the key transportation issues, establish a "needs statement," and consider a range of multimodal transportation solutions to address the needs.

Initial alternative transportation options will include bus rapid transit (BRT), light rail transit (LRT), extended Metrorail service, roadway widening, and restructured pedestrian/bicycle pathways and facilities. The first of several public meetings was conducted on 9 October 2013 to solicit stakeholder participation and technical analysis. The study will arrive at a recommended program of transportation improvements.

The Route 1 Multimodal AA will include a land use analysis that will be essential in developing the transit alternatives and communicating the mixes of uses and densities that are necessary to support major transit capital investments. An economic impact analysis will quantify the range of potential return on investment as it relates to increased tax base, jobs, and housing. A funding analysis will be conducted to examine potential local, state, and federal funding mechanisms in light of opportunities provided in the new federal transportation reauthorization bill (MAP-21).

The study is expected to be completed in 2014. Current information can be found at http://route1multimodalaa.com.

13 **Real-Time Rideshare Program.** NVRC received a grant to launch a Real-Time Rideshare Program which began at Fort Belvoir in June 2012. Commuters can use the app on their iPhones or access WeGoMil via any smartphone's web browser to reserve a rideshare space in a vehicle going to and/or from their work location. This dynamic booking system is the first to utilize technology to create changing rideshare partners and could overcome some of the negative perception of ridesharing, such as when work needs create fluctuating schedules. *Not shown on map.*

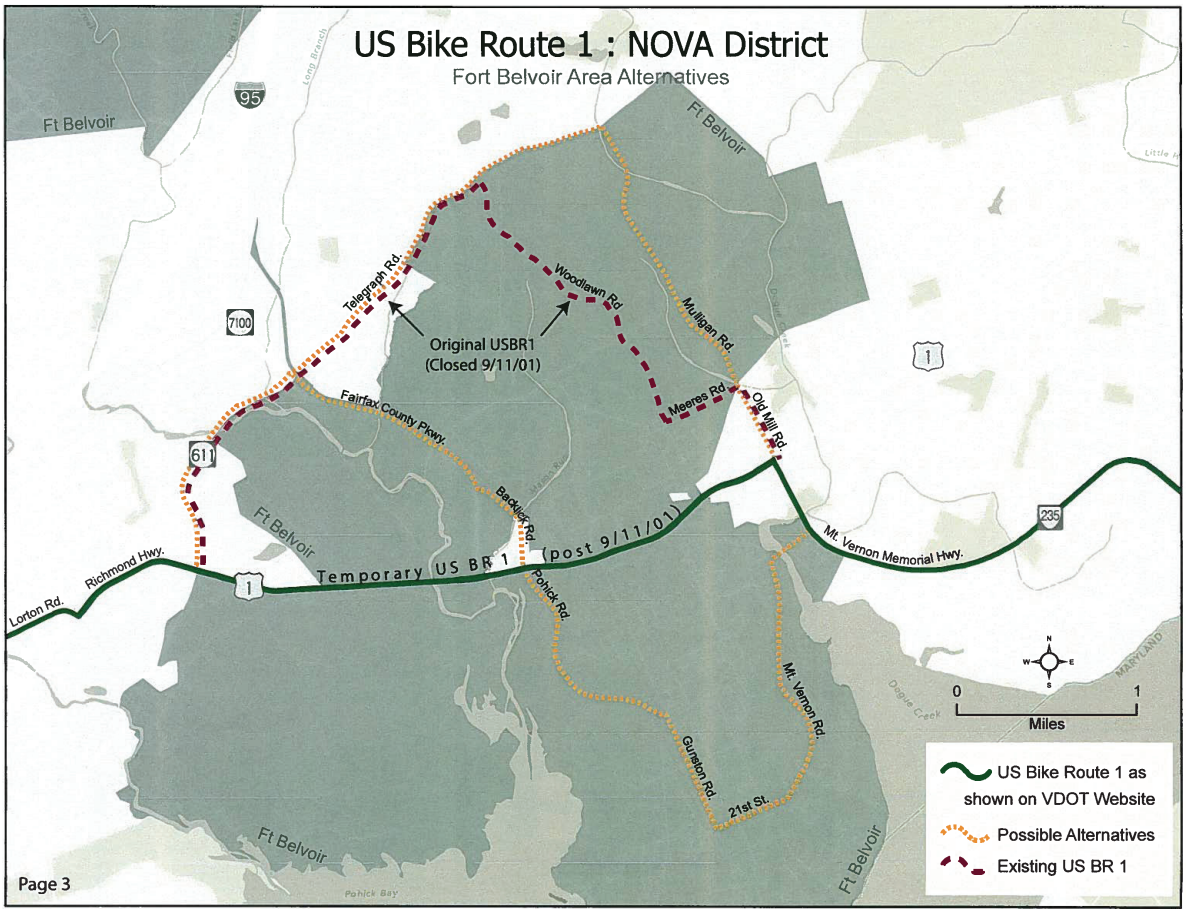
Figure 2.14 Multimodal Alternative Analysis Study Area Map

(Source: http://route1multimodalaa.com/wp-content/uploads/2013/10/Newsletter_10-09-2013.pdf)

14 **VDOT US Bike Route 1 Study.** U.S. Bike Route 1 (USBR 1) was established in 1982, but due to new development in Northern Virginia, VDOT is reevaluating the current routing and looking at several possible alternatives in the project study area from the 14th Street Bridge in Arlington County to the southern boundary of Prince William County. Figure 2.15 shows the alternatives under consideration in the vicinity of Fort Belvoir. The study includes a detailed signing plan and cost estimate for future implementation. More information is found on VDOT's website at: http://www.virginiadot.org/programs/bk-default.asp.

15 **Fairfax County Cinderbed Bikeway Grant.** On 29 October 2013, the Fairfax County Board of Supervisors approved Cinderbed Bikeway as one of three projects to apply for the Transportation Alternative Program (TAP) grant application that will be submitted to the Virginia Department of Transportation for FY15 funding. The Board's endorsement of the grant application is then submitted and will be reviewed by the Commonwealth Transportation Board (CTB) and Transportation Planning Board (TBD) for final funding decisions in the summer of 2014. If funding is secured, the TAP grant would improve non-motorized access between Franconia-Springfield Metrorail and VRE rail stations and Fort Belvoir. The Cinderbed Bikeway provides 3 miles of shared use trail that would connect to a southern trail system that could utilize portions of the abandoned rail spur that once served Fort Belvoir. The grant will provide funding for the preparation of preliminary engineering plans (30 percent design) and allow stakeholder engagement with major land owners and local communities. Details regarding the alignment, trail rail bridge crossings, security and environmental implications would all be addressed as part of the grant study.

Figure 2.15 US Bike Route 1 Area Alternatives, Fort Belvoir Area



US Bike Route 1 Fort Belvoir area alternatives being evaluated as part of the US Bike Route 1 Study (Source: VDOT)

2.10 Challenges and Strengths

Based on the existing and emerging conditions described in this section, the following factors were considered in the development of the Transportation Management Strategies and Implementation and Monitoring Plans.

Challenges:

- Different regional stakeholders and local/state governments are responsible for enhancing public transit options and improving the off-post roadways.
- Sustaining a dedicated funding source for the TMP and pooling resources between the Garrison and agency mission partners to create economies of scale.
- On Fort Belvoir, there are over 140 different Department of Defense agencies, each with its own mission and needs, making coordination and information gathering/dissemination difficult.
- Unique mission needs, especially the numerous secure campuses, make outreach efforts and inclusion difficult.
- Better coordination and communication of the benefits will encourage established mission partners to be more active partners in implementing the TMP strategies.
- Implementation/enforcement of certain elements, including agency-level scheduling policies and monitoring parking, is outside of the Installation's direct control.
- Outlying or remote sites such as DAAF and the 300 Area currently have little to no transit accessibility other than by personal vehicles.
- Lack of direct connectivity between multimodal transportation options.
- A single roadway connection links North and South Post.
- Current DoD policies (*DoD 4500.36-R, Management, Acquisition, and Use of Motor Vehicles*) prohibit use of government vehicles (including shuttles) to provide non-work day needs (i.e., lunch-time and domicile-to-duty services).

Strengths:

- Fort Belvoir's good relationship and dialogue with regional stakeholders can influence mutually beneficial outcomes and help anticipate and incorporate upcoming initiatives.
- The Fort Belvoir TDM Coordinator oversees the development and implementation of initiatives that encourage use of ridesharing, transit, and other non-SOV modes of travel. The Coordinator is the "face" of the TMP to Fort Belvoir and its mission partner agencies to assist with any questions or issues.
- Several areas of the Installation, including the center of Main Post, are developing as multimodal destinations with reasonable accessibility.
- The Installation-wide Commuter Fairs hosted by Fort Belvoir.
- Monthly Travel Demand Management Working Group (TDMWG) meetings, with Garrison staff and representatives from mission partner agencies.
- Implementation of Alternative Work Schedule (AWS) and Telework Policies, applicable to civilian personnel of the Garrison. (See **Appendices B3 and B4**.)
- Fort Belvoir's Transportation Management website (www.belvoir.army.mil/rideshare) contains information on vanpool, carpool, and commercial bus options. (See **Appendix B1**.)
- Implementation of the "Trusted Traveler" Pass Program to allow commercial commuter transportation companies through Tulley and Kingman Gates.
- Relocating agencies and their employees show a willingness to be actively involved in the TMP.

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Survey Assessment 3

3.1 Overview

Before commuter behavior can be influenced in the future, we must understand current behavior. One of the first steps in the TMP process is to conduct a travel survey and collect information on current travel between home and work for all Fort Belvoir personnel. In addition to collecting data regarding how, where, and when employees travel to work, the survey is an important tool for understanding employee demographics and attitudes towards commuting. Recurring surveys are a way to monitor changes in employee behavior and monitor the success of the TMP.

This section details the survey process and summary of main findings. **Appendix D** contains the survey questionnaire and full details on the survey responses (the raw survey data in the simple format of each question and corresponding data on a single page).

Note that all percentages in this section are approximate.

3.2 Methodology

The first step of the survey process was to formulate a set of standard questions (see **Appendix D**) used for this and future surveys. The list of questions was based upon past TMP efforts, other regional/military survey examples, and research of survey techniques and best practices. NCPC Staff was asked to provide input on a draft questionnaire, and a pilot test was conducted with TDM Working Group (TDMWG) members for feedback. The survey questions and format were then refined based on test results and received approval from the Garrison and TDMWG to proceed. The final survey included data links to maps and resources with 26 questions about commuting choices, daily travel details, awareness and employee information.

The 2011 Fort Belvoir Commuter Survey was conducted online from 24 October to 11 November 2011 (the original two-week survey period was extended to increase participation). All Fort Belvoir personnel – 39,000 military, contractor, and civilian employees – were invited to participate in the survey.

Participation was solicited in three ways:

- **Print.** A story in the *Belvoir Eagle* weekly newspaper announced the upcoming Commuter Survey, including a description of why it was being done, why it was important, and how to access the survey.
- **Online.** The Fort Belvoir Garrison website and Fort Belvoir Rideshare website linked to the survey.
- **Email.** The Public Affairs Office (PAO) sent an email publicizing the purpose, intent, and schedule of the Commuter Survey to each mission partner agency point of contact (POC) before the survey began. The PAO re-emailed the POCs with the live link to the Commuter Survey and standard email text to send to their employees on the launch day. The POC was then tasked with passing the survey to the employees. Reminder emails to the POCs were sent at the beginning of the second week, as well as when the survey period was extended.

At the end of the survey period, a total of 6,173 valid responses were received representing a cross sample of workers from over 150 organizations. This represents a 16 percent response rate of the total 39,000 personnel at Fort Belvoir.

3.3 Summary of Results

The main survey findings are presented below and are based upon analysis of the full survey data (see **Appendix D**). The summary is grouped into categories that were presented in the questionnaire and are based on the intent of the survey questions. The residential zip code analysis is presented in Section 3.4.

Commuting Choices

The first question of the survey asked how commuters get to work each day of the week. Driving alone and carpooling were the top two choices. The results showed that 81 percent of respondents drove alone every day of the week, with carpools, vanpools, Metrorail, VRE, public and private bus, motorcycles, and telework each contributing in decreasing order respectively (see Table 3.1 and Figure 3.1). Bicycling, walking, and scheduled days off each contributed but represented less than one percent of the respondents.

Table 3.1 2011 Installation-wide Mode Splits *(Tuesday, Wednesday, and Thursday Averages)*	
Method of Travel (Mode)	**Percentage**
Drive Alone	81%
Carpool	6%
Vanpool	3%
Metrorail	3%
VRE Rail	3%
Private Bus (Commuter Charter)	1%
Motorcycle	1%
Telework	1%
Bicycle	<1%
Walk	<1%
Do not report to work	<1%
REX Public Bus	0.5%
Fairfax Connector Public Bus	0.5%
Total	*100%*

Figure 3.1 2011 Installation-wide Mode Splits

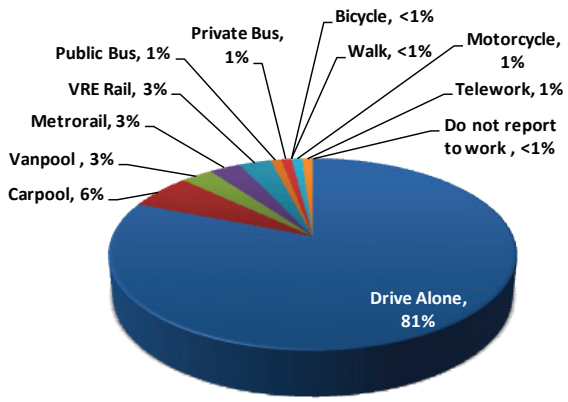
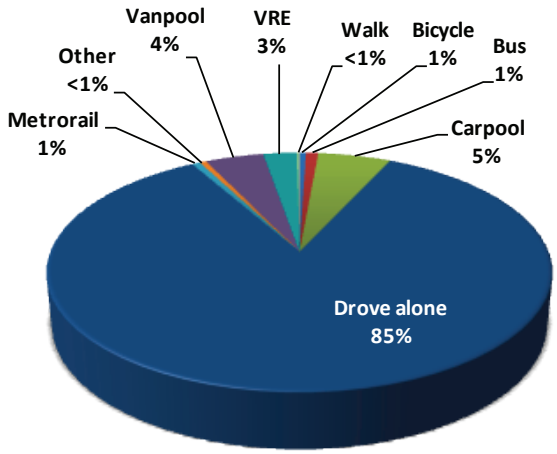


Figure 3.2 Survey Responses from September 2008



These results represent mid-week (Tuesday, Wednesday, and Thursday) averages because significantly higher percentages of personnel not reporting to work due to alternate/flexible scheduling were observed on Mondays (two percent) and Fridays (four percent).

Comparing this current mode split to the survey results from September 2008, before the influx of BRAC 2005 personnel (see Figure 3.2), there are three important observations:

- Since 2008, the total population of Fort Belvoir has almost doubled, but the number of employees who drive alone has trended downward.
- While overall percentages of certain modes have slightly decreased, it is important to remember that the total number of employees for that option has still significantly increased.
- The total number of alternative methods of commuting (non-drive alone) has increased since 2008, which means that employees now have more commuting options. Private buses, Teleworking, Alternate/Flexible Scheduling, and Motorcycling are new modes that were not significant enough to report previously. Each separately represents one percent of the total commuting population each day.

The next question asked employees to identify their top challenges in their commute to Fort Belvoir. Responses overwhelmingly showed that employees are frustrated by their driving commute. The top three challenges (in decreasing order) are traffic on the roadways, traffic at the gates, and the daily stress of driving. The responses also showed that employees view having adequate parking spaces as a necessity, and this will be provided to them. With the exception of the recent BRAC 2005 mission partners, the workforce is not aware of Army and regional parking requirements; one third of respondents identified that it is difficult to find available parking at their work site. Additionally, there are ongoing challenges for those employees who rideshare. Six percent of respondents, which is two-thirds of all ridesharers, said that logistical issues (forming, maintaining, or timing car- and vanpools) are a daily challenge.

When asked about the likelihood of changing their commute (changing mode, leave time, etc.), 40 percent of respondents were very likely to change their commute in the next three years. This percentage is in alignment with the parking requirements. There was no single reason commuters chose to drive alone:

- Results showed that driving alone remains the most convenient and realistic option. The highest response (40 percent of respondents) was that driving is the fastest way to get to work, even with traffic congestion.
- Cost, while important, is not the single factor when employees make their decision. Only 10 percent (the 11th reason) indicated that cost was the main reason to drive alone.
- The flexibility of having access to a car is important. Three reasons included having a car for errands before or after work, a car for children-related needs, and a car for business travel.
- People do not like or want to make the effort to find rideshare partners. Two reasons include not liking depending on others for a ride and not knowing anyone or how to find someone to share the ride.
- People want convenient access from their houses. The top transit-oriented reason (number three overall) was not living near a bus stop or rail station.

The last series of questions asked what could help commuters change to use alternate modes. Based on the existing facilities and services, most of the respondents have no current interest in beginning to carpool/vanpool (44 percent), take transit (38 percent), or bicycle/walk (55 percent).

The top incentives to begin using alternate modes were:

- Carpool/vanpool: Guaranteed ride home; assistance in finding fellow ridesharers; and more flexible work hours.
- Public Transit: Telework/Flex scheduling at least one day per week; shuttle to transit from the work site; increased subsidy; and guaranteed ride home.
- Bicycle/Walk: Improved bicycle routes; and relocating closer to Fort Belvoir.

The answers to this section revealed that the availability of parking seemed not to be a significant factor for how respondents determined how to commute to work. Having limited available parking at the work site was one of the last three selected choices when asked what would encourage a commuter to begin to use an alternate mode of travel to work.

Daily Travel Details

This section of the survey asked specific details about commutes on typical work days. Employees arrive early to work, which could be a result of regional peak rush hour and limited on-site parking or Army culture; 75 percent of respondents are at work by 0800. Employees spend a lot of time commuting to work and more time getting home from work; over 30 percent of respondents spent over an hour getting home after work. The majority of employees travel directly to and from work and stay in their facility throughout the day; over half of respondents answered that they do not make any other trips before, during, or after work.

Awareness

Information is a powerful tool that affects commuters' choices. This section was intended to gauge how aware employees were about regional and Installation resources. Employees are aware of regional transportation options; over half of respondents were aware of public bus services to the Installation and benefits such as the transit subsidy. Employees are also generally aware of the following Installation-specific commuter resources and programs, but the results show that they do not use them:

- 50 percent of respondents are aware of the Fort Belvoir Internal Circulator, but only 4 percent had ridden it.
- 45 percent of respondents are aware of the Fort Belvoir Commuter Fairs, but only 6 percent have attended one.
- 60 percent of respondents are unaware that Fort Belvoir hosts a commuter website.

Employee Information

This section of the survey asked employee-specific details; employee residential zip codes are analyzed separately in Section 3.4 below. The majority of Fort Belvoir personnel are civilians (over 60 percent), with almost 30 percent contractors and almost 10 percent active duty military or reservist on duty. Of the total 6,173 respondents, over 2,000 responses were located at FBNA. This equates to a 28 percent response rate of FBNA and a 13 percent response rate of Main Post. Over 150 unique agencies and organizations had at least one respondent. Analysis of the results, however, showed that employees of newer, post-BRAC 2005 agencies had much higher response rates than employees of agencies that were long-established on-Post.

Impacts of Survey Findings

The overall findings of the survey will be used when considering what and how trip-reduction strategies can be successful, including how to target strategies to specific populations based on their needs.

The mode split will be used as a basis for the Traffic Assessment (Section 5) and as a gauge to meet parking requirements and to achieve TMP success. The survey data shows that 81 percent of employees drive alone to work with the remaining 19 percent using alternate modes.

The results from the survey data alone have been adjusted to 85 percent to be utilized in the remainder of this report as the baseline condition. The following factors provide more insight than the statistical data alone shows:

- Survey analysis showed the following factors that could bias the results for the Installation as a whole:
  - Newer agencies, with 60 percent of total employees, limited parking ratio and therefore higher mode splits, were the most active respondents.
  - Commuters who use alternate modes are more likely to respond to a survey that asks questions about alternate modes.
  - Three mode split answers showed less than one percent of the respondents, but could become a significant percentage when applied to the greater population of the entire Installation.
- Observations of travel behavior that fall outside the survey.
- Ongoing dialogue between the TDM Coordinator and the Fort Belvoir community.
- The necessity of being conservative in terms of roadway capacity due to the sensitivity of the transportation network.

3.4 Residential Distribution of Employees

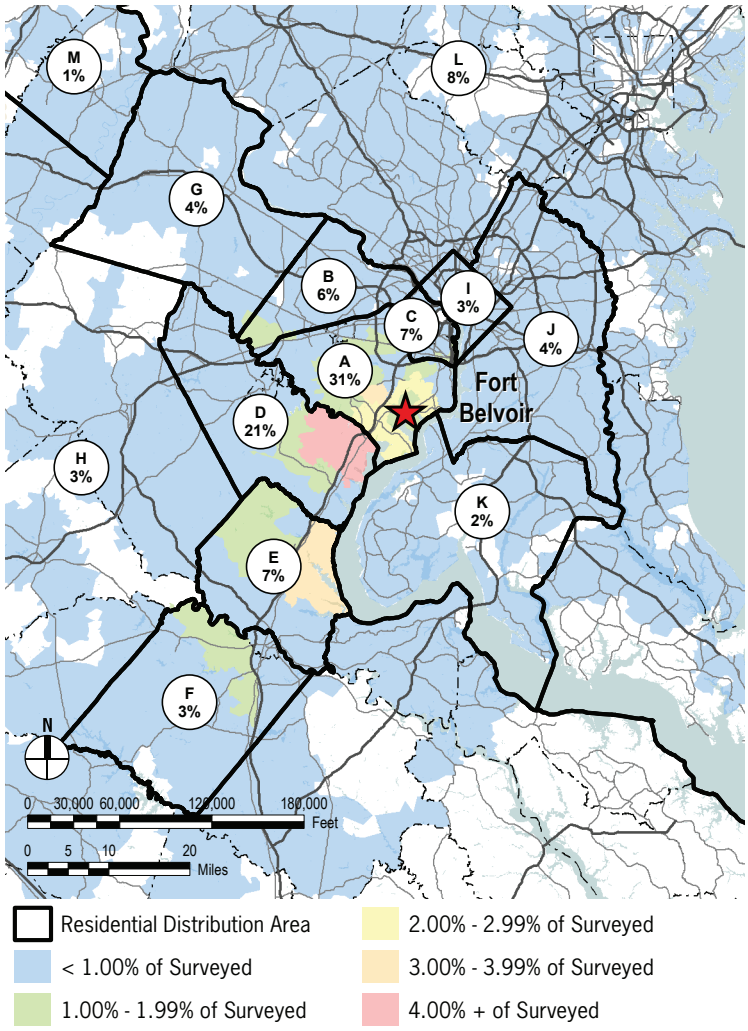
The residential distribution of employees, as shown in Figure 3.3 and Table 3.2, is based on employee zip code data collected as part of the 2011 survey. Current data based on personnel records for all 39,000 employees was not available; however, limited personnel zip code data was available for certain activities, which was analyzed and found to be statistically similar to the data from the survey.

The zip code data indicates that the majority of commuters, approximately 60 percent, live south of the Installation. Of the remaining group, approximately 16 percent live east of the Installation, 14 percent to the west, and 10 percent to the north. Despite the recent influx of BRAC employees, the residential distribution of Fort Belvoir personnel remains consistent with historical trends for the Garrison, with the majority commuting from the south and west.

Table 3.2 2011 Residential Distribution of Employees

District	Location	Distribution (%)
VIRGINIA		
A	South Fairfax County	31%
B	North Fairfax County	6%
C	Arlington/Alexandria	7%
D	Prince William County	21%
E	Stafford County	7%
F	Spotsylvania County	3%
G	Loudoun County	4%
H	Remainder of Virginia	3%
WASHINGTON, D.C.		
I	District of Columbia	3%
MARYLAND		
J	Prince George's County	4%
K	Charles County	2%
L	Remainder of Maryland	8%
OUTSIDE DMV AREA		
M	Outside DC, MD, and VA	1%
	Total	*100%*

Figure 3.3 Residential Distribution of Personnel, from 2011 Commuter Survey



3.5 2013 Commuter Survey

In the summer of 2013, Fort Belvoir conducted a follow-up commuter survey. Over 3,100 personnel responded to the survey, reflecting roughly an 8 percent return rate. A list of the 2013 Commuter Survey questions and summary of responses is included in **Appendix D2**.

Although the survey netted fewer responses than the 2011 survey, the sampling size reflects a larger cross-representation of both BRAC and non-BRAC agencies. The commuter survey questionnaire differs from the 2011 survey and included a series of questions to solicit input from commuters on the reasons why they chose to use or not use transit and/or rideshare. While the survey results cannot be directly compared, several key trends such as travel mode choice and reliance on SOV use (See Figure 3.4) remain similar to the 2011 survey (81-83 percent SOV). Residential Distribution is also similar (See Figure 3.5 and Table 3.3) with the majority of Fort Belvoir residents living south of the Installation and a slight increase in population to the north and west of the Installation.

Figure 3.4 2013 Installation-wide Mode Splits

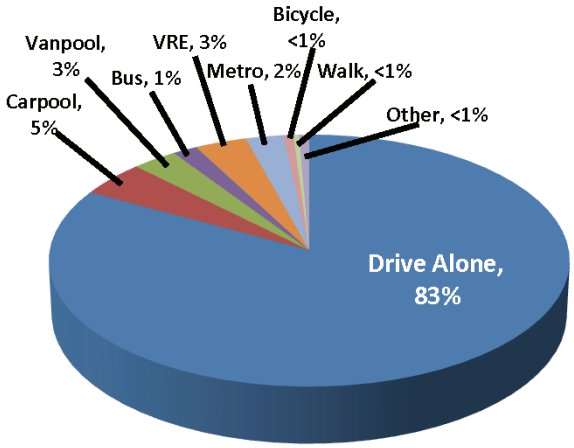
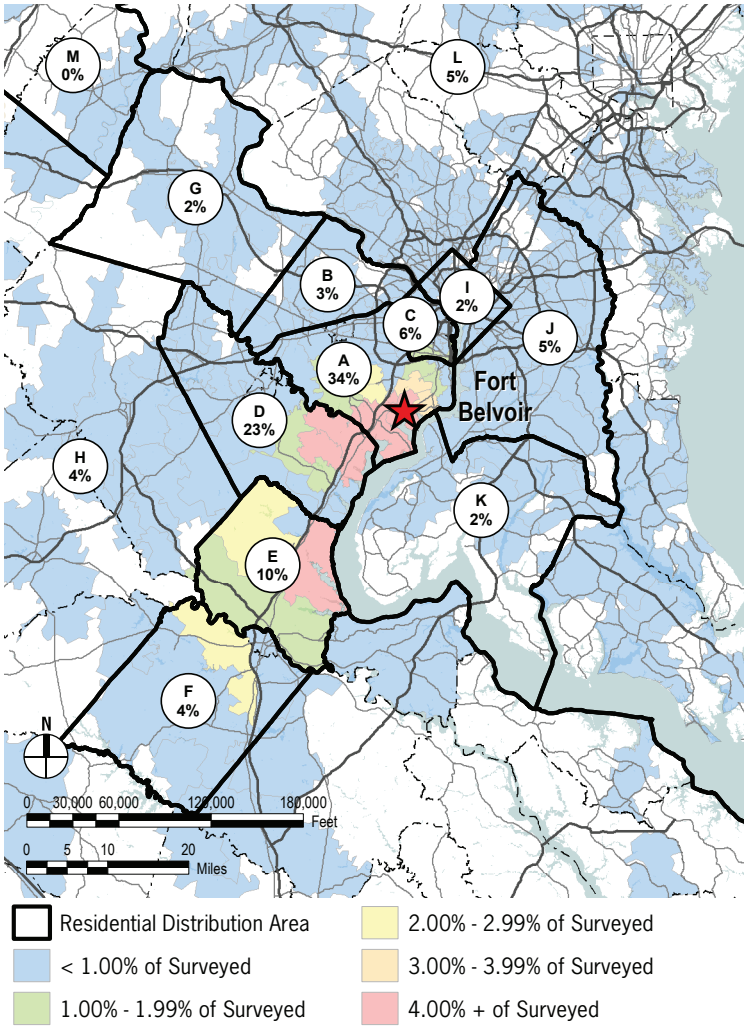


Table 3.3 2013 Residential Distribution of Employees		
District	**Location**	**Distribution (%)**
VIRGINIA		
A	South Fairfax County	34%
B	North Fairfax County	3%
C	Arlington/Alexandria	6%
D	Prince William County	23%
E	Stafford County	10%
F	Spotsylvania County	4%
G	Loudoun County	2%
H	Remainder of Virginia	4%
WASHINGTON, D.C.		
I	District of Columbia	2%
MARYLAND		
J	Prince George's County	5%
K	Charles County	2%
L	Remainder of Maryland	5%
OUTSIDE DMV AREA		
L	Outside DC, MD, and VA	0%
	Total	*100%*

Figure 3.5 Residential Distribution of Personnel, from 2013 Commuter Survey



3.6 Challenges and Opportunities

Challenges

- There is no single reason that employees choose to drive; accordingly, there is no single solution.
- Lack of employee awareness of existing Army parking requirements and a false perception that there should, or will be, available parking for all workers.
- Time is the most important factor in commuting decisions, and it can be difficult to make alternative modes seem practical.
- Most employees are not interested in other commuting options than driving alone, given the existing public transit options that are available at this time.
- Employees might not realize the true "cost" of driving alone. Cars/gas are seen as an absorbed cost where transit is seen as an "additional" cost.

Opportunities

- Respondents seem willing to try new commuting alternatives, if given realistic and feasible alternatives and improvements to the system.
- Alternate forms of commuting (i.e., getting commuters out of their individual cars) could alleviate all of the top challenges that respondents identified.
- All of the top incentives identified to promote alternate modes of travel are viable options to be included in the TMP.
- Improving options for scheduling and information dissemination for ridesharing can maintain and potentially increase the number of employees who use this mode.
- Employees who drive alone and do not make any mid-day trips, which is the majority of respondents, are ideal candidates to use alternate forms of commuting.

Parking Assessment 4

4.1 Overview

Available parking spaces are considered a key factor in affecting commuting patterns. Additionally, understanding the parking supply and demand is used in planning new projects and facilities.

This parking assessment analyzes the availability of parking spaces by comparing the number of parking spaces to the number of personnel who use those spaces to determine a parking ratio. This identifies areas that may be over-parked and not support mission needs, or areas that may be under-parked and can be opportunities to share parking between facilities as development occurs.

This section presents an overall parking and personnel inventory and resultant parking ratio for the Installation, which is further broken out by common area employment centers, referred to as the traffic analysis zones or TAZ. **Appendix E** contains the details of parking space allocations for every parking lot and the personnel/agency assignments for every building.

Transient Populations

It is important to remember that the ratios in this section are only a reflection of the Fort Belvoir workforce compared to the total parking at the Installation. In addition to these workers, Fort Belvoir supports regional community, educational, special event, and other unique functions with transient populations that are provided for parking spaces on the Installation. These functions that are not captured in this analysis, nor included in the requirements, include:

- Community functions such as the Golf Course, Tompkins Basin, the PX/Commissary, and other stores.
- Medical functions such as the Fort Belvoir Community Hospital and Dental Clinic.
- Student populations such as Defense Acquisitions University (DAU).
- Reservists who serve outside of normal business hours.
- Visitors to mission partner agencies and the Garrison.
- Government vehicles that are stored at Fort Belvoir.

Parking Requirements

The parking ratio at the Installation can be compared to military and regional requirements:

- Per the U.S. Army Corps of Engineers' Technical Instructions, authorized parking allowances for privately owned vehicles (POVs) for Administration, Headquarters, and Office buildings are capped at 60 percent of facility personnel. This equates to 1.67 employees for every 1 space.
- NCPC guidance allows for a total of 67 percent of personnel at Fort Belvoir, excluding spaces that are clearly designated for government-owned vehicles and visitors, and housing parking. Parking includes all spaces in on-street, off-street, and structured locations. This equates to 1.50 employees for every 1 space.
- Per NCPC policy, once the HOV ramp is completed at Fort Belvoir North Area, the NCPC parking ratio for any new developoment on FBNA will be 50 percent, or 2 employees for every 1 space..

Note that the USACE uses the term POV, which refers to any privately owned vehicle. The purpose of this TMP is to reduce SOV, or single occupant vehicle use, which does not preclude the use of POVs for travel such as ridesharing.

The parking ratios that are presented in this section are expected to continue to trend downward as Fort Belvoir continues to grow. As experienced with the development associated with BRAC 2005, new development occurs on existing parking areas (with excess parking) without restoring that same level of parking. Incoming and redeveloping agencies are held to the 60 percent POV parking requirement. The development associated with the projected growth at Fort Belvoir is expected to continue to displace some existing parking (refer to **Appendix C** and Master Plan document for details of future projects). Therefore, the parking ratios will be decreased simply by increasing the total personnel and eliminating some parking that will be the result of construction from new and programmed projects projected in the RPMP.

4.2 Assumptions

Parking Inventory

During the parking assessment process, the following assumptions and definitions (in alignment with regional standards) were developed to dictate which parking spaces were or were not included in the analysis.

Included in the Inventory:

- **All general use spaces throughout the entire Installation are included in the total**. General use is defined as all spaces that are located in the following areas:
  - Both secure (behind a fence, card reader, etc.) and unsecured areas.
  - Legal on-street parking spaces.
  - Legal paved (surface) parking lot spaces and hardstand areas.
  - Legal structured parking (garage) spaces.
- Only **legal** parking spaces are included in the total.
  - Legal is defined as spaces that are formally striped and assumed to be compliant with Army and design criteria.
  - Exception is 9 paved areas or hardstands that are open and unrestricted to personnel, but do not have legible striping. Figure 4.3 shows where these areas are located on the Installation. For these areas, an estimation of 400 square feet per one parking space was used. This totaled to approximately 550 spaces that are included in the total.
  - Illegal and non-conforming spaces are not included in the total, such as vehicles that park in the grass, on roadway shoulders or outside of striped areas in parking lots.

Not included in the Inventory:

- Motor pool and service/loading areas are not included in the total. Figure 4.1 shows where these areas are located on the Installation. Typically, these areas are fenced and not available for parking by the general population.
- Housing parking, including on-street and surface lots, is not included in the total. Figure 4.2 shows where these areas are located on the Installation. With the exception of Park Village, residential parking permits have not been needed to ensure that these spaces are reserved for residents.

The following maps (See Figures 4.1, 4.2 and 4.3) document the motor pools and service areas, housing areas, and hard stand areas with no legible striping that were deducted from the total parking inventory for POV use.

Figure 4.1 Non-Inventoried Parking Areas - Motor Pools and Service

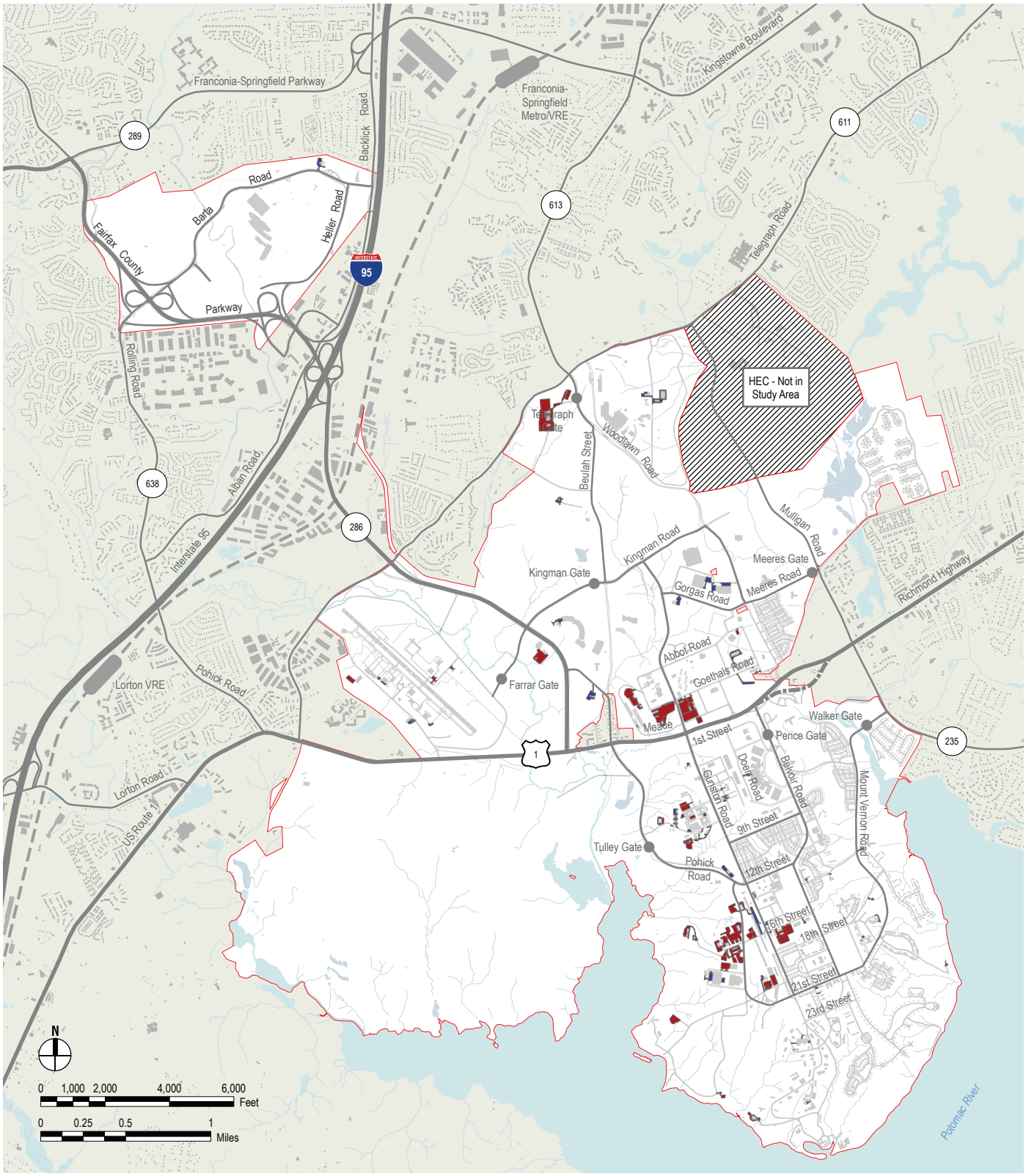


Figure 4.2 Non-Inventoried Parking Areas - Housing Areas

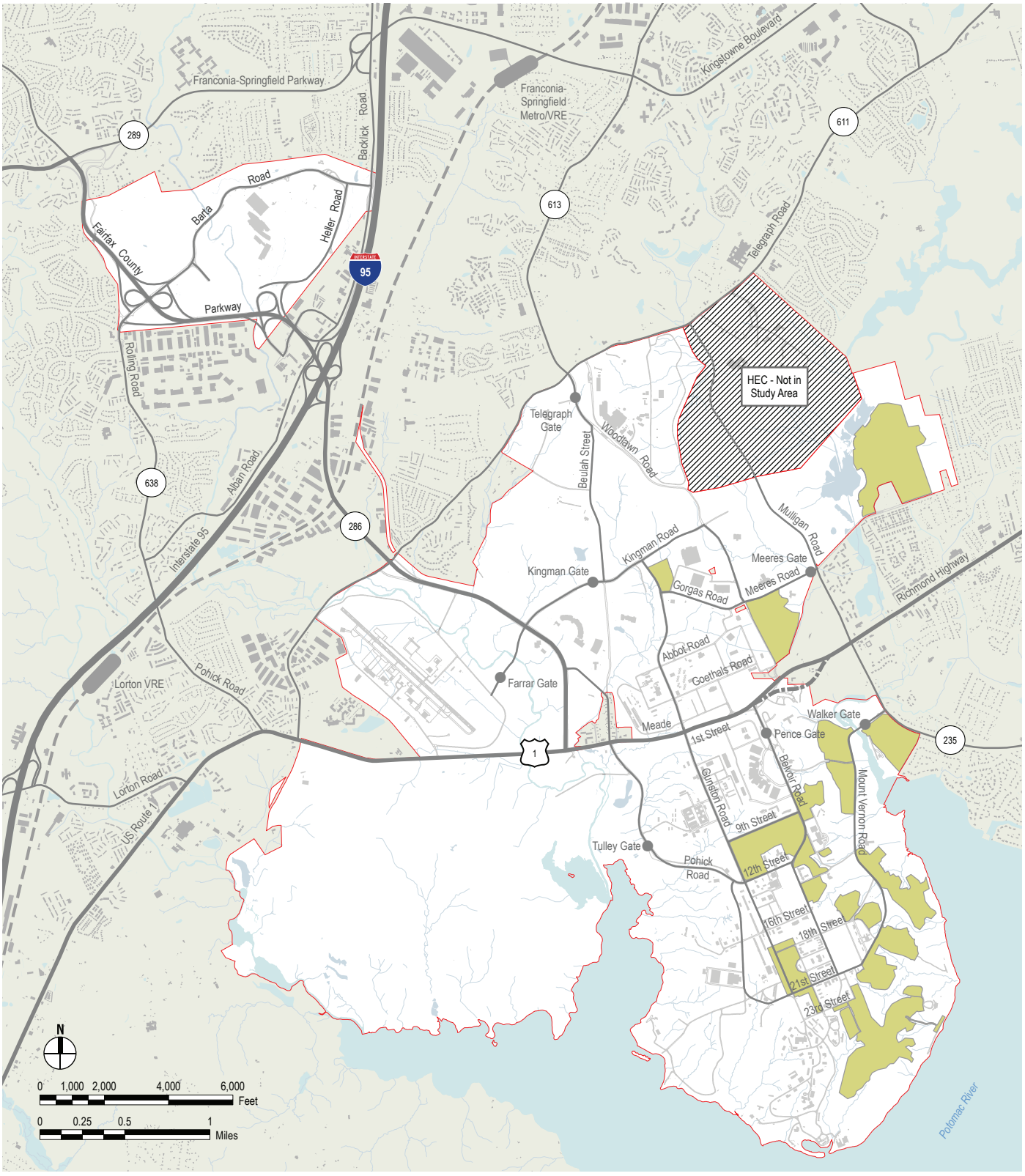
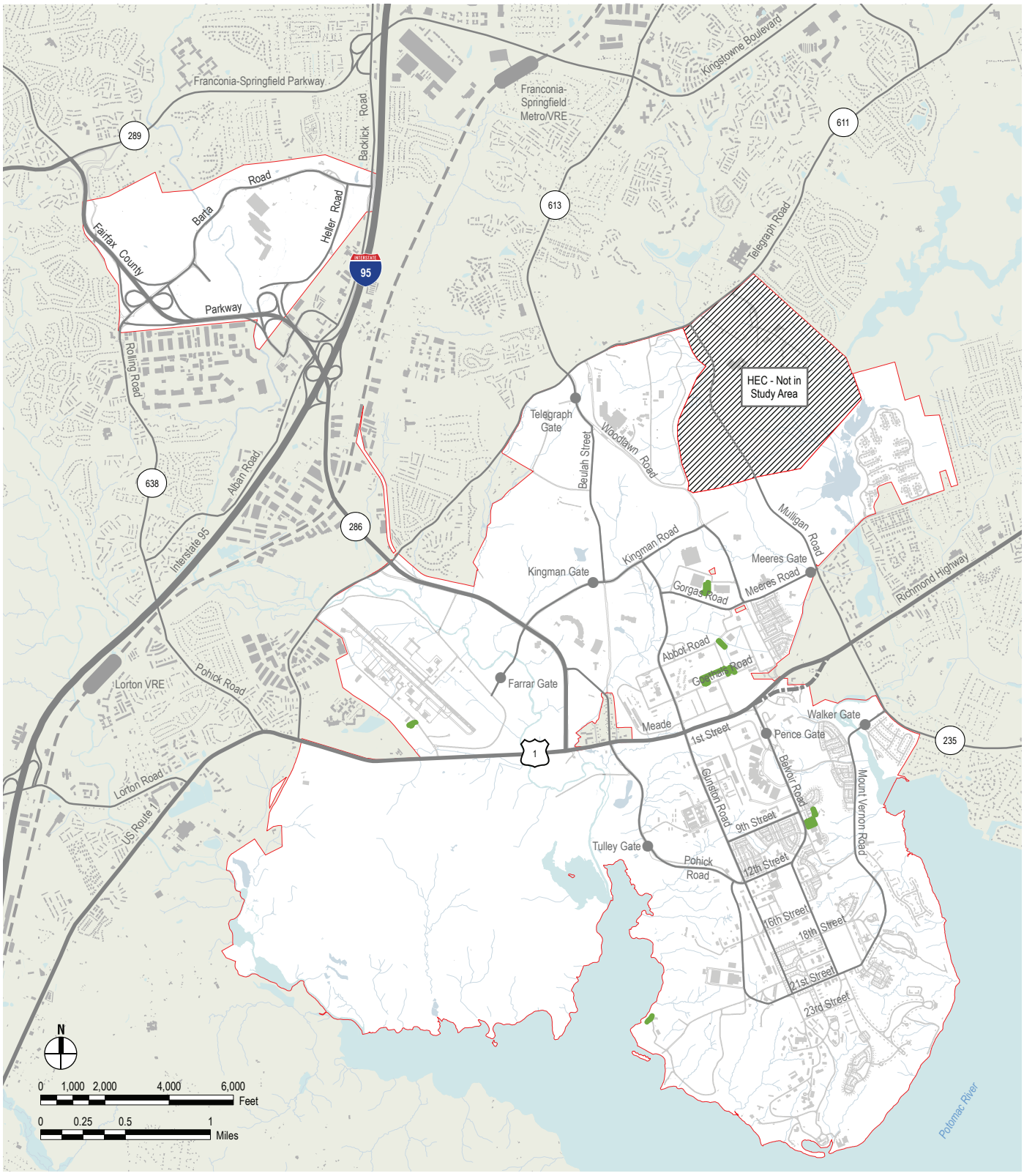


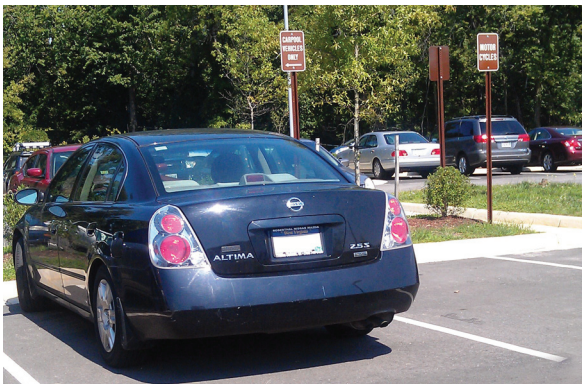
Figure 4.3 Parking Areas without Legible Striping



Unmarked Usable Parking Areas

Personnel Inventory

Building assignments for personnel are based on the most current Army Stationing and Installation Plan (ASIP) numbers. Building assignments were further refined to capture any changes based on meetings and discussions with Garrison staff.



Example of designated parking for carpools and motorcycles at a mission partner agency at Fort Belvoir.

4.3 Existing Parking Conditions

60 Percent POV Determination

The following breakdown is used toward determining parking ratios for Administrative/Headquarters/Office facilities (60 percent POV parking per the Technical Instructions):

- Included in the 60 percent POV determination:
  - Unassigned spaces: defined as striped spaces with no signed and/or striped restrictions.
  - Handicap spaces: defined as spaces that are striped and/or signed for handicap vehicles.
  - Rideshare spaces: defined as spaces that are striped and/or signed for carpool and/or vanpool vehicles only.
  - VIP spaces: defined as spaces that are striped and/or signed for specific senior personnel (i.e., colonels, commanders, etc.).
  - Low emissions spaces: defined as spaces that are striped and/or signed for green vehicles only.
  - Motorcycle spaces: defined as spaces that are striped and/or signed for motorcycle parking only.
- Not included in 60 percent POV determination:
  - Visitor spaces are defined as spaces that are designated (striped and/or signed) for visitor-only vehicles.
  - Government spaces are defined as spaces that are striped and/or signed for government-owned vehicles only.

While the majority of mission partner agencies do not have assigned visitor/student parking, a certain amount of facility parking is informally reserved for visitors. Based on historical analysis, this has been approximately seven percent of personnel for administrative functions, with known exceptions such as the hospital, legal services, and university services that have higher visitor and student needs.

Monitoring and Enforcement

Fort Belvoir Military Police (MP) monitor parking throughout the Installation. Currently, policy dictates that MP can enforce illegal parking areas, which include:

- Handicap parking spaces.
- Secure motor pools and storage.
- Areas designated as "no parking" such as yellow-striped fire lanes and roadway shoulders that are signed as "do not park."

Vehicles that park in violation of these areas are ticketed and/or towed.

Pinnacle, the developer who controls housing via a 50-year lease from Fort Belvoir, actively monitors and enforces parking within the housing areas. On-street parking in housing areas is intended for housing visitor use only. In areas where non-housing (i.e., commuter) vehicles are parking throughout the day, Pinnacle has issued visitor passes to residents, and any on-street vehicle without a pass is ticketed.

Inventory and Assessment

As a first step to the parking assessment, a physical parking inventory was completed in the fall of 2011 to determine the total number of parking spaces throughout the Installation, as shown in Table 4.1 and Figure 4.4. These numbers reflect field verification of the total number of legal parking spaces as well as identification of spaces that were clearly signed, striped, or designated for special uses. The table also includes the total number of these spaces that counts toward the 60 percent POV determination, which is shown on the accompanying Figure 4.4.

The second map (Figure 4.5) reflects the total number of personnel, based on confirmed building assignments. The third map (Figure 4.6) shows parking spaces as compared to the total number of personnel for areas within Fort Belvoir. These are combined to determine the overall parking ratio at Fort Belvoir: 82 percent. This is 22 percent above the USACE requirement and 15 percent above NCPC guidance.

Table 4.1 2011 Parking and Personnel Inventory (As of 10/31/2011)

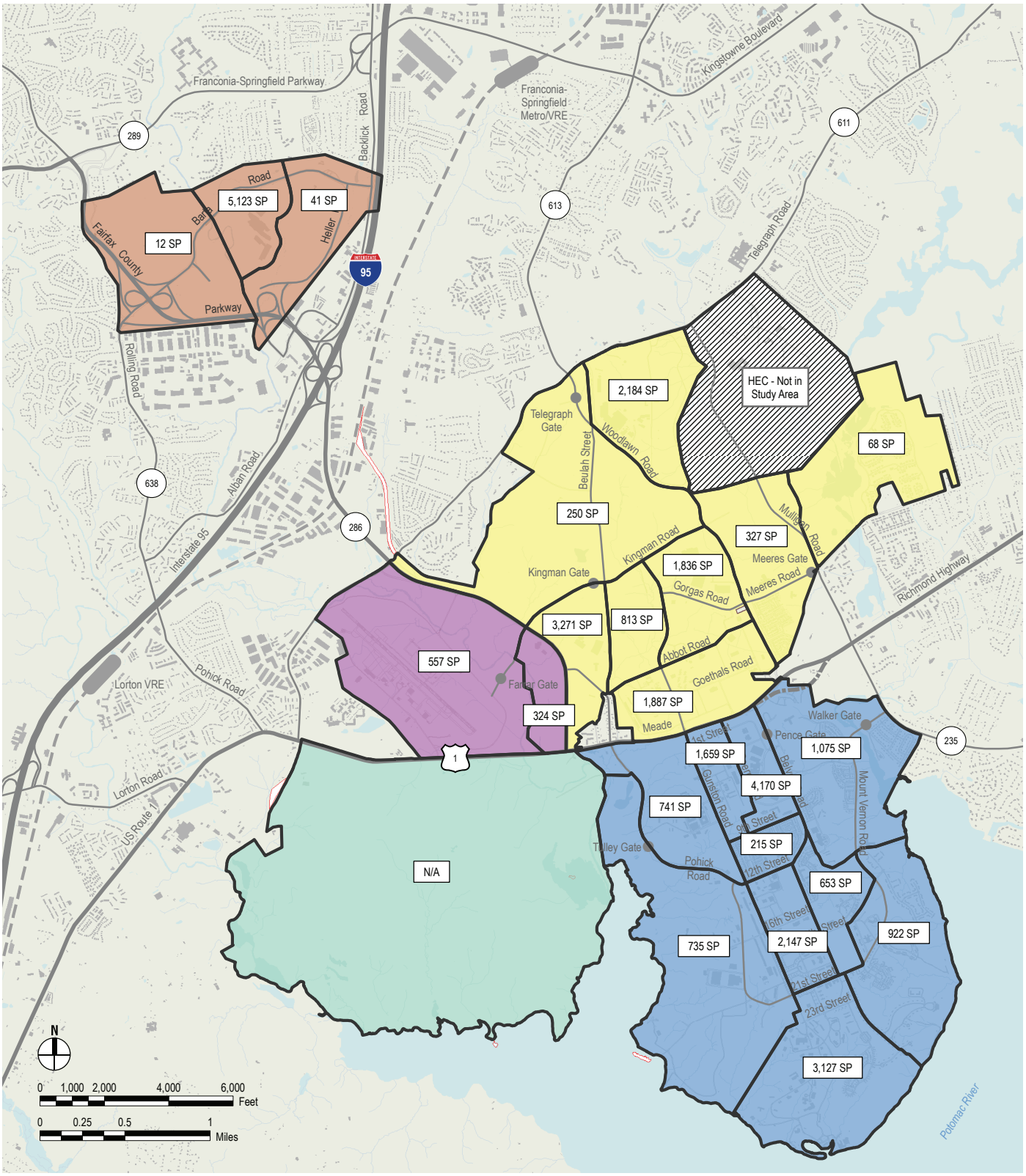
	PERSONNEL	PARKING									
AREA	Total Employment (per ASIP)	Unassigned	Handicap	VIP	Rideshare	Motorcycle	LEV	**Total Employee Parking (60%)**	Visitor	Government	TOTAL PARKING at Fort Belvoir
North Post	12,625	13,902	270	124	103	56	5	**10,631**	183	615	11,434
South Post	16,249	10,081	559	497	308	36	142	**15,444**	450	116	16,010
DAAF	1,397	844	10	23	0	4	0	**881**	2	27	910
FBNA	8,628	4,988	169	0	0	18	0	**5,176**	566	3	5,744
Totals	*38,899*	*29,815*	*1,008*	*644*	*411*	*114*	*147*	**32,132**	*1,201*	*761*	*34,098*

Visitor and Government spaces do not count toward the 60 percent POV determination.

Motor pool, service/loading, and housing parking areas are not included in this table.

Unassigned Spaces are legal, striped spaces that are not designated for any certain use; any vehicle can park in these spaces. VIP Spaces are those that are reserved for specific facility personnel such as high-level officials. Rideshare Spaces are reserved for carpool or vanpool vehicles only. Low Emissions Spaces (LEV) are designated for "green" vehicles such as electric vehicles. Handicap, Visitor, and Motorcycle Spaces are clearly reserved for those uses. Government Spaces are for storing government-owned vehicles only. Note that this table includes all physically inventoried spaces, as well as approximately 550 spaces in paved, unmarked lots that were estimated and included in the Unassigned Spaces.

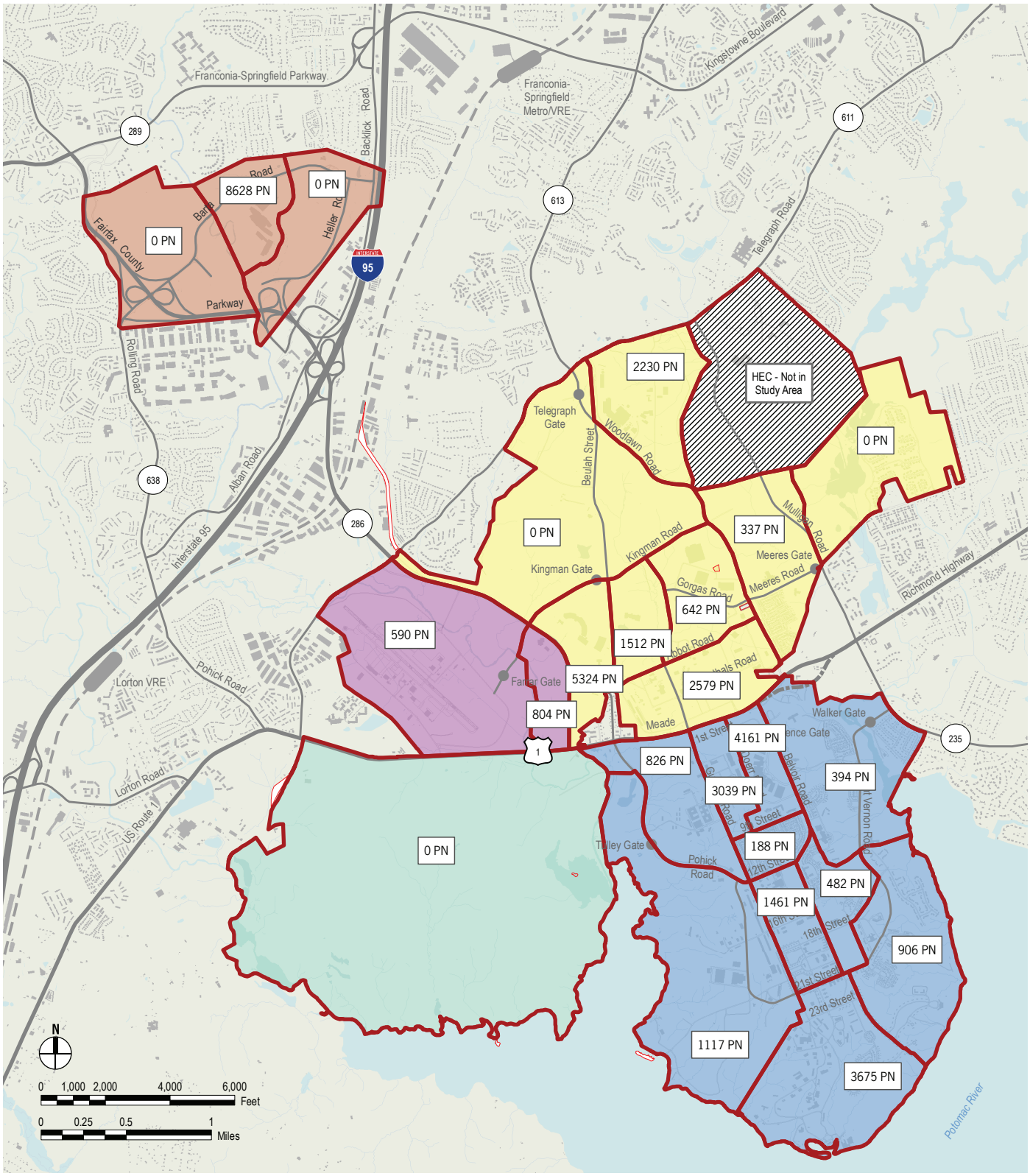
Figure 4.4 Parking Inventory included in 60% POV Determination



Transportation Area Sub Zones
Davison Army Airfield (DAAF)
Fort Belvoir North Area (FBNA)
North Post
South Post
Southwest Area

Parking Spaces (SP) by Functional Area
DAAF: 881 SP
FBNA: 5,176 SP
SP: 15,444 SP
NP: 10,636 SP
Total SP: 32,137 SP

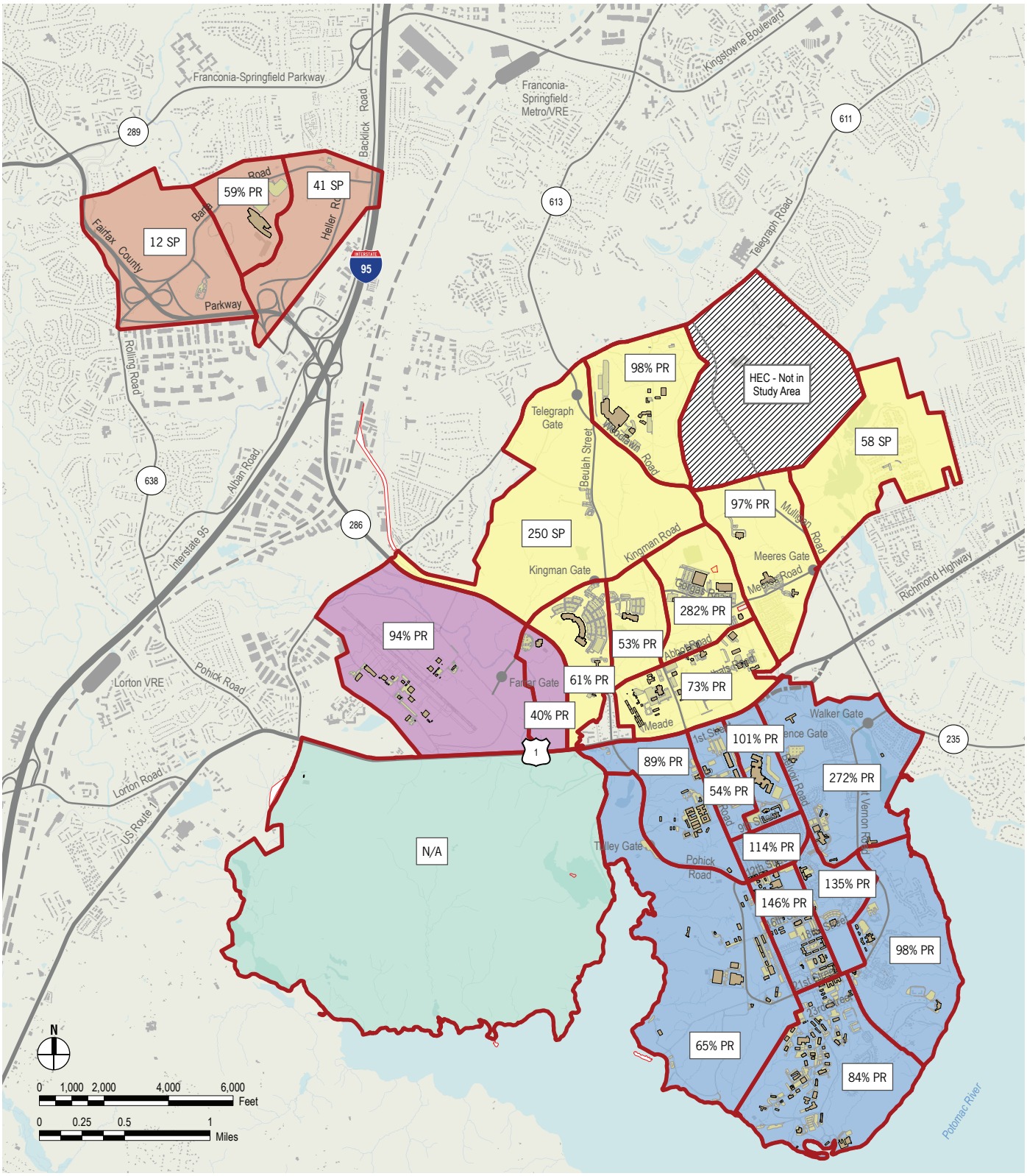
Figure 4.5 Inventory of Assigned Personnel



TAZ Boundary
Davison Army Airfield
Fort Belvoir North Area
South Post
Southwest Area
North Post

PN by Fuctional Area
DAAF: 1,397 PN
FBNA: 8,628 PN
SP: 16,249 PN
NP: 12,625 PN
Total PN: 38,889 PN

Figure 4.6 Existing Parking Ratios (includes all transient and community spaces)



- TAZ Boundary
- Buildings with Known Populations
- Surveyed Parking Areas
- Davison Army Airfield
- Fort Belvoir North Area
- South Post
- Southwest Area
- North Post

Overall Parking Ratios (PR)
Total PN: 38,870 PN
Total SP: 32,137 SP
Overall Parking Ratio:82%

4.4 Desired End State

To understand the full impact of the current parking demand when accounting for known transient and community spaces (as defined earlier in this section), a second parking ratio analysis was prepared. Table 4.2 shows the desired end state for 2017 and 2030 target years. The analysis shows several areas on the Installation that were developed and completed in September 2011 under the BRAC action (i.e., FBNA, the lower North Post, and the 1400 East Area) that already comply with the 60 percent parking ratio.

Balancing the total parking quantities with workforce populations to meet the 60 percent POV parking goal, a key element of the TMP, can be achieved under the following scenarios:

- Designating all transient and community spaces to meet the 60 percent SOV goal. Figure 4.7 shows an adjustment to the parking ratio from 82 percent to 67 percent that can be achieved by properly designated and demarcating these spaces for their intended use. This reduction includes the patient parking spaces that were established with the Fort Belvoir Community Hospital.
- Implementation of an Installation-wide "Parking Management Plan" described in Section 7.2.
- Future new construction that will largely occur in areas with surplus parking (i.e., on surface parking lots). This is described in the Installation Vision and Development Plan (VDP) and in the District Regulating Plans that are found in the Installation Planning Standards (IPS).
- Implementing full compliance with the 60 percent employee parking ratio with new construction. The following table is presented to track the projected end state results after 2017 and 2030 development occurs in phases. For ease of comparison, the results are tabulated to each neighborhood TAZ zone beginning with a 2013 baseline that reflects existing conditions.

4.5 Challenges and Opportunities

Challenges:

- 140+ mission partners, each with its own mission, needs, and facilities, makes coordination and monitoring difficult from an Installation-level.
- Lack of designation of community, visitor, and priority spaces throughout the Installation.
- Lack of ability to enforce all parking, such as visitor spaces, with ticketing and/or towing.
- Certain elements are outside the Installation's direct control, such as agency-level parking needs.
- The entrenched belief that "parking is a right."
- The existing parking ratio (82 percent) on the Installation is above both the Army and NCPC requirements.

Opportunities:

- As a result of this inventory, for the first time all parking spaces and striping on Fort Belvoir are field-verified and tied to building populations in GIS, which allows a baseline and planning tool for future decision making. For example, the parking assessment database provides the ability to assign new tenants and/or site new projects in areas that can reduce surplus areas and balance the parking ratio to meet the 60 percent POV goal.
- Most new facilities do have designated visitor and priority parking, which can be used as a model for the rest of the Installation.

Parking Ratio Considerations

Adjustments to the 60 percent parking ratio can be considered in the future depending on public transit improvements (e.g., light rail or BRT on Route 1) and agency mission requirements that would not be hindered by reduced parking.

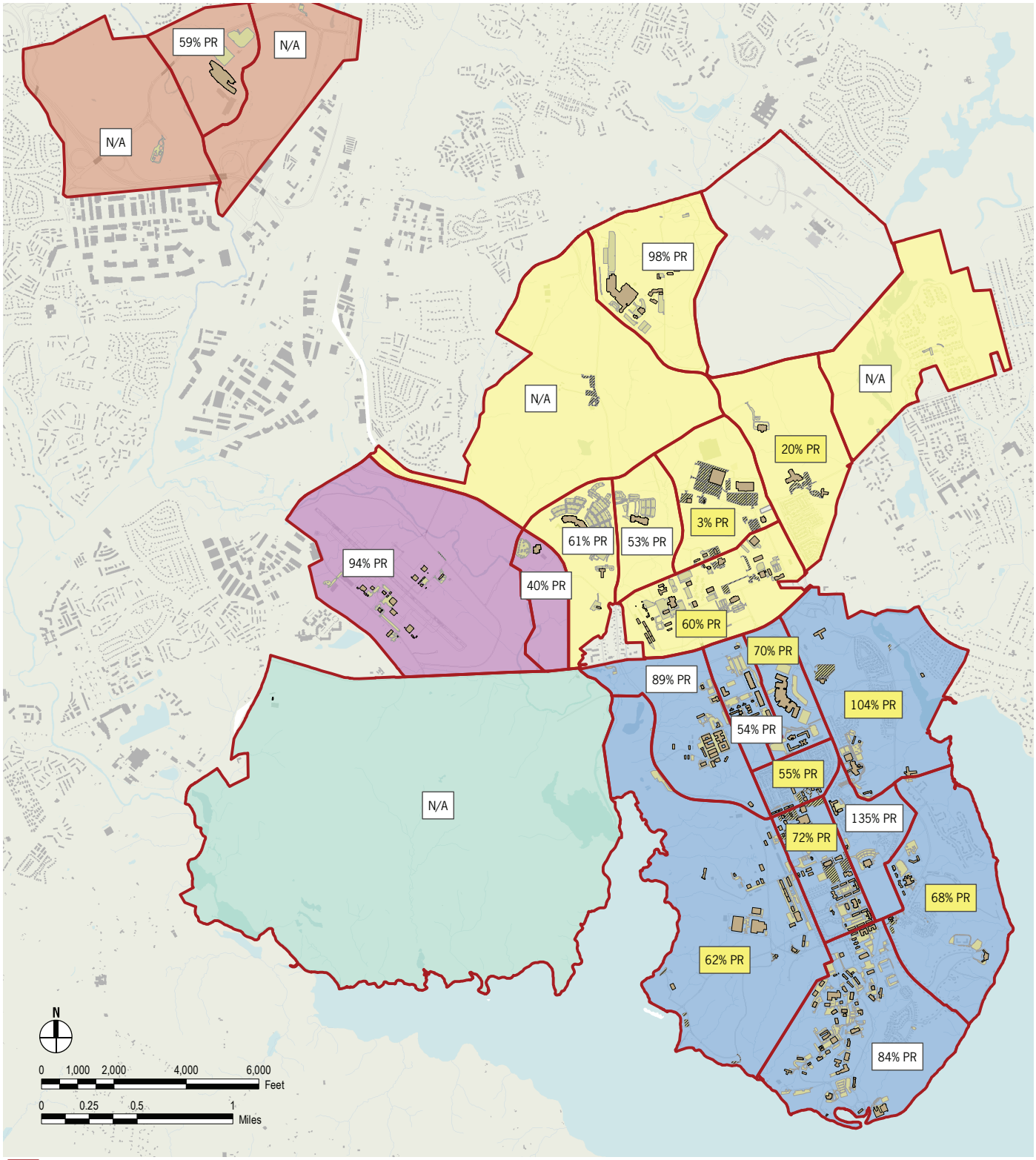
Table 4.2 Parking End State

	2013			2017			2030		
AREA	Parking Spaces	# of Employees	Ratio	Parking Spaces	# of Employees	Ratio	Parking Spaces	# of Employees	Ratio
North Post	**10,636**	**12,792**	**83%**	**12,881**	**15,994**	**81%**	**13,661**	**17,294**	**79%**
South Post	**15,212**	**16,433**	**93%**	**15,868**	**17,527**	**91%**	**17,806**	**20,757**	**86%**
DAAF	**881**	**1,413**	**62%**	**784**	**1,783**	**44%**	**784**	**1,783**	**44%**
FBNA	**5,176**	**8,743**	**59%**	**5,230**	**8,833**	**59%**	**8,830**	**16,333**	**54% (1)**
Totals	**31,905**	**39,381**	**81%**	**34,763**	**44,137**	**79%**	**41,081**	**56,167**	**73% (2)**

(1) New construction at FBNA is required to meet 50% POV parking due to access to HOV/Express lanes, per NCPC guidelines for federal agencies

(2) The end state parking totals do not reflect the loss of existing surface parking lots as a result of new building construction; the totals presented in the table would therefore be further reduced from what is shown. The actual target amounts will be determined based on final design of the near-term/long-term projects.

Figure 4.7 Adjusted Parking Ratios (with designated transient and community spaces excluded)



TAZ Boundary
Buildings with Known Populations
Surveyed Parking Areas
Community Parking Areas

**If properly designated as community parking, may be removed from overall parking count.

Davison Army Airfield
Fort Belvoir North Area
South Post
Southwest Area
North Post

Parking Ratios (by TAZ Boundary)

(Yellow ratios are adjusted to exclude community parking and hospital visitor parking)

25,973 Parking Spaces
38,870 PN
67% Parking Ratio

Traffic Assessment 5

5.1 Overview

The goals of this transportation analysis are to assess the transportation system impacts of future growth at Fort Belvoir in the short term (2013-2017) and in the long term (2017-2030). The transportation analysis helps inform and guide the Master Plan by:

- Identifying locations where short-term and long-term transportation improvements are required to maintain acceptable levels of service; and
- Measuring the effects of reducing single occupancy vehicle (SOV) trips during peak hours as a result of travel demand management (TDM) actions.

The transportation analysis involves development of travel demand forecasts and review of traffic impacts to meet the requirements of the National Capital Planning Commission (NCPC) for parking management and Transportation Management Plans (TMP), as outlined in the Comprehensive Plan Master Plan Submission Requirements. The modeling tools and transportation analysis developed for the TMP effort will be utilized to qualitatively assess short-term and long-term growth levels as described in the Vision and Development Plan (VDP). For purposes of this TMP, the growth levels projected in the VDP (or Master Plan) are equivalent to "Build Alternate 1" that is presented herein and in the Environmental Impact Statement for Short-Term Projects and Real Property Master Plan Update (EIS).

The National Capital Transportation Planning Board (TPB) regional travel demand forecasting model Version 2.3.39 was used as the basis in this study, with refinements on the transportation analysis zone (TAZ) structure, land use forecasts, and transportation network:

- The original TAZs in the study area were refined to increase the spatial resolution and representation of the land use activities and network detail in the study area.
- The land use forecasts used in this study reflect the latest planning assumptions for Fort Belvoir, Round 8.2 draft for the rest of Fairfax County, and Metropolitan Washington Council of Governments (MWCOG) Round 8.1 Cooperative Forecasts for the rest of the modeling domain.
- The transportation network in the study area and vicinity areas were reviewed in a series of meetings with representatives of VDOT and FCDOT Staff and enhanced to better represent the existing conditions and planned improvements.

Traffic Model and Alternatives Analysis

The model estimated volumes were closely compared with traffic count data in the study area for 2013. The model estimates for future years were post-processed for refinement, using a set of procedures in conformance with the National Cooperative Highway Research Program (NCHRP) Report 255.

The model estimates developed for the No-Build, 2017 (short-term projects), and 2030 (long-term projects) support full implementation of the Master Plan. Full implementation of the proposed 2017 projects would increase the installation employment from roughly 39,000 in 2012 by approximately 5,000 to 44,000 by 2017, while the proposed long-term projects would add approximately 12,000, bringing the total 2030 workforce to 56,000.

To understand Fort Belvoir's impact on traffic in the study area, the Master Plan EIS compares the impact of the No-Build to future growth on the Installation. This No-Build scenario reflects the roadway network improvements under construction and those in advanced stages of plan development, and the continued construction of new buildings outside of Fort Belvoir. Within Fort Belvoir, the existing 140 DoD mission partners, representing the bulk of Fort Belvoir's workforce and defined largely of professional/administrative uses, the housing areas, and community uses that serve the Soldiers, Families and the workforce will all remain in place. The No-Build analysis was prepared as part of the EIS analysis; however, for purposes of understanding the relative influence of the short-term traffic volume growth (2013-2017), screen line/cutline locations measured in the Fort Belvoir area under the No-Build conditions show that:

- Traffic volumes are expected to grow by about 10 percent for traffic entering and existing the study area
- Traffic patterns are expected to change because of the opening of Mulligan Road, the construction of High Occupancy Toll lanes on I-95 and new access points to these lanes, the widening of Route 1 to 6 lanes, and the opening of Lieber Gate providing improved access to the North Post of Fort Belvoir.

The long-term traffic volume growth (2018-2030) in the Fort Belvoir area under the No-Build conditions are expected to be moderate. The traffic increase as a result of Build Alternative 1 in 2030 are expected to be considerable at Fort Belvoir access points including all gates, while the traffic effects of Build Alternative 1 in the general area are expected to be minimal.

Short-Term Traffic Analysis

In general, traffic volumes are analyzed to determine how well roadways and intersections function. To accomplish this, the existing volumes are used as inputs to a Synchro 8 Traffic Signal Timing Analysis Software (Synchro 8) program. This program simulates the existing conditions and analyzes traffic operations at the intersections by calculating a series of parameters that describe the operational characteristics of an intersection, which include:

- The average delay per vehicle for each turning and non-turning movement, for each overall approach and for the overall intersection.
- The Level of Service (LOS), also for each movement, for the overall approach and for the overall intersection. Synchro 8 calculates LOS based on the 2010 Highway Capacity Manual (HCM).

There are six LOS classifications, "A" (representing the best conditions) through "F" (representing the worst conditions). The range of average delay per vehicle that is associated with each LOS is shown in Table 5.1 for both signalized and unsignalized intersections. Unsignalized locations include stop-sign controlled intersections and traffic circles.

The short-term traffic analysis provides an assessment of the operational characteristics of the traffic network within FBNA and Main Post at Fort Belvoir. Updated traffic counts and traffic modeling described in this section focuses on the Main Post by evaluating the key intersections on major roads outside the Main Post and the internal roadway network. This analysis assesses the impact of existing and estimated traffic volumes and operational characteristics associated with the short term (2017). As part of this analysis, many previously generated transportation studies have been reviewed, and the most recent and relevant studies have been summarized.

The 2017 regional model outputs and short-term traffic analysis forecasts severe traffic congestion at four locations on the public roads in the study area: Franconia-Springfield Parkway at the I-95 High Occupancy Toll Ramps; Franconia- Springfield Parkway at Beulah Street; Telegraph Road at Hayfield Road; and Route 1 at Mulligan Road. In all cases, this severe congestion is present under both the No-Build condition and Alternative 1.

In general, the short-term traffic analysis indicated that there are only a handful of intersections on public roads where the delays associated with the extra trips generated by Alternative 1 are noticeably different than the delays associated with the No-Build conditions. There are five sites where Alternative 1 results in a lower level of Service (LOS) than the No-Build condition, but only three of these locations are truly significant: Fairfax County Parkway at Kingman Road, Route 1 at Lorton Road, and the section of Fairfax County Parkway between I-95 and Telegraph Road. (See Table 5.11 Belvoir Affected Intersections.)

A full description of the Regional and Internal Roadway Networks is contained in **Section 2 Existing and Emerging Conditions**. A complete description of the short-term traffic impacts are contained in **Section 5.7 Short-Term Traffic Analysis Results**.

Table 5.1 LOS and Average Delay for Intersections

LOS	Signalized Intersections	Unsignalized Intersections
A	≤10 sec	≤10 sec
B	10-20 sec	10-15 sec
C	20-35 sec	15-25 sec
D	35-55 sec	25-35 sec
E	55-80 sec	35-50 sec
F	≥80 sec	≥50 sec

Long-Term Traffic Analysis

The long-term traffic conditions in the study area were evaluated in terms of estimated Volume-to-Capacity (V/C) ratios for the AM and PM peak hours in 2030, under the No-Build and Build Alternatives. Because of the uncertainty associated with these forecasts of 2030 conditions, three categories of V/C ratios are used: Under Capacity, (LOS range A-D), Near Capacity (LOS E), and Over Capacity (LOS F). The important findings of these analyses are as follows:

- Several roadway segments in the study area are likely to be over capacity in 2030 under the No-Build condition, including U.S. Route 1, Telegraph Road (between U.S. Route 1 and Fairfax County Parkway, west of Hayfield Road), Fairfax County Parkway (between I-95 and Telegraph Road), and Beulah Street (close to Franconia-Springfield Parkway) during the AM and PM peak periods.
- The performance on most of these roadway segments will remain in the same LOS categories under the Build Alternative as under the No-Build condition, but some are likely to get worse.
- There are some potential roadway congestion issues for a few roadway segments at FBNA and the Main Post under the No-Build Condition.
- Build Alternative 1 will likely lead to a worsening congestion level for some roadway segments within the study area.

Previous studies have identified the future congestion issues and the need for improvements for major access roadways in the study area, including Route 1, Fairfax County Parkway, and Telegraph Road. This analysis confirms the previous findings.

Long-term traffic impacts are discussed in more detail in **Section 5.8 Long-Term Demand Results**.

TMP Effectiveness Analysis

To analyze the effectiveness to mitigate traffic for 2017 growth, the study evaluated the estimated reduction in traffic volumes on the Main Post based on the 2017 TMP targeted mode splits, which would result in a 10 percent reduction of SOV use. The estimated reduction of vehicle trips was applied to the Fairfax County Parkway and Kingman Road intersection to determine possible changes to the LOS at that location.

To analyze the effectiveness of Fort Belvoir TMP strategies to mitigate 2030 congestion, the refined 2030 model for Build Alternative 1 (Full Implementation) was run with an assumption of 60 percent SOV modal split for commuter trips. In addition, two intermediate SOV modal splits were tested, including 65 percent and 70 percent. Major findings are summarized as follows:

- With a target of 70 percent SOV, the effects on the estimated volume-to-capacity (V/C) ratios are expected to be predominantly in a narrow range for the study and general areas, with only a few roadway segments in the study area getting noticeably better;
- With a target of 65 percent SOV, the effects on the estimated V/C ratios are expected to be more noticeable for the study and general areas, with an increasing number of roadway segments in the study area getting noticeably better;
- With a target of 60 percent SOV, a considerable number of roadway segments in the study area have estimated V/C ratios that will become noticeably better.

5.2 Relevant Studies

The existing transportation system in the Fort Belvoir area has been evaluated in many previous studies. These studies have investigated the existing and proposed transit network, roadway improvements, and the effect of new developments on the transit and roadway networks.

The following studies have been summarized, including the relevance of each to the TMP, in the remainder of this section:

- 2012 Route 1 Countywide Transit Network Study (Fairfax County)
- 2012 Route 1 Widening Study and Environmental Assessment (EA) (Federal Highway Administration (FHWA)) and Appendix: Final Transportation Technical Report
- 2011 Environmental Assessment I-95 HOT Lanes Project (Virginia Department of Transportation (VDOT))
- 2010 Fort Belvoir Comprehensive Traffic Engineering Study (Gannett Fleming)
- 2010 Environmental Assessment for the Expansion of U.S. Army Intelligence and Security Command Headquarters Facilities (AECOM)
- 2010 Commissary/Post Exchange Traffic Impact Study (Civiltech)
- 2010 Fairfax County Parkway Traffic Technical Report (Fairfax County)
- 2009 Museum Interchange Analysis - Subsequent Study at Fairfax County Parkway and Kingman Road (Gorove/Slade)
- 2008 Museum Corridor Study (Gorove/Slade)
- 2008 National Geospatial-Intelligence Agency Traffic Analysis (Belvoir New Vision Planners)
- 2008 Proposed Highway Improvements, I-95 Defense Access Roads Ramps to the Engineering Proving Ground (North Area), Fort Belvoir, Virginia, Environmental Assessment (U.S. Department of Transportation (USDOT))
- 2007 Final Environmental Impact Statement (FEIS) for Implementation of 2005 Base Realignment and Closure (BRAC), Fort Belvoir (Tetra Tech)
- 2006 Richmond Highway-Telegraph Road Connector (Mulligan Road) Fairfax County Environmental Assessment (USDOT)

These studies analyzed various areas in the Fort Belvoir area at different times and proposed improvements associated with the subject facility. The proposed improvements are either currently under construction or in the planning stage, and various recommendations are scheduled to be implemented in the near future.

2012 Route 1 Countywide Transit Network Study (Fairfax County)

This Fairfax County study is currently underway. It is anticipated that a summary of the study will be provided in future submittals of this TMP.

- *Relevance to the TMP:* The study will make recommendations for Enhanced Public Transit Corridors (EPTC). Route 1 is one of many EPTCs being considered as part of the study, one in the center median that is reserved for transit in the future Route 1 widening plans, another is Fort Belvoir's abandoned rail line. Recommendations from the County Transit Network Study are being integrated into the Installation Vision and Development Plan (VDP) (formerly Long Range Component (LRC)) of the RPMP.

2012 Route 1 Widening Study and Environmental Assessment (FHWA)

An EA was conducted to assess the impact of widening a 3.4 mile section of U.S. Route 1 between Telegraph Road (Route 611) and Mount Vernon Memorial Highway (Route 235) in Fairfax County, Virginia. The Final Transportation Technical Report, an Appendix to the EA, documented the transportation analysis by assessing the existing conditions and poor level of service due to high volumes and existing road geometry. The report noted particular locations where turn lanes are inadequate to accommodate turning movements, particularly for left turns. Other issues noted were the spacing and inconsistency of access points along the corridor and sight distance limitations. The EA Traffic Analysis looked at further conditions for a No-Build and Build Alternatives and associated daily and peak hour traffic forecasts for the years 2020 and 2040.

Within Fort Belvoir, the analysis used the higher employment values reflected in the Fort Belvoir Master Plan rather than those included in MWCOG Round 8.0 forecasts. Table 3 in the technical report reflects model employment numbers with projected growth at approximately 45,000 PN for 2020 and a projected growth at approximately 57,000 for 2040. The study also notes that Mulligan Road would divert trips from Fairfax County Parkway once Mulligan Road is opened.

- *Relevance to the TMP:* The technical report identifies operational results and level of service findings for the intersections along the study area based on projected growth rates similar to the RPMP. The study identifies LOS D and E deficiencies at specific corridor locations. These are the same intersections evaluated in this TMP. Interchange options called flyover concepts were developed to improve operations at Telegraph Road and Fairfax County Parkway.

2011 Environmental Assessment I-95 HOT Lanes Project (VDOT)

Assuming background growth levels based on 2030 TransAction Plan and Fredericksburg Area Metropolitan Planning Organization (FAMPO), this study states that within the next 25 years, Northern Virginia is expected to add 918,500 new residents (a 56 percent increase) and over 650,000 jobs. (For comparison, Fort Belvoir 2030 growth projections would represent less than 1 percent of the region's total workforce.) The EA foresees I-95 operating at Level of Service E or F during peak hours within the study area.

The project calls for the construction of two new High Occupancy/Toll (HOT) lanes in the median between Prince William Parkway to the vicinity of Edsall Road, and expands the two existing High Occupancy Vehicle (HOV) lanes in the median into three lanes in the section of I-95 and I-395 north of Prince William Parkway. This new project will create approximately 29 miles of Express lanes on I-95. No change to LOS in the general purpose lanes is anticipated from the reduced volume.

VDOT affirmed a commitment to identify opportunities to expand transit and TDM in the corridor including bus bays to serve destinations to the Pentagon and Mark Center.

- *Relevance to the TMP:* The HOT lanes, once completed, should have a positive effect to improve participation levels of ridesharing to Fort Belvoir, particularly from south of the Installation where the majority of employees live. This improvement has been incorporated into the transportation development plan of the VDP.

Additional information on the construction status of I-95 HOV/HOT lanes can be found on the project website at http://www.vamegaprojects.com/about-megaprojects/i-95-hov-hot-lanes.

2010 Fort Belvoir Comprehensive Traffic Engineering Study (Gannett Fleming)

This study was developed to assess existing traffic operations within Fort Belvoir. The study assumed background growth that included the BRAC population plus an additional 6,000 personnel at the Installation. The study was tasked with evaluating short term and long term traffic needs and made recommendations for roadway improvements.

To assess the traffic operations, a field study was conducted and traffic counts were collected in December of 2009 and analyzed to obtain LOS. The study proposed improvements for 18 intersections and the upgrade of the entire corridor of Gunston Road between the intersection with Goethals Road and 16th Street. The proposed improvements included: replacing fixed sign posts with breakaway posts, replacing old signs with signs compliant with the new standards, refreshing and adding pavement markings, installing

pedestrian indicators, trimming trees, and repairing potholes. The study also assumed the reconstruction and reopening of Lieber Gate.

All BRAC road improvements assumed to be in place by 2011 have largely been completed.

- *Relevance to the TMP:* Implementation of all remaining intersection improvements will improve baseline traffic conditions on the Installation.

2010 Environmental Assessment for the Expansion of U.S. Army Intelligence and Security Command Headquarters Facilities (AECOM)

This report evaluates the effects on traffic of the proposed renovation/expansion of the INSCOM headquarters. In 2009, 1,650 INSCOM employees worked at the Nolan Building at Fort Belvoir. The models assumed the building expansion would be completed in 2018 and there would be 2,500 total INSCOM employees working at the building. The analysis included three intersections along John J. Kingman Road: Gunston Road, Beulah Street, and the Fairfax County Parkway. The traffic software package Synchro (version 7, Build 773) was used to analyze the existing, future no action, and future proposed action scenarios.

The projected traffic analysis shows that the Gunston Road and Beulah Street intersections will remain at an acceptable LOS. The AM Kingman/Fairfax County Parkway intersection traffic would go from LOS D to E under the 2018 no action alternative and would drop to LOS F under the 2018 proposed action alternative. Traffic operations during the PM peak hour at this intersection have been shown to be at unacceptable levels (LOS F) for all three scenarios analyzed (existing, future no action, and future proposed action). Much of this deterioration is due to background traffic growth, which will result from other Fort Belvoir facilities and residential areas, as well as growth in population and employment in the region.

- *Relevance to the TMP:* The Fairfax County Transportation Plan identifies this intersection as well as other intersections along Route 1 and Fairfax County Parkway, to be upgraded to a grade-separated interchange. The County recommendation is included in the Transportation Framework Plan found in the VDP. Traffic analyses performed as part of the EA for the proposed National Museum of the U.S. Army (NMUSA) show a conceptual design for a new interchange at the Fairfax County Parkway/John J. Kingman Road intersection that would improve operations to acceptable LOS levels in 2030. The timing for when the interchange is needed is a function of the actual completion dates for planned projects and background traffic growth. This improvement will be addressed in the future traffic assessment section of this TMP.

2010 Commissary/Post Exchange Traffic Impact Study (Civiltech)

Part of the Upper North Post development is a new Community Support Center comprised of the 132,000 square foot Commissary and the 270,000 square foot Post Exchange, with expected completion in 2015. The impact of new traffic generated by these facilities on the existing roadway network has been analyzed and recommendations for improvement have been proposed. The existing roadway cross-sections are appropriate for the anticipated traffic volumes with two exceptions, both recommended to be widened:

  - Gorgas Road between Gunston Road and Main Commissary driveway.
  - Kingman Road between Gunston Road and the Main Post Exchange driveway.

- *Relevance to the TMP:* Proposed roadway improvements noted above will need to be timed to occupancy of the Commissary and PX to mitigate additional traffic generated by the new facilities.

2010 Fairfax County Parkway Traffic Technical Report (Fairfax County)

This study focused on the traffic analyses for improvements at interchanges along Fairfax County Parkway (Virginia Route 286, formerly Virginia Route 7100) in the vicinity of the Fort Belvoir North Area. The results of these analyses were used in the development of the final design, and design improvements for these interchanges.

- *Relevance to the TMP:* This study may influence future traffic interchange improvements and design recommendations within the FBNA site.

2009 Museum Interchange Analysis - Subsequent Study at Fairfax County Parkway and Kingman Road (Gorove/Slade)

This study followed the 2008 Museum Corridor Study and was conducted to provide a high level conceptual design for a proposed interchange on the Fairfax County Parkway serving the future NMUSA access road and Kingman Road.

- *Relevance to the TMP:* Implementation of the interchange improvements will be needed to achieve the long-term projected growth levels.

2008 Museum Corridor Study (Gorove/Slade)

The new National Museum of the United States Army has been planned in two phases during which buildings and associated landscape will be constructed. A study of the existing traffic volumes was developed to determine the impact generated by this facility on the existing roadway network. The data analyzed was gathered from previous studies and assumed the BRAC population with a 1 percent growth rate compounded annually for 5 years. The result was recommended improvements for the intersection at Fairfax County Parkway and Kingman Road including the

addition of a traffic signal and modifications to the turning lanes.

For the long term, the study recommended an elevated interchange be constructed to facilitate access and egress. In addition, future Light Rail Transit or Bus Rapid Transit was proposed for U.S. Route 1 and Fairfax County Parkway to help support the increased traffic generated by the facility.

- *Relevance to the TMP:* Identification of recommended improvements.

2008 National Geospatial-Intelligence Agency (NGA) Traffic Analysis (Belvoir New Vision Planners)

This study analyzed the access and traffic circulation during and after construction of FBNA via the Fairfax County Parkway and Backlick Road. The traffic analysis conducted as part of this study concluded that traffic generated by the NGA development will introduce higher traffic volumes that will result in congestion on both Fairfax County Parkway and I-95. In order to alleviate congestion, the improvements proposed included ridesharing, shuttle bus, work shifts and priority parking for HOVs.

- *Relevance to the TMP:* The study remains relevant with regard to NGA trip generation, trip distribution and assessment of the impacts of the Defense Access Roads (DAR) access ramps, and ingress/egress into the FBNA.

2008 Proposed Highway Improvements, I-95 Defense Access Roads Ramps to the Engineer Proving Ground (North Area), Fort Belvoir, Virginia, Environmental Assessment (USDOT)

This study resulted in the construction of two access ramps from I-95 to the FBNA to improve access to and egress from the site to accommodate vehicle travel resulting from the BRAC-mandated relocation of some 8,500 employees to the eastern part of the site.

- *Relevance to the TMP:* The study projected that the ramps will improve the level of service on the southbound I-95 to westbound Parkway ramp in the AM peak-hour from "F" to "C." In the PM peak-hour, the level of service on the eastbound Parkway to northbound I-95 ramp would improve from level of service "F" to "E."

2007 Final Environmental Impact Statement (FEIS) for implementation of 2005 Base Realignment and Closure (BRAC) (USDOT)

The FEIS evaluated the effects of the alternatives for the year 2011 to determine how to allocate the functions and facilities at the Installation due to BRAC.

The FEIS identified significant transportation effects that would be limited to the Fort Belvoir North Area entrance points, Pence Gate, Tulley Gate, and the immediately adjacent transportation facilities including U.S. Route 1, I-95, Fairfax County Parkway, and Backlick Road.

The following mitigation measures were recommended to decrease the adverse impacts on traffic:

- Reconstruction (with direct connections to the HOV lanes) of the I-95/Fairfax County Parkway interchange
  - Status: A new interchange and ramps between FBNA and Fairfax County Parkway have been completed.
  - Status: Improvement of Fairfax County Parkway to four or more lanes from Franconia- Springfield Parkway to I-95 was completed in 2010.
  - Status: A direct connection from FBNA to the Southbound HOV lanes is scheduled for completion.
  - Status: A ramp between the HOT lanes and Alban Road at the I-95 interchange at Fairfax County Parkway is scheduled for completion.
- U.S. Route 1 Widening
  - Status: Funded and final design underway to widen 3.5 mile section along Main Post to six lanes; target completion date is mid-2016
- Rideshare facilities
  - Status: New Saratoga Park and Ride Lot at the FBNA/Barta Road interchange with Fairfax County Parkway completed and opened December 2012.
- Transit center/facilities
  - Status: Potential Sites along Route 1 reflected in the County Comprehensive Plan and Fort Belvoir Master Plan; Fairfax County-wide transit expansion recommendations and Richmond Corridor Public Transit Initiatives (included in the FY 2012-2017 Capital Improvement Plan)
- Expanded bus service
  - Status: Fairfax County launched Fairfax Connector 335 service from Franconia-Springfield Metro Station to Fort Belvoir. Other bus route updates are discussed in Section 2.
- Additional U.S. Route 1 crossing for Main Post
  - Status: The VDP proposes a second Route 1 crossing to connect Doerr Road and Goethals Road
- Fairfax County Parkway/John J. Kingman Road intersection improvements
  - Status: Completed museum interchange analysis in 2009
- Franconia-Springfield Parkway/Neumann Street interchange
  - Status: County Project
- Improvements to Beulah, Telegraph, Backlick, Loisdale, and Newington Roads
  - Status: County Project
  - *Relevance to TMP:* The FEIS reviewed available capacity and found that the existing transportation network is operating at or near capacity during peak periods in peak directional traffic. According to this analysis, regional growth is more of an influence on the traffic than the influx due to BRAC. The FEIS overestimated the total population to be on the Installation by

approximately 6,000 PN for a total of 45,266 PN compared to the post-BRAC population in 2011 of roughly 39,000 PN, This is largely as a result of the shift of Washington Headquarters Services to the Mark Center and other projected changes in employment levels. The FEIS population is about 10,000 people less than 56,000 PN identified in the VDP for FY 2030.

- Widening of Rolling Road Loop Ramp at the Fairfax County Parkway/Franconia-Springfield Parkway/Rolling Road Interchange
  - Status: Funded for construction by VDOT with completion anticipated in 2015.
  - *Relevance to the TMP*: The FEIS reviewed available capacity and found that the existing transportation network is operating at or near capacity during peak periods in peak directional traffic. According to this analysis, regional growth is more of an influence on the traffic than the influx due to BRAC. The FEIS overestimated the total population to be on the Installation by approximately 6,000 PN for a total of 45,266 PN compared to the post-BRAC population in 2011 of roughly 39,000 PN. This is largely as a result of the shift of Washington Headquarters Services to the Mark Center and other projected changes in employment levels. The FEIS population is about 10,000 people less than 56,000 PN identified in the VDP for FY 2030.

The FEIS traffic assessments for the FBNA remain the most relevant for this TMP, which evaluated the impacts of the 2030 build-out to 17,763 PN. Presently, only 8,500 PN are located at FBNA. In short, the FEIS traffic study evaluated the impact of adding an additional 9,263 PN compared to the 7,500 PN proposed under Development Option #2 and did not consider the following committed roadway improvements such as:

- Reconstruction (with direct connections to the HOV lanes) of the I-95/Fairfax County Parkway interchange
- Additional or improved ramps to and from I-95 for FBNA
- Six-lane widening of Route 1
- Four-lane Mulligan Road

2006 Richmond Highway-Telegraph Road Connector (Mulligan Road) Fairfax County, Virginia Environmental Assessment (USDOT)

This study evaluated environmental impacts related to a replacement connector road between U.S. Route 1 and Telegraph Road (VA Route 611) in the vicinity of Fort Belvoir since the once public-access Woodlawn Road is now closed to the public. The study area also encompassed the existing southbound I-95 flyover to Backlick Road. The study assumed that the widening of U.S. Route 1 and Telegraph Road would be completed by 2015. The impact of the preferred alternative on the traffic volumes of other roadways in the study area was forecast to be insubstantial.

- *Relevance to the TMP:* The EA confirmed that Mulligan Road will restore the link between Route 1 and Telegraph Road which provides the transportation system in the vicinity of Fort Belvoir more flexibility. Mulligan Road is currently under construction with completion expected by 2014.

Reconstruction of the I-95/Fairfax County Parkway Interchange (VDOT)

This interchange is currently under study by VDOT, but there is no identified funding for construction. It should be noted that this is a separate project from the I-95 southbound ramp to FBNA that was completed in 2011, or from the I-95 HOV Ramp to FBNA that is currently under construction and scheduled to be completed in December 2014. See **Section 2.9 Relevant Regional Plans and Improvements** for the current status of these projects.

5.3 Approach

Study Scope

The Traffic Studies and analyses performed for this project were done in conformance with VDOT's requirements for Traffic Impact Analysis (TIA). These requirements were established in response to Chapter 527 of the 2006 Acts of the Virginia Assembly, which directs the Virginia Department of Transportation (VDOT) to promulgate regulations for Traffic Impact Analysis. VDOT's TIA regulations address the topics and scope of the materials to be included in the Traffic Impact Analysis.

The major items included in a TIA prepared under the Chapter 527 Regulations are:

- An Introduction and Summary
- Background information on the Study Area
- An Analysis of the Existing Conditions
- The Analysis of the Existing Conditions
- Trip Generation from the Site
- Site Traffic Distribution and Assignment to the roadway network
- Analysis of Future Conditions with Development
- Recommended Improvements and
- Conclusion.

All of the information and analyses associated with these topics is contained here in the Fort Belvoir TMP as well as in the Fort Belvoir Environmental Impact Statement. However, much of the background information is contained in other chapters of this report. The remaining sections of this chapter correspond with the traffic-specific and transportation management plan aspects of the TIA requirements.

Study Area Limits

The general study area for this project was determined with the aid and input of an Agency Advisory Group (AAG) that was comprised of representatives from the Virginia Department of Transportation (VDOT) and the Fairfax County Department of Transportation (FCDOT). The traffic survey intersection locations identified for assessment in this study are based on the combined knowledge of development and traffic flow on and around the Post, as well as sites included in previous traffic studies. The study area that resulted from the discussions that took place with the AAG includes a total of 76 sites, as shown in Table 5.2 and Figure 5.1. It should be noted that in addition to intersections, some of these locations are merging areas or diverging areas or weaving areas on limited access roadways. The sites are numbered from 1-69; however, several have "a" and "b" suffixes.)

Traffic counts were performed in the field in the fall of 2011 for 2 of the 27 Fort Belvoir intersections, and the remaining 25 were counted in 2012 and completed in 2013 as the four-lane widening of Gunston Road became fully operational with the signalized traffic lights along this route. The widening of Gunston Road from two lanes to four lanes significantly increased the capacity of this roadway and resulted in a new distribution of traffic on roadways in the North Post, and roadways north of 12th Street on South Post. Recent data was not available for a few locations on the Main Post, and in these cases, data was drawn from the Gannett Fleming "Fort Belvoir Comprehensive Traffic Engineering Study" (2010). These included seven intersections, six of which were stop-controlled. These intersections are indicated in **Appendix F,** Table F.1.

The collection of most of the traffic data on public roads spanned a 16-month period between October 2011 and January 2013. The initial traffic turning movement count data were collected in October 2011 and January 2012 and were focused on seven intersections near the Fort Belvoir Main Post. A second series of counts was made in November 2012 and January 2013 and included turning movement counts at 22 intersections and 19 roadway tube counts on mainlines and ramps surrounding the National Geospatial-Intelligence Agency at Fort Belvoir North Area. An additional data set was collected in November 2013 at four intersections to address movements at three I-95 interchanges. The data for the remaining intersections, merge, diverge and weaving areas which were not counted (or did not exist at the time of the study) were estimated using data collected at nearby locations.

The new intersection data was collected using video-based Turning Movement Counts (TMC). During these traffic studies, data was collected for three hours in the AM and PM peak periods on two consecutive midweek days (Tuesday-Thursday). At each location, the starting time of the peak hour was determined separately for each day of data.

Volume data for merge, diverge and weaving areas was collected using road tube counters that were installed for a minimum of two days. Where individual movement volumes during the peak hours were consistent on both days, the peak hour volumes shown in these tables reflect the average of these two peak hour volumes. If the volumes for an individual movement were not consistent between the peak hours, the higher of the two volumes is shown for that movement in the tables.

Traffic Analysis Assumptions and Procedures

AGENCY ENGAGEMENT

Beginning in the fall of 2012, Fort Belvoir DPW, ENRD, the NEPA consultant, and the Atkins traffic team met with representatives of the Virginia Department of Transportation (VDOT) and Fairfax County Department of Transportation (FCDOT), herein referred to as the Agency Advisory Group (AAG). The purpose was to develop the traffic analysis scope and methodologies. This dialogue provided an open forum to discuss study objectives, refine the traffic modeling approach and methodologies with a common goal of understanding how Fort Belvoir's future growth affects the local transportation network. In all, there were four In-Progress Review meetings conducted on 1 May 2013, 12 August 2013, 24 October 2013, and 21 November 2013 to provide feedback and guidance on the development of the traffic model and the draft study findings to achieve the desired outputs.

As part of this process, the AAG requested and were provided two documents, or "white papers," to clarify the traffic analysis scope and to document the key assumptions and procedures that would be used for the TMP traffic analysis and the accompanying EIS NEPA analysis and incorporated into the Installation's Master Plan. These documents were the:

- *Traffic Analysis Approach,* November 29, 2012, hereinafter referred to as the "Approach"
- *Applying Fort Belvoir's Transportation Management Plan to the Traffic Analysis Models,* December 28, 2012.

The AAG reviewed the Installation-proposed traffic analysis scope and submitted comments and written responses to the comments on 31 January 2013. The refinement of the traffic analysis scope as a result of AAG input formed the basis of this traffic analysis.

The following is a summary of some of the highlights that came out of the discussion and in-progress review meetings.

USE OF COG MODEL

Upon review of the difference in zone and network detail present in the existing Fairfax County subarea model as compared with the Version 2.3 of the TPB model, the AAG agreed to use Version 2.3 of the TPB model, potentially with some limited zone splits and added detail to the study area (subject to data availability). These modifications were presented to the AAG and were made to support the analysis requirements of the study.

The regional model (Version 2.3) has been calibrated and validated for regional use, with reasonableness checking that was performed on assignment results in the study area. Two approaches were incorporated in handling the findings from these checks. These included corrections made in network coding to improve the model fit, and post-processing and/or interpretation of the analysis results where differences between observed and estimated trips were noted.

Evaluation Tools and Process:

The transportation system performance approach was based on the volume/capacity ratios per NCHRP Report 387. This approach was determined to be acceptable by the AAG.

DEVELOPMENT OF SITE-SPECIFIC 2017 VOLUME FORECASTS

Clarification of 2017 Short-Term Traffic Growth Factor Development:

As originally conceived, the traffic study assumed a 2 percent annual growth factor for traffic that was not associated with Fort Belvoir. This assumption was reviewed with the AAG to determine its reasonableness.

It was agreed that while application of a 2 percent growth rate is reasonable for most arterials, the dynamic changes taking place in the study area made the uniform use of this growth rate unreasonable. These changes include: new buildings generating new trips in several areas inside and outside of Fort Belvoir; significant roadway network improvements such as the opening of Mulligan Road, the widening of Route 1, and new access ramps to I-95; and the opening of Lieber Gate, a new access point to the Main Post north of Route 1. The AAG agreed that the 2017 volumes would be derived from growth factors reflecting the differences between the model outputs reflecting the 2013 network, and the outputs for the 2017 networks and growth scenarios. These differences would be used to derive a series of "growth factors" for the individual links, and where feasible, the individual turning movements.

Development of 2017 Traffic Volumes:

As indicated in the preceding section, the 2017 traffic volumes for the movements at each intersection were derived by applying the growth factors at each intersection. An extensive series of traffic counts were made in 2012 and 2013 to collect existing volumes for the individual sites. While the vast majority of these sites were intersections, several were merge areas, diverge areas and weaving areas on limited access highways.

An initial estimate of the 2017 volume at the intersections was made by applying the growth factor to the existing volumes. A reasonableness check was then conducted by comparing the 2017 volume obtained through the application of the growth factor, with the 2017 volume estimated by adding the absolute change in the forecast (2017 outputs - 2013 outputs) to the existing volume. Where the two forecast volumes differed significantly, the average of the two forecasts was used. In cases where one of the forecast volumes did not appear to be reasonable, the forecast volume closest to the existing volume was used.

Similar procedures were used at merge, diverge, and weaving areas, and the intersections within the Main Post of Fort Belvoir.

Calculation of Delays and Level of Service:

2017 traffic volumes for each scenario obtained through the procedure described in the preceding paragraph were input into the Synchro[1] signal timing program to calculate the delays, level of service, and other parameters of interest at each intersection. Signal timing for the analysis were based on VDOT's Synchro files and is consistent with VDOT timing plan development.

REGIONAL MODEL REFINEMENTS

Assumptions on Route 1 Widening:

Although Route 1 widening is in the CLRP as a 2030 improvement, the schedule for completion of Route 1 construction is summer 2016. Calendar year 2017 seemed a reasonable expectation, and it was agreed to include it as a built project in the 2017 model.

Evaluating LOS for I-95 and Several Agreed Upon Interchanges:

Fort Belvoir agreed to expand the traffic study area limits to include additional interchanges, as requested by the stakeholders, while recognizing there are many factors that influence the LOS on I-95 and the outer areas of the study limits. The 48 public road sites (intersections and merge, diverge and weaving areas on limited access roadways) formed the basis of the traffic study analysis sites in the 2017 analysis.

Clarification on Current SOV Use, No Growth and Applying the TMP Effectiveness:

For 2017, the TMP target of 10 percent SOV reduction assumes a reasonably achievable 75 percent SOV mode split. This is based on the more conservative 85 percent SOV estimate as the starting point and not the 81 percent SOV results obtained from the recent survey. For the short term, the goal of 75 percent maximum SOV use, measuring the non-SOV vehicle impacts on the road was used. This trip making reduction was investigated as a stand-alone analysis and was not directly incorporated into the outputs used in the development of the 2017 network volumes and site-specific volumes.

For 2030, the TMP targets further reductions resulting in a 60 percent SOV use with the underlying assumption that some form of improved transit service, in addition to the service that is currently available to the Installation's workforce, will be in place by 2030.

Actual vehicle trips on the roadways vary based on the percentage of commuters that will be from 2-, 3-, or 4-person or more carpools, bus or from other TMP measures. An estimate of the 2017 and 2030 total vehicle trips, based on the targeted TMP mode splits for the short- and long-term horizon years, is presented in Section 7.8 that estimates the total vehicle trips if the target mode choices are achieved.

Long-term Traffic Assessment (2030 and Growth on Public Roads:

This study considers the Route 1 widening EA information as a reference forecast with outputs from new model runs since the specific RPMP 2017 and 2030 project assumptions vary from prior EA work. The results form the Fort Belvoir study and the Route 1 EA were found to be reasonably comparable.

Assumptions on Super NoVa Study and Other Transit Studies:

The "No-Build" scenario and alternate traffic studies only incorporate transit improvements that are already part of the CLRP. In the "Build" scenario, added transit improvements could be inspired by a variety of prior or current work, including the Super NoVa or the Countywide Transit Network. However, these potential transit facilities are not reflected in the 2017 modeling. TMP effectiveness reductions for 2017 are based on increased rideshare/ bus use or other modes in order to provide reasonably achievable results.

2017 Trip Generation from Fort Belvoir:

The study evaluates travel behavior characteristics of the various sub-populations within the Installation, and this was divided into two subgroups: Residents and Non-residents. The residential population, which includes Family housing, Soldier barracks and privatized Army lodging, is expected to remain relatively constant, and hence the number of trips they produce is not anticipated to change significantly. The model does, however, reflect changes to residential communities by 2030 such as the new North Post Town Center and resulting decrease of resident population levels in places like Dogue Creek.

1. Synchro Version 8.0, Build 802 - Trafficware Ltd.

The travel behavior of the non-residents is assumed to be similar to the existing non-residents. Mode choice behavior is assumed to consider cost and travel time by different modes for different TAZs in the study areas. Route choice (access and egress distribution through available gates) for future TAZ non-residents is assumed to be made considering travel time and cost in the same way as current TAZ non-residents, but with consideration of travel time and cost changes as a result of transportation system improvements such as the Route 1 widening, the opening of Lieber Gate and Mulligan Road by 2017.

Distribution of Fort Belvoir Traffic to/from Different Areas:

Distribution from the Fort Belvoir TAZ to the gates and the distribution to the external roadway network were based on the regional model (Version 2.3). The initial distribution results were presented in the in-progress review meetings, and minor adjustments made with the participation of the AAG to ensure consensus.

Assignment of Fort Belvoir Traffic to Specific Roadways:

Trip assignments on specific roadways were reconciled at the in-progress working sessions with the AAG. This included, for example, the assumptions on trip assignments and the distribution of traffic that will occur with the projected completion of Mulligan Road within the Route 1 and Telegraph Road corridor.

Assumed 2017 Transportation System

The application of additional transportation improvements in the network that the AAG agreed would reasonably be in place by 2017 have been captured in the short-term traffic assessment model.. This includes the decision to include the 6-lane Route 1 widening by 2017.

Evaluation Tools and Processes:

The AAG agreed that the use of Synchro is appropriate for identifying potential problems at intersections in the future and assessing the need for additional capacity. The analysis of freeway segments and ramps such as the Fairfax County Parkway interface with the I-95 ramps was performed using Highway Capacity Software (HCS).

Background 2030 Traffic:

Background traffic for the 2030 analysis incorporates assumptions about future development throughout the region based on the TPB Version 2.3 model. This reduced the complexity of the reconciliation issues in that only the TPB model inputs were needed to be reviewed for the potential development double counts. The land use assumptions broken out by TAZ zones were reviewed during the in-progress review meetings by appropriate stakeholders.

Fort Belvoir 2030 Traffic Trip Generation, Distribution and Assignment:

The No-Build and Build scenarios presented in this section are intended to address differences in the future land use intensity as well as transportation network and program differences. That is, the plan with the model was to assign an adjusted trip table for the build scenario and then look at differences in network conditions under the Build and No-Build scenarios. In addition to using the model, results from the surveys and professional judgment may be employed in developing findings and recommendations. An evaluation framework was then further outlined as part of the work plan and was reviewed with the project stakeholders.

Assumed 2030 Transportation System:

The TMP Application or Effectiveness refers to the potential types of transit improvements that could occur in the future along Route 1 such as those described in the SuperNoVa Study. We note the fact that the county's own Transit Network Study may include a different recommendation for the specific type(s) of transit improvement to best serve the area. We understand no one study has been accepted by regional stakeholders; however, the Master Plan does consider that some form of enhanced public transit will take place. In short, the plan anticipates that public transit service will continue to improve over time; in fact it already has in the form of improved bus (express) services.

The proposed Master Plan recognizes these transit studies and has developed a land use plan that concentrates on future employment centers to take advantage of new transit services. As described above, the No-Build traffic scenario will incorporate the transit improvements that are part of the CLRP. However, in the Build scenarios, we are assuming some type of enhanced public transit corridor (EPTC) on Route 1. The EPTC is an adopted element in the county's Transportation Plan and provides the rationale for exploring a range of moderate and more aggressive TMP effects. The traffic models that reflect SOV reductions consider that there will be an increased rider demand for public transit when/if these services become available to Fort Belvoir.

OTHER ITEMS DISCUSSED WITH AGENCY STAFF

Clarification on TDM Coordinator:

The role of the TDM Coordinator has evolved from the initial BRAC effort to a more permanent organizational structure. The TDM Coordinator is now located and managed by the Plans, Analysis and Integration Office (PAIO) located on Fort Belvoir. The PAIO is responsible for the Army stationing process. It maintains the workforce population database, websites, and reporting to senior Army leadership and helps to guide the strategic vision for future long range goals. The TDM Coordinator is supported by the Public Affairs Office and the Directorate of Public Works staff. Working closely with DPW's Chief of Facilities Planning and agency ETCs, the primary role of the TDM Coordinator is to get people out of their cars.

Clarification of SOV Reduction for TMP:

Based on post-BRAC commuter survey results, a 4 percent decrease in SOV use was noted from 2008 to 2011. The percentage indicates a downward trend in SOV use, which may be more or less than 4 percent based on actual SOV trips. However, based on both survey results and other factors as noted, the TMP will consider 85 percent to be the baseline SOV condition for purposes of measuring improvements and traffic impact.

Fort Belvoir Intersections

Twenty-seven intersections inside the Fort Belvoir perimeter are included in this traffic assessment. The extensive construction activities within Fort Belvoir from BRAC were largely completed by June 2012, allowing the more recent traffic collection counts to reflect adjustments to travel patterns resulting from the new tenants to the Main Post and FBNA area

Public Road Intersections

The 49 public road sites include external intersections and additional ramp locations on roadways that connect Fort Belvoir to the surrounding community and major limited access roadways and were completed by January 2013. The locations of these sites are identified in Table 5.2 and shown in Fig. 5.1.

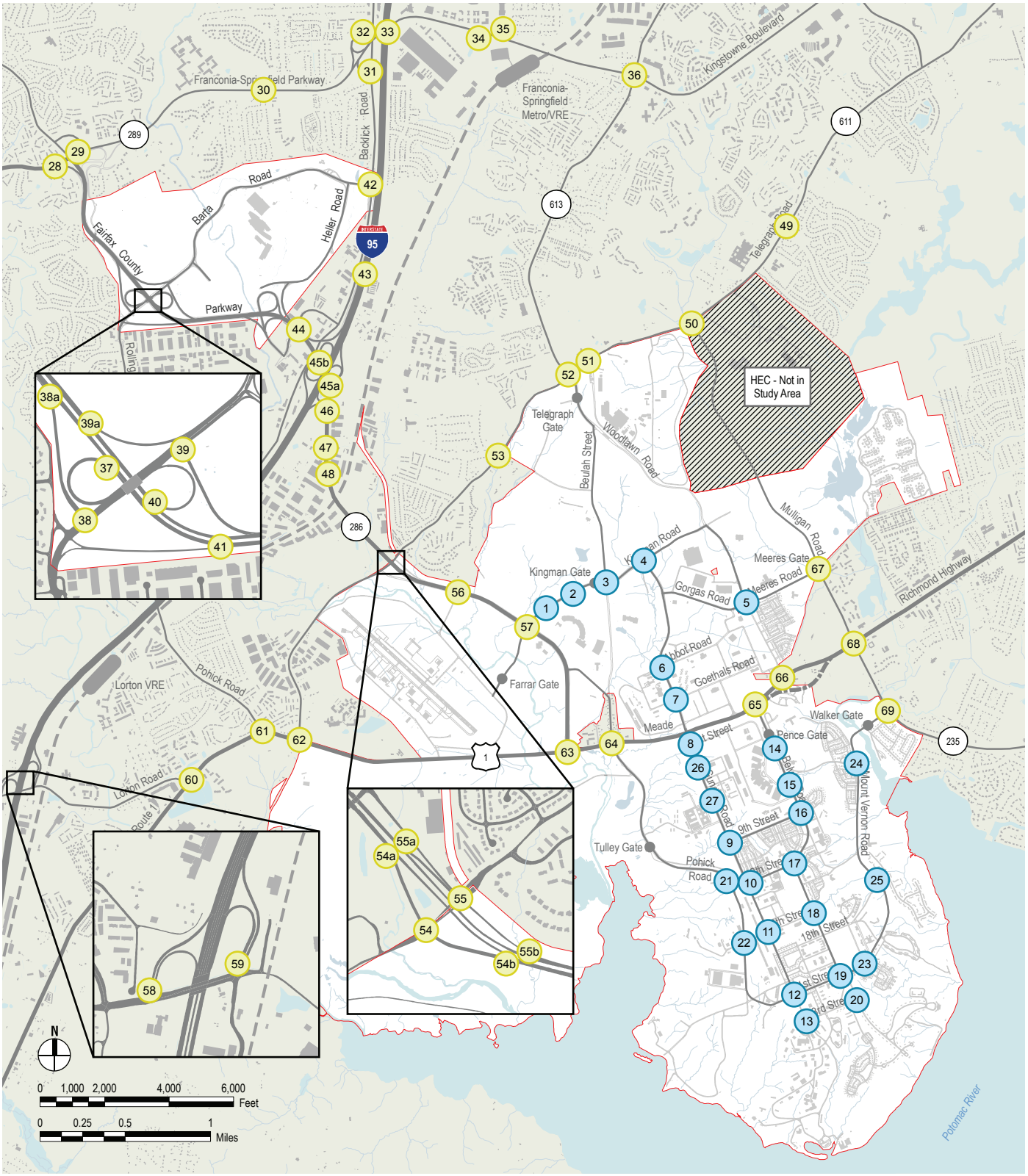
FBNA

New traffic counts at FBNA are part of this assessment. Figure 5.1 shows the traffic count locations, the majority of which were included in the 2007 FEIS (summarized in Section 5.2).

Table 5.2 Traffic Survey Locations	
Fort Belvoir Intersections	
1	John J. Kingman Road and DLA West Gate
2	John J. Kingman Road and DLA East Gate
3	John J. Kingman Road and Beulah Street
4	John J. Kingman Road and Gunston Road
5	Gorgas Road and Woodlawn Road
6	Gunston Road and Abbot Road
7	Gunston Road and Goethals Road
8	Gunston Road and 1st Street
9	Gunston Road and 9th Street
10	Gunston Road and 12th Street/Pohick Road
11	Gunston Road and 16th Street
12	Gunston Road and 21st Street
13	Gunston Road and 23rd Street
14	Belvoir Road and Traffic Circle
15	Belvoir Road and Surveyor Road
16	Belvoir Road and 9th Street
17	Belvoir Road and 12th Street
18	Belvoir Road and 16th Street
19	Belvoir Road and 21st Street
20	Belvoir Road and 23rd Street
21	Theote Road and Pohick Road
22	Theote Road and 16th Street
23	Flagler Road and 21st Street
24	Mount Vernon Road and Surveyor Road
25	Mount Vernon Road and Gillespie Road
26	Gunston Road and 3rd Street
27	Gunston Road and Jackson Loop North
Public Road Intersections	
28 †	Franconia-Springfield Parkway Eastbound Exit Ramp to Rolling Road
29 †	Franconia-Springfield Parkway Westbound on Ramp from Rolling Road
30	Franconia-Springfield Parkway and Spring Village Drive
31	Backlick Road at Franconia-Springfield Parkway Eastbound Ramps
32	Backlick Road at Franconia-Springfield Parkway Westbound Ramps
33	Franconia-Springfield Parkway and Interstate 95 HOV Ramps
34	Frontier Drive at Franconia-Springfield Parkway Eastbound Ramps
35	Frontier Drive at Franconia-Springfield Parkway Westbound Ramps
36	Franconia-Springfield Parkway and Beulah Street
37 †	Southbound Barta Road to Eastbound Fairfax County Parkway
38	Barta Road at Fairfax County Parkway Eastbound Ramps
38a †	Fairfax County Parkway Southbound exit to Barta Road
39	Barta Road at Fairfax County Parkway Westbound Ramps
39a †	WB Barta Road entrance to Fairfax County Parkway NB
40 †	NB Barta Road to WB Fairfax County Parkway
41	NB Barta Road to Eastbound Fairfax County Parkway
42	Barta Road and Backlick Road
43	Interstate 95 HOV Access Ramp
44 †	Interstate 95 Southbound Exit Ramp to Heller Road
45a	Fairfax County Parkway SB/EB Weave over I-95
45b	Fairfax County Parkway NB/WB Weave over I-95
46	Fairfax County Parkway and Loisdale Road
47	Fairfax County Parkway and Terminal Road
48	Fairfax County Parkway and 750' South of Terminal Road
49	Telegraph Road and Hayfield Road
50	Telegraph Road and Mulligan Road
51	Telegraph Road and Road B (DCEETA Entrance)
52	Beulah Street and Telegraph Road
53	Telegraph Road and Newington Road
54	Telegraph Road at Fairfax County Parkway EB Ramps
54a †	Fairfax County Parkway Southbound exit to Telegraph Rd
54b †	Telegraph Road SB exit to Fairfax County Parkway
55	Telegraph Road at Fairfax County Parkway WB Ramps
55a †	Telegraph Road entrance to Fairfax County Parkway NB
55b †	Fairfax County Parkway Northbound exit to Telegraph Rd
56	Fairfax County Parkway at Ehlers Road
57	Fairfax County Parkway and John J. Kingman Road
58	Lorton Road and Interstate 95 Southbound Ramps
59	Lorton Road and Interstate 95 Northbound Ramps
60	Route 1 and Lorton Road
61	Route 1 and Pohick Road
62	Route 1 and Telegraph Road/Old Colchester Road
63	Route 1 and Fairfax County Parkway
64	Pohick Road and Route 1
65	Belvoir Road and Route 1
66	Woodlawn Road and Route 1
67	Mulligan Road and Mill Road/Pole Road
68	Mount Vernon Memorial Highway and Route 1
69	Mount Vernon Memorial Highway and Mount Vernon Road

† *Indicates a ramp location.*

Figure 5.1 Traffic Survey Intersection Locations



Traffic Survey Location - Belvoir Intersection

Traffic Survey Location - Public Road Intersection

5.4 Existing Conditions

Existing Traffic Volumes - Fort Belvoir and Public Road Intersections

Table 5.4 contains the existing traffic volumes for the 27 Fort Belvoir intersections collected between 2012-2013. Table 5.5 contains existing traffic volumes for the 49 public road intersections and ramps. For this traffic analysis, the term existing conditions and the level of service results are based on the year 2013. The full details of the traffic count volumes are contained in **Appendix F**.

PEAK HOUR IMPACTS AT PUBLIC ROADWAYS

The peak hour traffic reveals an interesting comparison of the utilization of the intersections where the internal roadways interface with the public road network. Tables 5.3a and 5.3b also show the relative contribution of Fort Belvoir to the traffic flow through these interface intersections. The percentages of Fort Belvoir vehicles in the intersections in these tables illustrate the percentages of all vehicles entering each of these intersections that are destined for Fort Belvoir or coming from Fort Belvoir. In the AM peak hour, these percentages range from a high of 46 percent for vehicles entering the Post at the Fairfax County Parkway intersection with Kingman Road to a low of 11 percent for vehicles entering through the Mount Vernon Road at Mount Vernon Highway intersection. For the PM peak hour, these percentages range from 44 percent exiting at the Kingman Road and Fairfax County Parkway intersection to 13 percent exiting the Post through the Mount Vernon Road at Mount Vernon Highway intersection. These percentages clearly show that the majority of traffic on the public roadway system in the vicinity of Fort Belvoir is non-Installation traffic.

PEAK HOUR IMPACTS AT GATES

The far right column of Tables 5.3a and 5.3b indicates how the overall vehicle traffic entering and exiting from Fort Belvoir is divided among the various intersections. Kingman Road is the most heavily used entrance and exit road by a wide margin, accommodating one-third of the peak hour traffic entering and exiting Fort Belvoir. At all but one intersection, most vehicles exit from the Post at the same gate where they enter. The exception to this rule is the Pohick Road at U.S. Route 1 intersection where about one-third of the vehicles that enter through Tulley Gate exit from a different gate, which is probably due to the fact that Tulley Gate is where visitors without a government identification and trucks enter the Post.

Table 5.3a Comparison of AM Peak Hour Entrance Volumes

	Entrance Intersection	Total Baseline Intersection Volume in AM Peak Hour	Total Baseline Entering Volume in AM Peak Hour	% of Fort Belvoir Vehicles in the Intersection*	% of Vehicles Entering Fort Belvoir at the Intersection
North Post	Kingman Road at Fairfax Co. Parkway (Kingman Gate)	3,850	1,782	46%	33%
	Beulah Street at Telegraph Road (Telegraph Gate)	3,024	880	29%	16%
South Post	Pohick Road at U.S. Route 1 (Tulley Gate)	4,716	1,211	26%	23%
	Belvoir Road at U.S. Route 1 (Pence Gate)	3,920	869	22%	16%
	Mount Vernon Road at Mount Vernon Highway (Walker Gate)	1,544	612	40%	11%
	TOTAL		*5,354*		*100%*

* Excludes vehicles passing through the intersection to enter at another gate

Table 5.3b Comparison of PM Peak Hour Exit Volumes

	Exit Intersection	Total Baseline Intersection Volume in PM Peak Hour	Total Baseline Exiting Volume in PM Peak Hour	% of Fort Belvoir Vehicles in the Intersection*	% of Vehicles Exiting Fort Belvoir at the Intersection
North Post	Kingman Road at Fairfax Co. Parkway (Kingman Gate)	3,607	1,582	44%	34%
	Beulah Street at Telegraph Road (Telegraph Gate)	3,412	805	24%	17%
South Post	Pohick Road at U.S. Route 1 (Tulley Gate)	4,064	801	20%	17%
	Belvoir Road at U.S. Route 1 (Pence Gate)	3,465	823	24%	18%
	Mount Vernon Road at Mount Vernon Highway (Walker Gate)	1,552	600	39%	13%
	TOTAL		*4,611*		*100%*

* Excludes vehicles passing through the intersection to enter at another gate
NOTE: Meeres Road (Meeres Gate) has been excluded from this table due to ongoing construction of the Mulligan Road widening project.

Existing Traffic Analysis

Fort Belvoir Intersections

The data in Table 5.4 presents the average delay per vehicle and associated LOS for the 27 Fort Belvoir intersections. Within the Main Post, all but one of the sites operate at LOS C or better during the AM and PM peak hours. Within the North Post, about half of the intersections operate at LOS B or better, and the other half operate at LOS C. On South Post, all of the intersections operate at LOS B or better with the exception of the Gunston Road at 12th Street intersection, which operates at LOS C during the AM and PM peak hours, and the Belvoir Road traffic circle near the hospital which operates at LOS D during the AM peak hour. (The traffic circle near the hospital location was calculated to be operating at LOS D during the AM peak hour, but was observed to be operating without noticeable delays.)

The values shown in Table 5.4 are the overall averages for the location. While none of these is less than LOS D, two of the intersections have at least one approach with a LOS of E or F:

- The intersection at Gunston Road and 12th Street has an overall LOS C. However, during the PM peak hour on the eastbound through and left turn movements and westbound through movement, LOS E prevails. The overall average delay is reduced because of large volumes on the other movements.
- The intersection of John J. Kingman Road and Beulah Street operates at a LOS C during both the AM and PM peak hours. However, in the morning, the westbound left turn movement experiences a LOS F, and in the evening, the same movement experiences a LOS E. In both peak hours, the volumes are relatively low.

Public Road Intersections

The data shown in Table 5.5 presents the average delay per vehicle and associated LOS for the 49 public road intersections and ramps.

- The Beulah Street and Telegraph Road intersection operates at an overall LOS D in both the AM and PM peak hours, but several individual approaches have lower levels of service. In the AM peak hour, the northbound approach has a LOS E. The same is true for the PM peak hour.
- Most locations at the Fairfax County Parkway interchange with Telegraph Road operate at LOS C or better. The southbound right turn approach serves traffic coming from southbound Fairfax County Parkway and turning right onto Westbound Telegraph Road and operates at LOS E in the PM peak hour. A HCS ramp merge analysis reveals that the four ramps at the interchange of Telegraph Road and Fairfax County Parkway all operate at a LOS C or better.
- The intersection of the Fairfax County Parkway at Kingman Road operates at LOS D during both the AM and PM peak hours. In the afternoon, all approaches operate at satisfactory levels of service, except for the eastbound approach, which operates at a LOS E. The AM peak experiences some lower levels of service on certain approaches. The eastbound approach to the intersection operates at LOS F, and the westbound and northbound approaches operate at a LOS E.
- The Fairfax County Parkway and Route 1 intersection operates at a LOS D in both the AM and PM peak hours. However, the southbound approach experiences a LOS F and a LOS E in the morning and afternoon, respectively.
- Although the overall operation of the Pohick Road at Route 1 intersection is LOS D or better, the northbound exit from the Post on Pohick Road and southbound Backlick Road operate at LOS F during the AM and PM peak hours. This LOS indicates a delay for traffic leaving Fort Belvoir.
- The fact that the overall operation of Belvoir Road at the Route 1 intersection is C or better belies the fact that the vehicles exiting the Post from Belvoir Road experience LOS of F and E during the AM and PM peak hours respectively.
- The intersection of Route 1 and Mount Vernon Highway will be rebuilt as part of the Mulligan Road construction, currently underway. The turning movements and volumes at this intersection will be significantly altered by the opening of Mulligan Road. Synchro analysis done using current data indicates that the intersection operates at a LOS E and D in the AM and PM peak hours, respectively. In both the AM and PM peak hours, the southbound approach operates at a LOS F, and in the morning, the northbound approach also operates at a LOS F. The unusual five-leg geometry of the intersection contributes to these poor levels of service.
- This intersection of Mount Vernon Road and Mount Vernon Highway is an unsignalized “T” intersection with a STOP sign controlling the Mount Vernon Road approach. The LOS in the morning is LOS B, and the LOS in the afternoon is LOS D. In both the AM and PM peak hours, the eastbound left turn movement experiences a LOS F. Traffic leaving the Post during the afternoon peak experiences a LOS F.
- The several intersections and ramps in the vicinity of the interchange of Franconia-Springfield Parkway and I-95 operate at a LOS D or better. The one exception is the intersection of Franconia-Springfield Parkway/ Manchester Boulevard and Beulah Street, which operates at an overall LOS E in both the AM and PM peak hours. Within this intersection, the southbound approach experiences a LOS F in both the AM and PM peak hours and the fact that the northbound approach experiences a LOS E and LOS F in the morning and afternoon peak hours, respectively.
- The Fairfax County Parkway and Barta Road interchange has several ramps and two intersections. All of these locations operate at a LOS C or better during both the AM and PM peak hours..
- The locations along Fairfax County Parkway to the east of I-95 all operate at a LOS D or better.

- The intersections along Telegraph Road all operate at a LOS D or better.
- The intersections along Route 1 (with the exception of the Route 1 and Mount Vernon Highway intersection previously discussed) all operate at a LOS D or better.

Defining Operational Metrics by Delay and Density

Delay per vehicle is the major parameter derived by the computations performed by the Synchro program. It is calculated for each individual movement and then summed to provide the average delay for each approach, and for the intersection as a whole. It is measured in seconds per vehicle (s/v). The Level of Service (LOS) for the intersection is taken from average value of delay at the intersection and then expressed as a letter value that ranges from A to F. The delay ranges associated with each LOS are shown in Table 5.1. Table 5.4 describes the existing LOS for intersections including ramps in the study area.

The LOS for the merge, diverge and weaving areas are based on the space available for vehicles to change lanes within these areas. As the number of vehicles in the area increases, each vehicle's movements becomes more constrained by the vehicles nearby. The number of vehicles on a section of roadway is expressed in terms of "density" and is measured in passenger cars per mile per lane (pc/mi/ln). Table 5.5 shows the range of densities associated with each LOS in the merge, diverge and weaving areas.

Table 5.4 Existing (2012) Operational Characteristics - Fort Belvoir Intersections

		AM Peak Hour		PM Peak Hour	
		LOS ‡	Delay (sec/veh)	LOS ‡	Delay (sec/veh)
1	John J. Kingman Road and DLA West Gate*	A	7.1	B	15.8
2	John J. Kingman Road and DLA East Gate	C	20.5	B	15.7
3	John J. Kingman Road and Beulah Street	C	34.8	C	28.5
4	John J. Kingman Road and Gunston Road	A	8.6	C	28.7
5	Gorgas Road and Woodlawn Road	C	23.1	C	25.1
6	Gunston Road and Abbot Road	B	10.3	B	10.4
7	Gunston Road and Goethals Road	A	7.6	A	8.4
8	Gunston Road and 1st Street	A	7.5	B	13.6
9	Gunston Road and 9th Street	A	7.4	A	7.8
10	Gunston Road and 12th Street/Pohick Road	C	20.5	C	31.4
11	Gunston Road and 16th Street	A	8.3	A	8.8
12	Gunston Road and 21st Street (SC)	B	10.9	B	12.5
13	Gunston Road and 23rd Street (SC) *	B	13.4	B	11.1
14	Belvoir Road and Roundabout	D	32.6	B	11.1
15	Belvoir Road and Surveyor Road	A	7.4	A	7.5
16	Belvoir Road and 9th Street	B	13.3	B	15.6
17	Belvoir Road and 12th Street	B	12.7	A	9.2
18	Belvoir Road and 16th Street (SC)	A	2.4	A	2.3
19	Belvoir Road and 21st Street (SC)	A	8.7	A	8.3
20	Belvoir Road and 23rd Street (SC)*	A	4.2	A	3.0
21	Theote Road and Pohick Road	A	4.1	B	10.6
22	Theote Road and 16th Street (SC)*	A	3.4	A	3.3
23	Flagler Road and 21st Street (SC)*	A	1.6	A	1.4
24	Mount Vernon Road and Surveyor Road (SC)*	A	1.5	A	1.8
25	Mount Vernon Road and Gillespie Road (SC)*	A	8.8	A	9.1
26	Gunston Road and 3rd Street	A	6.6	A	7.2
27	Gunston Road and Jackson Loop Road North	A	4.8	A	5.8

‡Delay values determining LOS at stop sign controlled intersections and roundabouts differ from delay values determining LOS at signalized intersections.

*2009 Data from the Fort Belvoir Comprehensive Traffic Engineering Study (Gannett Fleming, 2010).

SC indicates stop-controlled intersections.

Table 5.5 Existing (2012) Operational Characteristics - Public Road Intersections						
		Type	AM Peak Hour		PM Peak Hour	
			LOS	Metric	LOS	Metric
28	Franconia-Springfield Parkway Eastbound Exit Ramp to Rolling Road	Diverge	D	31.2 pc/mi/ln*	B	12.7 pc/mi/ln
29	Franconia-Springfield Parkway Westbound on Ramp from Rolling Road	Merge	B	10.1 pc/mi/ln	C	27.8 pc/mi/ln
30	Franconia-Springfield Parkway and Spring Village Drive	Intersn	C	19.5 s/v**	C	27 s/v
31	Backlick Road at Franconia-Springfield Parkway Eastbound Ramps	Intersn	D	46.6 s/v	C	28.8 s/v
32	Backlick Road at Franconia-Springfield Parkway Westbound Ramps	Intersn	C	24.1 s/v	B	14.8 s/v
33	Franconia-Springfield Parkway and Interstate 95 HOV Ramps	Intersn	B	17.3 s/v	D	40.6 s/v
34	Frontier Drive at Franconia-Springfield Parkway Eastbound Ramps	Intersn	C	29.7 s/v	C	30.3 s/v
35	Frontier Drive at Franconia-Springfield Parkway Westbound Ramps	Intersn	B	19.5 s/v	C	20.6 s/v
36	Franconia-Springfield Parkway and Beulah Street	Intersn	E	58.8 s/v	E	67.2 s/v
37	Southbound Barta Road to Eastbound Fairfax County Parkway	Merge	A	1.1 pc/mi/ln	A	< 1.0 pc/mi/ln[1]
38	Barta Road at Fairfax County Parkway Eastbound Ramps	Intersn	C	29.9 s/v	C	24.9 s/v
38a	Fairfax County Parkway Southbound exit to Barta Road	Diverge	B	12.5 pc//mi/ln	A	6.9 pc/mi/ln
39	Barta Road at Fairfax County Parkway Westbound Ramps	Intersn	B	19.8 s/v	B	10.8 s/v
39a	Westbound Barta Road entrance to ramp to Fairfax County Parkway	Merge	A	5.9 pc/mi/ln	B	12.5 pc/mi/ln
40	Northbound Barta Road to Westbound Fairfax County Parkway	Merge	A[2]	6.1 pc/mi/ln	A[3]	10.4 pc/mi/ln
41	Northbound Barta Road to Eastbound Fairfax County Parkway	Merge	B	10.4 pc/mi/ln	A	3.6 pc/mi/ln
42	Barta Road and Backlick Road	Intersn	C	23 s/v	C	21.4 s/v
43	Interstate 95 HOV Access Ramp*	Merge	Not Available			
44	Interstate 95 Southbound Exit Ramp to Heller Road	Weave	A	9.1 pc/mi/ln	B	14.4 pc/mi/ln
45a	Fairfax County Parkway SB/EB Weave over I-95	Weave	C	22.1 pc/mi/ln	C	21.4 pc/mi/ln
45b	Fairfax County Parkway NB/WB Weave over I-95	Weave	B	19.7 pc/mi/ln	B	14.9 pc/mi/ln
46	Fairfax County Parkway and Loisdale Road	Intersn	D	41.8 s/v	C	27.9 s/v
47	Fairfax County Parkway and Terminal Road	Intersn	D	38.6 s/v	D	39.5 s/v
48	Fairfax County Parkway and 750' South of Terminal Road	Intersn	A	8.2 s/v	B	11.2 s/v
49	Telegraph Road and Hayfield Road	Intersn	D	38.3 s/v	C	33.2 s/v
50	Telegraph Road and Mulligan Road	Intersn	Waiting for Intersection Lane Data			
51	Telegraph Road and Road B (DCEETA Entrance)	Intersn	A	3.2 s/v	C	27.2 s/v
52	Beulah Street and Telegraph Road	Intersn	D	37.8 s/v	D	36.2 s/v
53	Telegraph Road and Newington Road	Intersn	B	11.1 s/v	B	16.2 s/v
54	Telegraph Road at Fairfax County Parkway Eastbound Ramps	Intersn	C	22.7 s/v	C	29 s/v
54a	Fairfax County Parkway Southbound exit to Telegraph Road	Diverge	B	17.8 pc/mi/ln	B	12.2 pc/mi/ln
54b	Telegraph Road Southbound exit to Fairfax County Parkway	Merge	B	19.6 pc/mi/ln	A	8.8 pc/mi/ln
55	Telegraph Road at Fairfax County Parkway Westbound Ramps	Intersn	B	11.4 s/v	C	26.2 s/v
55a	Telegraph Road entrance to Fairfax County Parkway Northbound	Merge	B	11.8 pc/mi/ln	B	13.5 pc/mi/ln
55b	Fairfax County Parkway Northbound exit to Telegraph Road	Diverge	B	11 pc/mi/ln	B	16.2 pc/mi/ln

* pc/mi/ln = personal car/mile/lane (density)

** s/v = seconds/vehicle (delay)

1. Site 37 PM - Density is negligible.

2. Site 40 AM - LOS based on segment density after Merge

3. Site 40 PM - LOS based on segment density after Merge.

Table 5.5 Existing (2012) Operational Characteristics - Public Road Intersections (continued)						
		Type	AM Peak Hour		PM Peak Hour	
			LOS	Metric	LOS	Metric
56	Fairfax County Parkway at Ehlers Road	Intersn	Reserved for possible future National Museum of the U.S. Army intersection			
57	Fairfax County Parkway and John J. Kingman Road	Intersn	D	48.6 s/v[4]	D	47.4 s/v
58	Lorton Road and Interstate 95 Southbound Ramps	Intersn	B	14.5 s/v	C	28.1 s/v
59	Lorton Road and Interstate 95 Northbound Ramps	Intersn	E	60.5 s/v	D	38.2 s/v
60	Route 1 and Lorton Road	Intersn	C	30.4 s/v	B	15.2 s/v
61	Route 1 and Pohick Road	Intersn	C	31.1 s/v	B	13 s/v
62	Route 1 and Telegraph Road/Old Colchester Road	Intersn	D	41.2 s/v	D	36.9 s/v
63	Route 1 and Fairfax County Parkway	Intersn	D	37.5 s/v	*D*	37.8 s/v
64	Pohick Road and Route 1	Intersn	C	25.7 s/v	D	49 s/v
65	Belvoir Road and Route 1	Intersn	A	9.2 s/v	C	24.7 s/v
66	Woodlawn Road and Route 1	Intersn	A	2.9 s/v	A	2.5 s/v
67	Mulligan Road and Mill Road/Pole Road (SC)	Intersn	Waiting for Intersection Lane Data			
68	Mount Vernon Memorial Highway and Route 1	Intersn	E	66.2 s/v	D	46.6 s/v
69	Mount Vernon Memorial Highway and Mount Vernon Road (SC)	STP Sign	B	8.8 s/v	D	66.7 s/v

4. Site 57 AM - The average existing AM queue length for the southbound left turn into Kingman Road is approximately 725 feet. The existing 2-lane storage length is approximately 425 feet.

Intersection Level of Service Ranges (Average Delay per Vehicle)			
A	≤ 10 Sec/veh	**D**	> 35 - 55 Sec/veh
B	> 10 - 20 Sec/veh	**E**	> 55 - 80 Sec/veh
C	> 20 - 35 Sec/veh	**F**	> 80 Sec/veh

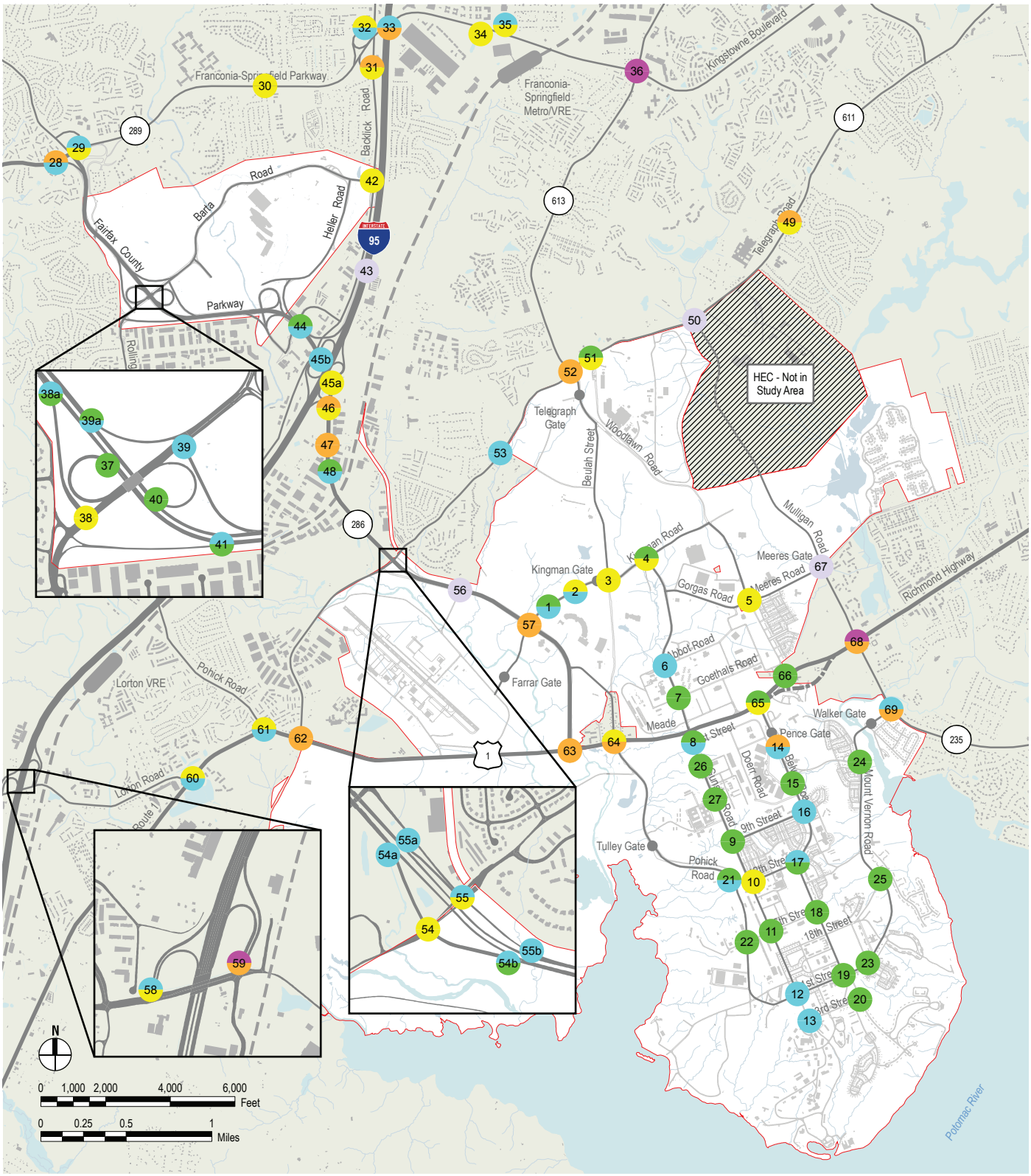
LOS for Merge, Diverge and Weaving Areas* (Passenger cars/mile/lane)			
A	≤ 10 pc/mi/ln	**D**	> 28 - 35 pc/mi/ln
B	> 10 - 20 pc/mi/ln	**E**	> 35 pc/mi/ln
C	> 20 - 28 pc/mi/ln	**F**	Demand > Capacity

** Weaving area LOS based on density on "Freeways"*

Operational Characteristics Tables

The Operational Characteristics tables and Level of Service maps provide a summary of key traffic results and are intended to serve the broader purpose and objectives of the TMP. Additional detailed information regarding traffic volume and turning movement data that support the intersection LOS determinations are located in Synchro Reports found in Appendix E.

Figure 5.2 Existing (2012) Level of Service



5.5 Methodology

As previously stated, the goals of this transportation study are to assess the transportation system impacts of future growth at Fort Belvoir in the short term (2013-2017) and in the long term (2017-2030).

This methodology section provides a description of the travel demand forecasting model that is used as the basis for this study, a summary of refinements that were made to better represent the study area, and a discussion of the application of the model results in developing future intersection and ramp volumes for detailed analysis.

Travel Demand Forecasting Model

The Metropolitan Washington Council of Governments (MWCOG)/National Capital Transportation Planning Board (TPB) regional travel demand forecasting model Version 2.3.39 was used in this study. This model was recently used in the Air Quality Conformity Determination of the 2012 Financially Constrained Long Range Transportation Plan (CLRP) and FY 2013-2018 Transportation Improvement Program (TIP), reflecting the latest planning assumptions at the beginning of this corridor study. Two major inputs to the model include: 1) the transportation network that represents the 2012 CLRP and FY 2013-2018 TIP, and 2) land use - MWCOG Round 8.1 Cooperative Forecasts.

The Version 2.3.39 is a sophisticated, conventional trip-based travel demand model with six major steps:

- Demographic models with market stratifications by four household income groups, four household size groups, and four vehicle availability groups;
- Trip generation models for five personal trip purposes, a commercial vehicle trip purpose, and two truck trip types;
- Trip distribution model with doubly-constrained gravity model formulation with a composite impedance of transit and highway travel times;
- Mode choice model with nested logit structure for five trip purposes and two time periods;
- Time of day model with four time periods - AM peak, midday, PM peak, and night time/early morning; and
- Traffic assignment with six user classes and equilibrium assignment methodology.

Travel Demand Model Refinements

The regionally adopted travel demand forecasting model for air quality conformity includes two special features to address special issues of transportation in the region: The "transit constraint" that constrains Metrorail ridership into the core and "HOV-3+ skims substitution." The "transit constraint" allows only a predetermined level of Metrorail ridership into the core (the 2020 level), and if the model calculates a higher level of demand, these excess trips are shifted directly to the single-occupancy vehicle mode. This feature is designed to represent the Metrorail-related capacity constraint in the core area and to produce a conservative output in terms of air quality and shows a worst case scenario in terms of roadway congestion. It is acknowledged, though, that the actual behavior of Metrorail riders when faced with congested conditions in the Metrorail system may be different than assumed by the transit constraint feature. Travelers who would prefer Metrorail might shift the time of day of their commutes or seek out commuter rail, commuter bus, local bus, carpool, or TDM alternatives, in addition to some portion choosing to drive instead. It is, therefore, a recommended practice to turn the Metrorail capacity constraint feature "off" when performing planning studies and has been done in this study. However, it is important to understand that in doing so, the forecast Metrorail ridership might not be achieved without improvements to the carrying capacity of the Metrorail system.

The "HOV3+ skims substitution" is specifically formulated to model the HOT lanes in Northern Virginia. The operational requirements of a HOT lane stipulate that a certain prevailing speed on the HOT facility should be maintained by adjusting the tolls in real time. In addition, HOV3+ service levels will not be affected by the HOT operation. To achieve these operational objectives, the TPB Version 2.3 model employs a two-run procedure, with the "base" run to develop HOV3+ skims and the "final" to simulate the HOT operation.

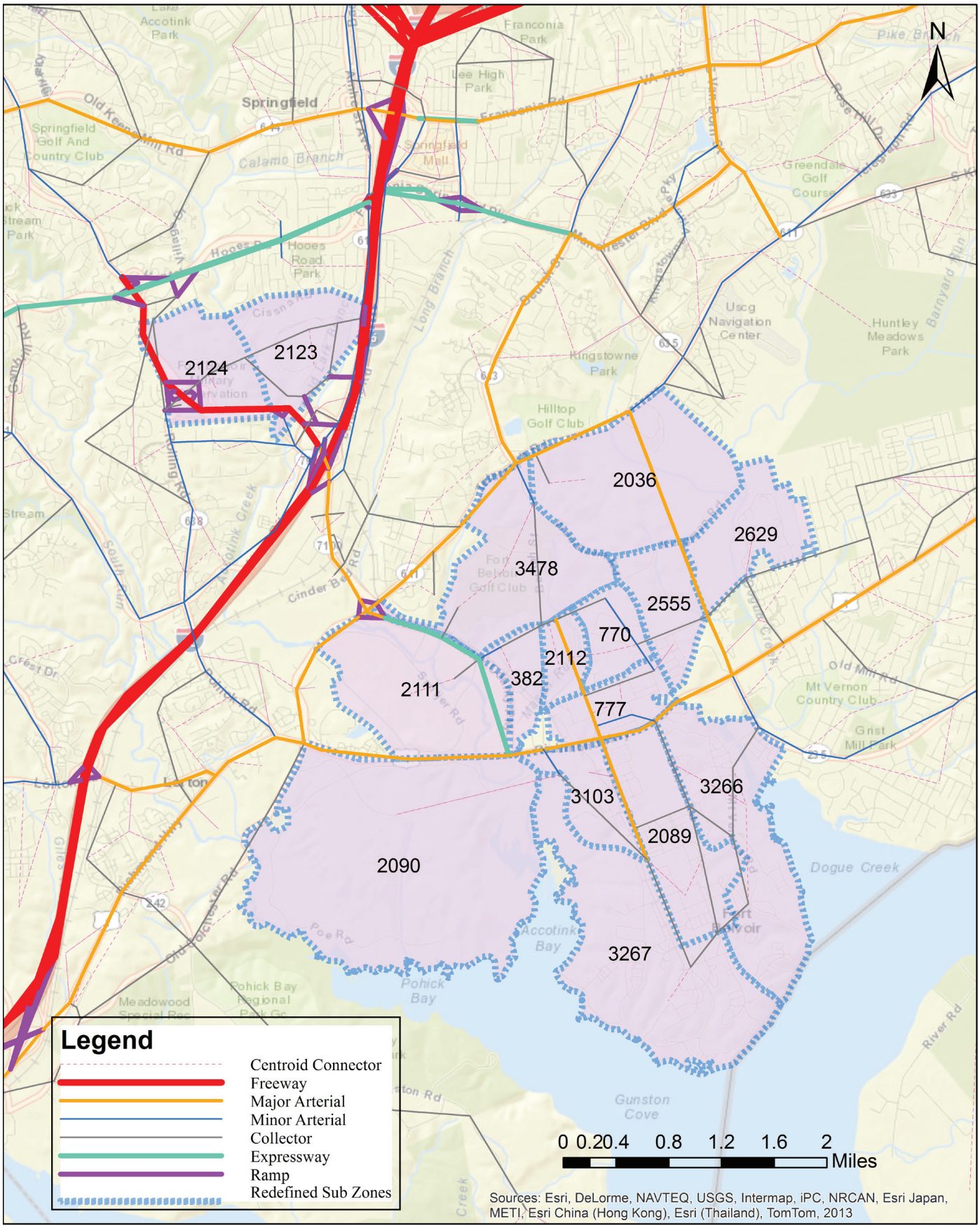
In this corridor study, these two special features were treated as follows:

- The HOV skims were calculated using the same highway network as the non-HOV skims;
- The HOV trips were assigned to the highway network for the specified HOV time periods; and
- The transit constraint on the trips going to the D.C. Core was not included.

TAZ STRUCTURE

The study area consists of seven TPB/MWCOG transportation analysis zones (TAZ), two on North Post and five in the Main Post area. These TAZs were refined to 16 to increase the spatial resolution and representation of the land use activities and network detail in the study area. The refined TAZ structure has 16 TAZs in the study area, with 14 TAZs in the Main Post area. Figure 5.3 shows the refined TAZ structure. **Appendix F-2 TAZ Structure for 2017 and 2030 Employment and Household Populations** includes the population counts assigned to each TAZ zone and included in the traffic model.

Figure 5.3 Study Area TAZ Structure Refinement



LAND USE FORECASTS

The land use forecasts used in Version 2.3.39 is MWCOG Round 8.1 Cooperative Forecasts. At the beginning of this project, Fairfax County developed the draft Round 8.2 forecasts, which were provided to the Consultant to replace the Round 8.1 forecasts in the regional model. However, the Round 8.2 forecasts do not reflect the latest information on the planned developments and growth in the Fort Belvoir area. For the Fort Belvoir study area, the consultant developed a new set of land use forecasts, based on proposed developments and improvements in this Real Property Master Plan Transportation Management Plan.

Table 5.6 shows a study area summary of population (that includes residents, Soldiers, and lodging) and employment forecasts in 2017 and 2030, Built Alternative 1. As can be seen from the table, the population in the study area remains stable over the forecasting period, while employment grows to different degrees. The traffic analysis assumes implementation of all components of the Master Plan, including:

- The Short Range projects with construction starting from 2012 to 2017; the Installation Vision and Development Plan (formerly Long Range Component) (that includes short range and long range projects to be implemented from 2018 to 2030); the Installation Planning Standards (formerly Installation Design Guide); the Transportation Management Plan; the Installation Development Program (formerly Short Range Component and Capital Investment Strategy); and the Complete Plan Summary (formerly the Real Property Master Plan Digest). Full implementation of the proposed short-term projects would increase the Installation employment from roughly 39,000 in 2012 by approximately 5,000 to 44,000 by 2017, while the proposed long-term projects would add approximately 12,000 bringing the total 2030 workforce to 56,000.

Table 5.6 Population and Employment Forecast Summary

Fort Belvoir Population and Employment Forecast Summary		
Scenarios	**Population**	**Employment**
2013	9,100	39,869
2017 Alternative 1	9,100	44,136
2030 Alternative 1	9,100	56,166

Source: Cambridge Systematics, Inc. and Atkins, 2013.

TRANSPORTATION NETWORK

The transportation network in the study area and vicinity areas was reviewed by the consultant team, as well as representatives from VDOT and FCDOT, and enhanced to better represent the existing condition and planned improvements as documented in the regional Constrained Long Range Plan (CLRP) and various studies in the study area. Figure 5.4 shows major roadway improvement projects included in the 2012 Financially Constrained Long Range Transportation Plan (CLRP) and FY 2013-2018 Transportation Improvement Program (TIP), while Table 5.7 lists these projects with short descriptions. The highway network was added with more detail to be consistent with the refined TAZ structure and the intersections under study. Network attributes such as facility types and the number of lanes were reviewed and refined in the study area and its vicinity. The refined network was then reviewed by the AAG.

Figure 5.4 Major CLRP Projects in the Study Area and its Vicinity

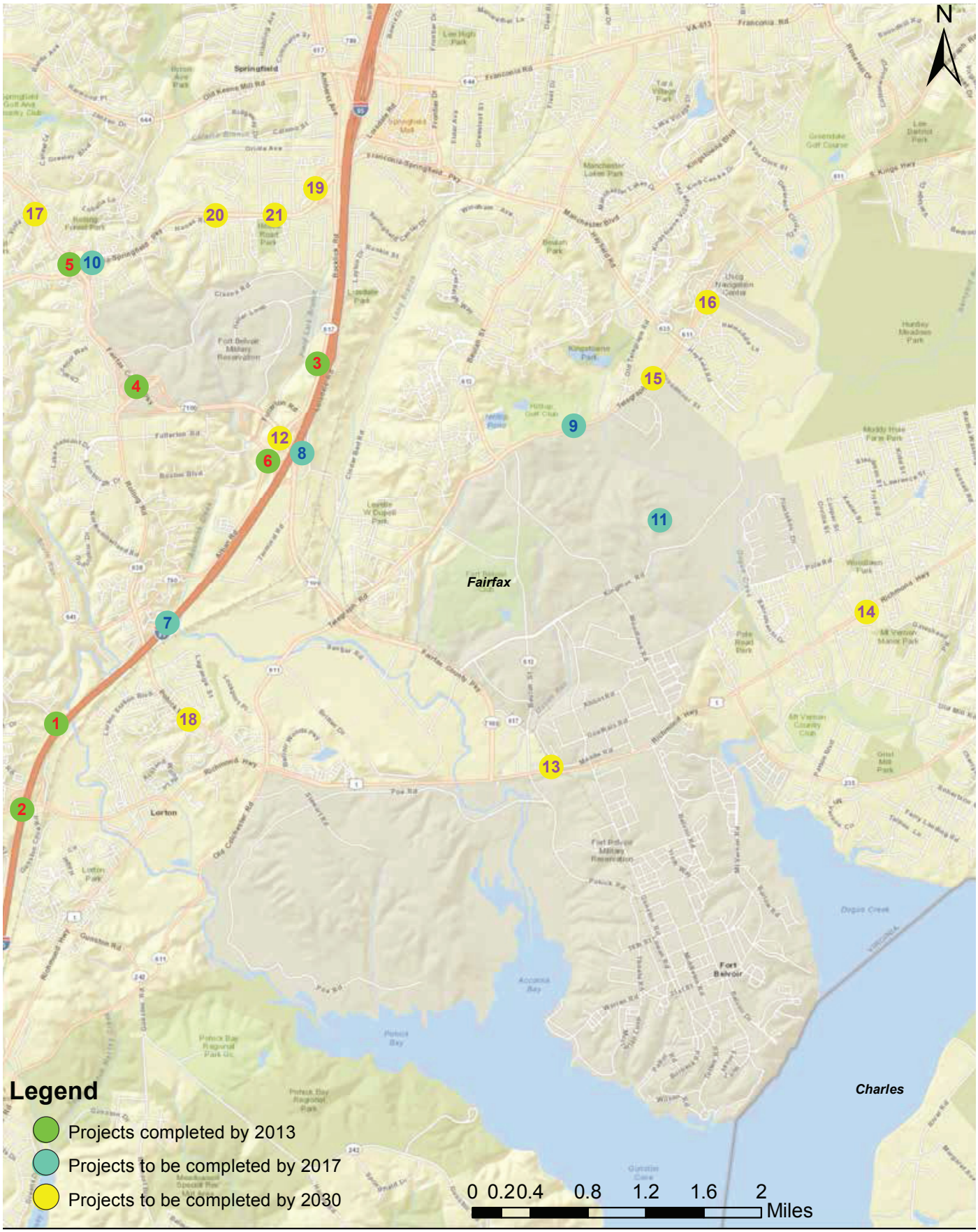


Table 5.7 Major CLRP Projects in the Study Area and its Vicinity		
Projects Completed by 2013		
Location	Project ID	Description
1	V12p	Widen I-95 from 6 to 8 lanes from Newington to VA 123
2	V12ab	Reconstruct I-95/VA 642 interchange
3	BRAC0004	I-95 DAR Ramps to FBNA
4	VSF25na	Fairfax Co. Pkwy Phase 3
5	BRAC	Construct interchange at Fairfax Co. Pkwy and Franconia-Springfield Pkwy
6	BRAC/ VSF25nb	Construct interchange at Fairfax Co. Pkwy and Boudinot Drive

Projects Completed by 2017			
Location	Project ID	Description	Complete Date
7	V12r	Construct third I-95/395 HOV lane from 2 mi. N. of I-495 to Prince William Pkwy	2015
8	V12r24	I-95 reversible ramps at NB/SB HOV/Bus/HOT lanes and Fairfax Co. Pkwy	2015
9	VSF4c	Widen Telegraph from 2 to 4 lanes from Beulah St. to Leaf Rd. North	2014
10	BRAC	Widen Rolling Rd. NB off-ramp from 2 to 4 (1 to 2?) lanes at Fairfax Co. Pkwy	2015
11	FED2	Construct/Widen Old Mill Rd. (Mulligan Rd.) from US 1 to Telegraph Rd.	2014

Table 5.7 Major CLRP Projects in the Study Area and its Vicinity (continued)			
Projects Completed by 2030			
Location	Project ID	Description	Complete Date
12	BRAC	Construct I-95 NB off ramp to NB Fairfax Co. Pkwy	2020
13	VP1a[1]	Widen US 1 from 4 to 6 lanes from Telegraph to VA 235 South	2020
14	VPu	Widen US 1 from 4 to 6 lanes from VA 235 South to VA 235 North	2025
15	VSF4ca	Widen Telegraph from 2 to 4 lanes from Leaf Road North to Hayfield Road	2025
16	VSF4i	Widen Telegraph from 2 to 4 lanes from Hayfield Road to S. King Hwy.	2025
17	VSF10a	Widen Rolling Rd. from 2 to 4 lanes from Fairfax Co. Pkwy to Old Keene Mill Rd.	2020
18	VSF10c	Widen Pohick Rd. from 2 to 4 lanes from US 1 to I-95	2025
19	VSF26	Construct Franconia-Springfield Pkwy HOV from Fairfax Co. Pkwy to Frontier Dr.	2025
20	VSF26a	Construct interchange at Franconia-Springfield Pkwy and Neuman St.	2025
21	VSF26b	Upgrade Franconia-Springfield Pkwy HOV from Rolling Rd. to Backlick Rd.	2025

(1) *The Route 1 widening listed as a 2030 project in the CLRP was included in the 2017 traffic model.*

Post-Processing

Post-processing refers to analytical procedures to adjust the raw outputs that are produced by the travel demand forecasting model to account for model variations. Currently, the guide for post-processing travel demand model forecasts is the National Cooperative Highway Research Program (NCHRP) Report 255, Highway Traffic Data for Urbanized Area Project Planning and Design. Although this report was published in 1982, it is still the current nationally-recognized technical resource for post-processing and was cited in the Federal Highway Administration (FHWA) guidance published in April 2010 on application of travel demand and forecasting for National Environmental Policy Act (NEPA) studies.

Post-processing is necessary because the assignment algorithm in the travel demand forecasting model process is macroscopic. As a result of the travel demand forecasting model network limitations and the macroscopic characteristics of the assignment, certain adjustments may need to be made to the link volumes. The highway network that is used in a travel demand model as a simplified representation of the actual roadway network and does not include all the roads, intersections or access points (e.g., curb cuts, driveways) in the actual roadway system. Therefore, the results that are produced from the assignment need to be adjusted to compensate for these missing roadways and over-assignment to certain links in the model. Post-processing also makes adjustments for capacity limitations which are not fully represented in the model.

The post-process refinement currently employed in this study applies a set of procedures using spreadsheets as outlined in NCHRP Report 255. The first step is to correct for model bias, based on the differences between the observed count data and the model output for the validation year. The differences in the count and model results are applied to the future-year forecasts in the form of absolute change (delta) and a percentage change (ratios); and the two used in determining adjustments.

Model Validation

Estimated traffic volumes were compared with traffic count data in the study area. This comparison was conducted for all counts in the study area and select cutlines that represent major movements in the study area. Table 5.8 shows comparisons of estimated peak hour volumes in the base year 2013 with observed peak hour volumes for 2012/2013 for the gate locations. Major findings after the model validation are as follows:

- Overall, model estimated volumes were compared well with 2012 daily traffic counts, with a slight overestimation by 2 percent;
- In the study area Fort Belvoir gates, estimated volumes for the AM and PM peak hours from the 2013 model were compared well with peak-hour traffic counts conducted in 2012/2013, with a slight overestimation by 6 percent; and
- In the vicinity area, 2013 model estimated daily volumes were compared favorably with 2012 daily traffic counts, with a slight overestimation by 8 percent.

Table 5.8 Comparison of Estimated and Observed Peak Hour Traffic at Gates

	Gate	Entrance Intersection	Total Baseline Entering Volume in AM Peak Hour	Total Baseline Exiting Volume in PM Peak Hour	Total Baseline AM & PM Peak Hour Volume	2013 Model Estimates	% Difference
North Post	Kingman*	Kingman Road at Fairfax County Parkway	1,782	1,582	3,364	3,043	-10%
	Telegraph	Beulah Street at Telegraph Road	880	805	1,685	1,313	-22%
	Meeres	Mulligan at Pole Road**	0			643	N/A
South Post	Tulley	Pohick Road at US Route 1	1,211	801	2,012	2,597	29%
	Pence	Belvoir Road at US Route 1	869	823	1,692	1,486	-12%
	Walker	Mount Vernon Road at Mount Vernon Highway	612	600	1,212	1,055	-13%
TOTAL			**5,354**	**4,611**	**9,965**	**10,137**	**2%**

* Includes movements through DLA East and DLA West Gates

** Open PM Outbound only

5.6 Travel Demand Forecasting

Travel demand in the Fort Belvoir area was estimated using the refined Regional Travel Demand Forecasting Model. Short-term growth for 2013-2017 was estimated in the study area and its vicinity. Similarly, long-term growth and impacts were estimated for 2018-2030.

Short-Term Growth (2013-2017)

Screenline/cutline is often used to measure major traffic movements in an area. In this study, screenlines/cutlines were defined around the boundary of the study area, and traffic volumes at the screenline/cutline locations were aggregated to measure traffic coming into the study area (inbound) and going out of the study area (outbound). Figures 5.5 through 5.7 show the locations of the screenlines/cutlines, which represent three major directions of traffic relative to the study area: from/to the south (e.g., Route 1), north and northeast (e.g., Route 1, Telegraph Road, and Beulah Street), and north and northwest (e.g., Fairfax County Parkway). Interstate 95 sites were treated and analyzed separately.

Figure 5.5 shows the short-term traffic volume growth (2013-2017) at the screenline/cutline locations in the Fort Belvoir area under the No Build conditions. The findings are summarized as follows:

- Traffic volumes are expected to grow moderately for non-I-95 roadways carrying traffic entering and exiting the study area, approximately 13 percent on a daily basis for locations except for I-95;
- I-95, a major gateway for the study area, also has moderate growth, roughly 4 percent at the north end (south of Franconia-Springfield Parkway) and around 10 percent at the south end (south of Fairfax County Parkway);
- For all locations along the screenline, the traffic growth is expected to be 8 percent daily, 13 percent for AM peak period, and 11 percent for PM peak period;
- As expected, there is little short-term growth at the gates under the No-Build condition; and
- Traffic patterns are expected to change because of the opening of Mulligan Road. Traffic is expected to divert from the Fairfax County Parkway to Beulah Street to Mulligan Road, with an estimated traffic reduction of 20 percent.

Figure 5.6 shows the effects of Build Alternative 1 at the screenline/cutline locations in the Fort Belvoir area in 2017. The findings are:

- The traffic effects of Build Alternative 1 in 2017 are expected to be moderate at Fort Belvoir access points including all gates - an increase of 8 percent for all daily traffic over the No Build condition, 10 percent increase on Main Post, and 0 percent at FBNA.
- The traffic effects of Build Alternative 1 in the general area are expected to be small, with an increase of 1 percent daily traffic at all locations in the study area screenline, including an increase of 1-2 percent daily traffic for locations except for I-95 locations and an increase of 0-1 percent daily traffic for the two I-95 locations.

Figure 5.5 Short-Term Traffic Growth at Screenlines/Cutlines in the Fort Belvoir Area (2017 No Build vs. 2013)

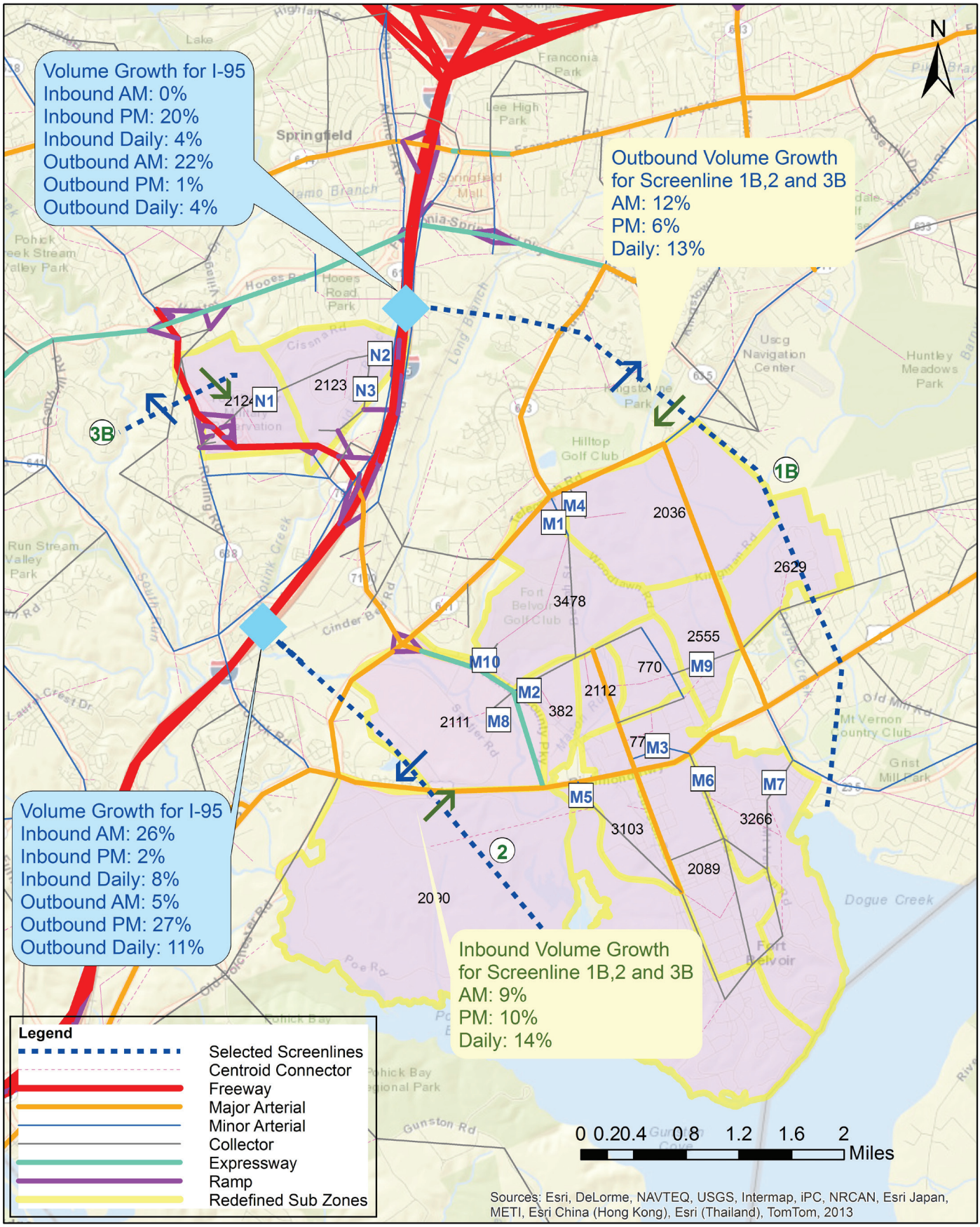
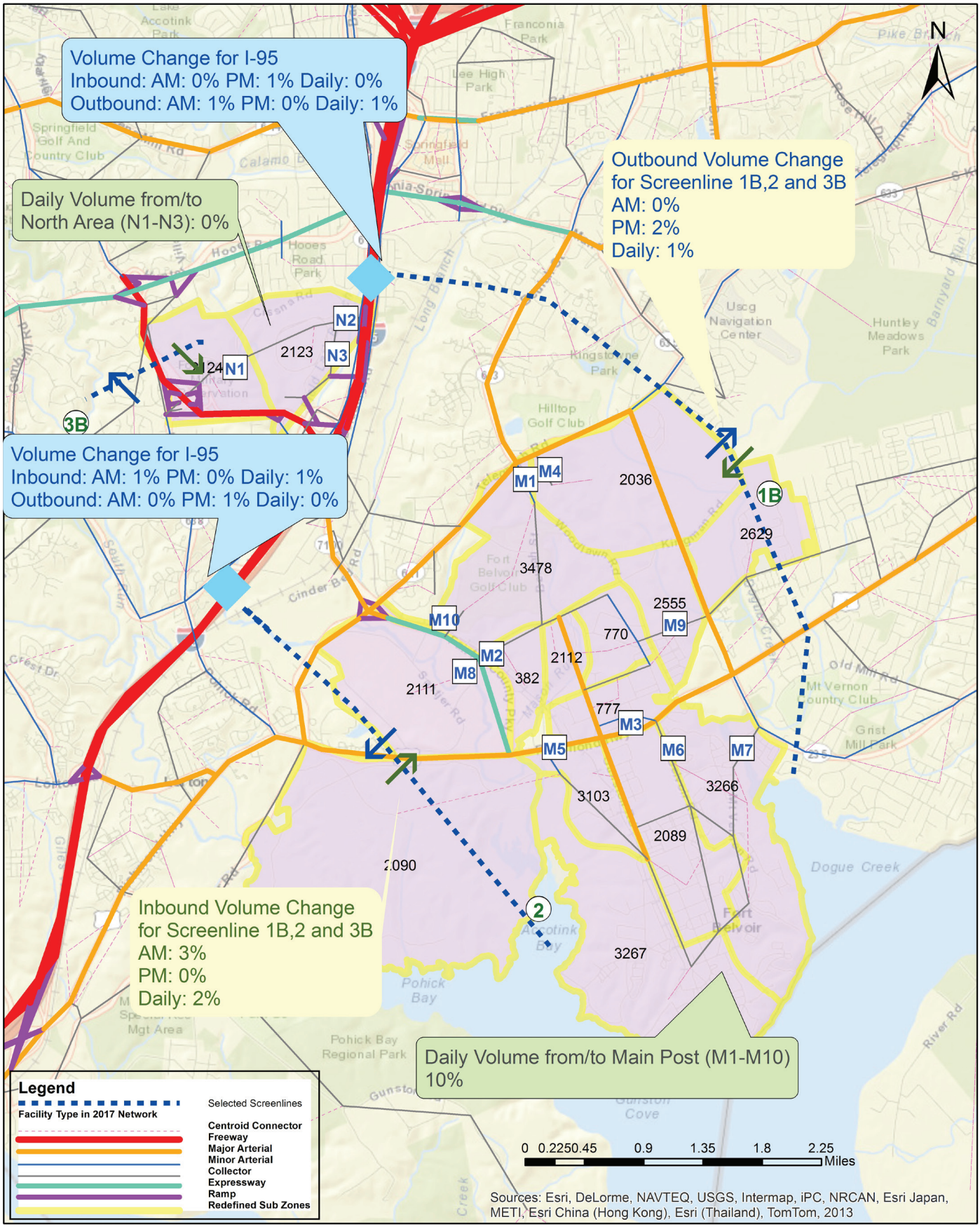


Figure 5.6 Short-Term Traffic Impacts at Screenlines/Cutlines in the Fort Belvoir Area (2017 Build Alternative 1 vs. 2017 No-Build)



Long-term Growth (2018-2030)

Figure 5.7 shows the effects of Build Alternative 1 at the screenline/cutline locations in the Fort Belvoir area in 2030. The findings are:

- The traffic increase as a result of Build Alternative 1 in 2030 is expected to be considerable at Fort Belvoir access points including all gates - an increase of 29 percent for all daily traffic over the No-Build condition, 18 percent increase on Main Post, and 75 percent at FBNA.
- The traffic effects of Build Alternative 1 in the general area are expected to be small, with an increase of 2 percent daily traffic at all locations in the study area screenline, including an increase of 5-6 percent daily traffic for non-I-95 locations and an increase of 1 percent daily traffic for the two I-95 locations.

The potential effects of traffic growth under the Build Alternative are evaluated in comparison with the No-Build Alternative for major roadways in the study area. Volume-to-capacity (V/C) ratios were calculated using the model estimates as shown in Figures 5.8 and 5.9 reflecting the differences of computed V/C ratios between Build Alternative 1 and No-Build. The following observations can be made based on the model estimates:

- For many roadways in the study area, the V/C ratio differences between Build Alternative 1 and No-Build are estimated to be in a small range.
- The potential impacts of Build Alternative 1 are primarily focused on the study area roadways, as shown in moderate to considerable increases in the V/C ratios. A moderate increase is a V/C ratio difference of 0.05 - 0.2; a considerable increase reflects a V/C ratio difference of >0.2.
- Several roadway segments at FBNA, including Barta Road and Heller Road, are expected to have considerable deterioration in the LOS, while the effects on the roadways in the Main Post are expected to be noticeable but moderate.
- Some segments of major roadways accessing the study area are expected to experience moderate deterioration in the LOS, which is 0.05 - 0.2 in LOS difference and represented by the orange color on Figure 5.7 (e.g., Fairfax County Parkway, I-95 ramps, Beulah Street north of Telegraph Road, some segments of U.S. Route 1 east of Fairfax County Parkway, Frontier Drive, Loisdale Road, and Backlick Road).

Figure 5.7 Long-Term Traffic Impacts at Screenlines/Cutlines in the Fort Belvoir Area (2030 Build Alternative 1 vs. 2030 No Build)

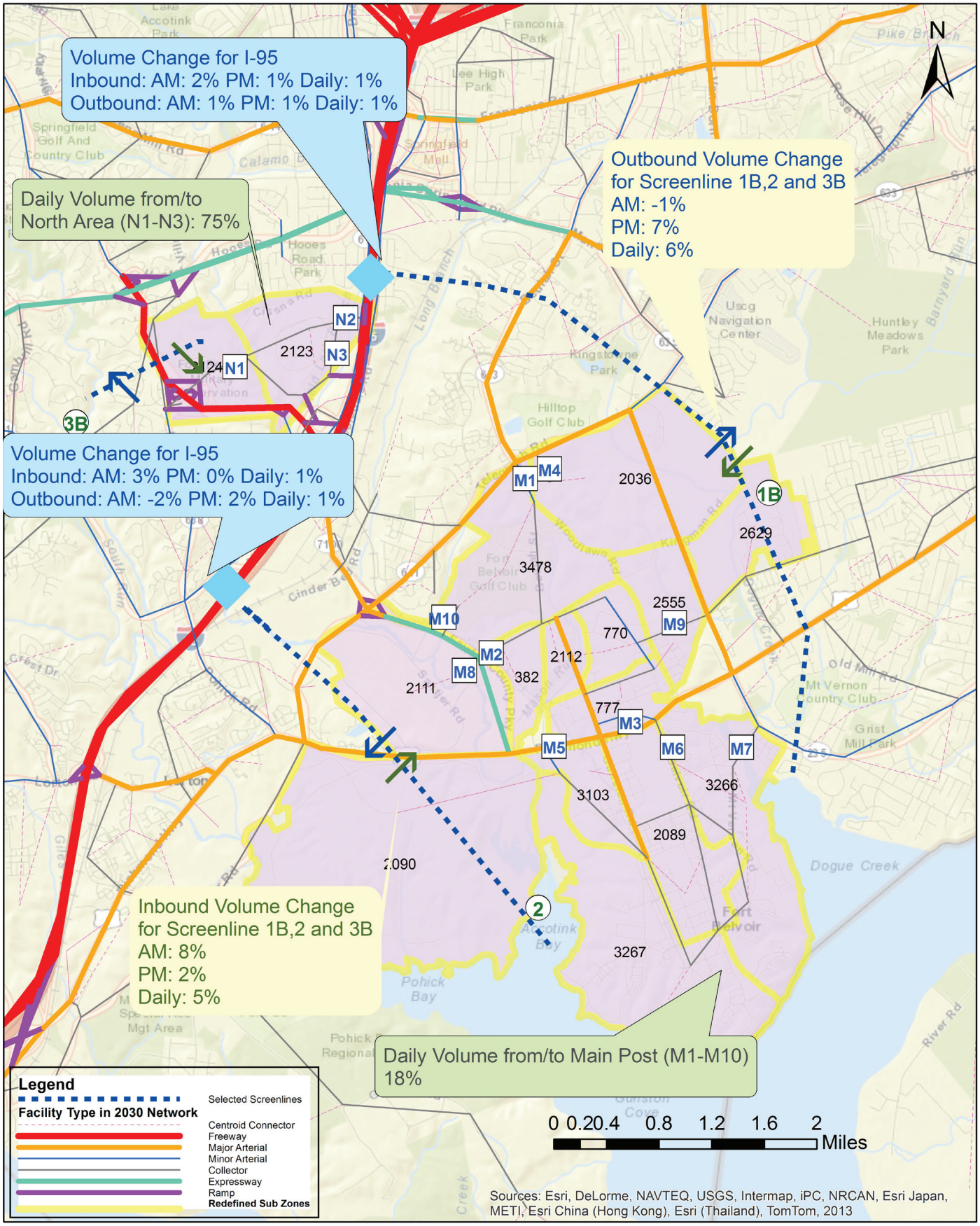


Figure 5.8 Differences in Estimated AM Peak Volume-to-Capacity Ratios Between Alternative 1 and No Build

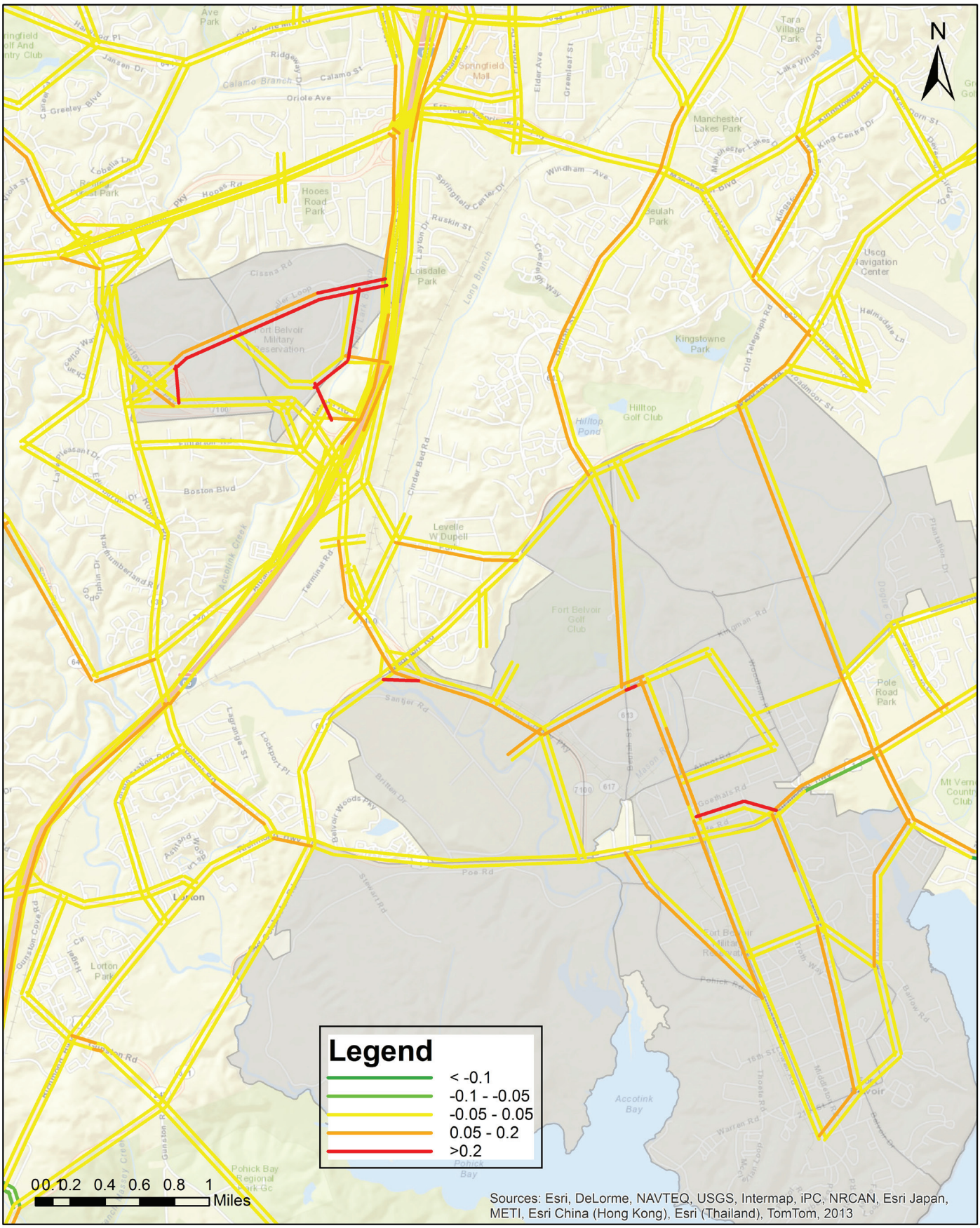
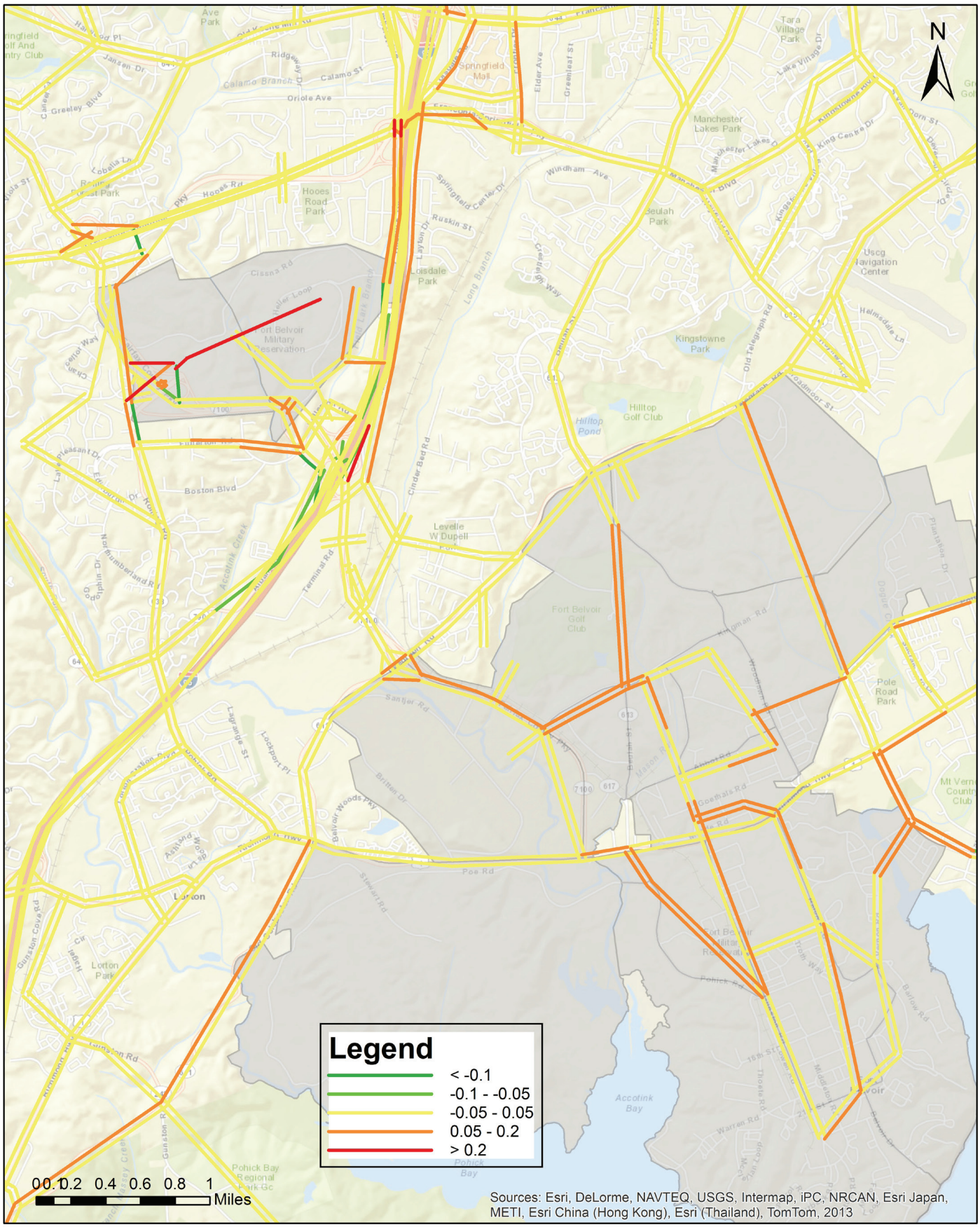


Figure 5.9 Differences in Estimated PM Peak Volume-to-Capacity Ratios Between Alternative 1 and No Build



5.7 Short-Term Traffic Analysis Results

Model Application to Public Road Intersections

As indicated in the preceding section, the 2017 Traffic Forecasts were developed using a refined version of the Metropolitan Washington Council of Governments (MWCOG)/National Capitol Transportation Board regional travel demand forecasting model. The outputs of this model provided peak period volumes for links and, at selected locations, individual intersection through and turning movements. Existing volume data were also provided. The differences in the volumes (forecast year to base year) were tabulated as the absolute change (delta) and a percentage change ratios (growth factors).

Two estimates of the 2017 volumes for the individual movements were derived using the forecast data. The first estimate was made by applying the growth factors to the existing volumes for each movement. A second estimate was derived by adding the delta to the existing volume. The reductions values are based on peak hour shares of peak period volumes representing the values used in the MWCOF/TPB Model Version 2.3, which were derived based on the 2007/2008 Household Travel Surveys conducted by the MWCOG. When the volume forecast for an individual movement by the growth factor calculation differed by more than 50 vehicles per hour from the volume resulting from the delta calculations, the average of the two forecasts was used. In cases where one of the forecast volumes did not appear to be reasonable, the forecast volume calculation closest to the existing volume was used.

The estimated 2017 volumes were then rounded using the following conservative rules: volumes under 100 vehicles per hour were rounded down to the preceding multiple of 10 if the one's digit was three or less, and rounded up to the next multiple of ten if the one's digit was greater than 3. Volumes over 100 vehicles per hour were rounded down to the preceding multiple of 25 if the value was less than or equal to the preceding multiple plus ten, and rounded up to the next multiple of 25 if the value was greater than the preceding multiple plus ten.

The rounded 2017 volumes for the movements at each intersection were then entered into the Synchro signal timing program to calculate the delays and Level of Service (LOS) for that intersection. The base Synchro models for the intersections were taken from the Synchro networks developed by VDOT's Northern Virginia district. The number of lanes for each movement were adjusted as appropriate to reflect capacity increases that would be completed by 2017.

Similar procedures were used for estimating the 2017 volumes at ramps where merge, diverge and weaving takes place. At these locations, the analyses were conducted using the Highway Capacity Software that replicates the procedures contained in the Highway Capacity Manual.

Model Application to Fort Belvoir Intersections

Within the Main Post, the regional model network incorporated selected roads: Kingman, Beulah, Gunston, Belvoir, Pohick and a few other road segments. Growth factors and the deltas reflecting changes in the absolute volumes of the road segments were derived from the differences in volumes assigned to the AM and PM time frames for the "Existing," "2017 No-Build," and "2017 Alternative 1" scenarios. Because these data were link-based, rather than the turning movement-based growth factors that were used outside the Main Post, a different procedure was used to generate the 2017 movement volumes for the scenarios.

The 2017 volume estimate for each intersection movement was developed from the existing volumes at the intersection and the growth factors for the links approaching the intersection and the growth factors for the links departing from the intersection. The first step was to apply the growth factor for each approach link to the movements associated with that link (i.e., the northbound left, through, and right turn volumes were multiplied by the growth factor on the northbound approach link). The second step was to apply the growth factor on the links departing from the intersection to the movements that contribute to that link (i.e., the volumes northbound departure link is comprised of volumes from the northbound through, the westbound right turn, and the eastbound left turn movements). Thus, two new values were obtained for each movement, one based on the growth factor for the approach link, and one based on the growth factor for the departing link. This pair of values for each movement was then averaged to derive the first 2017 volume for each movement.

A reasonableness check was performed for growth factors exceeding 100 percent. This check compared the new volume based on the growth factor with a new volume based on the absolute growth. If the new volume resulting from the absolute growth was less than the volume resulting from the application of the growth factor, the average of the two values was used in the computation of the new values for that link.

Table 5.9 Short-Term (2017) No-Build and Alternative 1
Operational Characteristics - Fort Belvoir Intersections[1]

		Type	AM Peak Hour				PM Peak Hour			
			No-Build		Alternative 1		No-Build		Alternative 1	
			LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
1	John J. Kingman Road and DLA West Gate	Signal	A	7.8	A	8.0	B	15.6	B	19.8
2	John J. Kingman Road and DLA East Gate	Signal	C	31.3	D	46.6	B	16.3	B	17.8
3	John J. Kingman Road and Beulah Street	Signal	D	43.9	D	52.8	C	32.6	D	37.7
4	John J. Kingman Road and Gunston Road	Signal	D	36.3	C	28.1	C	21.3	C	30.9
5	Gorgas Road and Woodlawn Road	Signal	C	23.8	C	22.8	C	25.3	C	33.2
6	Gunston Road and Abbot Road	Signal	C	26.9	C	22.6	D	35.7	D	35.6
7	Gunston Road and Goethals Road	Signal	C	33.9	D	37.2	B	18.0	B	18.7
8	Gunston Road and 1st Street	Signal	A	8.8	A	9.7	C	34.8	D	39.7
9	Gunston Road and 9th Street	Signal	A	6.0	A	6.2	A	7.2	A	7.3
10	Gunston Road and 12th Street/Pohick Road	Signal	C	34.3	C	34.1	C	21.8	C	25.5
11	Gunston Road and 16th Street	Signal	A	8.5	A	8.5	A	8.8	A	8.8
12	Gunston Road and 21st Street	4-way	B	11.4	B	11.7	B	12.7	B	13.8
13	Gunston Road and 23rd Street	3-way	B	13.7	B	14.5	B	10.8	B	12.3
14	Belvoir Road and Traffic Circle	Circle	B	14.8	C	15.2	A	8.6	A	9.2
15	Belvoir Road and Surveyor Road	Signal	A	7.4	A	7.0	A	7.5	A	7.8
16	Belvoir Road and 9th Street	Signal	A	8.1	A	8.5	B	10.1	A	9.9
17	Belvoir Road and 12th Street	Signal	B	14.6	B	15.7	A	7.2	A	8.4
18	Belvoir Road and 16th Street	2-way	A	5.0	A	6.2	B	10.7	C	32.5
19	Belvoir Road and 21st Street	4-way	A	9.4	A	9.7	A	9.0	A	9.6
20	Belvoir Road and 23rd Street	1-way	A	3.6	A	3.6	A	3.4	A	3.4
21	Theote Road and Pohick Road	Signal	A	4.1	A	4.1	B	10.4	B	10.6
22	Theote Road and 16th Street	2-way	A	3.6	A	3.6	A	3.6	A	3.6
23	Flagler Road and 21st Street	2-way	A	1.9	A	2.1	A	1.6	A	1.7
24	Mount Vernon Road and Surveyor Road	1-way	A	1.9	A	1.8	A	2.2	A	2.1
25	Mount Vernon Road and Gillespie Road	2-way	A	3.2	A	2.9	A	3.1	A	3.0
26	Gunston Road and 3rd Street	Signal	A	3.0	A	3.0	A	7.4	A	8.8
27	Gunston Rd and Jackson Loop Road North	Signal	A	6.9	A	6.8	A	9.4	A	7.3

(1) Operational Characteristics, LOS analysis, based on SDDCTEA standards.

Table 5.10 Short-Term (2017) No-Build and Alternative 1
Operational Characteristics - Public Road Intersections

		Type	AM Peak Hour				PM Peak Hour			
			No-Build		Alternative 1		No-Build		Alternative 1	
			LOS	Metric	LOS	Metric	LOS	Metric	LOS	Metric
28	Franconia-Springfield Parkway Eastbound Exit Ramp to Rolling Road	Diverge	E	39.1 pc/mi/ln	E	39.7 pc/mi/ln*	B	15.1 pc/mi/ln	B	15.1 pc/mi/ln
29	Franconia-Springfield Parkway Westbound on Ramp from Rolling Road	Merge	A	<1.0 pc/mi/ln[1]	A	<1.0 pc/mi/ln[1]	D	28.47 pc/mi/ln[2]	D	28.74 pc/mi/ln[2]
30	Franconia-Springfield Parkway and Spring Village Drive	Intersn	C	27.6 s/v	C	28.8 s/v**	C	32.7 s/v	C	32.7 s/v
31	Backlick Road at Franconia-Springfield Parkway Eastbound Ramps	Intersn	D	38.2 s/v	D	38.5 s/v	C	26.0 s/v	C	25.0 s/v
32	Backlick Road at Franconia-Springfield Parkway Westbound Ramps	Intersn	C	30.1 s/v	C	30.6 s/v	B	18.9 s/v	B	18.8 s/v
33	Franconia-Springfield Parkway and Interstate 95 HOV Ramps	Intersn	B	19.9 s/v	C	20.1 s/v	F	171.7 s/v[3]	F	178.4 s/v[3]
34	Frontier Drive at Franconia-Springfield Parkway Eastbound Ramps	Intersn	D	36.3 s/v	D	43.8 s/v	C	30.9 s/v	C	30.5 s/v
35	Frontier Drive at Franconia-Springfield Parkway Westbound Ramps	Intersn	C	30.0 s/v	C	34.3 s/v	C	20.7 s/v	C	20.4 s/v
36	Franconia-Springfield Pkwy and Beulah St	Intersn	F	141 s/v	F	137.1 s/v	F	139.6 s/v	F	140.5 s/v
37	Southbound Barta Road to Eastbound Fairfax County Parkway	Merge	A	2.2 pc/mi/ln	A	2.6 pc/mi/ln	A	<1.0 pc/mi/ln[4]	A	<1.0 pc/mi/ln[4]
38	Barta Road at Fairfax County Parkway Eastbound Ramps	Intersn	C	32.0 s/v	C	31.9 s/v	C	26.1 s/v	C	26.1 s/v
38a	Fairfax County Parkway Southbound exit to Barta Road	Diverge	B	14 pc/mi/ln	B	14.1 pc/mi/ln	A	7.0 pc/mi/ln	A	7.2 pc/mi/ln
39	Barta Road at Fairfax County Parkway Westbound Ramps	Intersn	B	14.4 s/v	B	14.4 s/v	B	11.1 s/v	B	10.6 s/v
39a	Westbound Barta Road entrance to ramp to Fairfax County Parkway	Merge	A	7.0 pc/mi/ln	A	7.0 pc/mi/ln	B	13.8 pc/mi/ln	B	13.9 pc/mi/ln
40	Northbound Barta Road to Westbound Fairfax County Parkway	Merge	A[5]	7.3 pc/mi/ln	A[5]	7.3 pc/mi/ln	B[6]	13 pc/mi/ln	B[6]	13.1 pc/mi/ln
41	Northbound Barta Road to Eastbound Fairfax County Parkway	Merge	B	12.4 pc/mi/ln	B	12.7 pc/mi/ln	A	4.8 pc/mi/ln	A	4.8 pc/mi/ln
42	Barta Road and Backlick Road	Intersn	B	17.3 s/v	B	16.4 s/v	B	17.1 s/v	B	17.1 s/v
43	Interstate 95 HOV Access Ramp	Merge	Not Open to Traffic				C	24.1 pc/mi/ln	C	24.4 pc/mi/ln
44	I-95 Southbound Exit Ramp to Heller Road	Weave	B	11.5 pc/mi/ln	B	11.6 pc/mi/ln	B	12.9 pc/mi/ln	B	12.8 pc/mi/ln
45a	Fairfax County Pkwy SB/EB Weave over I-95	Weave	C	27.2 pc/mi/ln	D	28.1 pc/mi/ln	C	20.3 pc/mi/ln	C	20.3 pc/mi/ln
45b	Fairfax County Parkway NB/WB Weave over I-95	Weave	C	20.1 pc/mi/ln	B	18.6 pc/mi/ln	B	15.9 pc/mi/ln	B	15.7 pc/mi/ln
46	Fairfax County Parkway and Loisdale Road	Intersn	D	40.7 s/v	D	43.4 s/v	C	23.1 s/v	C	24.0 s/v
47	Fairfax County Parkway and Terminal Road	Intersn	C	31.4 s/v	D	35.6 s/v	C	33.5 s/v	C	34.4 s/v
48	Fairfax County Parkway and 750' South of Terminal Road	Intersn	A	7.2 s/v	A	7.4 s/v	A	9.6 s/v	A	9.7 s/v

* pc/mi/ln = personal car/mile/lane (density)

** s/v = seconds/vehicle (delay)

1. *Site 29 AM - Density for No-Build and Short-Term (2017) Alt. 1 is negligible.*
2. *Site 29 PM - 2017 Densities derived with VISSUM for increased accuracy.*
3. *Site 33 PM - Southbound right turn exiting from HOT lane more than doubles. Eastbound right and westbound left turns onto southbound HOT Ramp increase by more than 150%.*
4. *Site 37 PM - Density is negligible.*
5. *Site 40 AM - LOS based on segment density after Merge.*
6. *Site 40 PM - LOS based on segment density after Merge.*

Table 5.10 Short-Term (2017) No-Build and Alternative 1
Operational Characteristics - Public Road Intersections (continued)

		Type	AM Peak Hour				PM Peak Hour			
			No-Build		Alternative 1		No-Build		Alternative 1	
			LOS	Metric	LOS	Metric	LOS	Metric	LOS	Metric
49	Telegraph Road and Hayfield Road	Intersn	F	198.5 s/v[7]	F	196.7 s/v[7]	F	104.4 s/v[8]	F	105.6 s/v[8]
50	Telegraph Road and Mulligan Road	Intersn	D	42.8 s/v	D	46.7 s/v	E	55.7 s/v[9]	E	59.9 s/v[9]
51	Telegraph Road and Road B (DCEETA Entrance)	Intersn	A	5.3 s/v	A	5.0 s/v	C	28.7 s/v	C	28.9 s/v
52	Beulah Street and Telegraph Road	Intersn	E	59.8 s/v	E	64.6 s/v	D	39.9 s/v	D	39.2 s/v
53	Telegraph Road and Newington Road	Intersn	B	10.7 s/v	B	11.4 s/v	B	13.1 s/v	B	13.3 s/v
54	Telegraph Road at Fairfax County Parkway Eastbound Ramps	Intersn	C	21.7 s/v	C	22.6 s/v	C	20.2 s/v	C	21.3 s/v
54a	Fairfax County Parkway Southbound exit to Telegraph Road	Diverge	B	17.2 pc/mi/ln	B	18.3 pc/mi/ln	A	9.4 pc/mi/ln	A	9.8 pc/mi/ln
54b	Telegraph Road Southbound exit to Fairfax County Parkway	Merge	B	17.5 pc/mi/ln	B	18.2 pc/mi/ln	A	6.2 pc/mi/ln	A	6.8 pc/mi/ln
55	Telegraph Road at Fairfax County Parkway Westbound Ramps	Intersn	B	12.4 s/v	B	12.7 s/v	C	25.7 s/v	C	29.3 s/v
55a	Telegraph Road entrance to Fairfax County Parkway Northbound	Merge	B	12.4 pc/mi/ln	B	12.6 pc/mi/ln	B	12.8 pc/mi/ln	B	12.9 pc/mi/ln
55b	Fairfax County Parkway Northbound exit to Telegraph Road	Diverge	A	6.2 pc/mi/ln	A	6.6 pc/mi/ln	B	14 pc/mi/ln	B	15.2 pc/mi/ln
56	Fairfax County Parkway at Ehlers Road	Intersn	Reserved for possible future National Museum of the U.S. Army intersection							
57	Fairfax County Pkwy & John J. Kingman Rd	Intersn	D	50.9 s/v	E	55.7 s/v[10]	D	36.3 s/v	D	39.1 s/v
58	Lorton Road and Interstate 95 Southbound Ramps	Intersn	B	14.9 s/v	B	15.4 s/v	E	56 s/v	E	55.8 s/v
59	Lorton Road and I-95 Northbound Ramps	Intersn	D	54.7 s/v	D	54.4 s/v	D	43.8 s/v	D	44.4 s/v
60	Route 1 and Lorton Road	Intersn	D	54.0 s/v	E	58.3 s/v	C	25.5 s/v	C	26.4 s/v
61	Route 1 and Pohick Road	Intersn	C	27.0 s/v	C	29.3 s/v	B	12.1 s/v	B	18.4 s/v
62	Route 1 and Telegraph Rd/Old Colchester Rd	Intersn	D	50.3 s/v	D	49.7 s/v	C	20.4 s/v	D	23.0 s/v
63	Route 1 and Fairfax County Parkway	Intersn	C	23.9 s/v	C	23.5 s/v	C	21.6 s/v	C	21.7 s/v
64	Pohick Road and Route 1	Intersn	C	36.5 s/v	C	26.3 s/v	D	49.2 s/v	D	50.1 s/v
65	Belvoir Road and Route 1	Intersn	C	29.3 s/v	C	30.9 s/v	D	37.4 s/v	D	42.3 s/v
66	Woodlawn Road and Route 1	Intersn	A	0.8 s/v	A	1.3 s/v	A	0.2 s/v	A	1.6 s/v
67	Mulligan Road and Mill Road/Pole Road (SC)	Intersn	C	27.2 s/v	C	28.5 s/v	D	47.6 s/v	D	50.4 s/v
68	Mount Vernon Memorial Highway and Rte 1	Intersn	E	72.8 s/v[11]	E	72.8 s/v[11]	F	118.2 s/v[11]	F	115.3 s/v[11]
69	Mount Vernon Memorial Highway and Mount Vernon Road (SC)	STOP Sign	C	21.6 s/v	C	25.2 s/v	D	62.2 s/v	D	84.6 s/v

7. Site 49 AM - Significant northbound left turn volume increase from Telegraph Road eastbound to Hayfield northbound exceeds storage

8. Site 49 PM - Southbound right more than doubles and eastbound left increases by 75%.

9. Site 50 PM - Northbound lane assignment is not optimal.

10. Site 57 AM - The average 2017 AM queue length for the southbound left turn into Kingman Road is approximately 1225 feet.

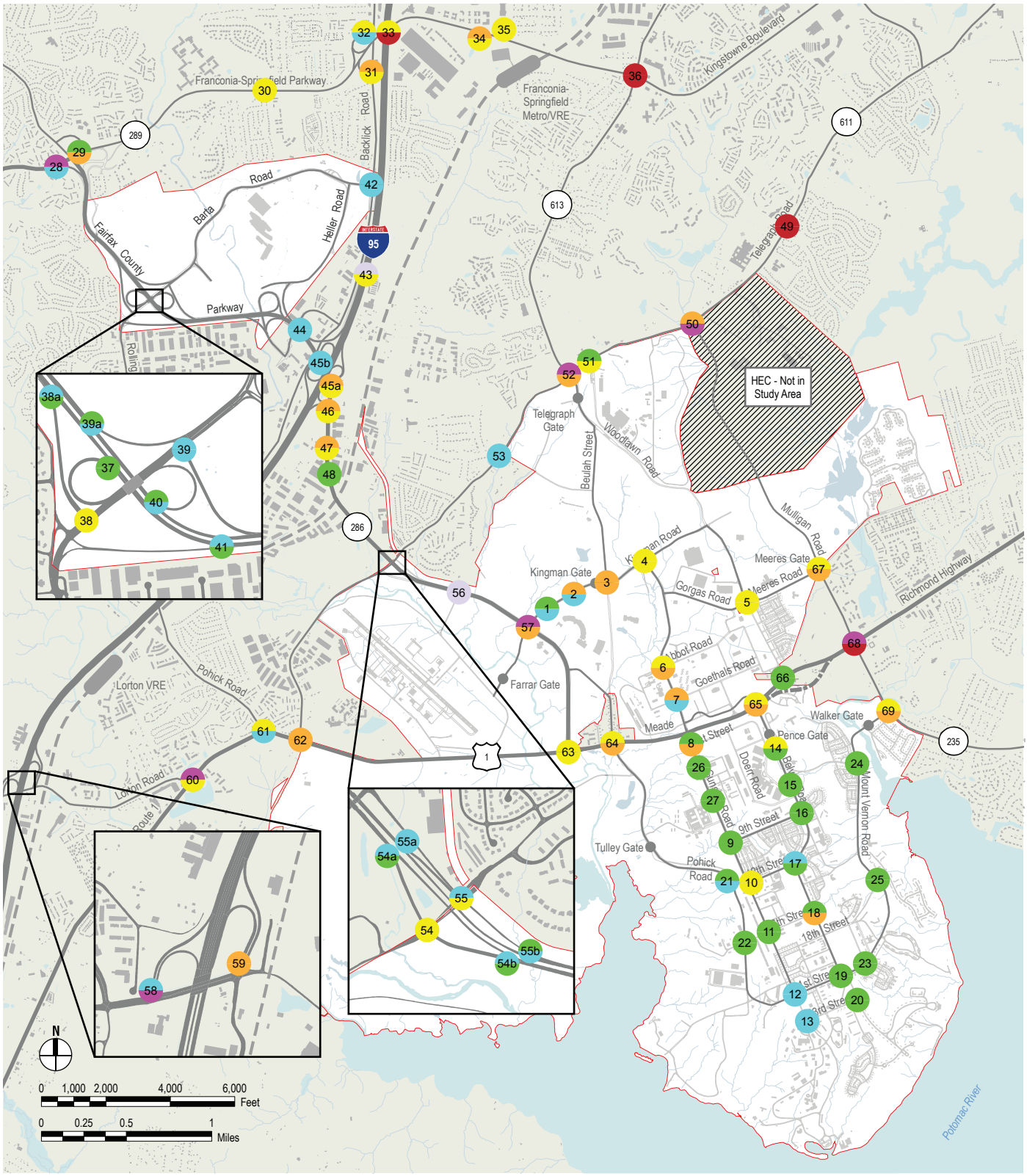
11. Site 68 AM and PM - Synchro based on two through lanes on US Route 1.

Intersection Level of Service Ranges (Average Delay per Vehicle)			
A	≤ 10 Sec/veh	**D**	> 35 - 55 Sec/veh
B	> 10 - 20 Sec/veh	**E**	> 55 - 80 Sec/veh
C	> 20 - 35 Sec/veh	**F**	> 80 Sec/veh

LOS for Merge, Diverge and Weaving Areas* (Passenger cars/mile/lane)			
A	≤ 10 pc/mi/ln	**D**	> 28 - 35 pc/mi/ln
B	> 10 - 20 pc/mi/ln	**E**	> 35 pc/mi/ln
C	> 20 - 28 pc/mi/ln	**F**	Demand > Capacity

* Weaving area LOS based on density on "Freeways"

Figure 5.10 Short-Term (2017) Level of Service



Fort Belvoir Affected Intersections

Since more trips are generated by Alternative 1 than the No-Build Scenario, the traffic volumes associated with Alternative 1 are higher than the No-Build scenario at most locations. Because the difference between these scenarios is generally minor in all but a few cases, the Level of Service (LOS) at the sites of interest in the project are the same for both scenarios. However, the increased volumes resulting from the change from the 2017 No-Build Scenario to the 2017 Alternative 1 scenario causes a decline in LOS at five locations: one from B to C, two from C to D, and two from D to E. These sites and LOS changes are identified in Table 5.11. The significance of these individual changes is discussed in the following paragraphs:

- **Site 33 AM Franconia-Springfield Parkway at I-95 HOV Ramps**: The data for this location reveals that the volumes exiting and entering the southbound High Occupancy Toll (HOT) lane more than double. Inspection of the Synchro outputs for this intersection show that the average delay of 19.9 seconds per vehicle in the No-Build condition increases by 0.2 seconds to 20.1 seconds per vehicle in the Alternative 1 Scenario. Ordinarily a change this small would go unnoticed, but since the boundary between LOS B and LOS C is 20.0 seconds per vehicle this change in delay results in a change in the LOS. Because LOS D or better is considered acceptable in urban areas, and the HOT operator is making changes that will facilitate their operation, it is recommended that future public resources be focused on improvements needed at other locations.
- **Site 45a AM Southbound Weave over I-95**: Highway weaving sections are formed when an entrance ramp is closely followed by an exit ramp, and the acceleration lane from the entrance ramp is extended and becomes the deceleration lane of the exit ramp. A tracing of the paths of vehicles entering the highway and the paths of vehicles exiting the highway in this area shows how the vehicles change lanes, and the paths weave their way across each other. The Weaving analysis at site 45a (like the analyses conducted at all merge, diverge and weaving areas) was conducted using HCS 2010 Version 6.3, which follows the analysis procedures indicated in the Highway Capacity Manual.[1] The metric that is used for determining LOS in merge, diverge and weaving areas is density (the number of vehicles in the roadway segment) and is measured in passenger cars/mile/lane (pc/mi/ln).

  During the AM peak, the southbound weaving section of Fairfax County Parkway over I-95 is projected to have a density of 27.2 pc/mi/ln under the No-Build Scenario, and a density of 28.1 pc/mi/ln under the Alternative 1 scenario. Although these densities differ by less than 1 car per mile per lane, they correspond to LOS C and D respectively, because the diving point between LOS C and LOS D is 28.0 pc/mi/ln. A change this small would normally not be noticed, and since LOS D or better is considered acceptable in urban areas, it is recommended that future resources be focused on improvements needed at other locations.
- **Site 47 AM Fairfax County Parkway at Terminal Road**: There are three closely-spaced intersections on the Fairfax County Parkway east of I-95: Loisdale Road (and the I-95 northbound to eastbound and Loisdale exit); Terminal Road; and the intersection 750 feet south of Terminal Road. These three intersections interrupt the progression of vehicles through this area in both directions. The additional vehicles associated with the increased trips generated by Alternative 1 when compared with the No-Build Alternative, results in increased delay of about 4 seconds per vehicle at the Fairfax County Parkway at Terminal Road intersection, and the change from 31.4 sec/veh (LOS C) to 35.6 sec/veh (LOS D) crosses the boundary of 35.0 sec/veh that separates these LOS categories. It is worth noting that the intersection of Fairfax County Parkway at Loisdale Road operates at LOS D under both the No-Build and Alternative 1 scenarios. It is recommended that the improvement of the Fairfax County Parkway at Terminal Road intersection be implemented as part of a holistic solution to the delay problems in this area of the Parkway.
- **Site 57 AM Fairfax County Parkway at Kingman Road**: The implementation of Alternative 1 as compared with the No-Build Condition results in increased delays at this intersection. The delays per vehicle change from 50.9 sec/veh (LOS D) to 55.7 sec/veh (LOS E) respectively.

  The Fairfax County Parkway is the main road leading to Fort Belvoir from the west, and this intersection Manual.[2] :he most heavily utilized entrance to the North Post. Its importance cannot be overemphasized. The morning queues for the left turn into the North Post are long and exceed the storage capacity of the left turn lanes. It is strongly recommended that these left turn bays be significantly lengthened and a third left

2. Highway Capacity Manual 2010 - Transportation Research Board, Washington, D.C.

Table 5.11 Fort Belvoir 2017 Affected Intersections

Site	Location	LOS Change and Delay (seconds/vehicle) or Density (passenger car/mile/lane)	LOS
#33 AM	Franconia-Springfield Parkway at I-95 HOV Ramps	LOS B (19.9 sec/veh) to LOS C (20.1 sec/veh)	LOS D or better
#45a AM	Southbound weave over I-95	LOS C (27.2 pc/mi/ln) to LOS D (28.1 pc/mi/ln)	
#47 AM	Fairfax County Parkway at Terminal Road	LOS C (31.4 sec/veh) to LOS D (35.6 sec/veh)	
#57 AM	Fairfax County Parkway at Kingman Road	LOS D (50.9 sec/veh) to LOS E (55.7 sec/veh)	LOS E
#60 AM	Route 1 at Lorton Road	LOS D (54.0 sec/veh) to LOS E (58.3 sec/veh)	

turn lane be constructed at the intersection. As part of this construction, an additional eastbound receiving lane must be constructed on Kingman Road, and this third through lane should extend to Beulah Street. This improvement should also include the construction of an additional inspection lane at the Kingman Gate.

- **Site 60 AM Route 1 at Lorton Road**: The delay change at this intersection, although less than 10 percent, results in the shift in the LOS associated with that delay value. Under the No-Build condition, the average delay per vehicle is 54.0 sec/veh (LOS D), while under Alternative 1, the average delay per vehicle is 58.3 sec/veh (LOS E). The boundary between these LOS values is 55 seconds per vehicle.

  Like Fairfax County Parkway, which is the main road to Fort Belvoir from the west, Route 1 is the main road to Fort Belvoir from the south. A large number of vehicles from the south travel north on I-95, exit onto Lorton Road, and then turn left onto Route 1 northbound. (Almost no one turns right from Lorton Road to go south on Route 1.) In the short term, it is recommended that the third lane on the Lorton Road approach be converted to a left turn lane. In the long run, additional capacity improvements may be required.

5.8 Long-Term Travel Demand Results (2018-2030)

The long-term travel demand in the study area was evaluated in terms of estimated V/C ratios for the AM and PM peak hours in 2030, under the No-Build (Figures 5.11 and 5.12) and Build Alternatives (Figures 5.13 and 5.14). The V/C ratios are expressed in the figures as congestion levels that define the roadway segments as:

- Under Capacity = LOS D or better
- Near Capacity = LOS E
- Over Capacitiy = LOS F

The results are summarized as:

- Several roadway segments entering the study area are likely to be over capacity in 2030 under the No-Build condition, including U.S. Route 1, Telegraph Road (between U.S. Route 1 and Fairfax County Parkway, West of Hayfield Road), Fairfax County Parkway (between I-95 and Telegraph Road), and Beulah Street (close to Franconia-Springfield Parkway) in the commuting rush hours.
- The performance on these roadway segments under the Build Alternative will likely get worse but mostly remain in the same LOS categories as the No-Build, except for a few segments.
- There are some potential roadway congestion issues for a few roadway segments at FBNA and the Main Post under the No-Build Condition (e.g., Barta Road, Kingman Road between Fairfax County Parkway and Beulah Street).
- Build Alternative 1 will likely lead to worsening congestion level for some roadway segments inside the study area, including Beulah Street between Kingman Road and Telegraph Road, Kingman Road between Fairfax County Parkway and Beulah Street, and Barta Road.
- Roadways connecting the two sides of Route 1 in the Main Post area are expected to work under capacity for the AM and PM peak hours (e.g., Gunston Road).

Previous studies have identified the future congestion issues and the need for improvements for major access roadways in the study area, including Route 1, Fairfax County Parkway, and Telegraph Road. This analysis confirms the previous findings.

This analysis reaffirms several of the previous findings noted in **Section 5.2 Relevant Studies** and carries forward a comprehensive list of Recommended Long-Term Transportation Improvements to guide the Fort Belvoir area. (See Section 5.10.)

Figure 5.11 Long-Term (2030) No Build - AM

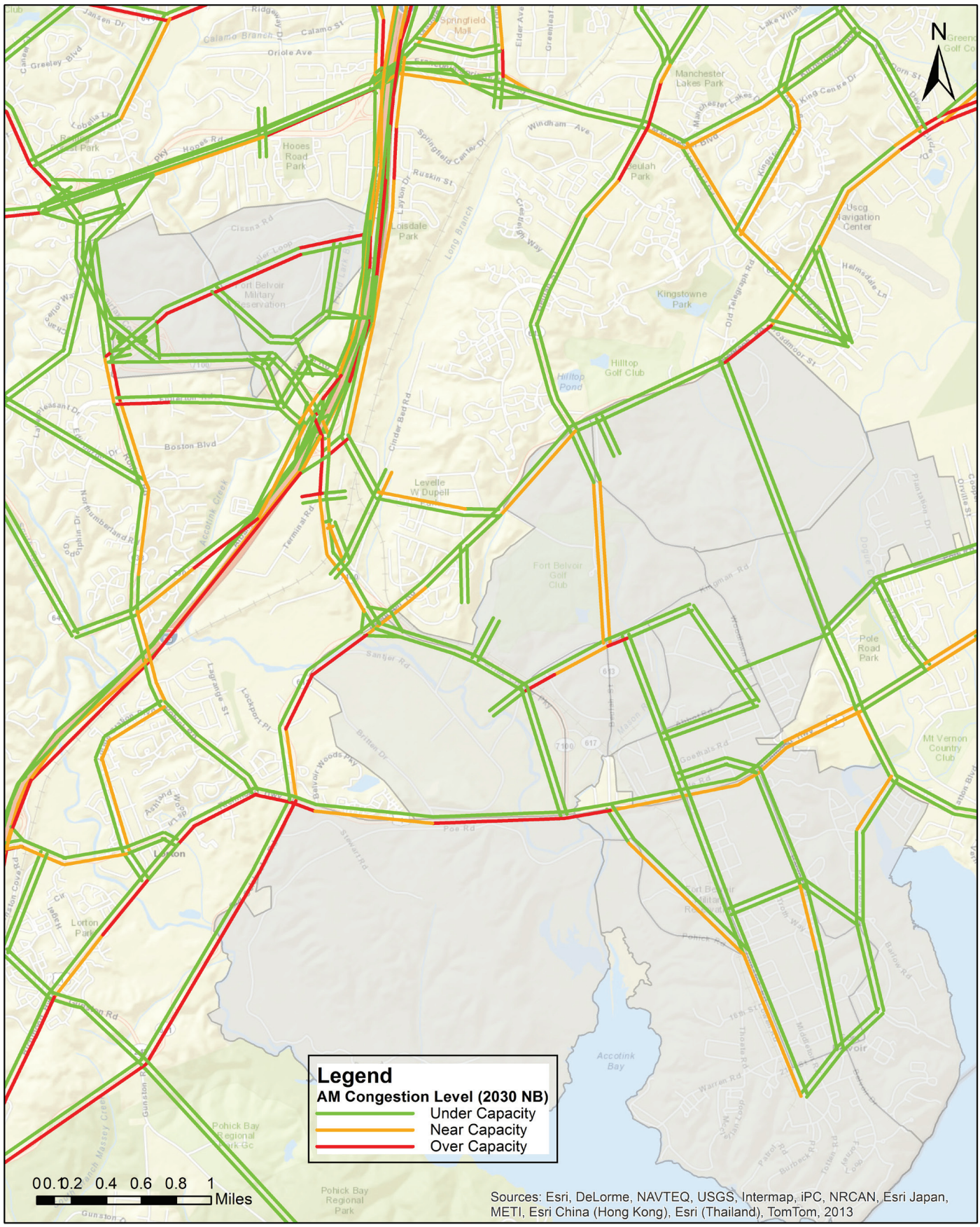


Figure 5.12 Long-Term (2030) No Build - PM

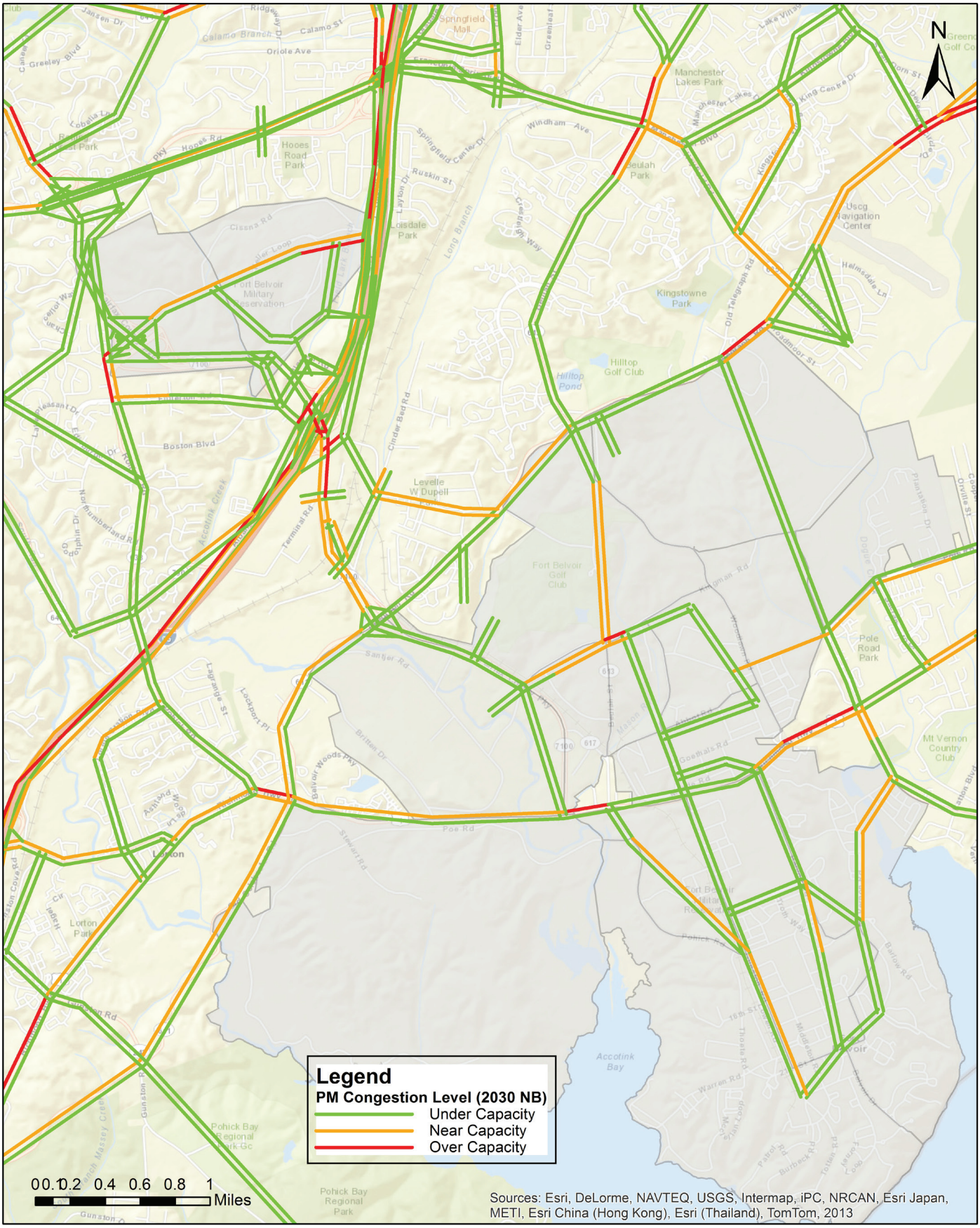


Figure 5.13 Long-Term (2030) Alt1 Build - AM

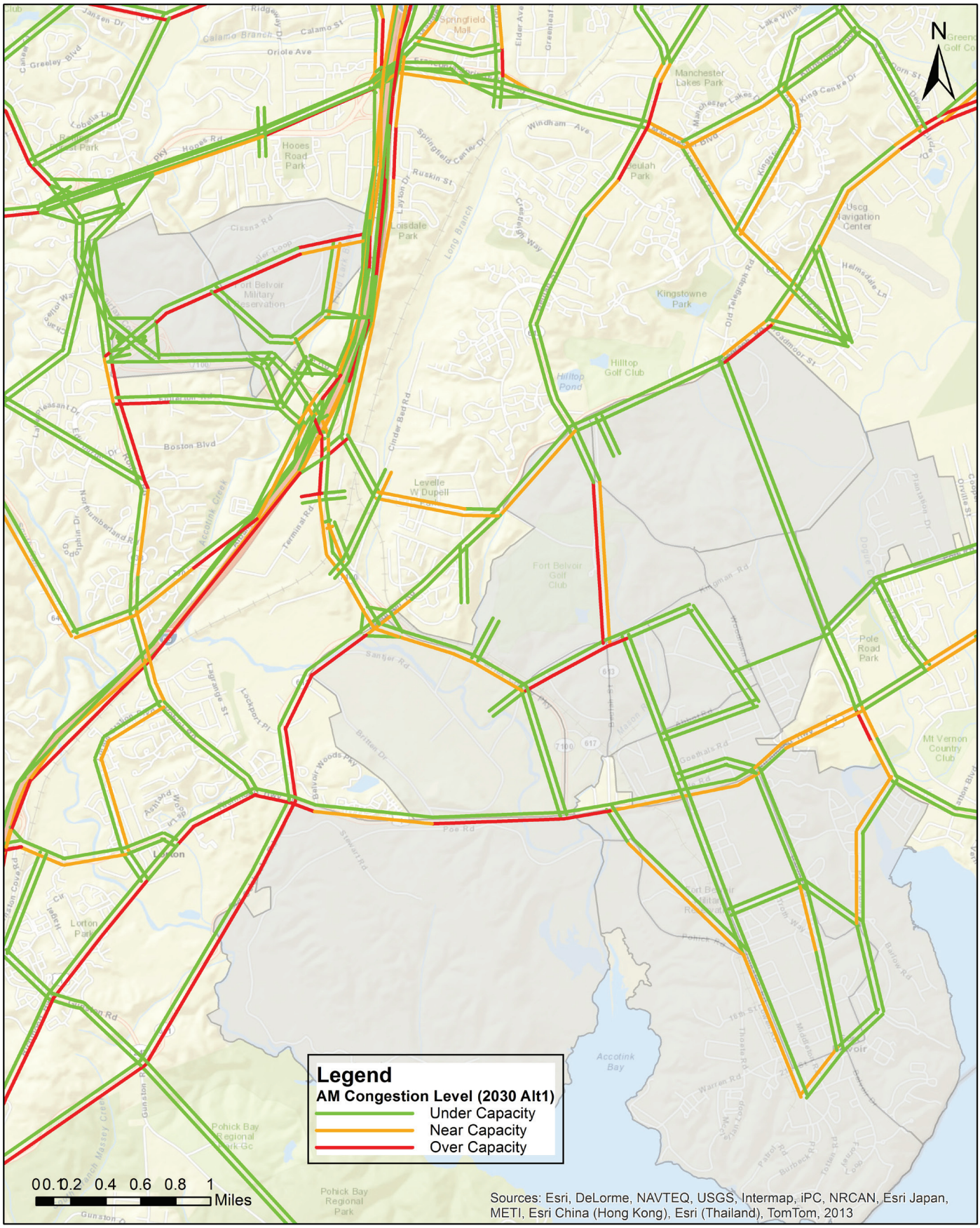
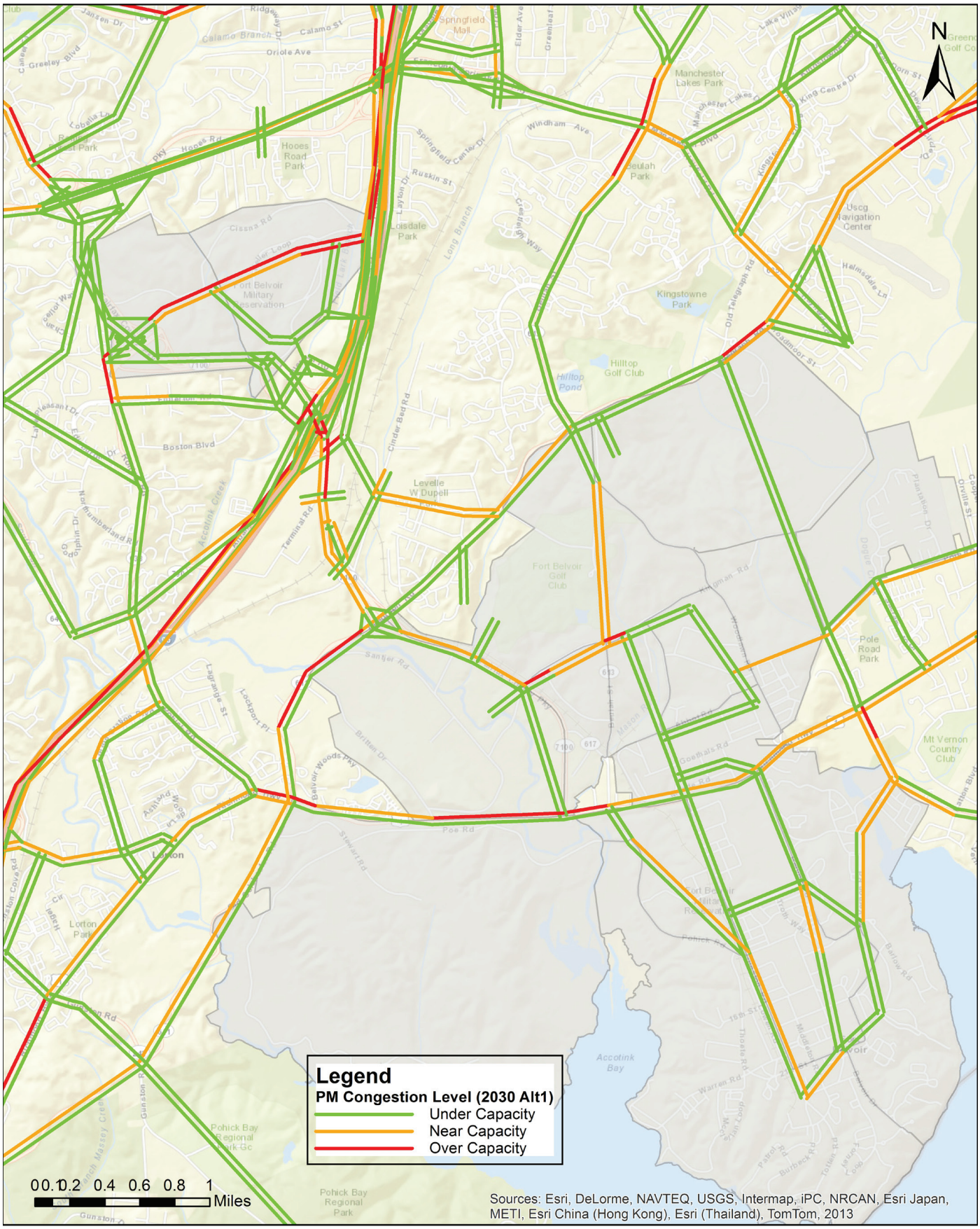


Figure 5.14 Long-Term (2030) Alt1 Build - PM



5.9 Effects of Travel Demand Management Strategies

In Sections 6 and 7 of this TMP, several short-term and long-term strategies are described to achieve SOV trip reduction to:

- A maximum of 75 percent of SOV modal split or at least 25 percent of its commuting population using non-SOV travel options by 2017.
- A maximum of 60 percent of SOV modal split or at least 40 percent of its commuting population using non-SOV travel options by 2030.

These goals translate to a reduction to 35,100 daily vehicle trips by 2017 and a reduction to 33,700 vehicle trips by 2030. A detailed summary of the total short- and long-term workforce vehicle trips Main Post, DAAF and FBNA based on the target mode split goals are presented in Tables 7.24 and 7.25 in **Section 7 Implementation**.

To analyze the effectiveness of Fort Belvoir TMP strategies to mitigate 2030 congestion, the refined 2030 model for Build Alternative 1 (Full Implementation) was run with an assumption of 60 percent SOV modal split for commuter trips. In addition, two intermediate SOV modal splits were tested, including 65 percent and 70 percent.

The model outputs were able to identify the differences in V/C ratios between the original Build Alternative 1 and Build Alternative with three levels of SOV targets. Major findings are summarized as follows:

- With a target of 70 percent SOV, the effects on the estimated V/C ratios are expected to be small for the study and general areas, with only a few roadway segments in the study area getting noticeably better, including Barta Road, Heller Road and Pohick Road;
- With a target of 65 percent SOV, the effects on the estimated V/C ratios are expected to be more noticeable for the study and general areas, with an increasing number of roadway segments in the study area getting noticeably better, including Barta Road, Rolling Road between Fullerton Road and Fairfax County Parkway, Fairfax County Parkway between Telegraph Road and Kingman Road, Beulah Street, and Pohick Road;
- With a target of 60 percent SOV, a considerable number of roadway segments in the study area have their estimated V/C ratios become noticeably better. For example, during the AM peak, Telegraph Road eastbound near Route 1, Fairfax County Parkway southbound at Telegraph Road, and Rolling Road northbound near Fullerton Road are expected to perform at an LOS grade better than Build Alternative 1; during the PM peak, Telegraph Road westbound west of Fairfax County Parkway and Route 1 westbound west of Pohick Road are estimated to have a better LOS grade.

Figures 5.15 and 5.16 show the effect of 60 percent SOV for the AM and PM peak hours for the 2030 Alternative 1 Build condition.

Figure 5.15 Long-Term (2030) Alt1 Build - AM 60% SOV

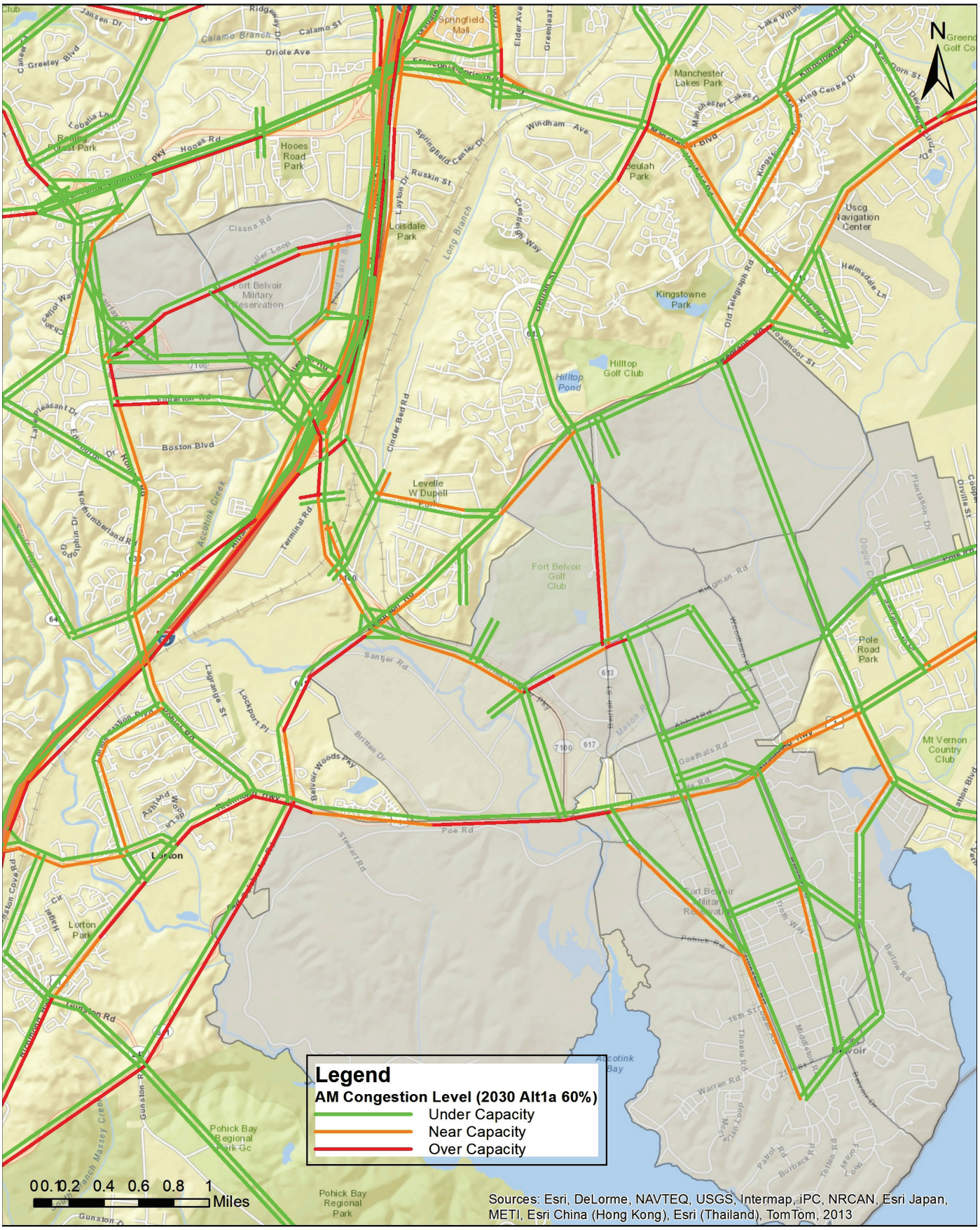
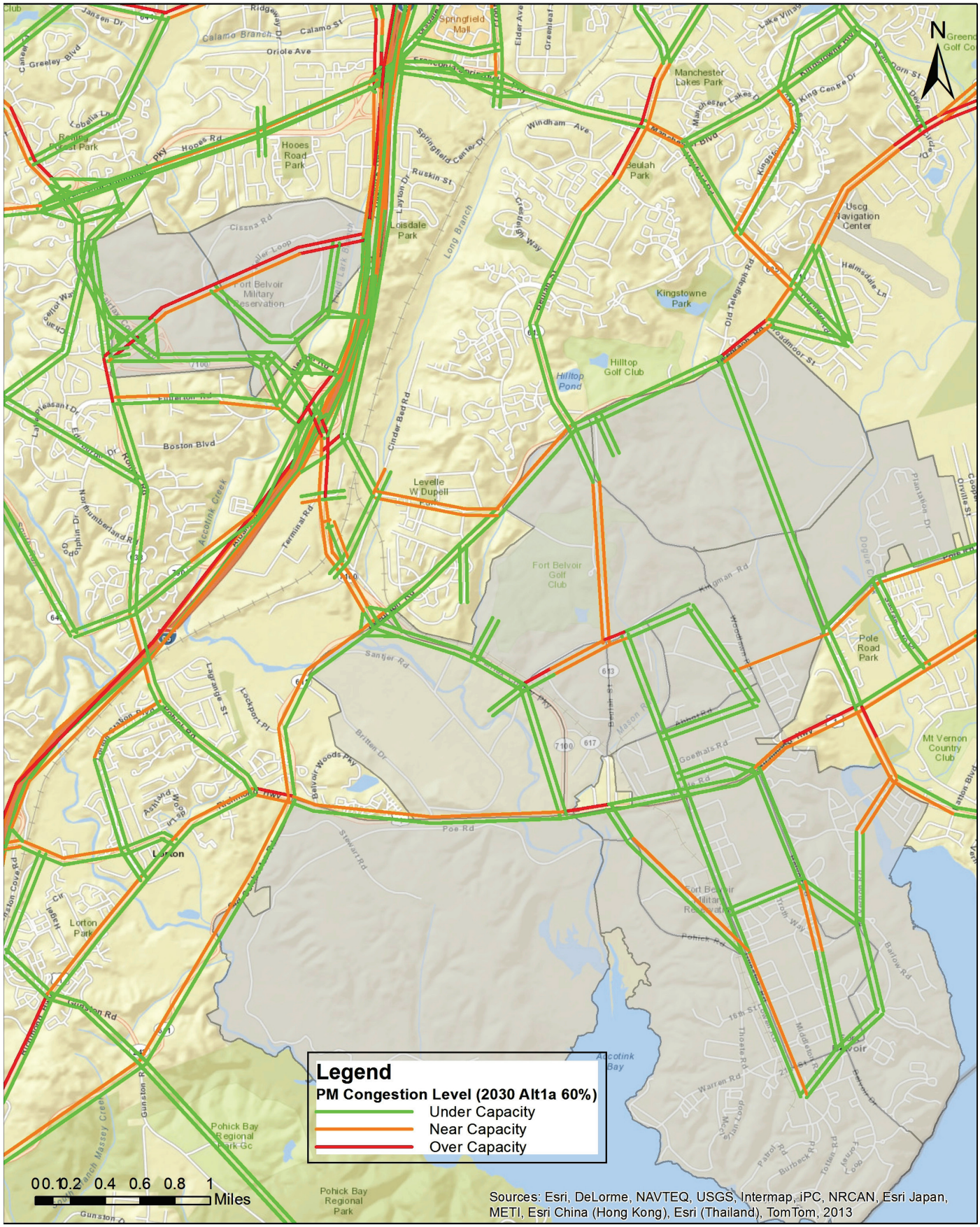


Figure 5.16 Long-Term (2030) Alt1 Build - PM 60% SOV



5.10 Conclusions and Recommendations

2017 and 2030 Installation Transportation Improvements

The recommended short- and long-term improvements to the Installation roadway network are described below based on two categories:

- **On-Post improvements** which describe improvements that are wholly internal to the Installation boundary; and connections to the regional roadway network, which describe improvements that are located along the Installation boundary, therefore involving both access roads to the Installation and regional roadways.
- **Off-Post Regional improvements** that are wholly external to the Installation (i.e., reflecting initiatives of regional, state, and local agencies) are described in **Section 2 Regional Transportation Plans**. The regional improvements that will most directly influence Fort Belvoir's traffic growth and SOV driver behavior are shown in the recommended list of transportation improvements and accompanying maps and are provided for planning level guidance. Fort Belvoir supports these improvements that will enhance the mobility of travelers throughout northern Virginia and the region. This has included funding of the project and reserving Installation right-of- way for the Route 1 widening (on Main Post) and the future Fairfax County Parkway intersection and ramp improvements (on FBNA). The recent completion and opening of the Fairfax County Parkway has significantly reduced the travel time and increased accessibility between Fort Belvoir and points west in Fairfax County.

On-Post Improvements (Short- and Long-Term)

In the short term, the existing roadway network has the capacity to support the projected population increases, with the following improvements:

- **Mulligan Road** will address the movement between Telegraph Road and Route 1, which was made more circuitous when local traffic was barred from using Beulah Street after 11 September 2001. Traffic volume is expected to decrease on the Fairfax County Parkway.
- **Telegraph Road** will be widened to four lanes from Mulligan Road to Beulah Road. This is a proffered improvement associated with the Hilltop Shopping Center.
- **Lieber Gate Access Road** will complete the four-leg intersection of Route 1 and Belvoir Road and provide access between Route 1 and Gunston Road. Lieber Gate significantly improves access to the North Post.
- **Route 1** widening from 4 lanes to 6 lanes that will improve traffic flow along the corridor and at two entry points into Fort Belvoir at Pohick Road (access to Tulley Gate) and Belvoir Road (access to Pence Gate).

The potential need for additional improvements will be evaluated as new projects come online based on agency-level TMPs or Installation-led projects may warrant. These types of site-specific improvements may include new signals, signal timing improvements, and minor intersection and/or site access turn lane improvements. Major long-term improvements to the roadway network within Fort Belvoir are identified as the following:

- Improvements to Heller Road on Fort Belvoir North Area
- Improvements to Kingman Road and its access control point
- Improvements to Goethals Road between Belvoir Road and Gunston Road

Table 5.12 Recommended Short-term Transportation Improvements (2011-2017)

Map ID	Transportation Improvement
1	(1) Complete Fairfax County Parkway Phase 3; Army has reserved 120 acres of right-of-way improvements.
2	(1) Complete Mulligan Road (4 lanes) from Route 1 to Telegraph Road.
3	(1) Widen Telegraph Road (from 2 lanes to 4 lanes) from Beulah Street to Mulligan Road.
4	Construct Lieber Gate, which provides an additional access point from Route 1.
5	Improve Kingman Road and Fairfax County Parkway intersection: add/expand left and right turn lanes and signal upgrades as needed.
6	Evaluate a Transit Transfer Center at either Pence Gate to connect the Medical District to Route 1 or 12th Street and Gunston Road to connect the Town Center to existing public transit services. Final location to be determined based on demand. Transit Center consists of such elements as a covered lighted shelter, pedestrian plaza area, way-finding signage information kiosk, bike share/storage areas, etc.
7	(1) Construct I-95 HOV access ramp to FBNA.
8	(1) Widen Route 1 (from 4 lanes to 6 lanes), completed by 2016.
9	Evaluate on-Post intersections and roads for improvements (e.g., new signals, signal improvements, intersection and entry turn lanes, Kingman Road widening to PX/Commissary), based on Agency-level TMP traffic analysis results and as new projects occur and modify as needed.
10	(1) Widen I-95 (11 lanes) including Express/HOV lanes.
11	Improve Walker Gate and Mount Vernon Memorial Highway intersection.
12	Monitor outbound PM turning movements at Pohick Road and Route 1 for possible extension of third northbound approach lane.
13	Coordinate with VDOT and FCDOT to conduct traffic counts at the Route 1 and Mulligan Road intersection and at Mulligan Road and Telegraph Road intersection within 2 years upon completion of the widening of Route 1 and Mulligan. If a LOS D or E results are obtained, evaluate improvement options.
14	Study options to improve intersection at Lorton Road and Route 1

(1) Transportation improvements that are under construction and being completed.

Figure 5.17 Recommended Short-Term Transportation Improvements

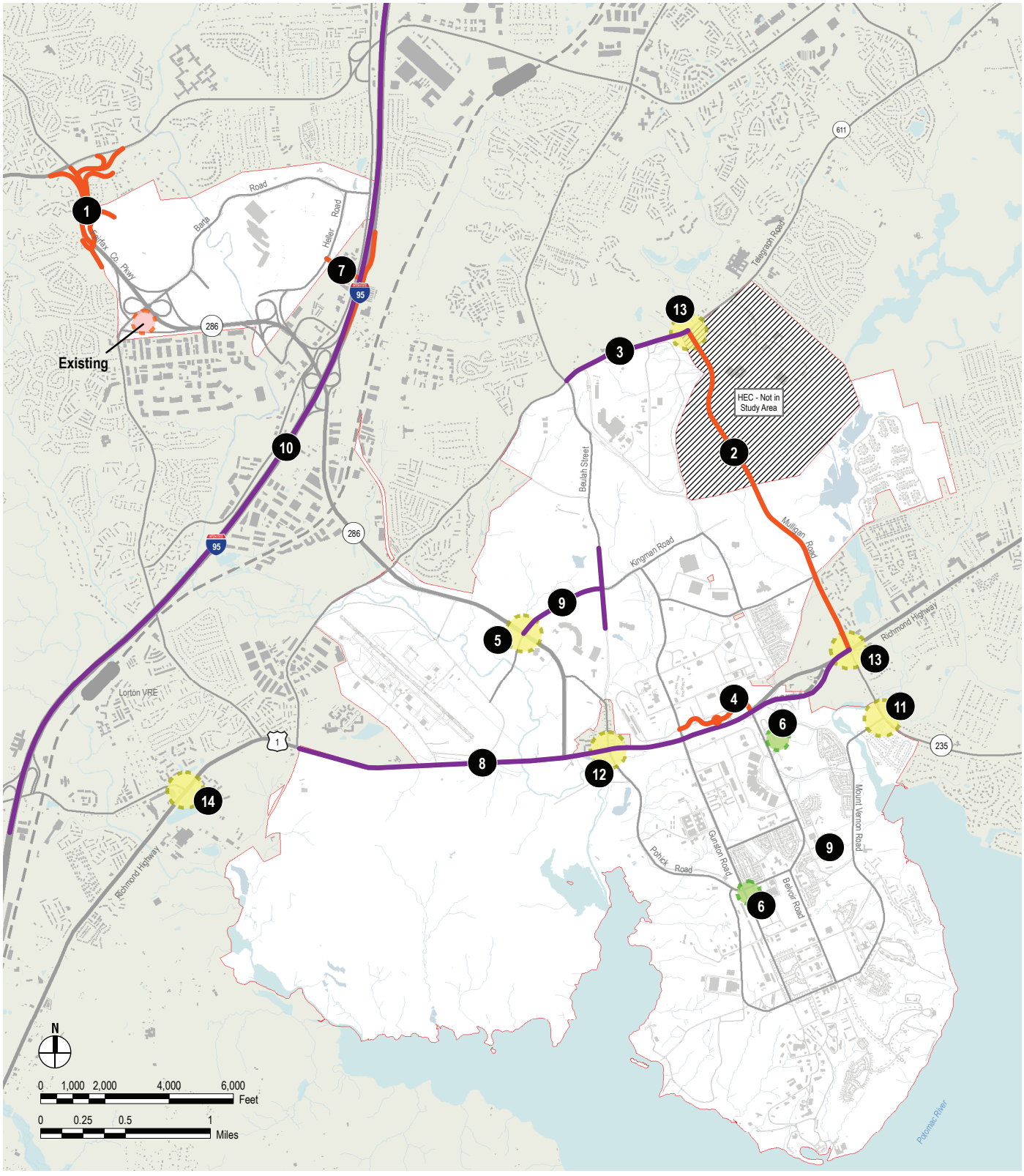
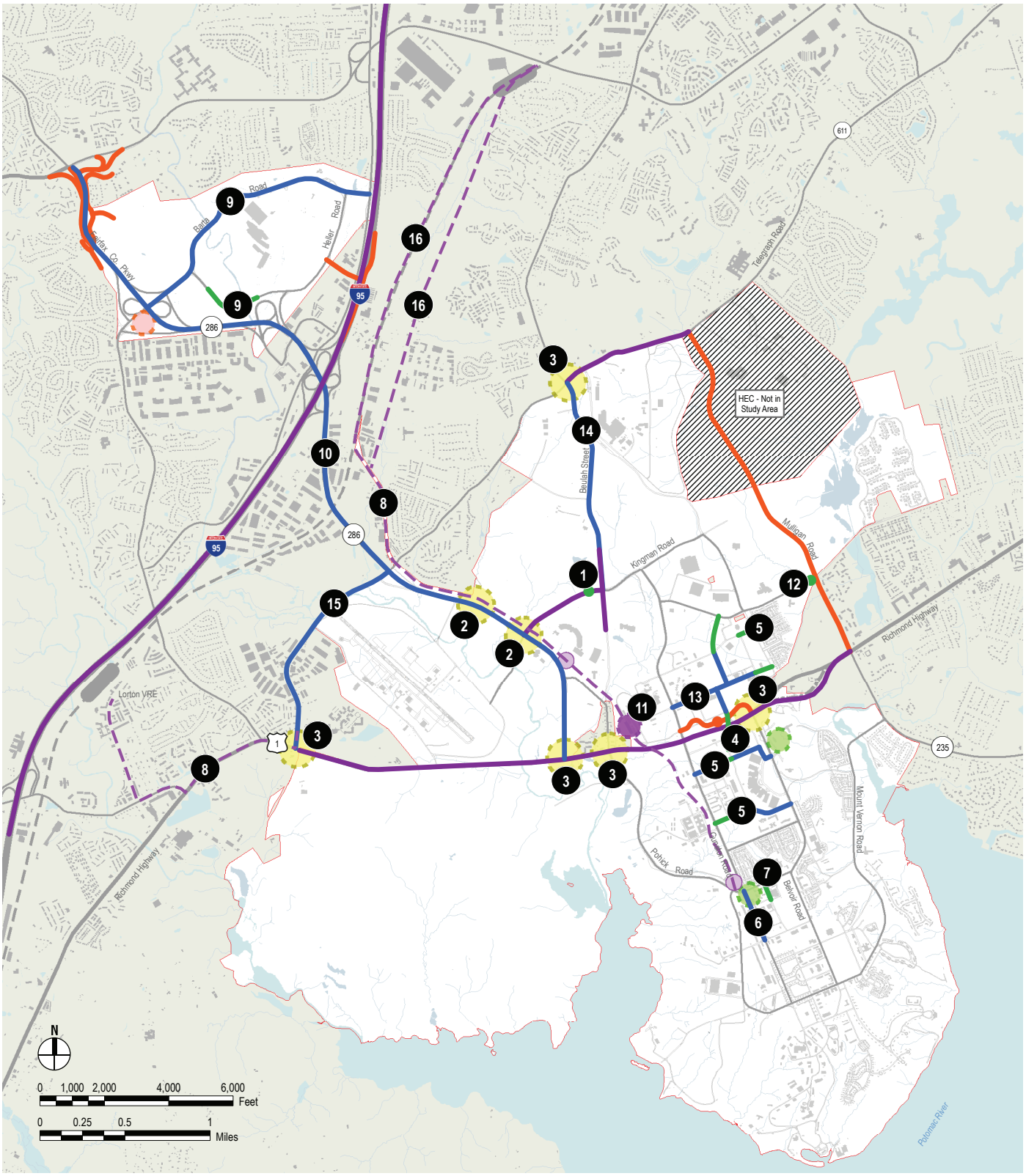


Figure 5.18 Recommended Long-Term Transportation Improvements



New ACP (2017)
New ACP (2030)
Intersection Improvements
Transit Stop
Regional Transit Hub
Public Park and Ride Lot
Transit Transfer Center
Dedicated Transit Corridor
New Road (2017)
Improved Road (2017)
New Road (2030)
Improved Road (2030)

Table 5.13 Recommended Long-term Transportation Improvements (2018-2030)	
Map ID	Transportation Improvement
1	Improve Kingman Gate by adding lanes or improving capacity.
2	Request Defense Access Road funding to construct a grade separated intersection along Fairfax County Parkway at Kingman Road and the NMUSA entrance.
3	(2) Coordinate with VDOT and FCDOT to monitor intersections adjacent to Fort Belvoir along Route 1 and Fairfax County Parkway for improvements. Specifically, study options for adding turn lanes or grade separated intersections along Route 1 at Fairfax County Parkway, Pohick Road, Telegraph Road and Belvoir Road or other necessary improvement
4	(3) Construct Route 1 overpass and a two-lane road connecting 1st Street and Gorgas Road. This overpass project includes the extension of Beauregard Street to Gorgas Road.
5	Add internal cross streets (Abbot Road, 3rd Street, and 6th Street).
6	Extend four-lane widening of Gunston Road from 12th Street to 16th Street.
7	Convert 13th Street to two-way traffic and connect to 12th Street and 13th Street as part of the future Town Center redevelopment (RCI Housing Project)
8	Engage with transit agencies and stakeholders to extend transit along Route 1 to the Lorton VRE station. Use abandoned rail line for light rail or rapid shuttle bus line from Main Post to existing VRE line. Enhance the internal shuttle bus. Achieve TMP goals (60% POV).
9	Complete Heller Road loop at FBNA.
10	Widen Fairfax County Parkway (from 4 lanes to 6 lanes) from Franconia-Springfield Parkway to Route 1.
11	(1) Construct regional "transit hub" along Route 1 to support Enhanced Transit Corridor.
12	Potential opening of Meeres Gate to inbound traffic (subject to long-term security and mission requirements that are TBD).
13	Widen Goethals Road to 4 lanes and extend to Woodlawn Road.
14	Evaluate options to add capacity on Beulah Road from Kingman Road to Woodlawn Road. This may involve redirecting existing Northbound/Southbound lanes to allow 2 through inbound lanes only for AM and 2 through outbound lanes for PM weekday traffic.
15	(1) Widen Telegraph Road (4 lanes to 6 lanes) from Route 1 to Fairfax County Parkway. This is consistent with Fairfax County's Transportation Plan, and does not appear in the CLRP list of 2030 improvements.
16	(3) Coordinate with transit agencies and stakeholders to develop one of two potential alternative transit corridor routes to Franconia-Springfield Transit Transfer Center, either parallel to CSX rail line or using Old Cinderbed Road for transit.

Note: (1) Reflects Fairfax County transportation improvements identified in the Comprehensive Plan.
(2) The EA for the Route 1 widening included the 2030 population levels for 56,000 PN.
(3) The evaluation of these corridors is included in Fairfax County's Transit Network Study.

- Completion of 3rd Street between Belvoir Road and Gunston Road
- Completion of 6th Street between Belvoir Road and Gunston Road
- Improvements to Gunston Road south of 12th Street
- New overpass and roadway extending Doerr Road near Pence Gate to Goethals Road; and extending Beauregard Road to Gorgas Road, thus providing an alternate route that connects the North and South Posts.

Connections to Regional Network (Short- and Long-Term)

As the Installation grows, the connections from the Installation to the regional roadway network will be of primary importance; improvements to the transportation network will be necessary to minimize the impact to traffic operations both on the regional roadways or the Installation roadways. These improvements would reduce the delays on the major roadways that bisect the Post; as such, these recommended improvements require partnership and coordination with regional stakeholders including Fairfax County and/or VDOT. Specific intersection improvements are located at Belvoir Road at Route 1; Route 1 at the Fairfax County Parkway; and Fairfax County Parkway at Kingman Gate and are described in further detail:

- Fairfax County Parkway at Kingman Road and at the Museum access. The latter intersection will be a new at-grade intersection designed to serve the new NMUSA, expected to open in 2017. It is located midway between the existing interchange at Telegraph Road and the intersection with Kingman Road. It is anticipated that this new intersection will also include coordination with the signal at Kingman Road to optimize traffic flow through these intersections. The new intersection is being designed by the NMUSA with its consultant/design team and has been under the VDOT review process separately from this Master Plan. Additional information is provided in the Fort Belvoir TMP.
- Route 1 at Fairfax County Parkway. Based on the 2013 Commuter Survey results, approximately 60 percent of the Installation's workforce lives south of Fort Belvoir, with 26 percent of the respondents indicating they use Kingman Gate as their primary access and 24 percent indicating they use Tulley Gate as their primary access. Although two lanes are provided for the left turn movement from Route 286 to northbound Route 1, these left turning vehicles must share the intersection with large northbound and southbound movements on Route 1. These large competing volumes severely restrict the capacity that can be provided for this left turn. Improvements to this interchange to support Fort Belvoir's existing and future traffic needs are included in the Route 1 widening.
- Belvoir Road at Route 1. This is an important intersection because it provides access to the Pence Gate, and the new Fort Belvoir Community Hospital. Traffic congestion at this intersection is caused by the left turning movement from southbound Route 1 to Belvoir Road in the morning, and the exiting movement from Belvoir Road to southbound Route 1 in the evening. Under the existing configuration, only one

left turn lane is provided from Route 1 southbound, and there is only one left turn lane from Pence Gate to Route 1 southbound. Future improvements at this intersection must also address ingress and egress from Lieber Gate which will tie into Route 1 at this intersection. Improvements to this interchange to support Fort Belvoir's existing and future traffic needs are included in the Route 1 widening.

Table 5.15 and Figure 5.21 present a list of the long-term transportation improvements.

Summary

INTERPRETING MODEL OUTPUTS

It is important to understand and to view the results of these analyses as indicators rather than absolute predictions of the future conditions.

The enhanced regional travel demand forecasting model is the only reasonable method of estimating a future condition in which there are major changes in the roadway network, the land use, access points to the major interstate highway cutting through the study area, and the opening of a new access control point to the Main Post of Fort Belvoir.

The problems associated with predicting a future that is subject to all of these changes was discussed with the AAG, and the members of this group urged the study team to use the percent change (growth factors) outputs of the model wherever possible and to avoid the use of the "deltas" (the absolute value of the changes) produced by the model.

However, the "Post-Processing" that took place when the model was applied identified many instances when the model predicted a doubling, tripling or order of magnitude increase of the existing volumes. The estimated values were individually reviewed when the estimated volumes resulting from the application of the growth factor was not within 50 vehicles per hour of the volume found by adding the delta to the existing volume. If the two estimates were reasonably close (within a few hundred vehicles of each other), the average of these two estimating procedures was used. If the difference between the estimates was greater, the forecasted volume estimate closest to the original volume was used.

It is also worth noting that the resulting values were rounded in keeping with their nature as estimated values. This tended to eliminate minor differences between values forecast under the different scenarios.

The strength of the modeling procedure and the subsequent post processing is that the same procedures were applied to the individual movements at each intersection under the No-Build and Alternative 1 scenarios. For example, if the estimated volume at a particular left turn movement in the No-Build condition was derived by averaging the values obtained by the growth factor calculation and the delta addition, then the estimated volume for that left turn movement under the Alternative 1 scenario was also determined by averaging the results obtained under the two methods.

In summary, the authors are confident in stating that, except where noted, the differences between the No-Build conditions and Alternative 1 are relatively minor and would be unlikely to be noticed by most observers.

TRAFFIC MONITORING

The traffic analysis identifies where short-term and long-term transportation improvements are required to maintain acceptable levels of service and estimates the effectiveness of the TMP program to reduce SOV trips during peak hours.

As stated above, future travel demands are based on a forecasting model and have employed reasonable methods to predict results; however, the actual results may vary and will be influenced by:

- Major changes in the networks that are currently under construction or about to begin construction.
- The opening of Lieber Gate, a new access control point to the Main Post from Route 1.
- Changes in land use, particularly new private development projects located outside the Installation near FBNA, will bring additional traffic to the area.

The Installation recognizes the effect that future changes may have on the local transportation network and the impact this may have on commuter behavior. **Section 8 Monitoring and Evaluation Plan** of the Fort Belvoir TMP. is designed to adjust and adapt TMP strategies to meet changing conditions.

Determining the effectiveness of the TMP and the impact of future changes, both within and outside the Installation, is the primary function of the Monitoring and Evaluation Plan. An important component of the monitoring effort is the periodic traffic assessment based on an expanded workforce and new uses resulting in additional vehicular trips. Traffic-related changes that will occur can be most easily identified and tracked within the Fort Belvoir sub-TAZ areas. Impacts to the roadway network can be measured with periodic traffic counts to determine changes in traffic patterns and in the level of service. Monitoring traffic will take place on two levels:

1. Tracking Activities on-Post and at Selected Public Road Intersections

- New Projects (Agency-level effort) (projects beyond 2017)

  Generally, in accordance with the design and construction criteria guidance in the U.S. Army Corps of Engineers Technical Instructions (TI 800-01), a "Site Traffic Impact Study" based on project size, location and scope will be prepared. In addition, for all new projects and facilities greater than 100

PN, a traffic assessment is part of the Agency TMP requirements to be provided to the Fort Belvoir TDM coordinator to determine the impacts of additional traffic on the Fort Belvoir roadway network.

- Installation-Wide Traffic Assessment (Fort Belvoir-led effort)

  Installation-wide periodic traffic assessment is recommended to be updated on a five-year basis and will focus on key intersections and roadway links within the Post to determine changes in LOS. The exact timing of the Installation-wide traffic assessment and the collection of peak hour turning movement counts to assess traffic volumes is to be determined by Fort Belvoir DPW Staff and the TDM Coordinator. In addition to monitoring traffic conditions to determine changes to LOS, gate counts will also be collected. Physical Security staff will continue to conduct gate counts (via tube counters) for both inbound and outbound traffic. Gate Counts that can help determine changes in traffic patterns at entry/egress points will be provided to the Fort Belvoir TDM Coordinator as needed.

  Periodic TDM surveys should also be conducted to determine progress toward the TDM goal of reducing SOV use. These surveys should include questionnaires to assess attitudes, use of transit, On-Post shuttles, other alternate modes, as well as periodic field counts of parking facilities to determine actual SOV use.

  The intent of the **Evaluation Report**, as described Section 8.3 in the Installation's TMP, is to document changes in the SOV usage and targeted non-SOV mode choices that will establish measurable changes in vehicle trips. This allows adjustments to the TMP program as needed to ensure success. The template tracking changes and documentation of TMP results is reflected on Table 8.1, the "**Tracking Worksheet**."

2. Ongoing Coordination with VDOT and FCDOT

Section 6 in the Fort Belvoir TMP identifies a set of strategies that outlines the actions, plans and polices that Fort Belvoir can implement to reduce its SOV vehicle trips. One of these strategies, called "Regional Collaboration," entails the ongoing engagement with VDOT and Fairfax County on mutually-beneficial locations for transportation improvements and with transit stakeholders to improve public transit service to and from the Installation. Regional collaboration and coordination procedures can be implemented by establishing:

- Transportation Demand Management Working Group Meetings

Fort Belvoir will maintain its relationship with the Virginia Department of Transportation (VDOT) and Fairfax County Department of Transportation (FCDOT) through biannual TDM Coordination meetings and the Real Property Planning Board. Information would be conveyed via these meetings to VDOT and FCDOT along with an updated list of the improvements, TMP actions and other recommended mitigation measures to be considered.

- Periodic Updating of the Transportation Elements of the TMP

Fort Belvoir will take a proactive approach with NCPC, VDOT and FCDOT in the coordination of traffic improvements and plan for the regular updating of the TMP to identify future NEPA actions. A five-year cycle is recommended for the documents, and within each submission, five-year and ten-year development and improvement horizons would be examined. The analysis contained in the report would result in recommendations for traffic signal improvements, turning lane improvements and other at-grade improvements that could be implemented in the short term. The analysis of the conditions at the ten-year horizon would identify the need for more substantial improvements in the transportation infrastructure such as interchange improvements, roadways where additional lanes are needed, and transit improvements. This five-year cycle would be frequent enough to capture the ongoing identification of new and expanded missions and improvements within the Post so that the meetings cited in the preceding paragraph could be continued into the future. It should also allow sufficient time for completing the funding process associated with minor short-term improvements and major long-term improvements.

TRAFFIC MONITORING IMPLICATIONS

- **Biannually.** The intersections identified in this study that are impacted by Fort Belvoir traffic will continue to be monitored and evaluated based on current travel demands and observed changes in their level of service. The Installation will engage with VDOT and FCDOT to report traffic conditions twice a year at the Real Property Planning Board meetings.
- **Five-year updates**. Transportation elements of the TMP will be updated to include traffic counts, intersection LOS evaluation, and assessment of needed roadway improvements will be shared with VDOT and FCDOT.

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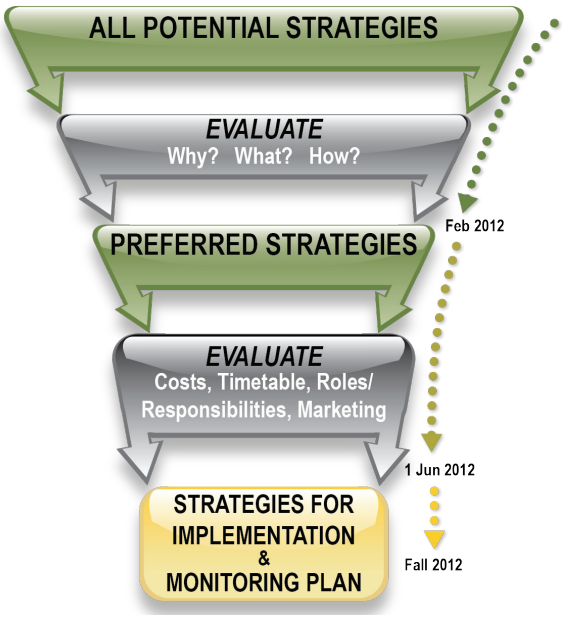
TMP Strategies

6

Figure 6.1 Process for Analysis



6.1 Overview

At the core of a TMP is a set of strategies to influence employee travel choices, increase convenient accessibility to all modes of travel, and enhance mid-day work trips and flexibility for work schedules and locations. The remainder of this Section 6 identifies:

- Strategies in the form of Installation-implemented actions that benefit the Garrison, its agencies, and employees
- Criteria that guide their development
- An analysis leading to recommended strategies for the Implementation and Monitoring Plan.

The strategies in this section represent actions, plans, and policies that Fort Belvoir can implement. Certain factors that affect trip reduction are outside the immediate control of Fort Belvoir. For example, directly increasing rail and bus service to increase ridership is not under the Installation's control; however, the strategies in this document will offer guidance on influencing regional transportation decisions to increase mobility choices.

Fort Belvoir already supports compact, walkable development with a focus on environmental sustainability in their RPMP documents, which is seen in the recent BRAC 2005 construction. The strategies in this TMP build upon these efforts as appropriate, such as using the Installation Planning Standards (IPS) for design details of pedestrian and bicycle facilities.

6.2 Mission and Guiding Principles

As previously stated, the TMP is part of an integrated series of documents that make up the Real Property Master Plan at Fort Belvoir. As part of that process, a RPMP Vision Statement and Guiding Principles were developed in consultation with Garrison staff and Installation stakeholders to provide a road map to shape the future development of Fort Belvoir. One of the guiding principles developed was to "improve multimodal connectivity."

In alignment with the RPMP, the following Principles were identified as directly guiding the development of the TMP and its strategies to reduce trips to the Installation:

- Create and sustain a world-class Installation:
  - Support Fort Belvoir's mission.
  - Become a model for development within the community, the region, and among other military installations.
  - Become an urban center that provides the federal workforce with safe, secure, premium support.
- Achieve environmental sustainability:
  - Promote a green environment by maximizing design, technology, and best practices to create an efficient and functional built environment.
  - Advance the use of alternative modes of transportation.
- Recognize that land is a valuable resource:
  - Promote compact redevelopment strategies that improve land utilization and reduce infrastructure investments.
  - Concentrate projected growth around existing and planned transit opportunities.
- Improve multimodal connectivity:
  - Expand on-Post transportation systems (shuttle, bicycle, pedestrians) and their connections to the regional public transit and trail systems.
  - Ensure efficient connectivity between key on-Post destinations by shuttle and pedestrian networks.
  - Strengthen circulation connections between North and South Post.
  - Expand safety and wayfinding for all circulation networks.
- Strengthen community partnerships for mutual benefits:
  - Support the local government's comprehensive plans and the surrounding region's planning efforts.
  - Explore transit opportunities in conjunction with the local community.
- Create a diverse and dynamic community:
  - Concentrate uses and activities that promote a pedestrian-friendly community.
  - Enhance a walkable, mixed-use Town Center on South Post and the Community Support Center on North Post with retail and community uses at the street level, and a mix of public spaces and recreation facilities.
  - Create work places that encourage sharing of common facilities.
  - Take advantage of the unique waterfront resource for recreational and other public uses.

6.3 Goals, Objectives, and Targets

Goal

The overall goal of the Fort Belvoir TMP is to improve commuting options and mobility choices for all personnel while meeting the needs and limits of the transportation system, Garrison and agency missions, and federal and regional guiding documents. Refer to Section 1.2 for details of Guiding Documents.

Objectives

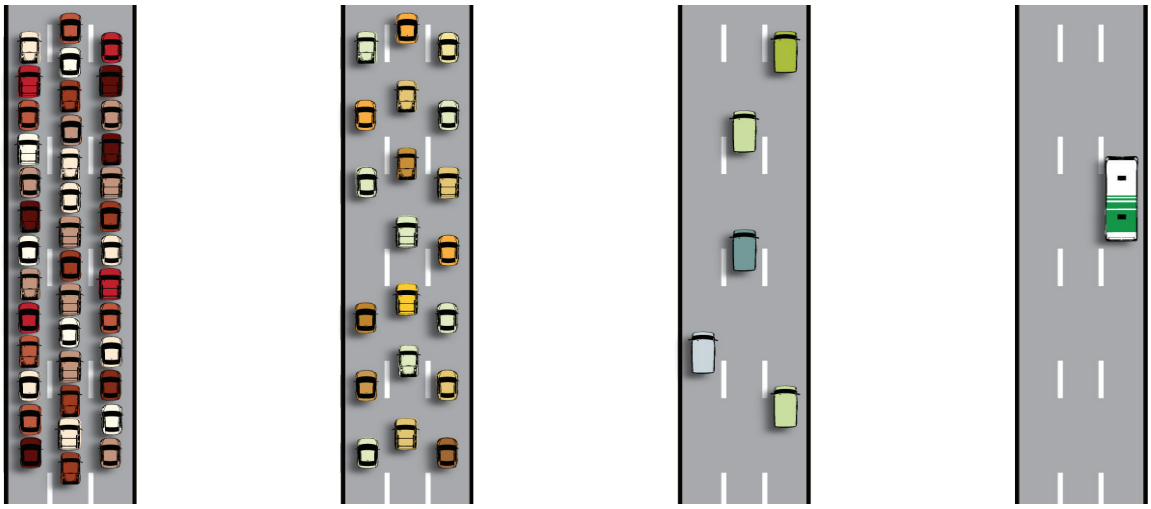
The objectives of the TMP are qualitative measures and benefits. Fort Belvoir is developing a TMP to:

- Meet both Army and regional requirements for parking and transportation at the Installation.
- Meeet NCPC's parking ratio across the Installation, consistent with Army policies.
- Proactively address transportation needs and limits.
- Align with regional initiatives to reduce dependency on single-occupancy vehicles and automobile travel.
- Reduce its share of traffic congestion, fuel consumption, and air pollution.
- Improve its employees' commutes, productivity, and quality of life.
- Transform Fort Belvoir into a multimodal destination.

Target

The target of the TMP is a quantifiable metric to determine success. Through the implementation of these strategies, Fort Belvoir aims to achieve at least 40 percent of its commuting population using non-SOV travel options by 2030. This translates to a maximum of 60 percent of commuters in personal vehicles each day and directly aligns with the parking requirements in place at Fort Belvoir. Tables 7.24 and 7.25 in Section 7: Implementation Plan provide targeted non-SOV mode splits that can be quantified. Note, the TMP does not address trip reduction strategies for Fort Belvoir's transient populations such as visitors and students.

Figure 6.2 Impacts of Non-SOV Travel on the Roadway Network



40 people.....in SOVs.....in 2-person carpools.....in 8-person vanpools.....in transit.

If Fort Belvoir can achieve this target, the Installation can grow to the levels shown in the Master Plan without adding significantly more trips to the roads and gates (based on the adjusted mode split as presented in Section 3).

- The current population of 39,000 personnel post-BRAC and 85 percent SOV trips equates to just over 33,000 vehicles entering the Installation every day.
- For SOV vehicles, with the future population (2030) projection of 56,166 personnel:
  - If the 85 percent trend does not improve, over 47,700 cars will need to enter the Installation every day. This represents an increase of over 15,000 cars entering the Installation every day.
  - If 60 percent SOV is achieved, approximately 33,700 cars will need to enter the Installation in 2030, comparable to today's use, in 2030.

Based on this concept of not increasing trips beyond today's levels, the target will be phased as follows. These numbers are in alignment with the Master Plan growth and can realistically meet the target given the existing conditions and limits of the transportation system and current parking inventory:

- 10 percent trip reduction (75 percent) by 2017.
- 25 percent total trip reduction (60 percent) by 2030.

6.4 Evaluation Criteria and Process

Evaluation

The purpose of the evaluation process is to provide overall guidance and identify preferred strategies that will be carried forward to Section 7 – Implementation Plan – to outline actions for success. This highest level of assessment is intended to define broad strategies and provide qualitative assessment to determine how realistic and beneficial the strategy is, given Installation-specific conditions.

Each strategy in this section will be described across the same four measures:

- WHY is it important? Includes meeting the six TMP objectives.
- WHAT does it accomplish? Includes benefits to the Installation, agencies, and employees.
- HOW it gets done? Includes potential steps to complete an early identification of opportunities and challenges.
- CONCLUSION. The outcome of the previous three measures that states whether or not the strategy is recommended to be detailed in the Implementation Plan.

Trip Reduction Categories

During the TMP development process, six categories emerged in which strategies can be grouped based on their potential to reduce SOV trips and increase mobility choices:

Parking Management: Effectively controlling the number of available parking spaces can greatly impact the decision commuters make on whether they choose to drive alone.

Agency Coordination: With a large number of mission partner agencies within a single Installation boundary, coordination with those agencies is imperative. Without agency support and involvement, Fort Belvoir will find it difficult, if not impossible, to achieve TMP objectives and targets.

Regional Collaboration: Through regional collaboration, Fort Belvoir can proactively participate in, advocate for, and influence transportation options beyond the Installation fence line that can significantly benefit Army personnel through an increased accessibility and mobility.

Information Outreach: Easy and convenient access to information about transportation options and daily transportation conditions influences commuter choices.

Mobility Choices: Use of alternative mobility options, including transit, ridesharing, biking, and walking, can be increased through improvements to both policies and physical facilities that support these options.

Land Use and Facilities: While potentially challenging given mission needs, planning for compact, walkable, mixed land uses is a powerful tool for reducing the need for SOV trips, supporting transit options, and increasing multimodal choices.

6.5 Potential Strategies

To provide employees the freedom to have access to more than one mobility option during a work week, it is crucial that this TMP puts forth improvements to every mobility choice. Additionally, there is a practical limit to the capacity of the roadways, so successfully identifying beneficial trip-reduction strategies is a “dollar sense” approach for the Garrison, its mission partner agencies and employees to grow within the existing system. To accomplish this, the TMP developed a comprehensive list of trip reduction strategies, which were vetted and refined through input of the Garrison and TDM Working Group. The final list of 20 potential strategies is grouped by trip reduction category and presented in Table 6.1

The strategies shown in this table reflect action-based items that Fort Belvoir can directly implement, manage, influence, and monitor. Each strategy has the potential to increase mobility choices, manage transportation, and decrease vehicle trips to and on the Installation. Any strategies that Fort Belvoir cannot legally implement are not included.

6.6 Selection Process

A Framework Plan for each of the 20 strategies was developed (see **Appendix G**) to broadly identify the following factors:

- How it meets the TMP Objectives and Target
- Why it is important
- What it accomplishes
- Benefits to the Installation, its agencies, and its employees
- How it gets done.

These Framework Plans were then used to identify the time frame in which each strategy has the potential to reduce trips and impact employee commuting behavior: two years, five years, or ten+ years. The time frames were assigned based on current information of policies and budgets, with input from Garrison staff and ultimate approval by the Garrison Commander.

While every potential strategy presented in Section 6.5 has merit, it is not realistic or practical to implement each one at this time. Per NCPC criteria, the TMP document is to be updated every two years. As such, the selection of potential strategies to move forward into the Implementation Plan (Section 7) will include the strategies that are able to have an impact on reducing the SOV mode split in the next two years, given existing conditions.

Therefore, the Implementation Plan contains those strategies that Fort Belvoir can immediately act upon. For each strategy, details on cost, schedule, roles and responsibilities, and steps for successful initiation are outlined.

Table 6.1 List of Potential Strategies

		Potential to Reduce Trips and Impact Behavior:		
		Short term (2 years)	Mid term (5 years)	Long term (10+ years)
PARKING MANAGEMENT				
PM - 1	Implement designated parking, Installation-wide.	■		
PM - 2	Monitor parking throughout the Installation to identify and assess improvements to parking operations.		■	
PM - 3	Implement expanded parking enforcement policies.		■	
PM - 4	Evaluate "smart" parking garage technology			
AGENCY COORDINATION				
AC - 1	Establish a designated Employee Transportation Coordinator (ETC) at each agency, beginning with those agencies 100 PN or greater.	■		
AC - 2	Establish a standardized agreement between Fort Belvoir and agencies for TMP commitments, beginning with those agencies 100 PN or greater.	■		
AC - 3	Expand the role of the TDM Working Group to actively set policies and best practices for implementation of the TMP.	■		
AC - 4	Develop Measurement Metrics and Reporting Tools	■		
AC - 5	Establish Periodic Reporting Schedule	■		
REGIONAL COLLABORATION				
RC - 1	Partner with all transit stakeholders to improve service to and from the Installation; includes working with Fairfax County and National Park Service on bicycle/pedestrian connections	■		
RC - 2	Coordinate with Fairfax County on mutually beneficial locations for transportation improvements and facilities as shown in their Comprehensive Plan.		■	
INFORMATION OUTREACH				
IO - 1	Develop a TMP marketing campaign.	■		
IO - 2	Modernize the concept of the "Commuter Fair."	■		
MOBILITY CHOICES				
MC - 1	Expand bus service throughout the Post to better meet the needs of commuters.		■	
MC - 2	Transform the historic rail corridor into a multimodal connection.			■
MC - 3	Pursue Bike-share and Car-share programs on-Post.	■		
MC - 4	Evaluate the feasibility of an HOV-only lane or gate.		■	
MC - 5	Evaluate the feasibility of pedestrian/bicycle-only gates.			■
LAND USE AND FACILITIES				
LUF - 1	Evaluate and establish Commuter Service Center(s).	■		
LUF - 2	Pursue the feasibility of establishing Satellite Commuter Centers.		■	
LUF - 3	Guide the Site Selection of new and redeveloped buildings, facilities, and infrastructure.	■		
LUF - 4	Guide development of the proposed "Transit Transfer Centers."		■	
LUF - 5	Modify policy to increase housing on-Post for Fort Belvoir employees.		■	
LUF - 6	Develop Standards for Bus Stops at New or Expanded Developments			
LUF - 7	Incorporate Bus Stops at Existing Developments			

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Implementation Plan 7

7.1 Overview

The Implementation Plan details the short-term strategies that were selected by the Garrison Commander as being feasible to begin within the next two years, as noted in Table 6.1. The short-term strategies were identified for recognition of:

- Ongoing efforts and the desire to make them more effective; and
- Opportunities to take on new initiatives.

The Implementation Plan provides a means for achieving success based on the ease of implementation, how each strategy contributes to SOV trip reduction goals, their complexity, benefits/costs and level of support from mission partner agencies. The steps described herein for implementing the short-term strategies are designed to be flexible and can be modified as needed in response to new information, policies, Army directives and budgets. The determination and details of how the implementation plan is executed rests with the personnel assigned to each strategy and the Garrison Commander. The steps are intended to provide logical sequence to facilitate their implementation and may change as the TMP continues to evolve to best meet the end results needed.

A qualitative analysis of potential costs for each strategy resulted in the conclusion that the cost to implement most, if not all, strategies is minimal since the action steps are expected to be completed primarily by existing staff. Cost considerations included capital, operational and return-on-investment. For the following short-term strategies, the return on investment is considered high since the capital expense to implement them would be low. Where capital or operational considerations can be attributed to a specific strategy, they are identified as such. For the initial implementation phase of the TMP, the individual costs of any one of the strategies are not expected to vary greatly, however, this may change with periodic monitoring and evaluation, and that may alter or modify priorities.

Ultimately, the implementation of the TMP strategies is dependent on mission focus and readiness of each mission partner organization to meet their operational requirements. It is also recognized that TMP action items contained in this section can be performed by using existing staff and designating their TMP responsibilities so no one agency or department is overburdened. The determination of personnel roles and responsibilities for implementing the TMP action items is a joint effort between the TDM Coordinator, assigned Garrison Staff and appropriate

mission partner agencies. Each strategy and subsequent steps should be examined at the onset of implementing the step to identify the appropriate staff resources, timing and other modifications to address current needs and demands.

Other TMP strategies that were explored were determined to be more suitable as mid- and long-term strategies. A framework plan (see **Appendix G**) outlines an approach for implementing these remaining mid- and long-term strategies as a starting point when Fort Belvoir decides to undertake them.

In this Section of the TMP, each short-term strategy begins with a table listing objectives and how they meet the TMP target goals, a short description of importance of the strategy, and what it accomplished. It is then followed by potential successive steps for implementation and includes identification of:

- *Fort Belvoir personnel.* Identifies the lead department or personnel responsible for administering the strategy.
- *Why the step is important*. Short description highlighting the step benefits.
- *Where to begin.* A suggested place to start this step that may need to be modified based on current information or determined by the outcome of previous steps.
- *Roles and Responsibilities.* Suggested personnel, which may need to be modified based on resources and timing.
- *Schedule.* Defines the potential beginning and end of each step within a two-year schedule. In some cases, additional or continuing steps are noted after the two-year time frame.
- *Case Study/Best Practice.* For some strategies, a case study or best practice example is provided. A qualitative analysis of potential costs for each strategy resulted in the conclusion that the cost to implement most if not all strategies is minimal since the action steps are expected to be completed primarily by existing staff. Cost considerations included capital, operational and return on investment. For the following short-term strategies, the return on investment is considered high since the capital expense to implement them would be low. Where capital or operational considerations can be attributed to a specific strategy, they are identified as such.

This Implementation Plan logically lays out the process and provides guidance for undertaking each of the short-term strategies. It is intended that this Implementation Plan has enough flexibility for Fort Belvoir to decide, adjust, and pursue the strategies that meet both the Installation and TMP goals. In particular, Strategy AC-3 outlines a process for reviewing and examining the TMP to put forth an Action Plan for each upcoming year.

The strategies can be generally organized around current Installation activities that involve:

- Physical improvements
- Operational actions
- Communication/outreach
- Capital Projects.

Measuring the success of the TMP strategies that will be implemented is ultimately weighed against changes in driver behavior that are intended to reduce the impact of SOVs. All of the selected strategies are designed to create multimodal improvements and more travel choices. The effect of the TMP strategy can be determined by increases in other non-SOV mode splits. Section 7.8 provides targeted mode split goals that can be measured and evaluated as a key element of the Implementation Plan.

7.2 Parking Management Strategies

Strategy PM-1. Implement designated parking, Installation-wide.

WHY it is important: Designated parking spaces are intended for certain occupants and are clearly signed and/or striped as such, including: visitors, community functions (such as gyms, theaters, etc.), carpools, vanpools, low-emission vehicles, housing, and government storage. Signing and striping alone (separate from enforcement) can be a deterrent to commuters parking in areas that are not intended for their use. As discussed in Section 4 Parking Assessment, designated visitor, housing, and storage spaces are not included in the commuter parking ratio. Therefore, implementation of this strategy will lower the overall parking ratio at the Installation by alerting drivers of restricted parking areas.

Table 7.1 TMP Strategy PM-1 Objectives and Target Table

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.	■	
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.		■
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40 percent of commuters using non-SOV options.		■

WHAT it accomplishes:

- **Benefits to Installation:**
  - Reduces the overall parking ratio by correctly removing non-commuter spaces from the calculation and designating these spaces for their intended use.
  - Standardizes parking throughout the Installation.
  - Increases understanding of the existing parking supply, demand, and needs.
  - Reduces illegal parking.
  - Reduces commuters using parking intended for other purposes (such as community functions).
- **Benefits to Agencies:**
  - Reduces agency parking ratios by correctly removing non-commuter spaces from the calculation.
  - Allows unique parking needs of agencies to be understood and met.
  - Standardizes guidance for all agencies.
  - Improves parking for agency visitors by clearly designating spaces for their use.
- **Benefits to Employees:**
  - Increases awareness of allowable parking.
  - Awards employees who choose to rideshare.

HOW it gets done: Fort Belvoir personnel responsible for administering these steps are the Directorate of Public Works (DPW) and the Directorate of Emergency Services (DES).

Table 7.2 Two-Year Implementation Schedule for PM-1

Step:	Year 1 (12 months)												Year 2 (12 months)												Beyond Year 2
1	■	■	■																						
2		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
3		■	■	■	■	■	■																		
4								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
5									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	

Step 1. Identify a priority list of parking areas, to begin implementation.

- **WHY This Step is Important**: There are numerous parking areas throughout the large Installation boundary, and each needs to be assessed to determine parking demands (see Step 2), which could take significant time. Identifying a priority list establishes an order in which to assess the 300+ individual parking areas so that physically striping the lots highest on the priority list can begin concurrently as the remaining lots are assessed.
- **Where to Begin**: Determine the parameters on which the priority list will be based, which could be by: greatest overparking (by ratio); greatest number of personnel; greatest number of parking spaces; or greatest number of non-commuter parking. Using the existing parking inventory database, identify the lots.
- **Roles and Responsibility:** This step is the sole responsibility of Fort Belvoir DPW and will require proactive coordination with:
  - Agencies/functions that are on the priority list.
  - A parking management company contracted to maintain parking facilities.
- **Schedule**. This can begin immediately.

Step 2. Determine the actual demand at each building that will be demarcated (in order of priority list).

- **WHY this Step is Important**: Before reserved spaces can be physically signed and/or painted, the number of spaces that is needed for each type of user in each lot needs to be determined. While Army Technical Instructions (TI) provide general parking allocations, building mission partners and functions at Fort Belvoir have unique needs that can supersede or fall outside of these requirements. For example, visitor parking, rideshare spaces, and government-stored vehicles should be based on actual demand and are not contained within the TIs. Additionally, a single parking area can serve multiple buildings and agencies, and therefore the demand of each building needs to be understood before the lot can be striped and signed.
- **Where to Begin**: Using the TIs and the existing parking inventory as a starting point, determine the number of spaces that is needed for each type of user in each lot, in order of the Priority List (that is determined in Step 1). Parking uses that need to be determined include: visitors (for both office buildings and customers of community functions); students; rideshare; government-stored vehicles; and personnel.
- **Roles and Responsibility**: This step is the responsibility of Fort Belvoir to gather, but requires major collaboration with mission partner agencies. For agencies with Employee Transportation Coordinators (ETC), it is their responsibility to provide this data.
- **Schedule**. This can begin as soon as the priority list is determined. Duration will be ongoing until every parking area on the Installation is assessed, in order of priority list. The schedule will need to take into account coordination with numerous agencies and mission partners.

Step 3. Establish a standard process for demarcating parking spaces at Fort Belvoir.

- **WHY this Step is Important:** This step is necessary to standardize parking, streamline the physical installation of paint/signs, and monitor compliance throughout the Installation. On such a large Installation with diverse missions and needs, there is not a one-size-fits-all approach to designated parking. A Parking Designation Plan that is tailored to Fort Belvoir conditions will provide the criteria for implementation based on parking area function and location.
- **Where to Begin:** Use existing guidance from Army TIs, the Federal Highway Administration (Manual on Uniform Traffic Control Devices), the Installation Planning Standards (IPS) (design standards), and federal guidance (priority parking) to develop a Parking Designation Plan for Fort Belvoir. For example:
  - The standard for demarcating (signing and/or painting visitor spaces at campuses with separate dedicated visitor parking lots could be different from parking areas that have visitor spaces interspersed throughout general use spaces.
  - Or, at office buildings the visitor spaces could be designated (and unmarked spaces are employee spaces) whereas conversely at community functions such as the hospital, employee spaces could be designated (and unmarked spaces are for visitor use).

A Fort Belvoir-specific Plan will formalize and regulate these types of designations.

- **Roles and Responsibility**: This step is the responsibility of Fort Belvoir DPW, who will then communicate the standards to the agencies and the task order contract (TOC) contractor for implementation. These standards should be part of the Installation Services Support Agreements (ISSA).
- **Schedule**. This can begin immediately. This will likely require a series of working meetings to complete. Duration is contingent upon timely scheduling of meetings and approval process.

Step 4. Sign and stripe spaces under current parking contract (in order of priority list).

- **WHY this Step is Important**: This step is the physical installation of new/updated paint and signage in parking areas.
- **Where to Begin**: Per the design standards of Step 3 and based upon parking space allocations determined in Step 2, task the parking contractor to begin implementation with the lots highest on the priority list (determined in Step 1).
- **Roles and Responsibility**: This is the responsibility of the TOC contractor, under management of Fort Belvoir DPW.
- **Schedule**. Each item on the priority list can begin after Steps 1 and 3 are complete, and Step 2 is ongoing.

Table 7.3 Summary of Parking Allocations

Summary of parking allocations for administrative, office, and headquarters buildings (Refer to Section 4 for full details)	
Per the Army TIs, provide no more than 60 percent of personnel	
Included in the 60%	**Not included in the 60%**
Unassigned (unmarked)	Visitor
Employee	Government-stored vehicles
Handicap	Motorpool/service areas
Carpool	Housing
Vanpool	
VIP	
Motorcycle	
Low Emissions	

An example of an effective parking management plan with clearly demarcated, signed and striped parking spaces, can be found at Missile Defense Agency Headquarters.

Step 5. Maintain the existing parking database as new signing and/or striping is installed.

- **WHY this Step is Important**: The Installation is constantly developing. As building occupancy and the associated parking needs change, it is important to have an established and known process in place to update parking areas. The parking inventory database is the single source that contains the total number of parking spaces throughout the Installation, including the number of designated parking spaces in each parking area. This inventory is used to determine the parking ratio. Keeping it up-to-date as new parking designations are signed/striped is crucial to monitor the parking ratio at the Installation.
- **Where to Begin**: Use the existing parking inventory database. Determine the process for who/when/how frequently the database is updated. Begin modifications to the database as soon as any lots are designated (Step 4).
- **Roles and Responsibility**: This step is the responsibility of Fort Belvoir DPW.
- **Schedule**. To begin as soon as new striping/signing occurs. Duration ongoing.

Summary

Designated parking means demarcating some spaces for specific vehicles by installing clear and consistent signage and/or paint in the spaces that are to be reserved for those exclusive uses. The designated parking can be done to give priority to such vehicles as car- and vanpools, or can be used to clearly designate which spaces are to be used by employees versus visitors. (Refer to Section 4 for full parking details; the chart on this page summarizes the required parking allocations for office buildings at Fort Belvoir.) See the section on Signage in Chapter 6 – "Site Element Design Standards" in the IPS for further guidance on standardized signing and striping of parking spaces.

By implementing this strategy, Fort Belvoir will identify, understand, and account for the parking demands of not only its commuting workforce, but also the transient populations – visitors, students, and regional community functions – it supports. It is the first step toward successfully managing parking at Fort Belvoir. Further benefits of designated parking include: standardizing parking throughout with numerous mission partner organizations; reducing illegal/misuse of parking; and reducing the overall parking ratio by correctly accounting for non-commuter needs.

7.3 Agency Coordination Strategies

Strategy AC-1. Establish a designated Employee Transportation Coordinator (ETC) at each agency, beginning with those agencies with 100 PN or greater.

WHY it is important: The Garrison, with its ~39,000 employees, cannot meet TMP requirements alone. Nor can each agency separately provide their employees with comprehensive access to Installation and regional resources. Success on both levels lays in proactive communication, collaboration, and partnerships between Fort Belvoir and their mission partner agencies. An ETC at each agency provides a means to mutually beneficial information exchange and pooling of resources with the already established Fort Belvoir TDM Coordinator and TDM Working Group.

Table 7.4 TMP Strategy AC-1 Objectives and Target Table

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.		■
Align with regional initiatives.	■	
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40 percent of commuters using non-SOV options.		■

WHAT it accomplishes:

- **Benefits to Installation:**
  - Provides a mechanism to engage every agency in the implementation of the TMP.
  - Increases understanding of individual agency needs and challenges.
  - Improves coordination of Installation resources.
  - Streamlines communication and outreach efforts.
  - Increases participation in and success of TMP efforts.
- **Benefits to Agencies:**
  - Ensures the needs of all agencies are being met.
  - Gives each agency a "voice" with Installation resources.
  - Increases access to resources and information.
  - Removes duplication of efforts by agencies and the Installation.
- **Benefits to Employees:**
  - Provides a single, accessible, known co-worker to approach with questions or problems.

HOW it gets done: Fort Belvoir personnel responsible for administering these steps are DPW and the TDM Coordinator.

Step 1. Establish a standard for the roles and responsibilities of an agency ETC.

- **WHY This Step is Important**: A description of the ETC position is necessary to ensure that all parties involved understand and accept the function, roles, and responsibilities of the new agency ETC position. Standardizing that description ensures that each of the 140+ mission partner agencies have the same level of commitment and that no single agency is doing more or less than any other agency, regardless of size or mission. Any additional responsibilities to address particular needs of an agency would be amendments to the standard.
- **Where to Begin**: Utilize existing language where appropriate from previous agency-level TMPs and NCPC guidance, such as: *The ETC will proactively collaborate and engage with Fort Belvoir and the TDM Coordinator, and oversee transportation management of the agency. The ETC is a liaison between the Installation and agency leadership. Responsibilities include:*
  - *Operating, managing, and maintaining transportation management at the agency. This includes implementation of trip-reduction commitments and tracking the results for Fort Belvoir to include in their TMP.*
  - *Regularly attending and participating in Installation TMP working group meetings, currently monthly, to represent the agency.*
  - *Communicating agency parking demands, commuting challenges, potential improvements to enhance participation, and other related employee needs to the Installation.*
  - *Communicating trip reduction successes and needs to agency leadership for decision-making.*
  - *Providing on-site assistance to any personnel who have questions or issues about utilizing alternate modes of transportation. The POC (ETC) is the "face" of the TMP and encourages ridesharing and transit at the agency site.*
  - *Coordinating internal outreach efforts, which include collecting and distributing Installation commuter information and resources to agency employees, including relocating personnel.*
  - *Coordinating with the TMP Coordinator to increase accessibility of the agency site for all modes of travel including bikers, walkers, and shuttle/buses.*
  - *Providing agency-specific information to TDM Coordinator, as necessary.*
- **Roles and Responsibility:** Drafting this job description is the responsibility of Fort Belvoir DPW and the TDM Coordinator.
- **Schedule**. This can begin immediately.

Step 2. Seek approval of standard ETC description.

- **WHY this Step is Important**: Officially gaining consensus of the ETC job description at the Installation leadership level ensures that it will be formally recognized and acknowledged as a firm commitment by the mission partner agencies and the region.
- **Where to Begin**: Determine the appropriate approval process and key players. This step could potentially include presentation to:
  - Garrison Commander, to gain Installation leadership level support.
  - Installation Management Commander.
  - Partners' Meeting, to gain consensus of the mission partner agencies.
  - Partner Environmental Coordinator.
- **Roles and Responsibility**: This step is the responsibility of Fort Belvoir DPW.
- **Schedule**. This can begin after Step 1 (drafting the ETC standard description) is complete. Duration is dependent upon the approval process.

Step 3. Identify agencies greater than 100 personnel, and their Task Environmental Officer (TEO).

- **WHY this Step is Important:** NCPC guidance prescribes that TMPs are prepared at federal work sites with 100 personnel or more. In alignment with that guidance, establishing ETCs at Fort Belvoir will begin with reaching out to and engaging agencies with 100 or more authorized personnel.
- **Where to Begin:** Start with the most recent Army Stationing and Installation Plan (ASIP) and the parking inventory database (which contains building assignments) as a starting point. The ASIP is organized by Unique Identifier Codes (UIC), of which there can be several to make up a single agency. The intent is to identify which of the 140+ mission partner organizations have 100 or more authorized personnel.
- **Roles and Responsibility**: This step is the responsibility of Fort Belvoir DPW.
- **Schedule**. This can begin immediately, concurrently with Steps 1 and 2. Duration is contingent upon accuracy of available data.

Step 4. Inform agency leadership and the identified ETCs of the new expected responsibilities.

- **WHY this Step is Important**: Notification of the proper personnel at each agency is important to ensure that the ETC and his/her leadership is aware of the new ETC role and its time/task commitments and that it begins in a timely manner.
- **Where to Begin**: Determine the proper process to notify the ETC and his/her leadership; such as, a standard email with Garrison Commander approval, or a face-to-face meeting(s). Use the TEO information gathered in Step 2.
- **Roles and Responsibility**: This step is the responsibility of Fort Belvoir DPW and the TDM Coordinator.
- **Schedule**. This step can begin as soon as all other steps are complete. Duration depends on the successful assignment of an ETC at each agency, but should be a minimal effort with the successful implementation of Step 2 (gaining approval).

Summary

According to the NCPC and the *Implementing a Successful TMP* handbook, there are **"two key ingredients to design and implement an effective TMP: strong management support and a motivated, enthusiastic ETC."**

At Fort Belvoir, this strategy is one of the most important TMP strategies for immediate implementation since it provides the mechanism of *how* the TMP can gain involvement and leadership support of all mission partner agencies at Fort Belvoir. An ETC at each agency allows for mutually beneficial information exchange and pooling of resources between the agencies and the Installation. The agencies' access to resources and information is increased, the benefits of which can be passed directly to their employees. The Installation increases its understanding of individual agency opportunities and challenges, and the success of the TMP is increased due to the comprehensive participation and collaborative process. **Implementation of this strategy has the potential to impact and increase the success of every other TMP strategy and the TMP itself.**

It is important to note that the ETC position does not need to be a full-time position; time commitments will depend on agency size and mission. Each agency already has a designated TEO; the same person could be designated to fulfill the ETC function.

Table 7.5 Two-Year Implementation Schedule for AC-1

Step:	Year 1 (12 months)												Year 2 (12 months)											
1	■																							
2		■	■	■	■	■																		
3	■	■	■																					
4							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Strategy AC-2. Establish a standardized agreement between Fort Belvoir and agencies for TMP commitments, beginning with those agencies with 100 PN or greater.

WHY it is important: The intent of this strategy is to formalize the agreement process between mission partner agencies and Fort Belvoir. This official contract is essential to communicate and agree upon the expected roles and responsibilities of TMP-related items. Standardizing such an agreement ensures that each agency is held equally accountable. These commitments are important to achieving overall TMP success because certain elements fall outside the direct influence of Fort Belvoir. For example, telework and alternate work schedule policies are under the purview of each agency, not the Garrison (which already has its own policies). This type of agreement is how Fort Belvoir can influence agency-level decisions.

Table 7.6 TMP Strategy AC-2 Objectives and Target Table

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.	■	
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.	■	
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40 percent of commuters using non-SOV options.		■

WHAT it accomplishes:

- **Benefits to Installation:**
  - Creates standard agreements to which all agencies are held.
  - Ensures that agencies are bound and contributing to the success of the TMP.
  - Clarifies expectations and responsibilities.
  - Streamlines communication between the Installation and agencies.
  - Sets the precedent to which all future development is held
- **Benefits to Agencies:**
  - Establishes a framework for leadership level buy-in at each agency.
  - Guarantees that no agency is unnecessarily burdened.
  - Provides clear roles, responsibilities and tools.
- **Benefits to Employees:**
  - Increases access to information and scheduling options that are available to employees.

HOW it gets done: Fort Belvoir personnel responsible for administering these steps are DPW and DES.

Table 7.7 Two-Year Implementation Schedule for AC-2

Step:	Year 1 (12 months)												Year 2 (12 months)												Beyond Year 2
1	■	■	■	■	■	■																			
2						■	■	■																	
3									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
4																									→

Step 1. Draft standard "TMP Agreement" language to include in ISSA.

- **WHY This Step is Important**: Drafting a standardized agreement will efficiently and effectively bring consistency to the process of putting in place TMP agreements at each agency. A standard agreement guarantees that no single agency is unnecessarily burdened, and clarifies expectations and responsibilities.
- **Where to Begin**: Select existing agreements to review and determine whether any of them can be used for this application. Elements that should be considered are commitments to the following, as well as a reporting procedure/work plan process:
  - Ongoing coordination and communication with the TDM Coordinator, such as participation in the TDM Working Group.
  - Establishing an ETC at the agency.
  - Establishing teleworking/scheduling policies, given mission needs.
  - Determining and managing parking demands at the site, including establishing a process for visitors and visitor demands, and implementing priority parking.
  - Providing support facilities for bicyclists and pedestrians.
  - Establish a review process preparing, reviewing and updating agency TMPs. The TDM Coordinator should take the lead in establishing a "toolbox" of goals and strategies for the agency-generated TMPs. The review process may include a chart with mutually agreed to milestones for agency surveys, and data collection that is reported to the TDM Coordinator and methods to track and monitor results.
- **Roles and Responsibility:** This step is the responsibility of Fort Belvoir DPW and the TDM Coordinator.
- **Schedule**. This can begin immediately. Duration should be a minimal effort.

Step 2. Seek approval of TMP Agreement

- **WHY this Step is Important**: This step will assure that the drafting and approval of the TMP Agreement is vetted through the normal protocol with Army legal staff before it is executed as part of the ISSAs. Additionally, gaining consensus of the Agreement at the Installation leadership level ensures that it will be formally recognized and acknowledged as a firm commitment by mission partner agencies and the region.
- **Where to Begin:** This step contains two elements:
  - Gaining review and approval by Army legal staff, which will need a determination of the appropriate process and needs.
  - Gaining support. This could include presentation to:
    - Garrison Commander, to gain Installation leadership level support.
    - Partners' Meeting, to gain consensus of the mission partner agencies.
- **Roles and Responsibility:** This is the responsibility of Fort Belvoir DPW and the TDM Coordinator.
- **Schedule**. This can begin immediately. Duration is dependent on protocol and process.

Step 3. Inform leadership on TMP Agreements upon ISSA renewal for each agency.

- **WHY this Step is Important:** Notification of the proper personnel at each agency is important to ensure that the new TMP Agreement language is understood and executed as part of each ISSA.
- **Where to Begin:** Use the priority list of agencies with more than 100 PN, as identified in Strategy AC-1. Identify the proper personnel at the agency-level to coordinate with to reach a signed agreement.
- **Roles and Responsibility:** This is the responsibility of Fort Belvoir DPW and the TDM Coordinator.
- **Schedule**. This step can begin once both of the other steps are complete and the agency's ISSA needs to be renewed. The duration time for a single agency is a minimal effort with the successful implementation of Step 2 (gaining consensus); however, overall duration is ongoing.

Step 4. As new agencies come to Fort Belvoir, ensure that each ISSA includes the TMP Agreement.

- **WHY this Step is Important**: This step is an important commitment to ensure that the TMP Agreement continues in the future as the Installation continues to develop.
- **Where to Begin**: Use the Agreement set in Steps 1 and 2, and the process in Step 3.
- **Roles and Responsibility**: This step is the responsibility of Fort Belvoir DPW and the TDM Coordinator.
- **Schedule**. Duration is ongoing.

Summary

Implementation of this strategy is necessary to assure leadership commitment and to guarantee that all agencies are equally involved and supported to collectively move forward the TMP. This strategy makes each agency equally accountable to the Garrison for its involvement in the TMP, and standardizes the agreement on the expectation and commitments. This formal agreement should be specific in defining the roles and responsibilities of the Installation and the agencies. Without this strategy, the success of the TMP itself could be compromised since it is the framework for how Fort Belvoir can influence agency-level decisions on transportation management.

Every mission partner agency at Fort Belvoir has an Installation Services Support Agreement (ISSA) that is updated at least every two years. The ISSA is the only formal agreement between the Installation and each mission partner agency that stipulates all logistical and support arrangements and other responsibilities. It is the intent of this strategy to utilize the existing ISSA process to add TMP Agreement language into each agency's ISSA.

Strategy AC-3. Expand the role of the TDM Working Group to actively set policies and best practices for implementation of the TMP.

Table 7.8 TMP Strategy AC-3 Objectives and Target Table

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.		■
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.		■
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40 percent of commuters using non-SOV options.		■

WHY it is important: The TDM Working Group (TDMWG) is an opportunity to collectively influence the success of the TMP vision and goals, and to actively oversee its implementation. Through this already established structure, Fort Belvoir can immediately begin to work with the TDMWG to take full advantage of agency representation, expertise and experience. Expanding the roles and responsibilities of the existing TDMWG to periodically update TMP strategies and set priorities is an important element in the long-term success of the program. One action that will greatly benefit from this strategy is taking a collective approach for information outreach. Embracing the TDMWG goes a long way in providing full involvement of everyone.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Supports and advances the role of the TDM Coordinator.
  - Utilizes an existing structure to advance the TMP.
  - Provides a collaborative approach and an efficient process for TMP implementation.
  - Actively involves everyone - Installation, agencies and prominent stakeholders.
  - Streamlines the outreach process to engage agencies (saves time and effort).
- **Benefits to Agencies:**
  - Gives the agency a "voice" in the Fort Belvoir TMP efforts.
  - Effectively utilizes agency involvement (saves time and effort).
- **Benefits to Employees:**
  - Increases accessibility to readily available commuter information and mobility choices.

HOW it gets done:: Fort Belvoir personnel responsible for administering these steps is the TDM Coordinator.

Step 1. Hold brainstorming session(s) to develop the purpose and role of the TDM Working Group and its members.

- **WHY This Step is Important**: The intent of this step is to redefine the goals, purpose, and intent of the existing TDMWG to effectively engage its members in the implementation and success of the TMP. It is an opportunity to invigorate it to proactively participate in this new effort to influence employee travel choices; increase convenient accessibility for all modes of travel; enhance workplace flexibility; and reduce trips to the Installation. The outcome of holding one or more brainstorming sessions should be a clear Action Plan with defined steps and roles for the next two years.
- **Where to Begin**: Determine who should be involved in the session(s). Work with a meeting facilitator to define the format, logistics and structure for holding a brainstorming session(s) to get all ideas on the table as a recommendation to:
  - Define the purpose and role of the TDM Working Group.
  - Define the purpose and role of the TDMWG members, and identify whether there are other potential members who should be invited.
  - Describe what activities the Working Group should be engaged in, such as the implementation of TMP strategies, etc.
  - Redefine, if appropriate, the structure of the organization, such as creating subcommittees or frequency of meetings.
  - Determine the process for reporting progress, including successes and challenges.
- **Roles and Responsibility:** This step is the responsibility of the TDM Coordinator with assistance from the TDM Working Group.
- **Schedule**. This can begin immediately. Duration should be a minimal effort.

Step 2. Draft and seek approval of the Action Plan.

- **WHY this Step is Important**: To assure that the TDM Working Group is as inclusive as possible in order that the TMP strategies are being undertaken at the Garrison and Mission partner Agency level where each is not burdened with its implementation.
- **Where to Begin**: This step depends on the outcome of the recommendations in Step 1, which will outline next steps for approving the Action Plan.
- **Roles and Responsibility:** This step is based on the outcome of Step 1.
- **Schedule**. This can begin once Step 1 is completed. Duration should be a minimal effort.

Table 7.9 Two-Year Implementation Schedule for AC-3

Step:	Year 1 (12 months)												Year 2 (12 months)												Beyond Year 2
1	■	■	■	■	■	■																			
2							■	■	■																
3										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	→
4										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	→

Step 3. Implement the Action Plan.

- **WHY this Step is Important:** Without implementation of the Action Plan, the success of the TMP could be compromised because undertaking each of the TMP strategies, if left to Garrison staff alone to accomplish, puts an unjust burden on limited staff and resources. Collective action by Fort Belvoir and its agencies will more effectively and efficiently carry out the steps required to create better transportation choices and establish Fort Belvoir as an outstanding place to work, live and train.
- **Where to Begin:** This step depends on the outcome of the recommendations in Step 1, as defined in the Action Plan, which will outline next steps. Prepared by the meeting facilitator, the Action Plan reports back the decisions, agreements and consensus from the brainstorming session(s) that defines implementation steps, responsibilities and schedule.
- **Roles and Responsibility:** This is the responsibility of Fort Belvoir DPW in coordination and collaboration with others to complete steps outlined in the Action Plan.
- **Schedule**. This can begin once Step 1 is completed. Duration will depend on the defined actions.

Step 4. Yearly, update the Action Plan.

- **WHY this Step is Important**: Action Plans are to be updated to respond to the current agency's mission, budget, policies or programs and modified in order to successfully meet the objectives. This requires evaluating what has been accomplished, what actions have not been completed, and what is feasible to achieve over the next year.
- **Where to Begin**: Schedule a TDM Working Group meeting where members report back on the status of their responsibilities as defined in the Action Plan noting successes, accomplishments and remaining actions. A discussion should be facilitated to determine any changes to the Action Plan and what can be accomplished over the next year, by whom and when.
- **Roles and Responsibility**: This step is the responsibility of the TDM Coordinator.
- **Schedule**. Holding the meeting and member reports are both a minimal effort.

COST CONSIDERATIONS:

- **Staff:** Facilitator could be existing staff or a contractor with facilitation skills to help a group of people understand their common objectives and assists them in planning to achieve them without taking a particular position in the discussion. A facilitator should assist the TDMWG to achieve a consensus on future action.

Summary

The TDM Working Group represents a management structure that is already in place to oversee the TMP and its vision and goals. By updating, expanding, and possibly reorganizing the representation, roles and responsibilities of its members, the TDMWG provides an efficient process for successful TMP implementation. By empowering the TDMWG, members have the ability to collectively undertake the actions required to implement trip reduction strategies that will benefit all and motivate active stakeholders to participate in the TMP. The focus of the TDM Working Group may evolve over time in terms of its structure and activities in response to current needs, challenges, and opportunities. Membership should include key Garrison staff in DPW as well as mission partner agency ETCs and TEOs involved with the implementation of the TMP. With over 140 mission partner agencies, the TDM Working Group structure could establish smaller committees and an Executive Committee to better handle specific tasks. This forward-thinking strategy creates a collaborative approach as members of the TDMWG expand as agency ETCs are developed (Strategy AC-1, Agency ETCs).

Implementation of this strategy has a direct impact on the implementation of many of the other strategies and the success of the TMP.

7.4 Regional Collaboration Strategies

RC-1. Partner with transportation agencies and transit providers to improve service to and from the Installation.

WHY it is important: Fort Belvoir employees commute to and from the Installation on transportation facilities that are managed by others. Because Fort Belvoir has no direct control over this network, it is imperative that the Installation engages and participates in regional discussions and decision-making that influences future public roadway and transit improvements in the interest of Fort Belvoir and its future demands. Transit providers actively adjust to meet Fort Belvoir's needs, within budgets and demands. Improving regional connections to the Installation or planning for transportation connectivity and facilities to increase transit as an alternative travel mode can directly lead to reducing single occupancy vehicle trips.

Table 7.10 TMP Strategy RC-1 Objectives and Target Table

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.	■	
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.	■	
TMP Target:		
At least 40 percent of commuters using non-SOV options.	■	

WHAT it accomplishes:

- **Benefits to Installation:**
  - Strengthens regional partnerships and public relations with outside stakeholders.
  - Capitalizes on regional resources to increase the number of employees who use transit.
  - Increases effectiveness of agency resources, transit facilities and infrastructure.
  - Increases understanding of regional initiatives.
  - Improves coordination of Installation support services and facilities.
  - Provides potential pooling of resources.
  - Identifies regional traffic congestion and bottlenecks that require joint actions.
  - Reduces the number of commuter vehicles coming to the Installation.
  - Explores shared services and the exchange of ideas between Fort Belvoir and the county, regional and state partners that will expand transit use.
- **Benefits to Agencies:**
  - Improves commuting options for agency employees at no or minimal cost to agency.
  - Reduces the number of vehicles parking at the site.
- **Benefits to Employees:**
  - Provides real transit options that are connected and convenient.
  - Decreases travel time and stress for transit commuters.

HOW it gets done: Fort Belvoir personnel responsible for administering these steps are DPW and the TDM Coordinator.

Table 7.11 Two-Year Implementation Schedule for RC-1

Step:	Year 1 (12 months)												Year 2 (12 months)												Beyond Year 2
1	■	■	■										■												→
2				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	→
3				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	→

Step 1. Examine current collaborative efforts to determine gaps/opportunities.

- **WHY This Step is Important**: It is important to understand current coordination activities with both regional partners (e.g., VDOT and FCDOT) and transit stakeholders that the Garrison is already engaging. Determining additional opportunities for regional discussions should be identified to assure that Fort Belvoir has a seat at the table in decisions that can improve transportation connections to and from the Installation. The intent of this step is to effectively utilize the Installation's time and effort in participating in regional meetings.
- **Where to Begin**: This step could begin with an agenda item at a TDM Working Group meeting to identify all coordination efforts between the Installation and the region, and opportunities where Fort Belvoir is not actively engaging. From this, determine which opportunities will most likely benefit Fort Belvoir, how to engage them, and who will be responsible. The first opportunity is with the current meetings being held by the Virginia Department of Rail and Public Transportation and other key partners in the Super NoVA Transit and Transportation Demand Management Plan. Another proposed project is to meet with Fairfax County and the regional stakeholders to identify available bicycle/pedestrian connections and amenities. This TDM Working Group will identify travel needs, observed changes in traffic conditions, evaluate gaps in transit, rail and TDM programs, and identify strategies that will ease commutes.
- **Roles and Responsibility:** This step is the responsibility of the TDM Coordinator with assistance from the TDM Working Group.
- **Schedule**. This strategy can begin at any time and is an ongoing effort that should periodically be looked at based on future initiative and project, and regional transportation efforts.

Step 2. Regularly participate in regional meetings and coordination.

- **WHY this Step is Important**: It is important to attend and participate in ongoing regional transportation coordination meetings. Involvement of the Garrison is imperative in assuring that the desires of the Installation are incorporated into the planning, design, operation and maintenance of regional transit, and that transportation efforts will be mutually beneficial to Fort Belvoir and to the region. In addition, providing transit stakeholders with an accurate knowledge of the Installation needs and growth plans is critical in order to effectively encourage local, regional and state transit officials to incorporate solutions that will benefit Fort Belvoir.
- **Where to Begin**: This step is concurrent with Step 1, and the outcome of Step 1 should provide direction on future meetings and coordination priorities, such as:
  - Northern Virginia Regional Commission (NVRC)
  - Traffic conditions update to biannual RPPB meeting by TDM Coordinator
  - NCPC
  - Potomac Heritage National Scenic Trail
  - Fairfax County Bicycle Master Plan
  - Fairfax County Transportation Initiatives and Projects
- **Roles and Responsibility**: TDM Coordinator.
- **Schedule**. This is an ongoing effort.

Step 3. Outreach to transit stakeholders to achieve direct impacts to Fort Belvoir commuters.

- **WHY this Step is Important:** Continuing current participation in regional transportation activities and efforts to partner with regional transit stakeholders is necessary to develop future facilities that can accommodate Fort Belvoir commuters by increasing transit options that have the potential to directly reduce trips and congestion. Outreach efforts can lead to shared uses and reduced costs for the Installation and transit stakeholders. For example, Fairfax County may be willing to construct infrastructure for bus stops, such as sidewalks and shelters, to encourage ridership in exchange for revenue for advertisements on the shelters. Other ideas may become more appropriate over time. New legislation from the National Defense Authorization Act, Section 331 will be reviewed, as it allows for shared services between military installations and host communities.
- **Where to Begin:** This is an ongoing activity that directly impacts and improves commuter behavior if Fort Belvoir continues a dialogue with regional stakeholders, such as WMATA, VRE, Fairfax County, VDOT and others, to:
  - Transform the historic military railroad track bed to provide a transportation connection from Fort Belvoir directly to rail transit.
  - Establish improved shuttle and bus connections and options.
  - Develop the Potomac Heritage National Scenic Trail and other bicycle connections.
  - The Army will monitor VRE plans to improve service for commuters and provide input to VRE as requested. Engagement with VRE can be both directly and through the Installation's partnership with NVRC where the dialogue concerning reverse service and other rail transit improvements would benefit a larger reach of stakeholders and military installations throughout the NCR. NVRC represents the regional transportation interests affecting the local county government, U.S. Marine Corps Base Quantico, and the Washington Navy Yard. The Installation will utilize NVRC relationships with VRE to support efforts to maximize all of the available line capacity for commuter rail use, including any reverse service that would likely require a third line.

- Continue to work with VDOT in developing agreement with NPS that allows the PHNST to be included within the public right-of-way that will be controlled and maintained by the Commonwealth of Virginia.

- **Roles and Responsibility**: This step is the responsibility of the TDM Coordinator.

- **Schedule**. This is an ongoing effort.

Summary

Fort Belvoir commuters travel to the Installation from around the Washington Metropolitan region on transportation facilities that are managed by others. Because Fort Belvoir has no direct control over maintaining and improving this network, successfully reducing trips and increasing mobility choices requires ongoing collaboration with regional partners to find mutually beneficial partnerships and solutions. Continuing to improve existing collaboration with regional transit stakeholders can assure that the interests and future needs of Fort Belvoir are factored into regional decision-making.

Implementation of this strategy is an ongoing effort. The degree of effort and investment in this strategy will depend on current policies, plans, public transportation initiatives and projects and the potential benefit to the Installation. It is the primary goal of this strategy that over time, the Army and its DoD mission partners will be able to rely more on public transportation, thus eliminating the need to run shuttles. Fort Belvoir is committed to working closely with regional stakeholders to identify their future demands for public transit. Demonstrating an increased demand for public transit will help local transit providers justify adding additional bus (or other transit facilities) to Fort Belvoir. This includes the conversion of current AM-PM only bus service (e.g., Route 335) to provide all-day service, thus improving mobility options and flexibility desired by the workforce.

Table 7.12 TMP Strategy IO-1 Objectives and Target Table

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40 percent of commuters using non-SOV options.	■	

7.5 Information Outreach Strategies

IO-1. Develop a TMP marketing campaign.

WHY it is important: A cohesive marketing campaign that showcases Fort Belvoir-specific resources on "how to get there" is a simple yet effective tool to increase employee awareness Installation-wide. Providing targeted information directly to employees removes the time and uncertainty from having to individually search separate regional resources. It also removes the redundancy and potentially incomplete and outdated information that each agency may be distributing to its employees. A Fort Belvoir brand establishes a standard and recognizable image that can be used to develop marketing materials that Fort Belvoir, agencies, and others use to disseminate information about mobility choices.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Creates a Fort Belvoir branding for electronic and printed materials that unites all marketing efforts.
  - Establishes a recognizable and unified line of products for distribution.
  - Coordinates efforts (saves time and cost) of all information outreach efforts Installation-wide.
  - Increases awareness of mobility options.
  - Increases use of non-SOV travel modes.

- **Benefits to Agencies:**
  - Provides agencies with a comprehensive line of products for their use.
  - Saves time and money of creating unique and independent materials.
  - Reduces duplication of efforts at the agency level.
  - Gives agencies the flexibility to include site-specific information to a line of products.

- **Benefits to Employees:**
  - Increases awareness with information that is easy to understand, accessible and all-inclusive.
  - Removes uncertainty of not knowing how transit, trails, etc. connect to the Installation.

HOW it gets done: Fort Belvoir personnel responsible for administering these steps are the Public Affairs Office (PAO) and the Office of the Administrative Assistant to the Secretary of the Army (OAA).

The implementation steps of this strategy are broken down into two categories: Branding and Publication. Regional best practices show that the ideal approach includes developing a catchy slogan with design logo (the Branding). Publications can be developed without the branding, but they may be inconsistent, and not easily identifiable as part of Fort Belvoir's TMP efforts.

Table 7.13 Two-Year Implementation Schedule for IO-1

Step:	Year 1 (12 months)												Year 2 (12 months)												Beyond Year 2
BRANDING Steps																									
1	■	■	■																						
2				■	■	■																			
PUBLICATIONS Steps																									
1							■	■	■																→
2										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	→
3																■	■	■	■	■	■	■	■	■	→
4																	■	■	■	■	■	■	■	■	→

BRANDING Steps

Step 1. Develop concepts for a slogan, graphic logo and marketing package.

- **WHY This Step is Important**: Designing a slogan and logo is necessary in order to effectively market the other TMP trip reduction strategies. Without a unified look and theme, marketing materials, websites, and outreach will be handled independently, which may be conflicting and confusing to personnel and residents.
- **Where to Begin**: Fort Belvoir Garrison staff will have to determine whether existing personnel with the expertise in marketing and design can develop concepts for a slogan, logo and marketing package or whether an outside consultant will be needed to complete this task. Once this has been determined, this strategy will begin with the development of the slogan, logo and marketing package, which outlines how the brand will be used and what materials, such as letterhead, brochures, news articles and posters, will be needed. A good starting point is with the existing Fort Belvoir "Share a Ride" logo.
- **Roles and Responsibility:** Fort Belvoir DPW and the TDM Coordinator in coordination with the Working Group who will review design concepts and select a preferred design. Those design concepts and preferred design need approval from the Deputy Garrison Commander and the Garrison Commander.
- **Schedule**. This strategy can begin at any time but should be accomplished within the first year and preferably within the first six months.

Step 2. Develop the specifications for the preferred design.

- **WHY this Step is Important**: It is necessary for the production of materials, and use by the Installation and the mission partner agencies, that the design specifications and instructions are well-defined to assure consistency when it is used.
- **Where to Begin**: The graphic designer will have the knowledge to draft the specifications. Other instructions with respect to how it is used will need to be defined by the Marketing Team - PAO, OAA, Fort Belvoir DPW and the TDM Coordinator - who are working on the marketing approach.
- **Roles and Responsibility**: This step is the responsibility of Fort Belvoir DPW and TDM Coordinator.
- **Schedule**. This can begin as soon as the preferred design is selected and approved. Duration of this step should be a minimal effort.

PUBLICATIONS Steps

Step 1. Determine a priority list of targeted materials.

- **WHY This Step is Important**: Whether electronic or hard copy marketing materials, it is important that materials prepared specifically for a user can be more effective in changing behavior and providing comprehensive data. Developing a priority list of desired materials is a cost-effective way to begin the publication process.
- **Where to Begin**: Develop a comprehensive list of all potential materials, which could include separate brochures and posters for:
  - An overall TMP brochure.
  - Cost of commuting (the "true" cost of driving and maintaining a personal vehicle).
  - Trails for bicyclists and pedestrians.
  - Transit routes, schedules, and fares.
  - Internal circulator schedule and route.
  - Installation parking requirements and designations.
  - Regional transit benefits.
  - Scheduling/telecommuting options.
  - Site-specific materials for agencies.
- **Roles and Responsibility:** This step is the responsibility of the TDM Working Group.
- **Schedule**. This step can be done at any time even concurrently with the branding step and is a minimal effort.

Step 2. Design publication materials.

- **WHY this Step is Important**: This step provides for the design of various publication materials that will be produced as hard copy (including brochures and posters) as well as electronically (website, intranet, etc.). It is important that the two be consistent.

- **Where to Begin**: The outcome of Step 1 under Publications will determine what marketing materials will need to be designed. Defining the audience, publication content, and look and feel of the publication is the place to begin the design.
- **Roles and Responsibility**: This step is the responsibility of the TDM Coordinator with the TDMWG.
- **Schedule**. This step should begin once Step 1 (priority list) is complete and is an ongoing effort as needed during the implementation of the Publications steps. It is important to note that the time to design each publication will depend on the content and complexity of each publication.

Step 3. Produce publications.

- **WHY this Step is Important:** This step is necessary for the printing of publications that can be distributed and disseminated throughout the Installation.
- **Where to Begin:** Fort Belvoir determines the quantity of publications and puts in a printing job request.
- **Roles and Responsibility**: This step is the responsibility of Fort Belvoir DPW.
- **Schedule**. The timing of printing publications is determined on an as needed basis.

Step 4. Disseminate materials.

- **WHY this Step is Important**: Although much of the outreach effort can be done electronically, it will be important that hard copies of marketing materials are produced for dissemination at the Commuter Centers and commuter fairs, or to Installation offices and mission partner agencies, or at regional transit hubs.
- **Where to Begin**: Determine process. Electronic distributions can be done first.
- **Roles and Responsibility**: This is the responsibility of the TDM Coordinator, TDMWG PAO, and OAA.
- **Schedule**. The timing is determined on an as needed basis.

Case Study/Best Practice:

A number of local organizations have developed branding logos that are easily recognizable and known throughout the region, including:

- **FairfaxCounty's "One Less Car" Ridesources and Employee Services Programs**
- **Arlington County's Commuter Page and Car-Free Diet (be a PAL)**
- **Arlington Transit's "ART"**
- **Alexandria's Local Motion**
- **Washington, D.C.**
- **Fort Belvoir's Share a Ride**
- **We Go Military rideshare application**
- **NuRide program in Washington, D.C. metro area**

COST CONSIDERATIONS:

- **Staff:** Existing staff is anticipated to complete the steps under this strategy. However, staff may find that hiring the services of a consultant in a specialized area, such as graphic design and branding, may be beneficial and cost effective for certain tasks.

Summary

A recognizable "HOW DO I GET THERE FROM HERE?" marketing approach provides the framework for the TMP outreach efforts to Fort Belvoir personnel and residents. This strategy is a simple yet effective tool that increases awareness by making targeted materials on mobility choices and their benefits. The marketing effort should be consistent and attractive, and will result in reaching more people and therefore successfully increasing trip reduction and use of alternative travel choices.

Table 7.14 TMP Strategy IO-2 Objectives and Target Table

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.		■
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.		■
Evaluate more agency-specific or neighborhood-led commuter fair efforts such as those championed by INSOM TMP Coordinator.	■	
TMP Target:		
At least 40 percent of commuters using non-SOV options.		■

IO-2. Modernize the concept of the "Commuter Fair."

WHY it is important: While over half of Fort Belvoir employees were aware of the ongoing Commuter Fairs as of the 2011 Commuter Survey, only a small percentage of them actually had attended one. In this age of ever-present technology, people expect and want information at their fingertips. The current concept of the Commuter Fair is an important one - bringing employees together to gain information and interact with other stakeholders - but can be improved upon by embracing technology. Bringing the information directly to employees' desks and phones removes the time and hassle of having to get to a traditional Commuter Fair in the middle of a busy work day and takes advantage of electronic media as a powerful tool. Additionally, the concept of the "Commuter Fair" can be developed to be mobilized outside of a centralized location to travel to and present information at specific agencies.

It is very important to leverage the existing resources available. This can be accomplished by continuing to work with Fairfax County and its Connector staff and the Commuter Connections staff and network through close coordination with VDOT and DRPT on various TMPs funded for major projects in the transportation corridors in the vicinity of Fort Belvoir. These resources are available from the commonwealth for informational meetings for employees and for senior Army leadership.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Modernizes how the Installation disseminates information.
  - Increases effectiveness of "Commuter Fair" efforts.
  - Provides valuable information in a more accessible and convenient format.
- **Benefits to Agencies:**
  - Increases productivity of employees.
  - Saves cost and time creating unique materials.
- **Benefits to Employees:**
  - Increases convenience of getting information.
  - Saves time in gaining useful information.

HOW it gets done: Fort Belvoir person responsible for administering these steps is the TDM Coordinator.

Step 1. Develop a Prioritization Plan for reaching out electronically to the Fort Belvoir community.

- **WHY This Step is Important**: Establishing a priority list of possible electronic outreach measures will help to define what is possible, who can accomplish it, and when it can happen. This presents an opportunity to further evaluate viable options beyond those listed under this strategy and put in place the steps to developing them.

Table 7.15 Two-Year Implementation Schedule for IO-2

Step:	Year 1 (12 months)												Year 2 (12 months)												Beyond Year 2
ELECTRONIC Steps																									
1	■	■	■	■	■	■																			
2							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	→

- **Where to Begin**: Examine what is currently being done electronically by Fort Belvoir, such as the *"Getting to and From Fort Belvoir"* website, list serve, and social media sites to determine how to expand upon them to make them more interactive and up-to-date to reach a larger audience. Explore realistic possibilities and develop a priority list of options, such as:
  - Expand the Fort Belvoir Commuter webpage.
  - Develop social media applications.
  - Develop webinars.
  - Support NVRC Real Time Ridesharing smartphone application.
- **Roles and Responsibility:** This step is the responsibility of the TDM Coordinator and TDMWG.
- **Schedule**. This can be done anytime.

Step 2. <u>Design and implement chosen technology, based on Step 1</u>.

- **WHY this Step is Important:** Use of technology, such as phone applications, social media, websites and email list serves, offers cost effective and timely opportunities that can reach a wide audience, many who expect to be able to access information no matter where they are. Without implementation of these electronic tools, Fort Belvoir minimizes its ability to successfully provide for mobility choices that can reduce parking demands and traffic congestion.
- **Where to Begin:** Subsequent steps will be defined by the outcome of Step 1.
- **Roles and Responsibility:** This step is the responsibility of the TDM Coordinator.
- **Schedule**. Timing of this step is on an as-needed basis.

<u>Case Study/Best Practice:</u>

<u>COST CONSIDERATIONS</u>:

- **Capital**
- **Operational**
- **Staff:** Existing technology staff and others are anticipated to modernize the "computer fair;" however, there may be a specialization, such as developing social media apps, which may require the services of a professional contractor.

Summary

In spite of the low attendance at the Commuter Fairs, the feedback from the past attendees remains very positive and reinforces the importance of conducting periodic Commuter Fairs. This strategy embraces the use of technology to improve the process and reach more employees while retaining the core functions of the Commuter Fair which is to distribute and share information between programs and employees, and to provide technical assistance to employees - bringing employees together to gain information and interact with stakeholders. Whether at their desks or on the move, employees want to easily access information. The implementation of this strategy is based upon using technology to modernize the "commuter fair."

7.6 Mobility Choices Strategies

MC-3(a). Pursue Bike-share Programs on-Post.

WHY it is important: Bike-share programs have emerged as successful solutions in the region for providing mid-day mobility. As such, the programs are a support system for commuters who do not drive their personal vehicle to the Installation. A Bike-share program would provide access to bicycles throughout the Installation that employees can utilize to travel on-Post for meetings, training or services and connect to the regional trail network for commuting, exercise and recreation.

Table 7.16 TMP Strategy MC-3(a) Objectives and Target Table

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.		■
Align with regional initiatives.	■	
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.	■	
TMP Target:		
At least 40 percent of commuters using non-SOV options.		■

WHAT it accomplishes:

- **Benefits to Installation:**
  - Supplies a multimodal resource directly on the Installation.
  - Aligns with Fairfax County trails plan and Master Plan initiatives.
  - Increases commuting options for military personnel who live on-Post.
- **Benefits to Agencies:**
  - Provides multimodal options for employees' use.
- **Benefits to Employees:**
  - Increases mid-day mobility options for all employees.
  - Provides a recreational amenity.

HOW it gets done: Fort Belvoir personnel responsible for administering these steps are the Directorate of Family, Morale, Welfare and Recreation (DFMWR) and Fort Belvoir DPW.

Step 1. <u>Conduct a Feasibility Study</u>.

- **WHY This Step is Important**: This step will assess the practicality of the program (if the demand is there to support it); identify logical steps to understanding how it gets done, by whom and when; and determine potential locations of stations (priority list).
- **Where to Begin**: Determine if a feasibility study can be conducted by internal staff, or if a contractor is needed. There are already existing and recommended bicycle facilities outlined in the Real Property Master Plan including on-Post trails and on-street bicycle lanes as well as links to the Fairfax County trail system and on-road bicycle routes. An additional opportunity for a bicycle facility is along the historic military railroad track bed. The program will be built over time to include:
  - Purchase of equipment (bicycles, helmets and racks).
  - Installation of equipment.
  - Operations and maintenance.
- **Roles and Responsibility:** Fort Belvoir personnel responsible for administering this step are Directorate of Family,, Morale, Welfare and Recreation (DFMWR), Fort Belvoir DPW, TDM Coordinator, and TDMWG.
- **Schedule**. This could begin at any time.

Table 7.17 Two-Year Implementation Schedule for MC-3(a)

Step:	Year 1 (12 months)												Year 2 (12 months)												Beyond Year 2
1	■	■	■	■	■	■																			
2							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	→

Step 2. Implement a bike-share program (if deemed feasible).

- **WHY this Step is Important**: A bicycle program at Fort Belvoir will be determined by the outcome of Step 1 and the successful implementation of the program to provide the mechanism, operation and equipment to handle the demand over time. Fort Belvoir's program would be similar to the Capital BikeShare Program that was built in stages as demand and interest has increased. Today, Capital BikeShare puts 1200 bicycles at 140 stations across Washington, D.C. and Arlington, Va. and has plans to expand into Alexandria, Va. and Montgomery County, Md.
- **Where to Begin**: Hold meetings to determine interest and availability of resources through DFMWR and DPW. Once available, use the findings of the Feasibility Study to further define the scope for a Bike-share program based on the projections. Implement based on discussions with DFMWR and the priority list from Step 1.
- **Roles and Responsibility**: This step is the responsibility of DPW and DFMWR.
- **Schedule**. This step should begin within two years and expanded based on use, funds and demand.

Case Study/Best Practice: Capital BikeShare Program

COST CONSIDERATIONS:

- **Capital**
- **Operational**
- **Existing staff time or contractor**
- **Return on Investment**

Summary

These programs are emerging as popular choices for mid-day travel, as evidenced by the success of the Capital BikeShare Program in the Washington, D.C. area. Although less than 1 percent of commuters surveyed used bicycles for commuting, it is an attractive option that provides both commuting and recreational facilities for personnel. In addition, a bike-share program would be particularly advantageous for those who take public transportation or participate in car/vanpools by providing more flexible mid-day mobility options. Based on the percentage of respondents in the survey who currently use their vehicles for mid-day trips or who may be encouraged to use public transportation should bike(car)-share programs be available, MC-3 represents a potentially low cost strategy that could yield an early "win." In short, this strategy provides additional flexibility in choosing how to commute while providing an alternative to getting around the Installation during the workday.

The DFMWR offers various services and facilities for the Fort Belvoir community from sport and fitness centers to outdoor recreation and community centers. It is a logical choice for DFMWR to extend these with an Installation bike-share program. DFMWR potentially has the resources to establish and manage a bike-share program, and providing for and maintaining the equipment with the DPW.

MC-3(b). Pursue a Car-share Program on-Post.

WHY it is important: Car-share programs have emerged as successful solutions in the region for providing mid-day mobility. As such, the programs are a support system for commuters who do not drive their personal vehicle to the Installation. A car-share program would provide a collective pool of vehicles that any Fort Belvoir employee could reserve to use for business-related needs, such as attending meetings on- and off-Post.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Supplies a multimodal resource directly on the Installation.
  - Increases commuting options for military personnel who live on-Post.
- **Benefits to Agencies:**
  - Provides multimodal options for employees' use.
- **Benefits to Employees:**
  - Increases mid-day mobility options for all employees.

HOW it gets done: Fort Belvoir personnel responsible for administering these steps: Garrison staff has two options to consider for establishing a car-share program either through a partnership with a corporate car rental company or the General Services Administration (GSA).

Step 1. Determine the feasibility of establishing a car-share program with a corporate car rental company.

- **WHY This Step is Important**: Corporate car rental companies are in the business of renting cars and have the resources to provide this service. Finding the right opportunity where it is easy and convenient for Installation personnel to access vehicles during the workday may be better served outside of the Garrison's resources.
- **Where to Begin**: A good place to start is with existing corporate car rental companies who may have an interest in renting cars on an hourly basis at Fort Belvoir. Begin a dialogue with local companies to determine whether there is interest and if so, the next steps in establishing a program.
- **Roles and Responsibility:** Garrison staff should reach out to companies with an outline of how the company may be of service to Fort Belvoir, such as:
  - Launching a pilot to test the feasibility of the program. (By testing the success of launching the pilot over a year's time, for instance, can provide the Installation with feedback on the benefits, challenges and other factors about the administration of the program that can be used to modify, eliminate or expand the program.)
  - Deciding on potential car rental locations.
  - Arranging an hourly fee for car rentals.
  - Negotiating terms of an agreement to administer and manage the program.
- **Schedule**. This could begin at any time.

Table 7.18 TMP Strategy MC-3(b) Objectives and Target Table

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.		■
Align with regional initiatives.	■	
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.	■	
TMP Target:		
At least 40 percent of commuters using non-SOV options.		■

Step 2. Determine the feasibility of establishing a Car-share program through GSA.

- **WHY this Step is Important**: The Garrison and tenant agencies at Fort Belvoir already have leasing arrangements with GSA. A logical next step for Fort Belvoir is to determine with GSA whether a Car-share potential is feasible and the terms of that arrangement including vehicle type (passenger vehicles), operations and fees. Consideration needs to be made whether the vehicles can be leased to anyone or only to military personnel. Comparing establishing a Car-share program with a corporate entity or GSA is necessary to understand the best approach that is cost-effective for the Garrison.
- **Where to Begin**: A good place to begin is with the review of existing leasing agreements with GSA to understand current arrangements. Entering into a dialogue with GSA about a Car-share program will further define the potential with GSA and the details to successfully test the program.
- **Roles and Responsibility**: Garrison staff and/or Office of the Administrative Assistant (OAA).are responsible for this step.
- **Schedule**. This can begin anytime in the first year but should be completed at the same time or shortly after Step 1.

Step 3. Establish a pilot initiative or full corporate car-share program (if deemed feasible).

- **WHY This Step is Important**: Actually putting into place the car-share program, which is a direct outcome of the Step 1 recommendations to undertake a program.
- **Where to Begin:** A signed legal agreement between the U.S. Army and corporate company that outlines the terms of the arrangement - who is responsible, how it is accomplished, and when it begins.
- **Roles and Responsibility:** This step is the responsibility of Fort Belvoir DPW.
- **Schedule**. This can begin once Steps 1 and 2 are complete, and the feasibility for a corporate car-share program is determined.

Step 4. Establish a GSA car-share program (if deemed feasible).

- **WHY This Step is Important**: Actually putting into place the car-share program will advance the mobility options on the Installation. Establishing the terms of an agreement with GSA is the logical next step in making cars available to everyone for mid-day mobility, which is a direct outcome of the Step 1 recommendations to undertake a program.
- **Where to Begin:** This will depend on the outcome of Step 2 that will define the appropriate process.
- **Roles and Responsibility:** Fort Belvoir DPW is responsible for this step.
- **Schedule**. This step should begin once Steps 1 and 2 are complete, and feasibility of using GSA for a car-share program has been determined.

Case Study/Best Practice: Zip Cars. Zipcar is a car-share company that is changing the way people think about energy consumption. For over a decade, Zipcar has offered a practical and actionable option of sustainable living that decreases the adverse effects of transportation.

zipcar®
wheels when you want them

Summary

Flexibility of having access to a car is important for many commuters for a number of reasons including business travel. Knowing that a car would be available during the day, if needed, would give personnel more options to choose how they commute to work. Establishing a car-share program on-Post has the added benefit of transforming Fort Belvoir into a multimodal destination that provides commuters with the option to access a car, if needed during the day. The 2011 Commuter Survey where 40% of respondents were very likely to change their commute option, noted as important the flexibility of having access to a car. Being able to access a car might be the factor that changes a commuter's choice about taking an alternative SOV mode.

Table 7.19 Two-Year Implementation Schedule for MC-3(b)

Step:	Year 1 (12 months)												Year 2 (12 months)											
1	■	■	■	■	■	■																		
2	■	■	■	■	■	■																		
3							■	■	■	■	■	■												
4							■	■	■	■	■	■												

Expected steps to continue outside of the two-year time frame:

- Renewal of legal agreement with corporate rental car company.
- Evaluation of and potential modification, expansion or elimination of car-share program.

7.7 Land Use and Facilities Strategies

LUF-1. Evaluate and establish Commuter Service Centers (CSC).

WHY it is important: The concept behind the Commuter Service Center (CSC) or Commuter Store is to establish information outreach as an interactive destination and not a static kiosk. The CSC must be visible, accessible, and attractive to invite customers in and provide them with choices. The RPMP recommends that one CSC be located in the South Post Town Center, but more locations should be considered. Opportunities for CSCs exist within the prominent commercial and employment centers as well as smaller hubs near transit access points. The CSC will provide one-stop shopping for planning a commute and will offer access to fare cards, transit schedules, trail and transit maps, and an easy system for finding carpool or vanpool commuters.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Integrates information outreach with development efforts.
  - Provides access to information in prominent and convenient locations.
  - Promotes awareness of commuting options during daily activities.
  - Provides one-stop shopping for information on commuting options and mobility choices.
- **Benefits to Agencies:**
  - Provides an outlet for information distribution.
- **Benefits to Employees:**
  - Provides access to information in prominent and convenient locations.
  - Minimizes the need to individually search out information.

HOW it gets done: Fort Belvoir personnel responsible for administering these steps are DPW and the TDM Coordinator.

Commuter Service Centers are physical spaces or kiosk structures. A CSC can be a physical space, such as a storefront or street level office space that is planned and developed to disseminate information, provide for on-site staff, computer and internet service, and a location to purchase tickets, passes or other commuter services. Kiosks are structures where brochures and other hard copy materials and maps can be strategically located throughout the Installation in prominent and high traffic areas, such as office lobbies, community centers, transit stops, the Fort Belvoir Community Hospital, the Commissary, PX, and recreational facilities.

Table 7.20 TMP Strategy LUF-1 Objectives and Target Table

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40 percent of commuters using non-SOV options.		■

COMMUTER SERVICE CENTERS - PHYSICAL SPACE

Step 1. Develop Program Scope and determine feasibility for Commuter Service Center(s).

- **WHY This Step is Important**: Before any physical space can be developed as a CSC, it is necessary to define the specific programmatic details - space needs, computer needs, staffing and scheduling, materials and services to be provided within the internal space. The second requirement is to find convenient locations based on the CSC program for these centers on South and/or North Posts.
- **Where to Begin**: Examine existing CSCs to gain knowledge about what programmatic scope is right for Fort Belvoir, and develop the CSC Program. Identify possible locations for the CSC based on the program, starting with a location in the South Post Town Center. Lastly, determine the feasibility of developing a CSC.
- **Roles and Responsibility:** DPW with assistance from the TDM Coordinator, TDMWG, and technology staff are responsible for this step.
- **Schedule**. This step can begin at any time but should be started immediately to determine feasibility of the CSC, and if determined feasible, development of it will take some time as indicated in Steps 2-4.

Step 2. Design and build the Commuter Service Center (dependent on Step 1 - LONG TERM).

Table 7.21 Two-Year Implementation Schedule for LUF-1

Step:	Year 1 (12 months)												Year 2 (12 months)												Beyond Year 2
COMMUTER SERVICE CENTERS - PHYSICAL SPACE																									
1	■	■	■	■	■	■																			
2																									→
3																									→
4																									→
COMMUTER SERVICE CENTERS - KIOSK STRUCTURES																									
1	■	■	■	■	■	■																			
2							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	→

Step 3. Purchase equipment, materials and hire staff for the Commuter Service Center (dependent on Step 1 - LONG TERM).

Step 4. Open and manage the Commuter Service Center (dependent on Step 1 - LONG TERM).

Evaluate regional Commuter Centers for opportunities to include Fort Belvoir materials.

COMMUTER SERVICE CENTERS - KIOSK STRUCTURES

Step 1. Identify location(s) and design elements of kiosk CSCs.

- **WHY This Step is Important**: Employees are frustrated with their daily commutes and are open to considering other travel options based on the 2011 Commuter Survey. Getting information out to them in a timely manner immediately begins to increase the number of people who might choose other commuting options besides driving alone to work. Creating a structure that provides flexibility in locating them throughout the Installation and allows for the distribution of hard copy materials without having to staff the site. Posting staff at the kiosk such as the TDM Coordinator to answer questions could also be effective.
- **Where to Begin**: Examine possible locations where Commuter Service Center kiosks can be located and identify a priority list for installing them. Concurrently with identifying locations, examine catalog design structures to determine whether any meet the needs of Fort Belvoir and identify those that will be appropriate for specific locations on the priority list.
- **Roles and Responsibility:** This step is the responsibility of the TDM Coordinator.
- **Schedule**. This can be done anytime.

Step 2. Implement placing and providing materials for kiosk structures.

- **WHY This Step is Important**: Kiosks provide a flexible space where publications and other materials can be made available for personnel to pick up at their convenience. This promotes awareness of commuting options during daily activities through an outlet that can be replenished and updated as TMP materials become available.
- **Where to Begin**: The outcome of Step 1 should provide a starting point in terms of the specific locations and kiosk design, and the priority list for implementation of them. The TDM Coordinator will need to reach out to appropriate Garrison or mission partner agency personnel responsible for managing the space where the kiosk would be located. Acquiring the structure would require normal procedures for purchasing.
- **Roles and Responsibility:** This step is the responsibility of the TDM Coordinator.
- **Schedule**. This can be done anytime.

Case Study/Best Practice: The Commuter store, Ballston, Va.

COST CONSIDERATIONS:

- **Capital:** Physical improvements, furniture, computer equipment and other furnishings for a Commuter Service Center. Purchase or design of kiosk structures, and site improvements for outdoor kiosk locations.
- **Operational:** Staff for Commuter Service Centers.

Summary

Establishing interactive destinations at high traffic locations on the Installation offers a one-stop shopping place that is highly visible, convenient and attractive. Bringing information to places where employees and others are already going is an effective way to increase the number of people who might be willing to make alternative commuting choices because transportation options are more easily accessible. Local jurisdictions, such as Arlington County, have similar commuter service centers that have proven to meet a need to get information, purchase transit passes, and provide mobility choice options to a larger audience.

LUF-3. Guide the site selection of new and redeveloped buildings, facilities and infrastructure.

WHY it is important: Fort Belvoir already has both internal and external guidance from which to base a policy that supports accessibility and multimodal land development, including: the RPMP and IPS; Unified Facilities Code (UFC) for Installation Master Planning; and Leadership for Energy and Environmental Design (LEED) Criteria and Requirements.

Mixing land uses, including housing, within walking distance of the workplace is a powerful strategy for reducing reliance on vehicle trips. Compact and transit-oriented development that encourages a "walk first" approach can eliminate internal trips both during the day or before and after work. This effort begins with site selection that supports the master planning principles of key documents and the physical design elements to encourage people to get out of their car. The intent of this strategy is to tie future decision-making about site development to account for the benefits of multimodal communities/campuses.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Expands the site selection criteria to support multimodal design enhancements.
  - Promotes accessibility to transit.
  - Achieves recognition for land use planning.
  - Advances the Installation toward meeting executive orders and environmental compliance targets.
- **Benefits to Agencies:**
  - Provides guidance for site selection of their buildings, facilities, and infrastructure.
  - Increases commuting choices at the site through construction that supports walkability and transit.
  - Takes advantage of the LEED credits (site selection and transportation) and certification.
- **Benefits to Employees:**
  - Provides access to amenities and services near work.
  - Reduces time spent in the car.

HOW it gets done: Fort Belvoir DPW is responsible for administering this step.

Table 7.22 TMP Strategy LUF-3 Objectives and Target Table

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.		■
Transform Fort Belvoir into a multimodal destination.	■	
TMP Target:		
At least 40 percent of commuters using non-SOV options.		■

Step 1. Review existing planning and design documents.

- **WHY This Step is Important**: To understand existing site selection criteria that can move Fort Belvoir forward with transportation-friendly development, and to identify gaps in that criteria. Knowledge and application of planning standards needs to be factored into future decision-making about site development to successfully offer and improve multimodal choices.
- **Where to Begin**: Start to pull out select guidance from RPMP, IPS, UFC and LEED documents that relate to transportation elements and should be factored into the site selection for new buildings, infrastructure and development. For instance, how does a new building or site rate according to "Walk Score" or "Bike Score" that indicates the level of access to existing transit stops, amenities, jobs, housing, and services? Sites with greater access to existing and planned transit services should be given priority over sites that do not have access to such service when considering new projects.
- **Roles and Responsibility:** Fort Belvoir DPW is responsible for this step.
- **Schedule**. This can begin at any time and will require a moderate time effort.

Step 2. Identify gaps.

- **WHY this Step is Important**: Defining transportation-related standards for site selection at Fort Belvoir requires the examination of development and redevelopment parcels to assure that their specific location supports an integrated multimodal transportation network. Identifying gaps where transportation is not factored into the site selection process will indicate where new standards should be developed.
- **Where to Begin**: Findings from Step 1 should provide the basis from which to begin. For instance, one immediate step is to identify whether standards factor in proximity to the historic military railroad track bed, which in the future should provide transit and bicycle connections to regional rail systems.
- **Roles and Responsibility**: The TDM Coordinator is responsible for this step.
- **Schedule**. This can be done any time after Step 1 is complete and is a minimal effort.

Step 3. Draft Site Selection Standards.

- **WHY This Step is Important**: Additional standards will support the RPMP Master Plan and the physical design elements to encourage people to get out of their car. Compact, transit-oriented and transportation-friendly development encourages a "walk first" approach that can eliminate internal trips while providing jobs close to transit and home that can additionally reduce vehicle trips traveled, and provide for flexibility in choosing how to commute to work, to get to meetings, personal appointments, and services.
- **Where to Begin**: Start with the outcome of Steps 1 and 2 in developing new site selection standards for Fort Belvoir to be integrated into the IDG.
- **Roles and Responsibility:** Fort Belvoir DPW is responsible for this step.
- **Schedule**. This can begin once Steps 1 and 2 are complete. Timing will depend on the extent of the recommendations made from Steps 1 and 2.

Case Study/Best Practice: Walk Score

www.walkscore.com

Walk Score®
Drive less. Live more.™

Table 7.23 Two-Year Implementation Schedule for LUF-3

Step:	Year 1 (12 months)												Year 2 (12 months)											
1	■	■	■																					
2				■	■	■																		
3						■	■	■	■	■	■	■												

Summary

The ongoing development of Fort Belvoir is an opportunity to advance land planning practices to locate buildings and workforce populations in sites that are transportation-friendly and provide for more compact walkable places. Most relevant is the RPMP Installation Planning Standards (IPS) that includes Site Planning Standards, which outlines appropriate templates to develop available land parcels. Other internal documents include the UFC for Administration Facilities and Installation Master Planning (in particular), as well as external documents from the U.S. Green Building Council's LEED rating systems for Neighborhood Development and New Construction, and American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standards and Guidelines for building interiors.

Although all of these documents offer guidance on the location and development of new and redeveloped buildings, facilities and infrastructure that encourage multimodal transportation choices, they are not all specific to Fort Belvoir. Crafting effective site selection recommendations that support an integrated network of transportation and mix of land uses will require a more detailed examination of existing documents to guide future decision making and development. A site selection guide for Fort Belvoir, as a supplement to the IPS, should consider appropriate standards that support transportation-friendly design, such as:

- UFC Administrative Facilities 2.8.1: Section 2.8.1 Site Access "...consider the proximity to public transportation and its effect on sustainability."
- UFC Installation Master Planning Philosophy and Strategies including Sustainable Planning (Transit-Oriented Development, Connected Transportation Networks) and Healthy Community Planning (Pedestrian and Cycling Plans)
- LEED Neighborhood Development - criteria including Smart Location, Locations with Reduced Automobile Dependence, Bicycle Network and Storage, Housing and Jobs Proximity, Walkable Streets, Transit Facilities, and Transportation Demand Management.
- LEED for New Construction - criteria including Alternative Transportation - Public Transportation Access, Bicycle Storage and Changing Room, Low Emitting and Fuel-Efficient Vehicles and Parking Capacity.

Establishing a policy that balances land use decision-making with transportation needs will assure that the Garrison and its agencies understand and comply with criteria that encourage multimodal transportation design at Fort Belvoir. The continuous and ongoing development of the Installation suggests that immediate implementation of this strategy can further advance the multimodal benefits to Fort Belvoir.

7.8 Short-Term and Long-Term TMP Goals

As stated in the overview, measuring the success of the TMP strategies is a critical element of the TMP. The results will be seen by changes in mode choice. Based on existing and future demands that are anticipated with implementation of the short-term strategies, targeted goals have been established.

The short-term TMP goal is to reduce SOV use to **75 percent by 2017**. The following table describes the existing estimated travel modes and targeted mode splits required to achieve this.

Table 7.24 Targeted Short-Term Goals

	EXISTING			SHORT TERM		
	Commuter Survey			Projected Modes (2017)		
Mode Choice	% Employees	# Employees	Vehicle Trips	% Employees	# Employees	Vehicle Trips
Drive Alone (1 vehicle trip per 1 PN) (1)	81%	31,907	31,907	75%	33,110	33,110
Rideshare Drivers and Passengers						
Carpool (1 vehicle trip per 2 PN)	6%	2,363	1,182	7%	3,090	1,545
Vanpool (1 vehicle trip per 4 PN)	3%	1,182	295	4%	1,766	441
Temporary duty/Out of office	1%	394	0	2%	833	0
Rail (Metro/VRE)	3%	1,182	0	4%	1,766	0
Public Bus	3%	1,182	0	4%	1,766	0
Private Bus/Shuttle Service	1%	394	0	1%	441	0
Alternate Work Schedule	0.5%	197	0	1%	441	0
Telework	1%	394	0	1%	441	0
Motorcycle	<1%	98	0	0.5%	221	0
Bicycle/Walk	<1%	98	0	0.5%	221	0
Totals =	100%	39,391	33,384	100%	44,146	35,096

(1) By 2030, the targeted drive alone goal is actually less than 60% when considering that a portion of the total POV parking spaces that will be constructed will only support 60% of the workforce. By 2030, all or mosst of the POV parking will be 60%, and these POV parking areas will also be shared by rideshare drivers. As a result, the actual drive alone percentage will be reduced to approximately 55% (based on vehicle occupancy, this may vary by +/- 2%) of the total workforce population; vehicle trips are similarly reduced in 2030 for rideshare.

Short-Term Target: The primary mode shift changes in the near-term occur in rideshare with increased reliance on carpool and vanpool use. Several factors will influence the target outcomes including implementation of a parking management plan (Strategy PM-1) and further reductions in the employee parking ratios as a result of displacement from new projects. Increased demands in rideshare use are expected to take place with continued outreach efforts and implementation of the short-term strategies outlined in this chapter. In addition, increased rideshare demand is anticipated with the opening of the I-95 Express Lanes in early 2015 which will allow HOV-3 passengers to use the Express Lanes without paying a toll.

Figure 7.1 Existing Installation Travel Modes

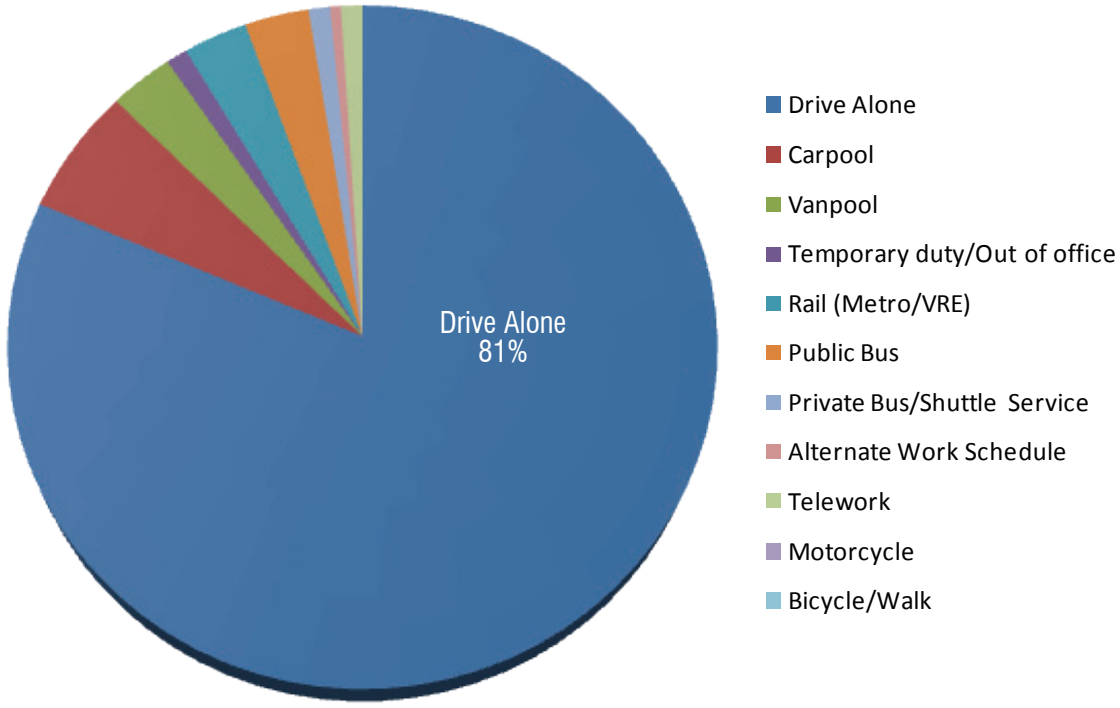
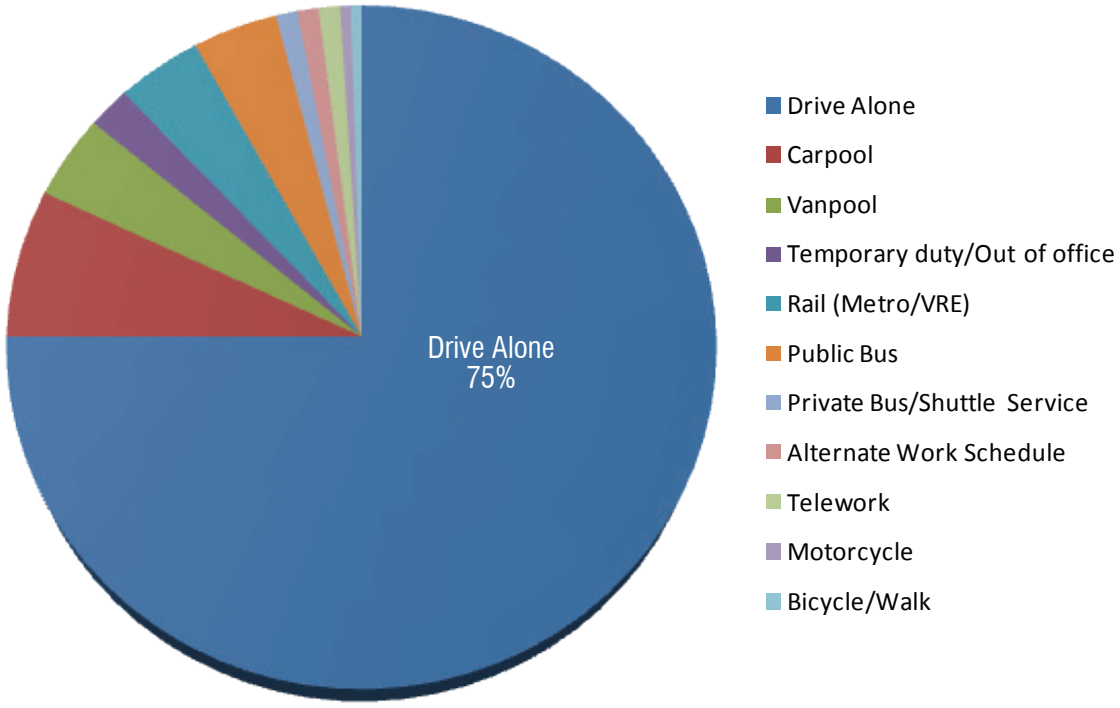


Figure 7.2 Short-Term (2017) Projected Travel Modes



The long-term TMP goal is to reduce SOV use to **60 percent by 2030**. The following table describes the projected 2017 travel modes and targeted mode splits required to achieve this.

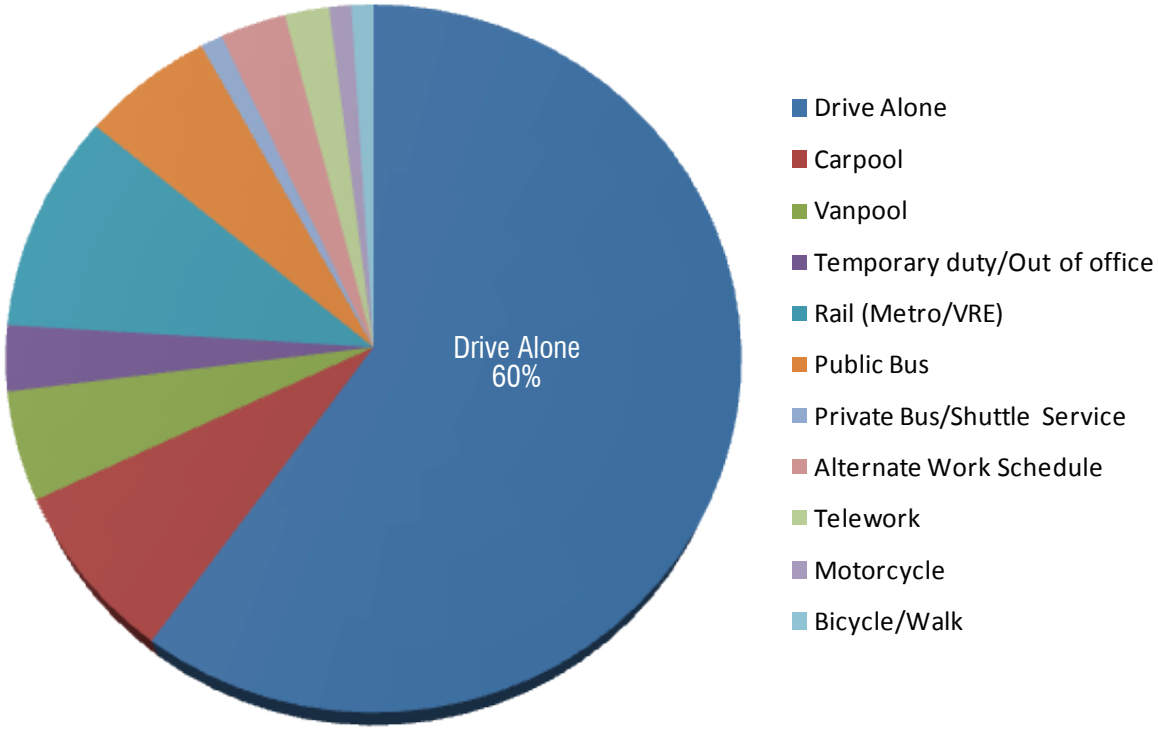
Table 7.25 Targeted Long-Term Goals

	SHORT TERM			LONG TERM		
	Projected Modes (2017)			Projected Modes (2030)		
Mode Choice	% Employees	# Employees	Vehicle Trips	% Employees	# Employees	Vehicle Trips
Drive Alone (1 vehicle trip per 1 PN) (1)	75%	33,110	33,110	60%	33,700	30,751
Rideshare Drivers and Passengers						
Carpool (1 vehicle trip per 2 PN)	7%	3,090	1,545	8%	4,493	2,247
Vanpool (1 vehicle trip per 4 PN)	4%	1.766	441	5%	2,808	702
Temporary duty/Out of office	2%	883	0	3%	1,685	0
Rail (Metro/VRE)	4%	1,766	0	10%	5,617	0
Public Bus	4%	1,766	0	6%	3,370	0
Private Bus/Shuttle Service	1%	441	0	1%	562	0
Alternate Work Schedule	1%	441	0	3%	1,685	0
Telework	1%	441	0	2%	1,123	0
Motorcycle	0.50%	221	0	1%	562	0
Bicycle/Walk	0.50%	221	0	1%	562	0
Totals =	100%	44,146	35,096	100%	56,166	33,700

(1) By 2030, the targeted drive alone goal is actually less than 60% when considering that a portion of the total POV parking spaces that will be constructed will only support 60% of the workforce. By 2030, all or mosst of the POV parking will be 60%, and these POV parking areas will also be shared by rideshare drivers. As a result, the actual drive alone percentage will be reduced to approximately 55% (based on vehicle occupancy, this may vary by +/- 2%) of the total workforce population; vehicle trips are similarly reduced in 2030 for rideshare.

Long-Term Target: The primary mode shift changes in the long term occur in increased reliance on public transit use (bus and/or rail), parking reductions that will achieve a 60 percent employee parking ratio with new projects that will displace most of the existing surface parking lots, and implementation of the mid-term and long-term strategies outlined in this chapter.

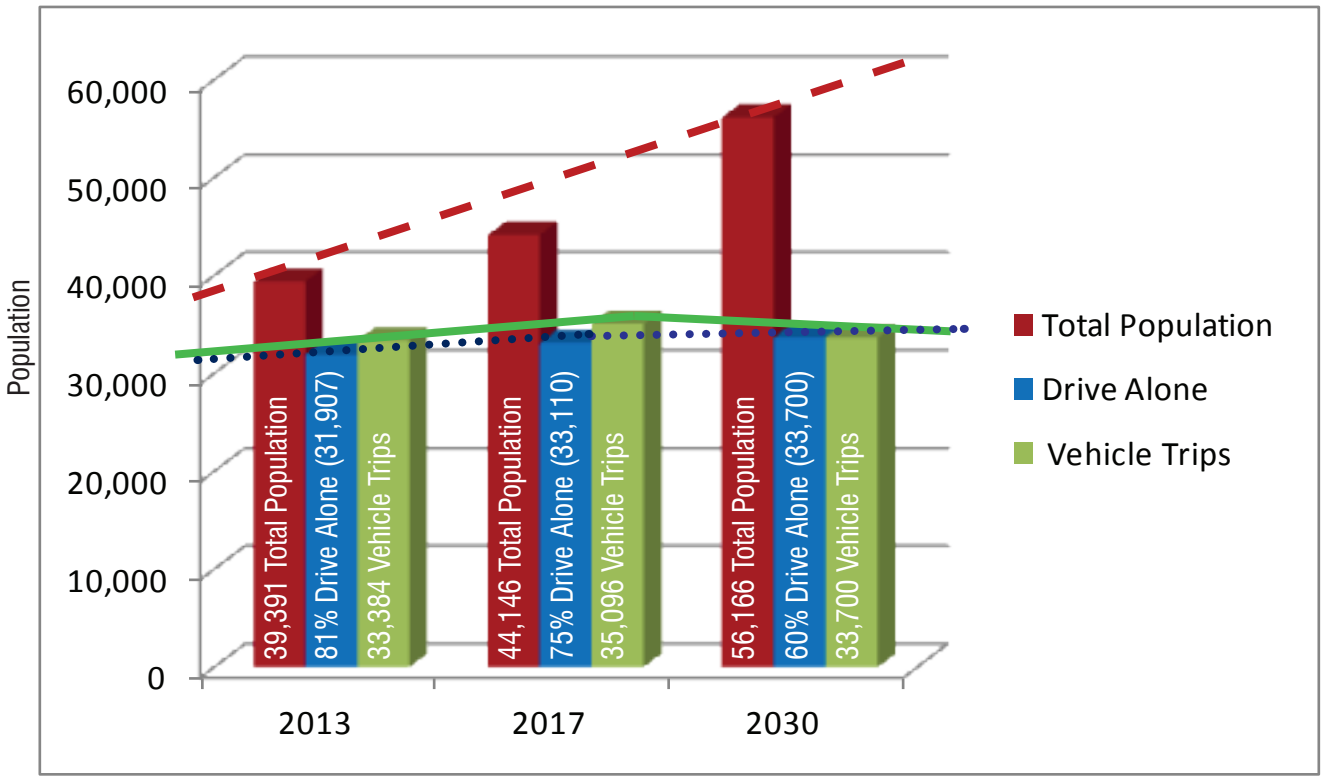
Figure 7.3 Long-Term (2030) Projected Travel Modes



7.9 Desired End State

As Fort Belvoir's workforce population continues to grow, the desired end state is to reduce the impact of SOVs on area roadways. Figure 7.4 depicts the projected short-term and long-term growth and the resultant drive alone and vehicle trips based on the target SOV reduction totals. If the targeted totals are achieved, the result would yield a slight increase in drive alone and vehicle trips by 2017; however, total vehicle trips are projected to decrease from 2017 to 2030 with full SOV reduction to 60 percent.

Figure 7.4 Reduction in SOV Use Over Time



Summary: If the TMP targets are achieved, they will support a workforce population increase of approximately 42 percent from 2013 to 2030, **with only a 6 percent increase in SOV usage**.

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Monitoring and Evaluation Plan 8

8.1 Overview

Determining the effectiveness of the TMP is the function of the Monitoring and Evaluation Plan that reports on accomplishments, measures performance, identifies program strengths, and describes areas where improvements or modifications are needed. The plan describes the procedures to periodically update the TMP and to modify and refine the strategies accordingly in order to improve performance, streamline operations, and control program costs. This element of the TMP program is the responsibility of the TDM Coordinator; it involves both the following **MONITORING PROCESSES** and **REPORT DOCUMENTATION** protocols for keeping the TMP current.

8.2 Monitoring Processes

Commuter Survey

The 2011 Commuter Survey provides current travel modes, demands and activities of Fort Belvoir personnel that establishes a baseline from which to begin to track over time whether driver behavior has changed due to the implementation of TMP strategies. The success of the TMP in reducing SOV trips will equate to a reduction in roadway congestion, vehicle miles traveled and workforce parking demands.

The TDM Coordinator will need to determine how frequently the Commuter Survey should be undertaken. The Commuter Survey is a valuable tool for determining if the TMP is achieving its stated objectives and to reassess the implementation plan and specific strategies for any modifications that may be warranted. It is recommended that the 2011 Commuter Survey be updated one year after the TMP is approved and then once every year or every two years, or as determined by the TDM Coordinator and Working Group.

The following monitoring steps are based on lessons learned from the 2011 Commuter Survey and provide guidance in drafting the next survey:

- To measure the effectiveness of the TMP efforts, use the standard questions as developed in the 2011 survey.
- Modify the "Awareness" section to reflect the current status of the TMP so that the awareness questions are tailored to get feedback on the implementation strategies to determine how successful they are.
- Continue to work closely with the Network Enterprise Center (NEC) to enable full automation for the analysis of the survey results. As each employee completes the survey, the NEC compiles the answers to each question in a large, back end database. In the 2011 Commuter Survey, it was intended that a "Survey Reporting Wizard" would be created to provide a table and/or chart with a summary of each question from the back end database. If this feature is fully developed, the TDM Coordinator would have direct and immediate access to the data results in an easy-to-understand summary document. This would eliminate the need to extrapolate the data by hand.
- Coordinate all TMP-related activities with the Public Affairs Office (PAO) and Administrative Assistant to the Secretary of the Army (OAA) for getting the word out about the survey. In order to improve survey responses and to maximize personnel input, an advance marketing campaign of the survey targeted to the Fort Belvoir community and Agency Directors is essential. Prior to the Commuter Survey going out, the importance of participating in the survey needs to be stressed. In addition to announcing the survey in the *Belvoir Eagle*, other outreach venues should be used, such as the Installation webpages, in particular, the Transportation Management webpage, social media and notices, Commuter Fairs, etc.
- Commuter Survey notifications should include information about:
  - When the survey will be announced and the deadline for returning the survey
  - How the survey results support the TMP and will be used to improve transportation facilities
  - The importance of the survey
  - How the information will be used to improve the travel needs and mobility choices for all Installation employees and residents.

- Continue to work with the Garrison Commander and TDM Working Group to agree upon the process for distributing the survey with the objective of collecting a greater number of completed surveys. This process needs to identify HOW all employees are sent the web link to access the survey and monitoring of the notifications that encourages (or requires) completed surveys in order to provide for more efficiency and accountability. For this to happen, the ROLES and RESPONSIBILITIES of the Point of Contact (POC), ideally the ETC or TEO identified in Strategy AC-1, will need the support of Garrison and senior leadership with each of the 140 mission partner agencies. The POC will need to be responsible for:
  - Drafting an email message encouraging/requiring personnel to fill out the survey, when the surveys are due, why it is important to complete the survey, and the potential benefits of the survey
  - Sending out the link by a certain date agreed upon by the TDM Coordinator
  - If the Agency POC is not available to distribute survey notices, the TDM Coordinator and Agency POC shall designate a substitute
  - Sending out a reminder a day or two before the deadline for completing the survey.

Parking Utilization

As noted in Section 4: Parking Assessment, having available and convenient access to parking is a key factor in affecting driver behavior and commuting patterns. The Installation-wide parking inventory undertaken for this TMP effort provides an important baseline for understanding the existing parking surplus and/or deficiencies based on actual ratio of parking spaces to workers at Fort Belvoir. The degree to which this TMP can influence changes in commuter behavior is dependent on the effectiveness of the Installation's approach to parking utilization for its commuting workforce and transient populations. Ongoing management and monitoring of the parking facilities will ensure awareness of current parking demands that will play an important role in the success of the TMP.

Implementation of Strategy PM-1 is directly correlated with this process for monitoring parking utilization. Updating the parking inventory database is an ongoing responsibility of the DPW. Given the importance of tracking how parking is being utilized, particularly as it relates to parking quantities and associated workforce populations using those spaces, a parking inventory should be reexamined on a yearly basis. Updates to the parking inventory database shall involve the following:

1. Maintaining an existing parking database as noted under Step 5 in Strategy PM-1. Implement designated parking, Installation-wide.

The Fort Belvoir DPW is responsible for maintaining and updating the existing parking database as building occupancy and the associated parking needs change. This Monitoring and Evaluation Program includes the updating of parking areas based on changes in parking requirements, priority parking standards and the Parking Designation Plan.

- Keep the parking inventory database up-to-date as new parking designations are signed/striped, and parking areas are modified. The parking inventory database is the single source that contains the total number of parking spaces throughout the Installation, including the number of designated parking spaces in each parking area. This inventory is used to determine the parking ratio.
- Examine the parking inventory database and actual parking ratio as changes to demands can occur with new construction or fluctuations in building occupancy levels. Updating the parking database will better assess the effectiveness of the TMP based on whether there are noticeable shortages or surplus parking spaces and better measure how this may influence driver behavior.

2. Assessing parking when considering new buildings and/or renovations to existing facilities.

For all new projects and renovations, a parking assessment needs to be undertaken by the responsible party involved in its construction to inventory the number of parking spaces compared to the number of personnel who use those spaces. The parking assessment is to ensure the new facility will achieve the 60 percent parking ratio standard. The building proponent shall work with Fort Belvoir, to define the site plan limits and to develop a parking plan with defined and clearly demarcated spaces that distinguish visitor, student and government stored areas from general workforce parking areas. Fort Belvoir will evaluate the new facility to ensure that it does not negatively impact neighboring parking areas or common parking spaces that may be set aside for community or other non-administrative type uses. This parking assessment also evaluates parking demands based on military (U.S. Army Corps of Engineers' Technical Instructions) and regional requirements (NCPC guidance).

- Per the U.S. Army Corps of Engineers' Technical Instructions, authorized parking allowances for privately owned vehicles (POVs) for administrative uses are capped at 60 percent of facility personnel.
- NCPC guidance allows for a total of 67 percent of personnel at Fort Belvoir, excluding spaces that are clearly designated for government-owned vehicles and visitors, and housing parking. Parking includes all spaces in on-street, off-street, and structured locations.

3. Parking Adjustments: Recommendations or proposals for any parking adjustments based on items 1 and 2 will be provided to DPW. This may entail recommendations for adding designated parking signs, future building assignments, shared parking options, etc.

Traffic Assessment

Traffic assessment should be monitored in two ways: through programmed projects that lead to new construction and the periodic traffic assessment based on existing, established uses and the resulting growth or contraction of workforce populations that occur within the TAZ areas. Periodic traffic counts and traffic impact assessments determine changes to roadway capacity and level of service. Traffic assessment updates are a gauge for determining travel changes compared to past traffic models and assumptions on future growth levels.

1. New Project Development (New Construction)

In accordance with the design and construction criteria guidance in the U.S. Army Corps of Engineers Technical Instructions (TI 800-01), a "Site Traffic Impact Study" is required for all future and current projects that have not exceeded the 35 percent Concept Design Phase. The purpose of the traffic impact study is to assess the "carrying capacity" of the roads in the study area and to analyze the peak hour traffic. In addition, for all new projects and facilities greater than 100 PN, a traffic assessment needs to be undertaken by the responsible party involved in its construction to determine the impacts of additional traffic on the Fort Belvoir roadway network. It is the building proponent or agency's responsibility to analyze their traffic impact. It is then the responsibility of Fort Belvoir to define the scope of the traffic assessment study, the affected roadway and intersections to be included in the study, and the methodology used. This typically will translate to specific intersections at or near the project, a determination of the type of traffic modeling to be used and how the modeling results will be integrated into the overall Belvoir TMP traffic model to assess LOS impacts that may occur outside of the immediate project area. An example of the type of suitable project-related traffic model would be the Synchro 8 Traffic Signal Timing Analysis Software (Synchro 8) that could be integrated into the current Belvoir model.

The intent of the initial traffic assessment is to determine if the preferred building location has adequate roadway capacity to support the increased growth and determine the resultant LOS changes within the transportation system that may occur. The goal of integrating project-level traffic assessments with Fort Belvoir's current overall traffic model is to determine the unintended effect the proposed project may have on local roadways and intersections that may not be near the proposed project site. This general sensitivity level type of analysis may indicate if additional studies, assessment or requirements may be warranted, such as a more detailed Traffic Impact Assessment (TIA). These more detailed project traffic impact assessment studies may be needed depending on project size (i.e., number of new personnel added) and the condition of existing roads based on the TAZ area where the project is located.

A TIA study, if warranted, will define potential mitigation measures and the types of physical improvements needed such as new turn lanes, signal improvements, road widening, etc. Once the scope of any physical roadway improvements are identified, cost estimates can be prepared. In cases where physical roadway improvements are limited, the TIA study should indicate where more robust TMP trip reduction measures may be required to mitigate the impacts of the increased workforce. Both the initial traffic assessment and more detailed TIA need to be discussed and prepared early on in the decision making process with input from the appropriate stakeholders.

Discussions between Fort Belvoir and the agencies would determine how any improvements identified by the traffic assessment are to be completed, when they will be completed, and who pays for them. Typically, localized improvements, such as turn lanes at the projects' entrance(s), are the agency's responsibility, and improvements to the greater network, such as gate expansion, are the responsibility of Fort Belvoir.

2. Installation Traffic Assessment

A critical step in the monitoring and evaluation process is the periodic traffic assessment of key intersections and roadway links to determine changes in LOS. The timing of the Installation-wide traffic assessment, the collection of data such as traffic volume counts (tube counts), and peak hour turning movement counts to assess traffic volumes is to be determined by Fort Belvoir DPW. In addition to monitoring traffic conditions at key intersections to determine changes to LOS, gate counts will also be collected. Physical Security staff will continue to conduct daily gate counts (via tube counters) for both inbound and outbound traffic. Gate Counts that can help determine changes in traffic patterns at entry/exit points will be provided to the Fort Belvoir TDM Coordinator as needed.

DPW staff is committed to working closely with transportation officials at the state and local levels (i.e, VDOT and FCDOT) who are conducting similar traffic data collection efforts on off-Post roadways to share data and to avoid redundant efforts. The ability of the Installation to grow and more effectively manage the capacity of its existing transportation network is directly related to the TMP that is seeking to reduce single occupancy vehicles. There are several ways the Installation can monitor traffic, such as average vehicle occupancy counts coming through the gates; however, the current traffic model that measures roadway LOS may be the most effective tool to determine the benefits of the TMP given Fort Belvoir's large transit population of visitors, students and guests who travel to the Installation.

Traffic Assessment Implications

Traffic monitoring activities that include periodic traffic counts will be shared with VDOT and FCDOT.

Tracking Short-Term TMP Goals

Section 7.8 described the targeted goals for increasing non-SOV mode choice. It will be the role of the Fort Belvoir TDM Coordinator to periodically monitor and track these target goals against the actual modal splits to effectively measure change. Estimating the actual modal splits can be determined by using several sources that include the commuter survey, input from the TDM Working Group, and direct engagement with the agency ETCs. The ETC is charged with providing to the Fort Belvoir TDM Coordinator information pertaining to each agency employee's rideshare use, transit participation, and other SOV trip reduction measures. The TMP Evaluation Report should include the following table which provides a quantifiable metric that can be used to:

- Clearly highlight results
- Brief senior Army leadership on the effectiveness of the TMP
- Guide decision making that will shape/refine the TMP strategies
- Better allocate resources and effort.

Table 8.1 Tracking Worksheet

	PROJECTED			ACTUAL (1)		
Mode Choice	% Employees	# Employees	Vehicle Trips	% Employees	# Employees	Vehicle Trips
Drive Alone (1 vehicle trip per 1 PN) (1)	75%	33,110	33,110			
Rideshare Drivers and Passengers						
Carpool (1 vehicle trip per 2 PN)	7%	3,090	1,545			
Vanpool (1 vehicle trip per 4 PN)	4%	1,766	441			
Temporary duty/Out of office	2%	833	0			
Rail (Metro/VRE)	4%	1,766	0			
Public Bus	4%	1,766	0			
Private Bus/Shuttle Service	1%	441	0			
Alternate Work Schedule	1%	441	0			
Telework	1%	441	0			
Motorcycle	0.5%	221	0			
Bicycle/Walk	0.5%	221	0			
Totals =	100%	44,146	35,096			

(1) Actual numbers will be field verified by the TDM Coordinator to the best extent possible.

Implementation Plan Updates

Section 7 lays out a step-by-step approach for undertaking each of the short-term strategies in the TMP Implementation Plan. Because this Implementation Plan is intended to provide Fort Belvoir with enough flexibility to decide, adjust, and take on the strategies that meet both the Installation and TMP goals, it is important that the Monitoring and Evaluation Plan involve a process for updating these strategies every two years, per NCPC standards. **Strategy AC-3: Expand the role of the TDM Working Group to actively engage setting policies and best practices for implementation of the TMP** provides the process for reviewing and examining the TMP on a yearly basis. An outcome of this is an Action Plan for the upcoming year.

This Monitoring Plan provides a forum to update Strategy AC-3 by examining and deciding how and which strategies to pursue that most directly affect transportation improvements. The TDM Coordinator, in coordination with the TDM Working Group, is responsible for undertaking the following steps, which provides for an effective approach toward implementing TMP strategies:

- Begin with the TMP Implementation Plan and evaluate each strategy to determine what steps were achieved, and the results of each.
- Examine **Appendix G**: Framework Plan for other potential strategies to determine whether any of these strategies can be brought forward for implementation based on current needs, resources and support.
- Identify from the review of the TMP Implementation Plan and Framework Plan Strategies the successes, challenges and opportunities. What should emerge are those steps or strategies that should be considered for implementation, and any modifications to them.
- Identify any NEW steps or strategies that are not contained in this TMP, based on existing or emerging knowledge/conditions. Define whether the strategy or strategies should be included in the Implementation Plan or Framework Plan, and develop each strategy accordingly.
- Update and develop a new two-year Implementation Plan based on the results of the previous step. This could be a simple update of the current Implementation Plan or involve the inclusion of new strategies.
- Review, evaluate and update Table 8.1 to determine mode shifts and specifically trends in SOV use to meet stated reduction goals for the 2017 milestone. This will be achieved through periodic commuter survey results and/or input from agency ETCs.

8.3 Evaluation Report

Preparing an Evaluation Report once every two years that details the results of the Monitoring and Evaluation Program is recommended to keep the Garrison, mission partner agencies and the TDM Working Group informed on the progress of the TMP and provide for a mechanism to track its success. Although this report is not a requirement, the report highlights might be shared with regional stakeholders such as NCPC, transit stakeholders, and others as appropriate.

The Evaluation Report should call out specific features or goals of the TMP that can be measured to assess the success or failure of the implemented actions. This information can be collected through web-based employee surveys, program participation documentation, vehicle occupancy and trip counts, public transit ridership data (for the Eagle Route 335, the REX bus and the Quick's bus), and time sheets/activity logs. The evaluation report will determine the extent to which the program has achieved its stated objectives and will include methods to determine the level of success, such as:

- Vehicle Occupancy Counts at the ACPs
- How many people were placed into a carpool per year or per 100 employees
- How many new vanpools were formed
- How many people were placed as riders into new and existing vanpools per year
- How many customers were served by mass transit
- Completion of Tracking Worksheet (Table 8.1)

Responsible Party: The TDM Coordinator with input from the ETC/TEO is responsible for preparing the TMP Evaluation Report outlining the:

- Status and progress of the Monitoring Program
- Results of the Commuter Survey, Parking Utilization Inventories and Assessments, and Traffic Assessments
- TMP accomplishments and strengths
- Direct costs and future funding recommendations
- Recommendations to make the TMP more effective

Distribution of the TMP Report: The report should be considered for distribution to a wide audience of stakeholders who may benefit from the information. The report may also be provided, if requested, to local government officials and outside agencies, as a regional planning tool that may enhance opportunities to bring transit and transportation changes and improvements to the region that will benefit Fort Belvoir. The report will be used to:

- Update the Action Plan as defined in Strategy AC-3 by the TDM Working Group.
- Inform PAO and OAA for press releases, articles, publications and marketing purposes.
- Provide a central source of data to better manage transportation issues, provide recommendations and inform decision makers.
- Communicate results and progress made towards achieving the target goals for SOV reduction using Table 8.1 as a measurable tool to quantify results.

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APPENDICES

Appendices Contents

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Guiding Documents Excerpts

A

This Appendix contains excerpts from documents that are referenced in ***Section 1.2 Guiding Documents*** on ***Table 1.2 Guiding Documents and their Application to the TMP***.

Submission Guidelines for Master Plans and Site Plans
by NCPC

TMPs as part of Master Plans:
http://www.ncpc.gov/ncpc/Main(T2)/ProjectReview(Tr2)/ProjectReview(Tr3)/ProjectReview(Tr4)/LDoc/Master%20Plans.html#anchor12336840

n. a Transportation Management Plan (TMP) for installations with 100 or more employees (including existing and proposed employees). The TMP should incorporate the following:

(1) a description of existing and projected peak hour traffic by mode, with indicated points of entrance and exit, the number of existing and proposed bicycle spaces, as well as transit routes and stops and pedestrian facilities serving the installation, both on-site and in the nearby area; and a summary of existing and proposed parking by type of assignment (official cars, vanpools, carpools, single-occupant vehicles, handicapped persons, visitors, etc.);

(2) a description of the Federal agency's existing strategies for assisting employees' commute to work;

(3) stated goals and objectives for the TMP, such as trip reduction, mode split changes, or vehicle occupancy rate increases;

(4) an evaluation of projected transportation impacts resulting from master plan developments and description of potential TMP mitigation measures;

(5) a description of the process for monitoring and evaluating the achievement of goals and objectives and adjusting TMP strategies, as needed; and

(6) a summary of the relationship of the TMP provisions to transportation management and air quality requirements of local, state and regional agencies, including provisions for working cooperatively with affected agencies to address those requirements.

For installations where future site mission partners are undetermined, TMP information should be developed to the extent feasible at the time of the initial preparation of the Master Plan, with supplementary information to be developed when mission partners are established.

TMPs as part of Site Plans:
http://www.ncpc.gov/ncpc/Main%28T2%29/ProjectReview%28Tr2%29/ProjectReview%28Tr3%29/SubmissionGuidelines.html

k. A Transportation Management Plan (TMP) for any project that will increase the employment level on a work site to 500 or more employees (including existing and proposed employees). Over and above this requirement, sponsoring agencies are encouraged to prepare TMPs for projects that will increase employment levels to 100 or more employees. Where the TMP for a project is an integral part of an installation TMP approved by the Commission as part of a master plan submission, a summary of provisions of the installation TMP applicable to the project will satisfy the requirements of this section.

The TMP should incorporate the following:

(1) stated goals for trip reduction, mode split, and vehicle occupancy;

(2) firm commitments to strategies to minimize vehicle work trips and discourage single-occupant travel during peak and off-peak hours;

(3) description of measures to monitor achievement of goals and to adjust trip reduction strategies as needed;

(4) description of existing and projected peak hour traffic by mode and a summary of existing and proposed parking by type of assignment (official cars, vanpools, carpools, single occupant vehicles, handicapped persons, visitors, etc.);

(5) evaluation of projected transportation impacts and description of proposed mitigation measures;

(6) summary of the relationship of the TMP provisions to transportation management requirements of local, state and regional agencies, including provisions for working cooperatively with affected agencies to address those requirements.

The format and content of each TMP may vary on a case by case basis, according to transportation management requirements of local jurisdictions and specific details of the project and site. The Commission staff is available to facilitate coordination of a sponsoring agency's transportation management planning with the Metropolitan Washington Council of Governments Transportation Planning Board, affected local officials, and the General Services Administration. A transportation management strategies handbook will be available through this coordination.

Comprehensive Plan for the National Capital - Transportation Element
by NCPC

http://www.ncpc.gov/DocumentDepot/Publications/CompPlan/ComPlanPartFour_Transportation.pdf

Parking Policies:
The federal government should:

1. Provide parking only for those federal employees who are unable to use other travel modes.

2. Give priority to carpool and vanpool parking over that for single-occupant vehicles.

3. Provide parking for disabled persons in accordance with federal law.

4. Provide parking for official vehicles and visitors in accordance with Federal Property Management Regulations.

5. Place parking in structures, preferably below ground, in the interest of efficient land use and good urban design.

6. Position parking facilities so as not to obstruct pedestrian and bicycle access to buildings.

7. Consider nearby commercial parking space availability in calculating parking requirements, assuming that employees who choose to drive can purchase parking in nearby private facilities at market rates.

Parking Ratios Policies:
1. Within the Central Employment Area, the parking ratio should not exceed one space for every five employees.

2. Outside of the Central Employment Area, but within the Historic District of Columbia boundaries, the parking ratio should not exceed one space for every four employees.

3. For suburban federal facilities within 2,000 feet of a Metrorail station, the parking ratio should not exceed one space for every three employees.

4. For suburban federal facilities beyond 2,000 feet of a Metrorail station, the parking ratio will reflect a phased approach linked to planned improvements over time.

TMP Policies:
Federal agencies should:

1. Prepare Transportation Management Plans (TMPs) to encourage employee commuting by modes other than the single-occupant vehicle.

2. Develop TMPs that explore methods and strategies to meet prescribed parking ratios, and include a thorough rationale and technical analysis in support of all TMP findings.

3. Analyze scenarios that incorporate data on employee home zip codes, nearby bus routes, Metrorail, MARC, and VRE lines and their schedules, and that identify existing and planned HOV lanes.

4. Include, within TMPs, implementation plans with timetables outlining each agency's commitment to reaching TMP goals.

5. Reflect, within TMPs, planned regional transportation infrastructure or service improvements within five miles of the federal facilities.

6. Submit their most recent TMP with all master plans and with all projects that increase employment on site by 100 or more.

7. Update TMPs at least every two years to reflect the most current employee information

TDM Policies:
The federal government should:

1. Encourage ridesharing, biking, walking, and other non-single-occupant vehicle modes of transportation for federal commuters.

2. Maximize telecommuting strategies for employees in accordance with federal law.

3. Employ compressed and variable work schedules for employees, consistent with agency missions.

4. Support pedestrian and transit commuting through Live-Near-Work programs.

5. Steadily increase transit subsidy rates, and consider applying subsidies and incentives to other modes, such as biking, walking, carpooling, and vanpooling

Shuttles and Circulators Policies:

1. Federal agencies should operate on-campus circulators on federal campuses with multiple federal buildings. Such circulators should have the following operating characteristics and associated infrastructure:

- Maximum of 15-minute headways or on-call service
- Service to areas of federal campuses adjacent to or near Metrorail stations
- Waiting facilities (shelters, benches)
- Signage to identify shuttle stops and maps of service area

2. The federal government should implement legislation allowing employee shuttle services to connect federal work sites to the Metrorail system for home-to-work trips where service is not adequately provided by public transit. Currently, 31 USC, Section 1344 prohibits the operation of such services by the federal government.

3. If legislation allowing federal employee shuttle services is implemented, federal agencies should fund Metrorail station to workplace shuttles if inadequate transit connections are not otherwise present.

4. Transit station-to-workplace shuttles should be combined with on-campus circulators where oncampus circulators are employed.

5. Federal agencies should operate cross-town shuttles in urban areas where inadequate transit service exists to provide transportation between federal agencies doing business with one another or among several locations of one agency. Shuttle services should be coordinated among federal agencies with overlapping route requirements. Where local transit services exist to serve these travel needs, federal agencies should utilize these services in lieu of providing their own shuttles

Implementing a Successful TMP (2008)

by GSA, MWCOG, and NCPC

http://www.ncpc.gov/DocumentDepot/Publications/TMPHandbook2008.pdf

A handbook of guidelines for federal agencies preparing a Transportation Management Program. This handbook resulted from recommendations from the Congestion and Mobility Summit for the National Capital Region in 1998, as well as key future emission reduction dates that were set forth under the Clean air Act Amendments of 1990.

Sections include

1. Introduction and Overview.

2. Roles and Responsibilities - role of the federal government and requirements of local jurisdictions.

3. Travel Demand Management Strategies. - Alternative Modes of Travel, Incentives and Disincentives, and Alternative Work Arrangements.

4. A Guide to Preparing a TMP - Initiating the Program, Selecting the TMP Strategies, Implementation Tasks, and Monitoring and Evaluation.

TABLE 3-5 AUTHORIZED PARKING STALL QUANTITIES BY FACILITY TYPE FOR NON-ORGANIZATIONAL - PRIVATELY OWNED VEHICLES (POV)

FACILITY TYPE	NUMBER OF PARKING STALLS
Administration, Headquarters and Office Buildings.	60% of assigned personnel.
Bakeries.	38% of civilian employees; largest shift.
Bank and Credit Union (When not included in a Community Shopping Center).	2% of authorized customers served.
Cafeteria, Civilian (When not included in a Community Shopping Center).	15% of seating capacity.
Central Food Preparation Facilities.	38% of military and civilian food service operating personnel; largest shift.
Chapels.	30% of seating capacity.
Child Development Centers.	1 stall per every 4 children and 100% of staff.
Community Shopping Centers; may include the following functions: Bank, Commissary Store, Food Sales, Main Exchange, Miscellaneous Shops, Post Office, Restaurant, and Theater.	4% of authorized customers served and other criteria that is provided by The Defense Commissary Agency (DeCA) and Army and Air Force Exchange Service (AAFES).
Enlisted Personnel Dining Facilities for the following: Permanent party; Garrison (to include both TOE and TDA units); Support Units; Construction Battalions, Weapon Plants; Personnel Transfer and Overseas Processing Centers.	38% of military and civilian food service operating personnel; largest shift; plus 8% of enlisted personnel (patron parking) to be served during a meal period.
Family Housing.	2 stalls per living unit.
Field House (Combined with Football and Baseball Facilities).	1% of military strength.
Fire Stations, One-Company.	7 stalls.
Fire Stations, Two-Company.	10 stalls.
Guard Houses; Military Police Station.	30% of guard and staff strength.
Gymnasiums (When only 1 on the installation).	1% of military strength served.
Gymnasiums, Area (Regimental).	10 stalls.
Laundries and Dry Cleaning Plants.	38% of civilian employees; largest shift.
Libraries, Central.	1 stall for each 47 m^2 (500 ft^2) gross floor area.
Libraries, Branch.	8 stalls.
Maintenance Shops.	38% of assigned personnel; largest shift.
Schools, Dependent; without auditorium.	2 stalls per classroom.
Schools, Dependent; with auditorium.	2 stalls per classroom; plus 15% of auditorium seating.
Security Offices for Main Gates only, on installations with a population of: 100 to 2,000 population. 2,001 to 4,000 population. 4,001 to 6,000 population. 6,001 to 10,000 population. 10,001 and over population.	 5 stalls. 10 stalls. 15 stalls. 20 stalls. to be based on a Site Traffic Impact Study.
Service Clubs.	2% of enlisted personnel or officer strength served.
Swimming Pools.	20% of design capacity of the swimming pool.
Temporary Lodging Facilities.	100% of bedrooms.
Theaters (When not included in a Community Shopping Center).	25% of seating capacity.
Unaccompanied Enlisted Personnel Housing.	Minimum 70% of maximum utilization.
Unaccompanied Officer Personnel Housing.	100% of living suites.
Warehouses.	1 stall for each 46.5 m^2 (500 ft^2) gross office area; plus 1 stall for every 4 persons assigned to the storage activity.

Technical Instructions for Design Criteria TI 800-01

by USACE

Chapter 3. Site Planning and Design Criteria
Section 5e. Non-Organizational - Privately Owned Vehicle (POV) Parking

Authorized parking allowances for POV and visitor parking allowances by facility type are provided below. POV vehicle parking includes on-street parking, off-street parking lots and parking structures. Provide parking in lots or structures with a limited number of entrances and exits onto the access road or drive. Align entrances and exits into different lots on the same site or provide adequate separation to provide traffic safety and meet sight distance requirements. Design and layout the parking facilities in accordance with TM5-803-14 (reference 3-7) and the guidelines that follow:

(9) Parking Stall Quantity. **Criteria for determining the appropriate number of parking stalls for authorized POVs by facility type are listed in Table 3-5**. The criteria are based on average historical data from traffic analyses made at numerous installations and are considered acceptable norms. In the event the user requires a greater percentage than is listed in Table 3-5, a Site Traffic Impact Study may be developed to determine the parking requirements based upon the evaluation criteria, projected traffic generation, and traffic analysis. A Site Traffic Impact Study outline is provided in TM 5-803-14 (reference 3-7).

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SOV Reduction Initiatives

B

This Appendix includes some of the initiatives that Fort Belvoir has implemented in order to reduce the number of personnel commuting to the installation in Single Occupancy Vehicles.

Appendix B1 gives a brief description of the Fort Belvoir Rideshare website.

Appendix B2 explains some of the details of the “Bike Fairfax Interactive Map.”

Appendices B3 and B4 provide copies of the Policy Memoranda signed by the Garrison Commander in June of 2012 regarding the installation Alternate Work Schedule (AWS) and theTelework Program (Fort Belvoir Policy Memoranda #45 and #46).

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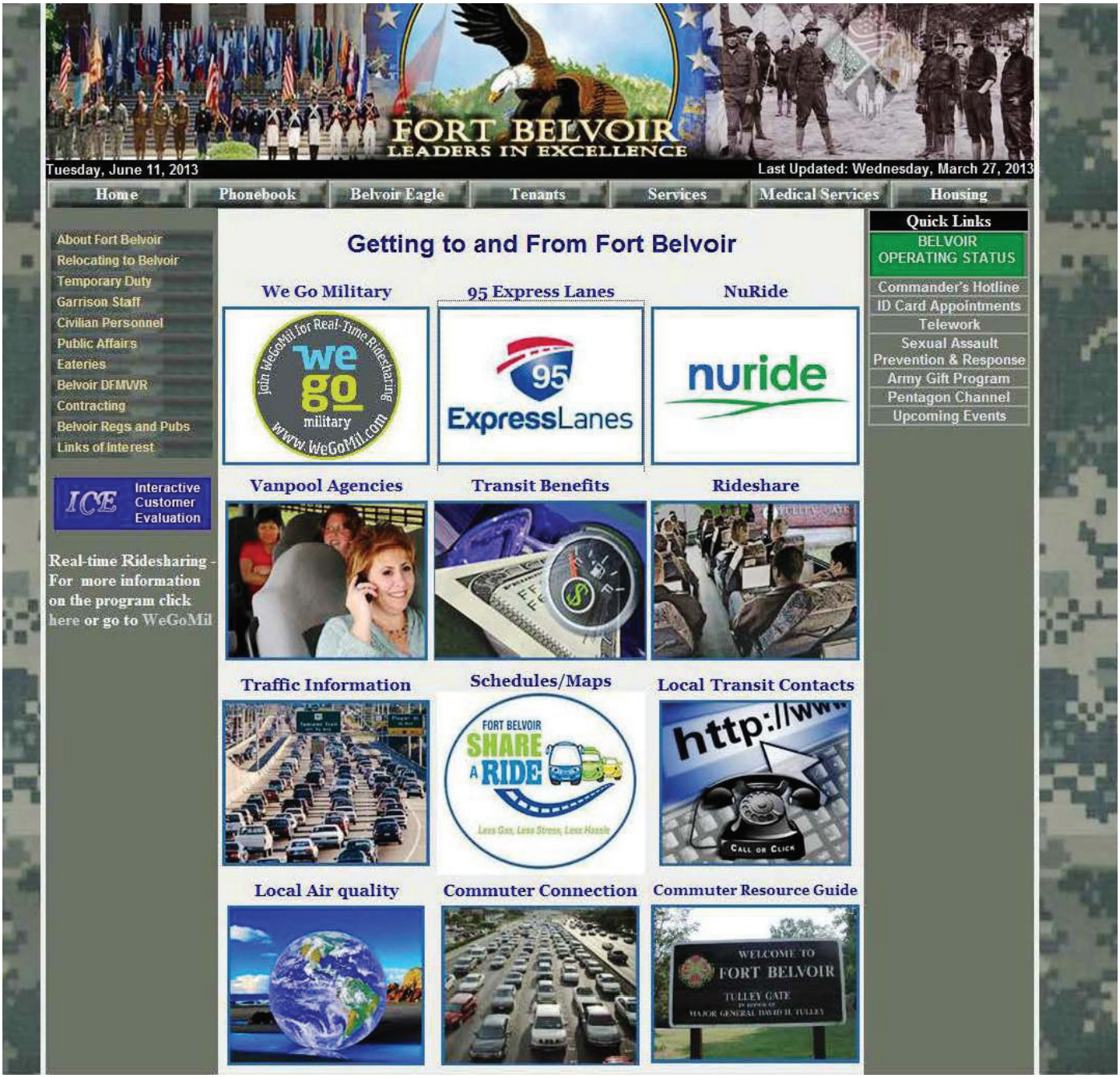
Fort Belvoir Rideshare Website B1

This Appendix provides a "moment in time" screen shot of the Fort Belvoir Riideshare website that is referenced in Table 2.1 "Previously Recommended Strategies and Current Status" in ***Section 2 Existing and Emerging Conditions.*** Early meetings of the Transportation Demand Management Working Group in 2008 developed a list of measures that could be implemented immediately to reduce SOV trips to the Installation. One of these is the development of a rideshare website with Installation-specific information and links to regional websites which increases the potential for ridesharing among employees. This website is an excellent resource for a full range of commuter-related information.

Figure B.1 Fort Belvoir Rideshare Website Screen Shot



Screen Shot of Fort Belvoir Rideshare Website, https://www.belvoir.army.mil/rideshare/

Table B.1. Fort Belvoir Rideshare Website Components	
Agency Link/Information	URL
We Go Military	http://wegomil.com
I-95 Express Lanes	http://95expresslanes.com
NuRide	http://nuride.com/nuride/main/main_checked.jsp
Vanpool Agencies	https://www.belvoir.army.mil/rideshare/vanpools.asp
LW Transportation	http://www.lw-transportation.com/
Belvoir Express	
K & K Connections	http://ridek2k.com/
VPSI Rest & Ride Vans	http://www.vpsiinc.com/
Rest and Ride Vans	http://www.restandride.com/
K's Van	
YEJ Vans	
MMVanpool	
EZ Commute	http://www.ezcommute.net/
C & L	
Transit Benefits	https://www.belvoir.army.mil/rideshare/transitbenefits.asp
DoD WHS Online NCR - Transit Subsidy	http://www.whs.mil/MTBP/index.cfm
Recertification Form for Transit Subsidy Increase	
Rideshare	https://www.belvoir.army.mil/rideshare/ridesharelist.asp
Fairfax County RideSources	http://www.fairfaxcounty.gov/fcdot/
Northern Virginia Commuter Resources	http://www.virginiadot.org/travel/nova-main.asp
Virginia Rideshare Agencies Park & Ride lots	http://www.virginiadot.org/travel/faq-rideshare.asp
Website for Slugs	http://www.slug-lines.com/
eRideShare	https://www.erideshare.com/
Traffic Information	https://www.belvoir.army.mil/rideshare/traffic.asp
Virginia Department of Transportation	http://www.virginiadot.org
Traffic Cameras	http://www.trafficland.com
Virginia 511	http://www.511Virginia.org
Schedules/Maps	https://www.belvoir.army.mil/rideshare/schedule-maps.asp
Route 333, FBNA to/from Franconia-Springfield Metro Station	https://www.belvoir.army.mil/rideshare/333_new.pdf
Route 493, Lorton VRE, Galleria & Tysons Corner	https://www.belvoir.army.mil/rideshare/493.pdf
Route 335, Fort Belvoir to/from Franconia-Springfield Metro Station	https://www.belvoir.army.mil/rideshare/Eagle%20Express%20Bus%20Schedule.pdf
Route 335, Revised Afternoon Schedule	
Route 18, Fort Belvoir to/from the Pentagon	https://www.belvoir.army.mil/rideshare/Route%2018%20Schedule.pdf
Local Transit Contacts	https://www.belvoir.army.mil/rideshare/localtransitcontacts.asp
Richmond Highway Express (REX)	http://www.fairfaxcounty.gov/connector/pdf/rex_brochure0804.pdf
Fairfax Connector Bus Service	
Metrorail, Metrobus	http://www.wmata.com/
Virginia Railway Express (VRE)	http://www.vre.org/
VRE Connections (Fairfax Connector, FRED, MARC, etc.)	http://www.vre.org/service/connections.htm
Quick's Bus	http://www.quicksbus.com/
Local Air Quality	http://vadeq.tx.sutron.com/cgi-bin/air_quality_forecast.pl
Commuter Connection	http://www.mwcog.org/commuter2/
Commuter Resource Guide	https://www.belvoir.army.mil/rideshare/commuter%20resource%20guide%20September.pdf

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Bike Fairfax Interactive Map B2

An excellent resource for commuters who cycle to Fort Belvoir can be found on the **Bike Fairfax Interactive Map**. The Fairfax County Department of Transportation (FCDOT) released the first countywide bicycle map on May 16, 2008 for Bike to Workk Day, and it is regularly updated. The printed Fairfax County Bicycle Map shows bike-friendly routes connecting all of Fairfax County. This map identifies a network of both on- and off-road routes to assist bicyclists in navigating Fairfax County. The map depicts the locations of preferred roadways. The map highlights the most desirable routes and major trails for recreational and commuter bicyclists (based on traffic conditions and/or on road bike lanes and connecting trails).

The Bike Fairfax Interactive Map displays the same useful information found on the printed version of the Fairfax County Bicycle Map in an interactive online format.

There are a variety of tools and features to help users navigate the map. Some of them are:

Basemaps - Users can change the background of the map to include open streets, imagery or a grey canvas, among others.

Layers - The map will display the Bike layer upon opening, but the Trails layer can be turned on to display trail and park features such as local trails and regional trails.

Print - Once zoomed in to a particular area, the user can print out a map displaying the view in the window to include points of interest and route/trail information.

Search - The map provides the ability to search for an address within Fairfax County allowing the user to quickly find bicycle routes and trails nearby.

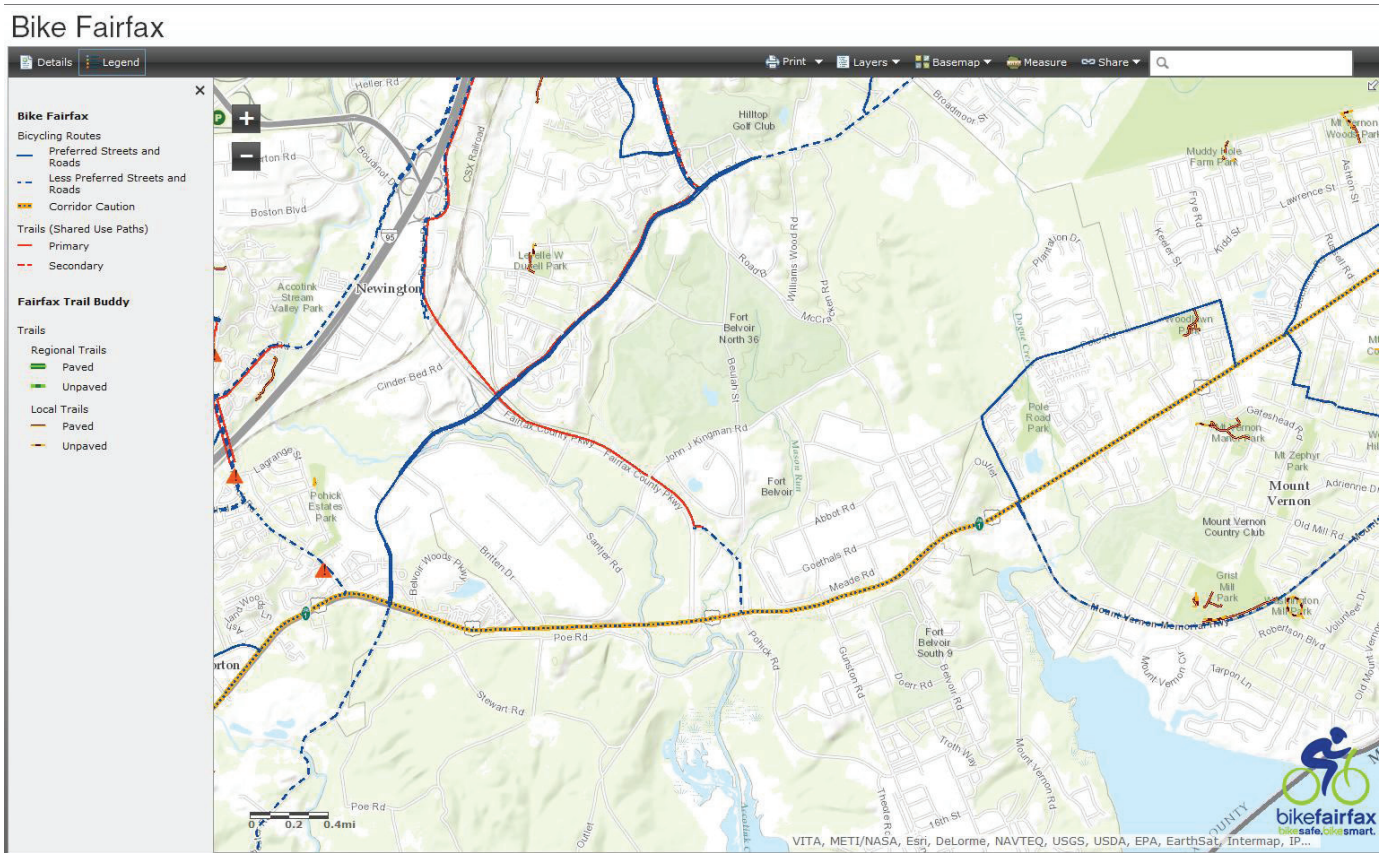
Share - The map has a built-in tool making it easy to share route location via email, Facebook or Twitter.

On the Go Use with a Smartphone - Taking Bike Fairfax with you is easy and requires downloading a free mobile application to convert the map functionality to view on a variety of mobile devices. For iPhones and iPad devices, go to the iTunes App Store and search for the ArcGIS application and install it to your device. For Android devices, go to the Google Play Store and search for the ArcGIS application and install it on your device.

View iTunes Preview: https://itunes.apple.com/us/app/arcgis/id379687930?mt=8
Android Preview: https://play.google.com/store/apps/details?id=com.esri.android.client

Up-to-date information can be found at http://www.fairfaxcounty.gov/fcdot/bike/bikemap/.

Figure B.2 Bike Fairfax Interactive Map Screen Shot



Screen Shot vicinity of Fort Belvoir from Bike Fairfax Interactive Map website, https://www.fairfaxcounty.gov/fcdot/bike/bikemap/

Policy Memorandum #45 Alternative Work Schedule

B3

Fort Belvoir Policy Memorrandum #45 Alternate Work Schedule was signed by the Garrison Commander, COL Gregory Gadson, 28 June 2012. It references IMCOM Regulation 690-16, Alternate Work Schedule (AWS) Program and Telework, 22 July 2009. The Policy Memorandum establishes policy, assigns responsibilities and prescribes procedures for the implementation of Alternate Work Schedules at Fort Belvoir. The full Memorandum is included in the following pages of this Appendix.

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT BELVOIR
9820 FLAGLER ROAD, SUITE 213
FORT BELVOIR, VIRGINIA 22060-5928

REPLY TO
ATTENTION OF

IMBV-PAI

28 June 2012

MEMORANDUM FOR US Army Fort Belvoir Garrison Civilian Employees

SUBJECT: Fort Belvoir Policy Memorandum #45 Alternate Work Schedule

1. REFERENCE: IMCOM Regulation 690-16, Alternate Work Schedule (AWS) Program and Telework, 22 July 2009.

2. PURPOSE: This memorandum establishes policy, assigns responsibilities and prescribes procedures for Alternative Work Schedules (AWS) in the Fort Belvoir Garrison.

3. APPLICABILITY: This policy applies to all civilian personnel of the Fort Belvoir Garrison.

4. POLICY: The objective of the AWS program is to fully support mission accomplishment while improving the efficiency and productivity of operations, enhancing personnel recruitment and retention, reducing absenteeism, fostering energy conservation and carbon emissions through reduction of commuter traffic, and furthering employee job satisfaction and morale by improving the quality of work life. Supervisors and employees will adhere to all applicable rules as outlined in the enclosed Garrison Alternate Work Schedule Guide.

5. It may be necessary because of the nature of the work performed to deny an employee's request for AWS and to keep them on the basic 8-hour day, 5-day week schedule. Accordingly, authority is delegated to supervisors to approve or deny an employee's request for AWS. If an employee's request for AWS is denied, the employee will be notified in writing of the reason(s) for the denial.

6. PROPONENT. The proponent for this policy is Plans, Analysis, and Integration Office at (703) 805-1265.

Encl

GREGORY D. GADSON
Colonel, USA
Garrison Commander

US Army Garrison Fort Belvoir
Alternative Work Schedule Program Guide

1. REFERENCE: IMCOM Regulation 690-16, Alternate Work Schedule (AWS) Program and Telework, 22 July 2009.

2. PURPOSE: This memorandum establishes policy, assigns responsibilities, and prescribes procedures for Alternative Work Schedules (AWS) in the Fort Belvoir Garrison.

3. APPLICABILITY: This policy applies to all civilian personnel of the Fort Belvoir Garrison.

4. DEFINITIONS:

a. Alternative Work Schedules: An arranged tour of duty that varies from the basic work week and may include flexible work schedules (FWS) and compressed work schedules (CWS).

b. Basic Work Requirement: The number of hours, excluding overtime hours, an employee is required to work or to account for by charging approved leave, credit hours, excused absence, holiday hours, compensatory time off, or time off as an award.

c. Compressed Work Schedule: An alternative to the basic work week that allows for the basic work requirement (80 hours per bi-weekly pay period) to be completed in less than 10 work days. With supervisory approval, an employee may opt for one of the following schedules:

(1) A 5/4/9 schedule, which consists of the employee working 9 hours per day for 8 of 10 work days in a 14-day pay period, 8 hours on one day, and having one regular day off (RDO) per pay period.

(2) A 4/10 schedule, which consists of eight 10-hours work days within the biweekly pay period and two days off (RDO) per pay period.

d. Regular Day Off (RDO): An employee's RDO may be any day that the supervisor and employee mutually agree upon. Supervisors will evaluate employee requests for a specific RDO with consideration for mission accomplishment and office coverage. The supervisor may flex the RDO within the pay period to accommodate either a mission need or an employee request. In support of increased use of travel reduction solutions, employees who rideshare (carpool, vanpool, or use mass transit) may be given additional consideration for first choice of RDO and/or early day. Some situations may require the rotation of RDO to meet mission requirements.

e. Core Hours: Core hours are those designated times and days during the biweekly pay period when non-shift employees must be present for work, other than a lunch period or approved leave.

(1) Core hours will be from 0930 to 1430, Monday through Friday.

(2) When possible, supervisors should attempt to schedule meetings and other official group activities during the core hours, unless it is known that all individuals involved are able to attend before or after the core hours or attend a meeting remotely (i.e., teleconference).

f. Flexible Hours: The designated time during which employees, in coordination with their supervisors, may set their arrival and departure times. Employees may fix their arrival time between the hours of 0600 and 0930 and their departure time between the hours of 1430 and 1800. This provision applies to employees on Basic Work Schedules, Compressed Work Schedules, and Flexible Work Schedules.

g. Flexitour: The Flexitour workweek consists of 5 workdays, 8 hours a day, and an unpaid lunch period of at least 30 minutes. With supervisory approval, the employee sets their tour of duty with fixed arrival and departure times within the authorized flexible hours. With supervisory approval, employees on a flexitour are authorized 15 minutes leeway on either side of their start time to arrive at work. Employees would adjust their schedule accordingly at the end of the duty day to make up the time to ensure they meet the eight-hour work requirement. For example, an employee's tour of duty is 0700 to 1530. With supervisory approval, the employee may arrive to work anywhere from 0645 to 0715 and leave work anywhere from 1515 to 1545, as long as the employee meets the eight-hour daily work requirement.

h. Lunch Periods:

(1) Lunch periods will be approved by the supervisor and may be of a fixed duration of 30, 45, or 60 minutes.

(2) Lunch periods should normally be taken during the hours of 1100 to 1300.

(3) Lunch periods are non-duty time.

(4) Employees may not shorten their duty day by working during or skipping the lunch period.

i. Official Hours of Duty: The official hours of duty during which Garrison entities must be open to conduct business are from 0730 to 1630, Monday through Friday. Directors may establish different hours of duty with the approval of the Garrison Commander.

j. Office Hours: Office hours are the time span within which non-shift employees can be on the job. The office hours for Garrison employees are 0600 to 1800.

4. POLICY:

a. The objective of the AWS program is to fully support mission accomplishment while improving the efficiency and productivity of operations, enhancing personnel recruitment and retention, reducing absenteeism, fostering energy conservation and carbon emissions through reduction of commuter traffic, and furthering employee job satisfaction and morale by improving the quality of work life.

b. This memorandum does not alter other regulations concerning the utilization of leave and compensatory time nor the rights of supervisors or employees. This policy supplements the bargaining agreement between the Fort Belvoir Garrison and Local 1052, American Federation of Government Employees (AFGE) as it applies to bargaining unit members from the Fort Belvoir Garrison.

c. Use of AWS must not disrupt Garrison operations nor impede the accomplishment of the Garrison's mission. Employees participating in AWS understand that they must be flexible in

changing their planned schedules to accommodate the needs in accomplishing the Garrison mission. Employees must be prepared to make necessary changes in their preferred schedules to accommodate meetings and other work activities that require their presence at specific times or on specific days.

d. When a supervisor determines that a particular alternative work schedule has had or would have an adverse mission impact on or is substantially disrupting the work of a directorate, office, or group of employees with similar duties traceable to participation in such schedule, including but not limited to, reduction in productivity, untimely performance of work, unavailability of employees for work, diminished level of services to the public, inadequate office coverage, problems with other operational requirements, workload demands, or an increase in the cost of operations, that particular alternative work schedule may be temporarily suspended or permanently terminated. When such a suspension or termination would affect bargaining unit employees, the union will be notified prior to the suspension or termination of the alternative work schedule in question, unless circumstances make that not practical, in which case the union will be notified as soon as possible.

5. Responsibilities:

a. Directors will:

(1) Ensure that alternative work schedules are offered to their employees to the fullest extent possible to meet employee desires while meeting mission requirements.

(2) Provide guidance to their supervisors and employees on the provisions of this policy.

(3) Act as the approval authority on all alternative work schedule requests.

b. Branch/Division Chiefs will:

(1) Assist supervisors in carrying out the requirements of this policy.

(2) Make a recommendation to the director on all employee AWS requests.

c. Immediate supervisors will:

(1) Ensure their organizations are properly and sufficiently staffed to meet mission needs at all times.

(2) Ensure that employees are treated fairly and equitably with respect to scheduling requests.

(3) Ensure employees are present for duty during core hours, unless otherwise in an approved leave status.

(4) Adjust an employee's work schedule when mission accomplishment requires an adjustment.

(5) Ensure timekeepers are kept updated in a timely manner of all employee work schedule changes.

(6) Allow, to the extent possible, temporary deviations from an approved work schedule.

(7) Maintain documentation regarding the establishment, revision, or termination of an employee's AWS.

d. Employees will:

(1) Have a full understanding that participation in the Garrison Alternate Work Schedules Program is not an employee entitlement, rather it is a privilege.

(2) Negotiate a work schedule that meets both mission requirements and personnel considerations.

(3) Be flexible in adjusting work schedules to meet mission requirements as needed.

(4) Complete the Employee - Management Alternative Work Schedule Agreement at Enclosure 2 and submit to their immediate supervisor.

(5) Agree to remain under an approved work schedule for a minimum period of 180 days, unless the reason for the change is an emergency or personal hardship, or the change is otherwise directed by a supervisor to meet mission requirements.

(6) Be responsible to report to work on time and put in a full day's work.

7. Procedures:

a. Employees will be given the opportunity to request to participate in the Garrison Alternate Work Schedules Program on a voluntary basis. Any civilian employee wishing to participate in the program, or request a change in a current work schedule, shall complete and submit an Employee - Management Alternative Work Schedule Agreement to their immediate supervisor. The immediate supervisor will discuss the request with the employee and forward the request to their branch/division chief with a recommendation. The branch/division chief will consult with the immediate supervisor and/or employee as needed and forward the request with a recommendation to the appropriate director for a final decision. The director will be the approval authority for all requests for flexible and compressed work schedules. Once the director has made a decision, he or she will notify the subordinate chain of supervision of his or her decision and the immediate supervisor will communicate the director's decision to the employee. The immediate supervisor will ensure all approved work schedule agreements are forwarded to the appropriate timekeeper.

b. It may be necessary because of the nature of the work performed to deny an employee's request for AWS and to keep them on the basic 8-hour day, 5-day week schedule. Accordingly, authority is delegated to supervisors to approve or deny an employee's request for AWS. If an employee's request for AWS is denied, the employee will be notified in writing of the reason(s) for the denial.

c. If a mission need arises that requires an employee to work either part or all of their day off, the supervisor and employee will arrange to reschedule the employee's day off.

d. Employees who are in a training or TDY status for any part of a pay period will revert to the basic work week, 8-hour a day, 5-day a week, unless the supervisor deems it appropriate to keep the employee on AWS for that pay period. Employees are required to submit any schedule change to the timekeeper.

e. To ensure accurate records of the arrival and departure times and to ensure proper accounting of employee time and attendance, supervisors may require their employees to record their work hours in a manner deemed appropriate by the supervisor, including e-mail notification to the supervisor upon arrival to work.

f. Employees may be removed or suspended from AWS for, including but not limited to; failing to comply with the provisions of this policy, for abusing AWS privileges, for falsifying time and attendance records, or for performance or conduct that is determined by the supervisor to be less than satisfactory.

8. Leave and Holidays:

a. Annual and Sick Leave: The policies and procedures for requesting annual and sick leave will remain the same except the amount of leave taken will be commensurate with an employee's regular tour of duty.

b. Holiday: When a designated federal holiday falls on a employee's scheduled RDO, the following rules apply when determining "in lieu of" holiday:

(1) If a holiday falls on an RDO that is a Monday, the subsequent workday (Tuesday) will be the employee's designated "in lieu of" holiday.

(2) If a holiday falls on an RDO, other than a Monday, the employee's preceding work day will be designated the "in lieu of" holiday. For example, the RDO is Friday, and the holiday falls on a Friday, the "in lieu of" holiday is Thursday. If the RDO is Wednesday, and the holiday falls on Wednesday, the "in lieu of" holiday is Tuesday.

c. Excused Absence: Excused absence from duty may be administratively authorized without loss of pay and without charge to leave in accordance with applicable regulations for excused absences on a scheduled work day; for example, the installation is closed due to inclement weather. If such absence is authorized during an employee's RDO; however, employees will not be given equivalent time off at a later date or otherwise compensated.

d. Military Leave: An employee who is a member of the National Guard or Armed Forces Reserve must convert to the basic work week for the pay period(s) while on military leave.

e. Overtime/Compensatory Time: Employees must get the prior approval of their supervisor to work overtime/compensatory time. For employees on a CWS, work performed in excess of the employee's established compressed work schedule in a biweekly pay period is overtime work. The employee is entitled to compensatory time or overtime pay, as appropriate. For employees on a FWS, overtime hours are all hours of work that are officially ordered and approved in advance by the supervisor and in excess of 8 hours in a day or 40 hours in a week.

9. Additional alternate work schedule information is provided in the US Office of Personnel Management Handbook on Alternative Work Schedules at Enclosure 3, and at www.opm.gov.

Compressed Work Schedule Plans

Four-day Workweek Plan (4/10)	5/4-9 Compressed Plan
Basic Work Requirement A full-time employee must work 10 hours a day, 40 hours a week and, 80 hours a bi-weekly pay period. The supervisor determines the number of hours a part-time employee must work in a 4-day workweek and the number of hours in a bi-weekly pay period.	Basic Work Requirement A full-time employee must work eight 9-hour days and one 8-hour day for a total of 80 hours a bi-weekly pay period. The supervisor determines the number of hours a part-time employee must work in a 9-hour bi-weekly pay period.
Tour of Duty The employee selects a schedule of four 10-hour days, subject to supervisory approval. Employee must be present during core hours on workdays.	Tour of Duty The employee selects a schedule of less than 10 workdays in a bi-weekly pay period, subject to supervisory approval. Employee must be present during core hours on workdays.
Overtime Overtime work is work ordered or approved in advance by management and is in excess of the compressed work schedule's basic work requirement.	Overtime Overtime work is work ordered or approved in advance by management and is in excess of the compressed work schedule's basic work requirement.
Holidays Employee is entitled to basic pay with respect to the holiday for the number of hours of his/her CWS on that day. When holiday falls on scheduled non-workday, the workday immediately before the non-workday becomes the in-lieu-of holiday. Examples – 1) non-workday is Monday and holiday falls on that Monday, the in-lieu-of holiday is normally the preceding Friday. 2) Holiday falls on Sunday, and following Monday is non-workday, the in-lieu-of holiday is the employee's next scheduled workday.	Holidays Employee is entitled to basic pay with respect to the holiday for the number of hours of his/her CWS on that day. When holiday falls on scheduled non-workday, the workday immediately before the non-workday becomes the in-lieu-of holiday. Examples – 1) non-workday is Monday and holiday falls on that Monday, the in-lieu-of holiday is normally the preceding Friday. 2) Holiday falls on Sunday, and following Monday is non-workday, the in-lieu-of holiday is the employee's next scheduled workday.

6

Enclosure 1

Comparison between Flexible and Compressed Work Schedules

Flexible Work Schedules	Compressed Work Schedules
Basic Work Requirement A full time employee works 80 hours in a bi-weekly pay period. Supervisors may also establish daily or weekly work requirements. The supervisor determines the number of hours a part-time employee must work in a specific period. Supervisors may permit employees to complete their basic work requirement in less than 10 workdays.	Basic Work Requirement A full time employee works 80 hours in a bi-weekly pay period in less than 10 workdays. A part-time employee has a fixed schedule of fewer than 80 hours in a bi-weekly pay period and scheduled to work those hours in less than 10 workdays.
Tour of Duty The tour of duty defines the limits within which an employee must complete his or her basic work requirement.	Tour of Duty The tour of duty is defined by the compressed work schedule requested by the employee and approved by the supervisor.
Credit Hours Hours may be worked in excess of the basic work requirement at the option of the employee in order to vary the length of the workday or workweek. Prior supervisory approval is required to earn/use credit hours.	Credit Hours None. The law provides credit hours only for flexible work schedules. There is no legal authority for credit hours under a compressed work schedule program. See 5 U.S.C. 6121(4).
Overtime work Overtime work consists of hours of work that are officially ordered in advance and in excess of 8 hours in a day or 40 hours in a week, but does not include hours that are worked voluntarily, including credit hours, or hours that an employee is "suffered or permitted" to work which are not officially ordered in advance. (See SFR 551.401(a)(2)).	Overtime For a full-time employee, overtime work consists of all hours worked in excess of the established compressed work schedule. For part-time employees, overtime must be hours in excess of the compressed work schedule for the day (more than at least 8 hours) or for the week (more than at least 40 hours).
Excused Absence Employees are excused for the hours they are regularly scheduled to work.	Excused Absence Employees are excused for the hours they are regularly scheduled to work.

Comparison between Flexible and Compressed Work Schedules (continued)

Flexible Work Schedules	Compressed Work Schedules
Compensatory Time Off A supervisor may at the request of an employee, approve compensatory time off in lieu of overtime pay for non-SES employees. Under Title 5, employees who earn more than GS-10, Step 10, pay may be required to take compensatory time instead of receiving overtime pay.	Compensatory Time Off As defined in 5 U.S. 5541(2) or by a prevailing rate employee as defined in 5 U.S.C. 5342(a)(2), but may not be approved for an SES member. Mandatory compensatory time off is limited to FLSA-exempt employees (who are not prevailing rate employees) whose rate of basic pay is greater than the rate of GS-10, Step 10.
Temporary Duty Supervisor may allow an employee covered by a flexible work schedule to continue the existing schedule, modify that schedule, or require him or her to return to a regular tour of duty. Supervisors may find it advisable to establish procedures to revert employees to standard fixed schedules when in training or on TDY.	Temporary Duty Supervisor may allow an employee covered by a compressed work schedule to continue the existing schedule, modify that schedule, or require him or her to return to a regular tour of duty. Supervisors may find it advisable to establish procedures to revert employees to standard fixed schedules when in training or on TDY.

Employee – Management Alternative Work Schedule Agreement

Between the Garrison Fort Belvoir and

Participation: Employee voluntarily elects to work an alternative work schedule (as indicated below and approved by the agency) and to follow all applicable policies and procedures. Employee recognizes that the alternative work schedule is not an employee entitlement but an additional benefit the agency may approve to help the employee balance family and work responsibilities commensurate with the agency's accomplishment of its mission.

Salary and Benefits: Agency agrees that an alternative work schedule is not a basis for changing the employee's salary or benefits.

Work Schedule: Agency and employee agree the employee's official tour of duty is (select one) FWS or CWS

Flexible Work Schedule (FWS)

WEEK 1

	Start Time	Stop Time	# of Hours per Day
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			

Subtotal (must equal 40 hours) _____

WEEK 2

	Start Time	Stop Time	# of Hours per Day
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			

Subtotal (must equal 40 hours) _____

Employee – Management Alternative Work Schedule Agreement

Compressed Work Schedule (CWS)

SELECT ONE:

_____ 5/4-9: (Eight 9 hour days, One 8 hour day, One RDO per pay period)

_____ 4/10s: (Eight 10 hour days, Two RDO's per pay period)

Indicate the regularly scheduled day off as "RDO":

WEEK 1

	Start Time	Stop Time	# of Hours per Day
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			

WEEK 2

	Start Time	Stop Time	# of Hours per Day
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			

Grand Total (Two week total must equal 80 hours)

Leave: Employee agrees to follow established procedures for requesting and obtaining approval of leave. Leave will be taken in accordance with the policy applicable to the specific approved alternative work schedule.

Overtime: Employee and supervisor are aware of the provisions delineated in the Garrison Alternate Work Schedule Policy and Guidance Memorandum.

Work Assignments/Performance: The employee understands that a decline in job performance and/or documented misconduct may be grounds for canceling the alternative work schedule agreement.

Cancellation: Agency agrees to let the employee voluntarily resume his/her regular (non AWS) schedule after notice to the supervisor. Employee understands that the agency may cancel the alternative work schedule arrangement if it interferes with mission needs/accomplishment and instruct the employee to resume working on a regular schedule.

Other Action: Nothing in this agreement precludes the agency from taking any appropriate disciplinary or adverse action against an employee who fails to comply with the provisions of the agreement.

Employee – Management Alternative Work Schedule Agreement

Employee's Signature: _____ Date: _____

Printed name: _____

Title: _____

Team Leader's Signature: _____ Date: _____

Printed name: _____

Title:

Supervisor's Signature: _____ Date: _____

Printed name: _____

Title: _____

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Policy Memorandum #46 Telework Program

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Fort Belvoir Policy Memorrandum #46 Telework Program was signed by the Garrison Commander, COL Gregory Gadson, 28 June 2012. It references IMCOM Regulation 690-16, Alternate Work Schedule (AWS) Program and Telework, 22 July 2009. The Policy Memorandum provides guidance and procedures for the implementation of a Telework Program at Fort Belvoir. The full Memorandum is included in the following pages of this Appendix.

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT BELVOIR
9820 FLAGLER ROAD, SUITE 213
FORT BELVOIR, VIRGINIA 22060-5928

REPLY TO
ATTENTION OF

IMBV-PAI 28 June 2012

MEMORANDUM FOR US Army Fort Belvoir Garrison Civilian Employees

SUBJECT: Fort Belvoir Policy Memorandum #46 Telework Program

1. REFERENCE: IMCOM Regulation 690-16, Alternate Work Schedule (AWS) Program and Telework, 22 July 2009.

2. PURPOSE: To provide guidance and procedures to implement a Fort Belvoir Garrison Telework Program in accordance with the enclosed Fort Belvoir Garrison Telework Program Guide.

3. APPLICABILITY: This policy is applicable to all Fort Belvoir garrison civilian employees. Implementation of the telework program is at the discretion of the supervisor or director. Directors may opt to use this policy, in whole or in part, within their respective directorate. Employee participation in the telework program is not an entitlement.

4. POLICY: Supervisors and employees will adhere to all applicable rules, regulations, and guides for personnel management and telework. Additional information is provided at the US Office of Personnel Management website: www.opm.gov.

a. Employees who exhibit characteristics suitable for telework and who occupy positions identified as eligible for teleworking, may be recommended to the Deputy Garrison Commander for final approval and to determine telework that is consistent with mission requirements.

b. Telework is a management tool with voluntary employee participation. It is not an employee entitlement and does not change employment terms and conditions. Either the employee or the supervisor may terminate an approved telework arrangement at will.

c. Participation in the program will be terminated if an employee's performance does not meet the prescribed standard or if the teleworking arrangement fails to meet organizational needs.

d. An employee who is approved for telework must complete OPM Telework for Employees 101, http://www.telework.gov/Tools_and_Resources/Training/Employees/index.aspx, any other required Garrison or Directorate training, and review referenced regulations, guidelines, and policies prior to beginning telework.

e. An employee who is approved for telework must conduct a home safety inspection and complete and sign the Safety Checklist at page 9, thereby self-certifying that the home work area is safe and free from hazards.

"LEADERS IN EXCELLENCE"

f. The supervisor and employee must complete the Supervisor – Employee Checklist.

5. PROPONENT. The proponent for this policy is Plans, Analysis, and Integration Office at (703) 805-1265.

Encl

GREGORY D. GADSON
Colonel, USA
Garrison Commander

US Army Garrison Fort Belvoir
Telework Program Guide

1. REFERENCE. IMCOM Regulation 690-16, Alternate Work Schedule (AWS) Program and Telework, 22 July 2009.

2. APPLICABILITY. This policy applies to Fort Belvoir garrison civilian employees.

3. PURPOSE. This Fort Belvoir Garrison Telework Guide assigns responsibilities and prescribes procedures for the Fort Belvoir garrison telework program.

4. POLICY STATEMENT.

a. Employees who exhibit characteristics suitable for telework and who occupy positions identified as eligible for teleworking, may be authorized to telework consistent with mission needs.

b. Telework is a management tool with voluntary employee participation. It is not an employee entitlement and does not change employment terms and conditions. Either the employee or the supervisor may terminate an approved telework arrangement at will.

c. Participation in the program will be terminated if an employee's performance does not meet the prescribed standard or if the teleworking arrangement fails to meet organizational needs.

d. Employees may be approved both to telework and to work an alternate work schedule.

e. Telecommuting must not adversely affect organizational missions and functions. If supervisors determine there is an adverse affect, they must immediately modify or terminate the telecommuting arrangements.

f. An employee who is approved for telework must complete OPM Telework for Employees 101, http://www.telework.gov/Tools_and_Resources/Training/Employees/index.aspx, any other required Garrison or Directorate training, and review referenced regulations, guidelines, and policies prior to beginning telework.

g. Written Agreement. Before the commencement of telework arrangements, supervisors and employees must complete required training and sign the Fort Belvoir Garrison Telework Program Agreement at page 6.

h. An employee who is approved for telework must conduct a home safety inspection and complete and sign the Safety Checklist at page 9, thereby self-certifying that the home work area is safe and free from hazards.

i. The supervisor and employee must complete the Supervisor – Employee Checklist.

j. Security and information technology policies and procedures will be consistent with DoD, Department of the Army, and Fort Belvoir Garrison policies and procedures.

k. Employees must sign-in and sign-out via e-mail at the beginning and end of their scheduled duty day. These e-mails will serve as the employee's time sheets during the period of telework. Participants must be accessible to communicate with their supervisor and co-workers during scheduled duty hours.

l. Employees in a telework status must adhere to their approved work schedules and all time and attendance requirements. Overtime or compensatory time must be ordered and approved in advance by the supervisor. The timekeeper, supervisor, and telework employee will maintain a copy of the telework schedule. Time and attendance will be recorded as performing official duties at the official duty station.

m. Emergency dismissal or closings:

(1) Emergency dismissal or closure procedures for employees (including employees teleworking from an alternate worksite) are prescribed by OPM on an annual basis. These procedures apply not just in adverse weather conditions (e.g., snow emergencies, severe icing conditions, floods, etc), but in emergencies such as air pollution, disruption of power and/or water, interruption of public transportation, etc.

(2) OPM's current policy in situations where it deems Federal agencies to be "closed" is that employees not designated as "emergency employees" (including teleworking employees at an alternate work site) are excused from duty without loss of pay or charge to leave. Consistent with this advice, teleworkers whose traditional worksite is in the Fort Belvoir commuting area will observe the same closedown arrangements as employees at the traditional worksite.

5. ELIGIBILITY.

a. Positions eligible for telework are those involving tasks and work activities that are portable, do not depend on the employees being at the traditional worksite, and are conducive to supervisory oversight at the alternate worksite.

b. Supervisors will identify positions appropriate for telework using the Supervisor's Telework Position/Employee Eligibility Guide at page 14. Supervisors will identify employees assigned to positions identified as telework capable. The immediate supervisor should attach the Position/Employee Eligibility Guide to the Telework Request and Approval Agreement and send it through the Branch/Division Chief to the appropriate Director for approval. Telecommuting is a management approved work option; therefore, participation by employees is at the discretion of management.

c. Supervisors are responsible for approving work schedules and changes, ensuring continuity of mission operations and considering TDY, RDOs, leave, training, etc. Supervisors must also ensure that their offices are sufficiently staffed during core work hours to meet customer requirements.

d. Positions shall not be solely excluded as eligible based on occupational series, grade level, or supervisory status. Probationary status employees are not eligible for telework because probationary periods are established to allow supervisors an opportunity to personally observe and evaluate employee performance.

6. PAID LEAVE. Employees must follow established procedures to request leave approval. If a situation arises at the alternate worksite that results in the employee being unable to continue working, e.g., power/equipment failure, the supervisor should determine action on a case-by-case basis. Depending on the particular circumstances, supervisors may grant the teleworker excused absence, offer the teleworker the option to take leave or use compensatory time if applicable, or require the employee to report for work at the traditional worksite. If a similar occurrence (not covered by OPM emergency dismissal guidance) causes employees at the traditional worksite to be unable to continue working, e.g., part of the organization is dismissed due to a lack of heat or cooling, teleworking employees would not be affected and would not be excused from duty. If the employee knows in advance of a situation that would preclude working at the alternate worksite, work at the employee's traditional worksite must be scheduled.

7. PERSONAL TELEPHONE EXPENSES. Reimbursement for long-distance (domestic and international) telephone expenses may be allowed if pre-approved in writing by supervisor and incurred as a result of official duties. Employees shall complete Standard Form 1164, Claim for Reimbursement for Expenditures on Official Business, and have it approved by their supervisors with a copy of the telephone charges. Employees will not be provided with government telephone credit cards.

8. SUPPLIES. The Fort Belvoir garrison will provide general office supplies, e.g., paper, pens, pencils, and folders, etc, for official business use at the alternate worksite in the same way as in the traditional workplace. Generally, supplies will not be delivered to the alternate worksite. Special or unusual requirements need to be approved by the supervisor. The employee will not be reimbursed for personal supplies such as printer cartridges without prior approval from the supervisor.

9. EQUIPMENT AND INFORMATION TECHNOLOGY SECURITY.

a. General.

(1) The DoD, Department of the Army, and the Fort Belvoir garrison assume no responsibility for operating costs associated with an employee using personal computer and residence as an alternate worksite. This includes home maintenance, insurance, and utilities.

(2) All files, records, papers, machine-readable materials, and other documentary materials, regardless of physical form or characteristics, created or received during telework are property of the United States Government and shall be managed in accordance with regulations and local policy. Employee agrees to protect all government records from unauthorized disclosure or damage and will comply with requirements of the Privacy Act of 1974, USC 552a.

(3) The Fort Belvoir garrison will not pay for home telephone installation or service or home internet installation or service. The teleworker is responsible for the installation (if required), and the monthly service fee of the communication line between the employee's home and the Fort Belvoir local network.

(4) No classified information handling and/or processing will be permitted at a telework site. Adherence to established technical standards for government furnished equipment, network, and security issues is required. The standards are outlined in AR 25-2, and Fort Belvoir Information Assurance policies. All sensitive information stored outside of the employee's government-furnished computer must be stored in an approved, lockable container.

b. Government-Furnished Equipment.

(1) The Fort Belvoir garrison may provide a government laptop and Common Access Card (CAC) readers to employees, if available, on a case-by-case basis. Desktop computers, keyboards, monitors, and fax machines will not be issued for use in a private residence. Employees must protect any government-owned equipment and use the equipment only for official purposes.

(2) Supervisors, managers, and teleworkers must ensure that government equipment assigned to telework participants is properly accounted for (sub hand receipted) and coordinated with the hand receipt holder as appropriate. The hand receipt holder is responsible for ensuring that all government equipment is appropriately identified and labeled.

(3) Adherence to local policy for off-site use of government equipment is required. Software and communications, with appropriate security measures, are required for any regular and recurring telework that involves sensitive unclassified data, including Privacy Act data, For Official Use Only data, or to remotely access (login) to the Fort Belvoir Telework Citrix server, or to have access to the shared drive on the Fort Belvoir network.

(4) Fort Belvoir will service and maintain any government-owned computer equipment issued to the teleworking employee. Any misuse of government equipment will be treated the same as if it occurred on the agency's premises.

c. Personally-Owned Computers.

(1) Teleworkers may use their own personally-owned computer and CAC reader to remotely access (login) to the Fort Belvoir Telework Citrix server, or access to the shared drive on the Fort Belvoir network. The teleworker will install, service, and maintain any personally owned equipment at the teleworker's residence.

(2) Personally-owned computers will be used to work on unclassified non-sensitive material only.

(3) Personally owned computers must have the government approved anti-virus software, such as Norton, or McAfee, installed and updated weekly. Teleworkers must provide their IMO with verification via email on completed updates prior to telework duty. Emailing a screen shot to their IMO showing a successful update would meet the requirement.

10. LIABILITY FOR DAMAGES. The government will not be liable for damages to employee's personal or real property that occurs while the employee is working at the approved alternate duty station.

11. WORKERS' COMPENSATION AND OTHER LIABILITIES. Standard regulations and guidelines apply. (DoD Memorandum, Telework Policy and Guide, 22 October 2001, paragraph 5, page 13.)

12. WORK ASSIGNMENTS/PERFORMANCE.

a. An employee must have a proven or expected (for new employees) performance rating of "success" or equivalent, to be eligible for participation, and for ongoing participation, in the telework program.

b. Teleworkers' performance should be monitored in the same manner as all employees' at the traditional worksite. Teleworkers are required to complete all assigned work, consistent with the approach adopted for all other employees in the work group, and according to standards and guidelines in the employee's performance plan.

c. The supervisor and employee will review use of the alternate worksite as part of the normal performance appraisal system reviews used within the Fort Belvoir garrison.

13. STANDARDS OF CONDUCT. Employees are bound by the same standards of conduct covering all Fort Belvoir garrison employees while working at the alternate worksite.

14. Additional telework information is provided in the US Office of Personnel Management Guide to Telework Website www.opm.gov.

15. The proponent for this guide is the Plans, Analysis, and Integration Office (PAIO), 703-805-1265.

FORT BELVOIR GARRISON TELEWORK PROGRAM AGREEMENT

1. Beginning on _____, I voluntarily agree to participate in the Fort Belvoir Garrison Telework Program as indicated below, and to follow all applicable policies and procedures. I recognize that telework is not an employee entitlement but an additional method Fort Belvoir Garrison may approve to accomplish work which may also be a benefit to me. This telework agreement is not a basis for changing my salary or benefits.

2. The address of my telework duty station is:

_____

_____

3. The days of my regular / recurring telework schedule are (circle appropriate days):

WEEK 1 OF THE PAY PERIOD:

MONDAY TUESDAY WEDNESDAY THURSDAY FRIDAY

WEEK 2 OF THE PAY PERIOD:

MONDAY TUESDAY WEDNESDAY THURSDAY FRIDAY

4. My supervisor and I will mutually agree on any intermittent telework schedule as specified in the Telework Policy and as required by mission or emergency situations.

5. The designated timekeeper, my supervisor, and I will maintain a copy of the telework schedule. Time and attendance will be recorded as performing official duties at the official duty station.

6. Before taking leave, I must obtain supervisory approval in accordance with established procedures. My signature on this telework agreement indicates I understand and agree to follow established procedures for requesting and obtaining approval of leave.

7. Fort Belvoir Garrison will not purchase or install computer equipment or telecommunication equipment (phones, lines, fax, or answering machines, etc.) in my home. I may be assigned a laptop, at no expense to the government based upon availability. I will protect official documents, supplies, or equipment in accordance with governing regulations. I may use my own equipment; however, I am responsible for maintenance and servicing of any equipment that I provide. I will apply approved safeguards to protect records from unauthorized disclosure or damage and will comply with Privacy Act requirements. Classified documents may not be taken out of the designated Fort Belvoir Garrison building.

8. Fort Belvoir Garrison will not be liable for damages to my personal or real property during the course of performance of official duties or while I am using Fort Belvoir Garrison equipment in my residence, except to the extent Fort Belvoir Garrison is held liable pursuant to a Federal Tort Claims Act claim or claims arising under the Military Personnel and Civilian Employees Claims Act.

9. Fort Belvoir Garrison will not be responsible for operating cost, home maintenance, or any other incidental cost whatsoever associated with the use of my residence (e.g. insurance, utilities, etc.). By participating in this program, I do not relinquish any entitlement to reimbursement for authorized expenses incurred while conducting business for Fort Belvoir Garrison as provided for by statute and implementing regulations.

10. I am covered under the Federal Employees Compensation Act if injured in the course of actually performing official duties at the official duty station or the alternative telework duty station. I will notify my supervisor immediately of any such accident or injury that occurs at the alternative workplace and complete any required forms. My supervisor will investigate such a report immediately.

11. I will meet with my supervisor to receive assignments and to review completed work as necessary. I will complete assigned work according to work procedures specified by my supervisor, according to the guidelines and standards stated in my performance plan.

12. My job performance will be evaluated and job elements and standards determined by management. My job performance evaluation will be based on norms and other criteria derived from my performance plan. I will provide regular reports if required by my supervisor to help judge performance. I understand that a decline in my performance or notice of documented misconduct may be grounds for canceling this telework agreement.

13. I agree to perform officially assigned duties only at the official duty station or approved alternate telework duty station at the location and during the days and hours specified in paragraphs 2, 3, and 4 above. I will not conduct personal business while on official duty status at the alternative workplace; e.g. caring for dependents, making home repairs, doing volunteer work or work connected with other employment, or engaging in educational pursuits.

14. I will not conduct meetings or interviews in an official capacity at the alternative work site without supervisory approval.

15. If mission requirements necessitate, or if requested by supervisor, I will report to my duty station to perform duty. I may choose another telework day, with the approval of my supervisor, during the same pay period. If I am unable to reschedule the telework day during the same pay period, I will forfeit my telework day for that pay period.

16. If I fail to comply with the provisions of the telework agreement, my supervisor may terminate the agreement, and I may incur loss of pay and/or be subject to appropriate disciplinary or adverse action.

17. My supervisors may cancel this agreement at any time. However, my supervisor will provide me 15 calendar days written notice prior to the official date of cancellation, unless (a) my supervisor cancels the agreement for reason relating to misconduct or poor performance, or (b) exigency of the service precludes giving such notice. I may request cancellation of this agreement. Cancellation shall be at the discretion of management considering such factors as the availability of office space.

18. My signature below acknowledges receipt and thorough review of this telework agreement. This agreement is intended to enhance communication and understanding between

management and employees of the special considerations and expectations necessary to establish a successful program of working from home. It is not contractual in nature.

AGREED BY:

_____ _____

Employee (Date)

APPROVED BY:

_____ _____

Director (Date)

SAFETY CHECKLIST		
FORT BELVOIR GARRISON TELEWORK PROGRAM Purpose: The following checklist is designed to assess the overall safety of the home worksite. Prior to beginning telework, designated employees must complete this safety and security checklist of the designated work area for the purpose of official government business. By completing the checklist, employees are self certifying the safe condition of the designated work area. The employees are responsible for informing their supervisors of any significant changes in any of the items identified below. Participating employees should complete the checklist, sign and date it, and return it to their supervisors (and retain a copy for their records). Reference DoD IG Form 86, Dec 2001.		
Workplace Environment		
1. Are temperature, noise, ventilation, and lighting levels adequate for maintaining your normal level of job performance?	Yes ☐	No ☐
2. Is all electrical equipment free of recognized hazards that would cause physical harm (frayed wires, bare conductors, loose wires or fixtures, exposed wiring on the ceiling or walls)?	Yes ☐	No ☐
3. Will the building's electrical system permit the grounding of electrical equipment (a three-prong receptacle)?	Yes ☐	No ☐
4. Are aisles, doorways, and corners free of obstructions to permit visibility and movement?	Yes ☐	No ☐
5. Are file cabinets and storage closets arranged so drawers and doors do not enter into walkways?	Yes ☐	No ☐
6. Are phone lines, electrical cords, and surge protectors secured under a desk or alongside a baseboard?	Yes ☐	No ☐
7. Does the work area meet safety and ergonomic regulations?	Yes ☐	No ☐
8. Is the space free of asbestos containing materials?	Yes ☐	No ☐
9. Do all stairs with 4 or more steps have handrails?	Yes ☐	No ☐
10. Are all circuit breakers and/or fuses in the electrical panel labeled as to intended services?	Yes ☐	No ☐
11. Do circuit breakers clearly indicate if they are in the open or closed position?	Yes ☐	No ☐
12. Does the electrical system conform to appropriate local building codes?	Yes ☐	No ☐

13. Do chairs have any loose casters (wheels)?	Yes ☐	No ☐
14. Are the rungs and legs of the chairs sturdy?	Yes ☐	No ☐
15. Is the working area neat, clean, and free of excessive amounts of combustibles?	Yes ☐	No ☐
16. Are floor surfaces clean, dry, level, and free of worn seams?	Yes ☐	No ☐
17. Are carpets well secured to the floor and free of frayed or worn seams?	Yes ☐	No ☐
Computer Workstation (if applicable)		
18. Is your chair adjustable?	Yes ☐	No ☐
19. Do you know how to adjust your chair?	Yes ☐	No ☐
20. Is your back adequately supported by a backrest?	Yes ☐	No ☐
21. Are your feet on the floor or fully supported by a footrest?	Yes ☐	No ☐
22. Do you have enough legroom at your desk?	Yes ☐	No ☐
23. Are you satisfied with the placement of your visual display terminal (VDT) and keyboard?	Yes ☐	No ☐
24. Is the VDT screen free from noticeable glare?	Yes ☐	No ☐
25. Is the top of the VDT screen at eye level?	Yes ☐	No ☐
26. Is it easy to read text on your screen?	Yes ☐	No ☐
27. Do you need a document holder?	Yes ☐	No ☐
28. When keying are your forearms close to being parallel with the floor?	Yes ☐	No ☐
29. When keying are your wrists fairly straight (in-line with your forearms)?	Yes ☐	No ☐
30. While not keying is there space to rest your arms?	Yes ☐	No ☐
Physical Security		
31. Do all exterior doors and windows have adequate locking	Yes ☐	No ☐

devices?		
32. Is there a file cabinet or other suitable container available in which to place documents?	Yes ☐	No ☐
Hardware Security		
33. Is the VDT screen positioned so that unauthorized persons cannot view the screen?	Yes ☐	No ☐
34. Are there adequate environmental controls to safeguard equipment from extreme temperatures and humidity?	Yes ☐	No ☐
Data Security		
35. Can others gain access to the computer from other systems (e.g. via the internet, dial up)?	Yes ☐	No ☐
36. Are the computer and removable media (e.g. floppy disks) adequately protected from unauthorized personnel (e.g. friends, relatives, roommates, housekeepers and visitors)?	Yes ☐	No ☐

EMPLOYEE'S SIGNATURE	DATE
NAME:	OFFICE:
POSITION:	
LOCATION OF DESIGNATED HOME OFFICE OR WORK AREA:	
HOME TELEPHONE:	
SUPERVISOR'S NAME:	

SUPERVISOR – EMPLOYEE CHECKLIST		
1. EMPLOYEE NAME	2. SUPERVISOR NAME	
The following checklist is designed to ensure the teleworker and supervisor are properly oriented to policies and procedures of the Telework Program. Questions 4, 5, and 6 may not be applicable to the telework employee. If this is the case, state non-applicable or N/A		
ITEM	**DATE**	
1. Employee/Supervisor has read Fort Belvoir Garrison Telework Policy.		
2. Employee has been provided with a schedule of work hours.		
3. Employee ☐ has ☐ has not been issued government furnished equipment. (If equipment has been issued, complete items 4 and 5 below. If not, enter N/A in the date block and skip to item 6.)		
4. Equipment issued is documented properly receipted. Check as applicable:	**YES**	**NO**

Laptop Computer		
Other:		
Other:		
	DATE	
5. Policies and procedures for care of equipment issued by Fort Belvoir Garrison have been explained and are clearly understood.		
6. Policies and procedures covering classified, secure, or Privacy Act data, as addressed in the Fort Belvoir Garrison Telework Policy have been discussed and are clearly understood.		
7. Requirements for adequate and safe office space and/or area have been discussed, and the employee certified that requirements are met.		
8. Performance and conduct expectations have been discussed and are understood.		
9. Employee understands that the supervisor may terminate employee participation, in accordance with established administrative procedures and union-negotiated agreements.		
10. Employee has participated in training.		
11. Supervisor has participated in training.		
12. Telework Agreement has been completed and signed.		
EMPLOYEE'S SIGNATURE	DATE	
SUPERVISOR'S SIGNATURE	DATE	
REMARKS:		

SUPERVISOR'S TELEWORK POSITION / EMPLOYEE ELIGIBILITY GUIDE		
1. Position Title	2. Series	
3. Grade	4. Position Description Number	5. Office Symbol
6. Eligibility Evaluator (Name & Title)	3. Name of Current Incumbent	

SECTION A. POSITION ELIGIBILITY CRITERIA

Instructions:

- Base the below determination on the current duties of the position. This determination may change if the duties change. (e.g. special projects, details)
- Conduct this analysis based on the position duties rather than job title, series, type of appointment, work schedule or incumbent.

QUESTIONS	YES	NO
1. Does the position require the incumbent to report in person daily to the official worksite?		
2. Does the position currently require continuous on-the-job training or constant supervision?		
3. Does the position require daily use of special facilities or equipment that the organization cannot provide or is not available at the alternative worksite.		
4. Does the position contain tasks that require extensive face-to-face contact that cannot otherwise be achieved via email, telephone, or similar electronic means with:		
a. Supervisor(s) / Manager(s)?		
b. Colleagues / team members?		
c. Customers?		
d. The public?		
5. Does the position contain tasks that require daily access to material/equipment that cannot be moved from the traditional worksite or accessed outside of the traditional worksite such as unique reference material, sensitive information, or classified information.		
6. Does the position contain tasks that require daily access to systems / networks / applications that cannot be accessed at the alternative worksite?		
7. Would the performance of the position tasks at the alternative worksite result in measurably lowering the level of service provided to customers? (e.g. Would result in delays in processing work, stacking of essential workload to be performed on a telework day, or inhibiting customer access to the employee)		

- If the answer is YES to ANY of the above questions, the position is NOT eligible for telework. Skip to section C to document the decision.
- If the answer is NO to ALL of the above questions, the position is eligible for telework. Continue with section B.

SECTION B. EMPLOYEE ELIGIBILITY CRITERIA

- Complete this section only if the position eligibility has been established and the position is encumbered.

1. Is the incumbent's performance currently rated below the Success/Valued Performer level?		
2. Does the incumbent have a current leave restriction letter or a written reprimand due to misconduct or poor performance?		
3. Has the incumbent received a suspension or demotion for misconduct or poor performance within the past two years?		
• If the answer to ALL of the questions in Section B is NO, the employee is eligible to telework. • If the answer to one or more of the questions in Section B is YES, the employee is not eligible to telework. • Document the appropriate determination in Section C.		
SECTION C. DETERMINATION		
Position is eligible for telework		
Employee is eligible for telework		

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Future Growth Projections

C

This Appendix contains the future growth projections for Fort Belvoir that are referenced in ***Section 2 Existing and Emerging Conditions*** and based on the preferred alternative (Option 2) of the Environmental Impact Statement. This option assesses all the known short-term and long range programmed projects and assumes additional growth at both FBNA and on Main Post.

Table C.1. EIS Option 2 - Short Range and Long Range Projects		
FBNA and Main Post	PN	Assumptions
Post-BRAC Population	39,381	Population counts shown are based on ASIP data generated on January 2012 for FBNA and the Main Post The number reflects 39,381 PN presently assigned to Belvoir and includes 360 Air Force and Navy personnel associated with FBCH; the numbers should be considered approximate for planning purposes.
2011 to 2017		
Year (Occupancy)		SRC Programmed Projects
FY 11	182	2-124 CDCs, Temporary Training Compound, ACP, Underground SWM, Shoppette with Gas, Main Post PX
FY 12	528	AAFES Car Wash, PX Demo, Named Brand Restaurant, Golf Course Reconfiguration, PAL 400 Area, PAL East of Belvoir Rd, NICoE, NMUSA Roads and Infrastructure, INSCOM Ph 1, Mulligan Road Ph 2, Fisher House 1, Replace SP Fire Station, USO, Car Care Center, Expand DAAF Fire Station, Pet Care Center, MOB, Concession Stand, NGA Canine Training - Rest Facility, CDC, Family Travel Camp, Utility Privatization - Not Mapped
FY 13	75	Fairfax County School Expansion, SCIF Ph 2, NMUSA Ph 1
FY 14	699	Commissary, 249th Battalion HQ, 29th Infantry HQ, SCIF Ph 3, NMUSA Ph 2, DLA Visitor Control Center, Fisher House, Family Travel Camp Ph 2
FY 15	30	Retail Fuel Point, NMUSA Ph 3
FY 16*	30	Multipurpose Fields, NMUSA Ph 4
FY 17	2,011	Construct Barracks, OSEG, Ballfield Replacement, Secure Admin Facility, INSCOM Ph 4, Religious Education Center, INSCOM Warehouse, NEC, 911th Engineering Company, Vehicle Maintenance Shop, Aviation Hangar
	3,555	Estimated growth from 2011 to 2017
2017 to 2030		
Area		Long Range Projects
1 LNP	1,200	800 PN in 2 buildings added in OCAR block plus 400 PN adjacent to 29th Infantry
2 1400 Area	1,330	Secure Admin Campus - workforce reflects net increase (does not include 1,888 PN currently at Belvoir)
3 Grays Hill	100	Medical Office Building, Fisher House - reserves planned for MWR rec area
4 DeWitt Area	1,100	Administrative (HQ), Medical Office
5 SP Town Center	400	Administrative (HQ), AAFES, and Community Uses
6 Ind. Area	200	Low density warehouse and supporting admin uses
7 Community Support Center	200	Administrative (HQ), AAFES, and Community Uses
8 200 Area	200	Administrative (HQ), Parking Deck
9 DLA Area	1,000	McNamara Administrative Center, Parking Deck
10 FBNA (East)	7,500	84 developable acres for Secure Admin Campus and Support Facilities
	13,230	Estimated growth from 2018 to 2030
Total	**56,166**	**Population projected by 2030**

Notes:

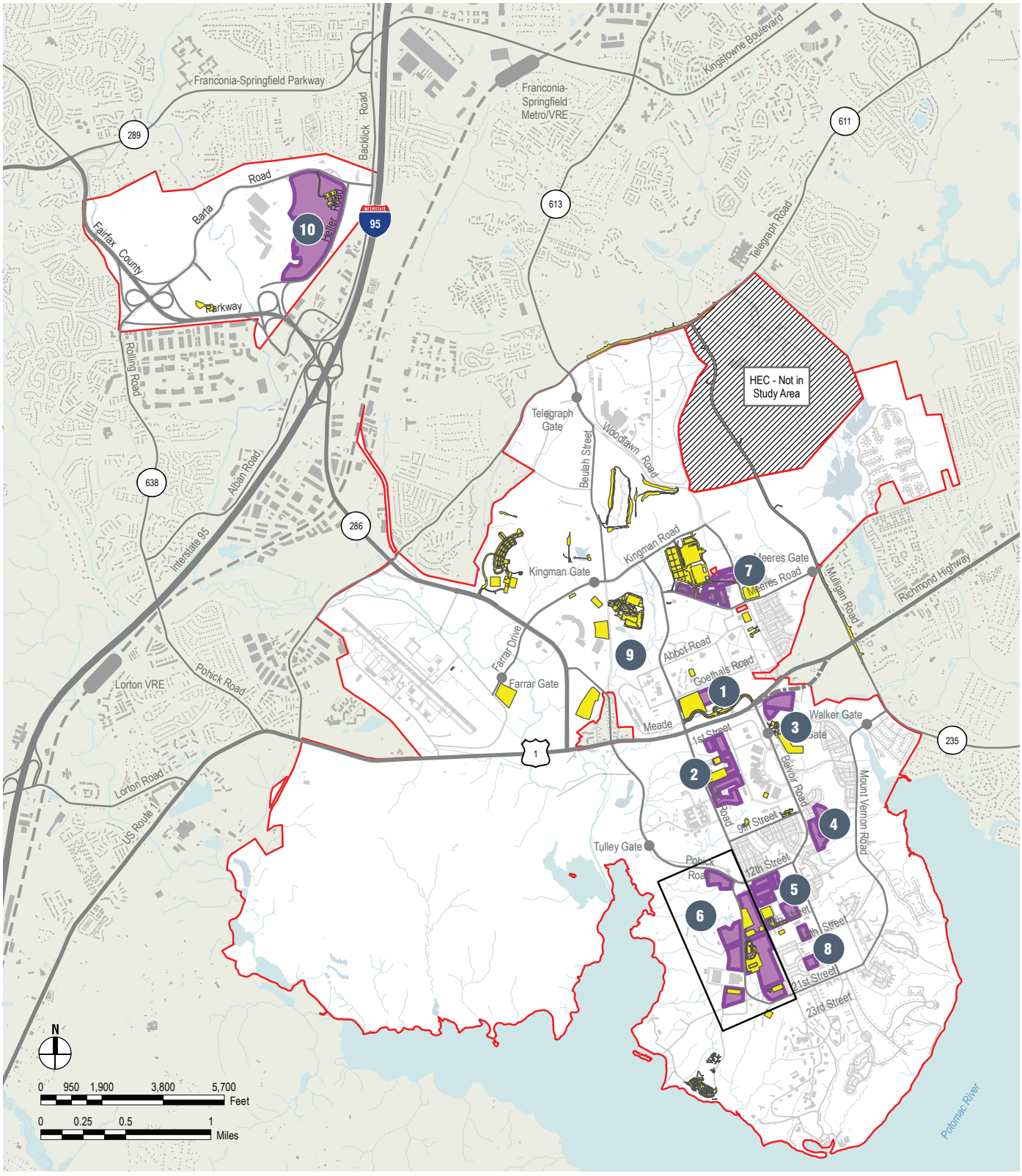
1. The population estimates shown above reflect Fort Belvoir's workforce and do not include transient populations such as students (DAU), visitors (Museum, Hospital, PX/Commissary, Army Lodging) and residential populations. The facilities, services, and infrastructure requirements needed to support the total population needs (permanent and transient) are considered in the LRC and will be addressed in the EIS for the Master Plan.

2. The following FY11 and FY12 SRC programmed projects are under construction or are under contract and will start construction in FY12. They include: FBNA North Post CDCs, Shoppette with Gas Station, OSEG Temporary, Mulligan Road, Fisher House, USO, Family Travel Camp.

3. Workforce Population Estimates are based on known Long Range Projects, expected demand (unknown projects) and available land.

4. Farrar Bridge Replacement has been completed and removed as a SRC project. Communications Building Re-Siting has been located in an existing facility and has also been removed as a SRC project.

Figure C.1 Short Range and Long Range Projects Alternative Map



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Commuter Survey Documents

D

This Appendix contains the following survey documents as discussed in ***Section 3 - Survey Assessment:***

- **2011 Fort Belvoir Commuter Survey Questionnaire.** This survey was presented in an online format that streamlined the 26 questions and responses in an easy-to-understand format with embedded links to click on for more information.
- **2011 Commuter Survey Data.** This data is presented in the format of each question followed by a table, chart, and/or map of the responses.
- **2013 Fort Belvoir Commuter Survey Questionnaire.** This survey was distributed in an online format with 30 questions. Approximately 3,100 responses were received.
- **2013 Commuter Survey Results.** This data is presented in the format of each question, followed by a table, chart, and/or map of the responses received.

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2011 Commuter Survey D1

This Commuter Survey is part of the Fort Belvoir Transportation Management Program (TMP) to broaden the range of commuting alternatives available to all Fort Belvoir employees and personnel. To accomplish this, we need to know about your current travel activities between home and work. Understanding the needs and challenges of your daily commute is a very important element towards improving our quality of life at Fort Belvoir. Your unique situations and opinions are important to us, so we encourage you to be frank with your answers. This survey is 26 questions and should take 5 to 10 minutes to complete.

Due to on-going roadway construction activities on the installation, we ask that as you take the survey please answer the questions for TYPICAL work days, not for any adjustments you might have had to make to accommodate temporary road construction. Thank you in advance for your participation in the survey. All responses are anonymous.

COMMUTING CHOICES:

1. For a TYPICAL work week, please indicate the main mode of transportation that you use to travel between home and work for each day of the week. (1 choice per day):

	Monday	Tuesday	Wednesday	Thursday	Friday
Drive Alone					
Carpool					
Vanpool					
Metrorail					
VRE Rail					
REX Public Bus					
Fairfax Connector Public Bus					
Private Bus (Quick Bus or other)					
Bicycle					
Walk					
Motorcycle					
Telework					
Do not report to work (day off)					

2. What are your greatest challenges during your current commute to Fort Belvoir? (check up to 3 choices)
   - o Traffic congestion on the roadways
   - o Traffic congestion at the gates
   - o Lack of convenient, nearby transit to my home
   - o Lack of direct access between the installation and VRE/Metrorail stations
   - o Lack of convenient public bus service to and from the installation
   - o Time delays associated with multiple transfers (car, rail, bus, shuttle, etc.)
   - o Carpool/vanpool logistical issues (forming, maintaining, or timing of ridesharing)
   - o Hard to find available parking at my worksite

- Unsafe/difficult/distance to bike and walk
- Inflexible work schedule
- Lack of housing options near Fort Belvoir to relocate to
- The daily stress of driving variables (unsafe drivers, construction, accidents, etc.)
- Other challenges:_____

3. Assuming that your commute trip experience continues as it is now, how likely are you to CHANGE the way you commute in the next three years (i.e. change mode of travel, change leave time, relocate closer to work, etc.)?
   - Very likely
   - Maybe
   - Not likely

4. What is your main reason(s) for not carpooling, vanpooling, taking transit, biking, or walking to Fort Belvoir? (check up to 3 choices):
   - Parking is available at my worksite
   - Takes longer than driving alone
   - Costs more than driving alone
   - Don't live near a bus stop or rail station
   - Lack of nearby and convenient park and ride facilities for carpool, vanpool, or slugging
   - Public transportation services are not reliable enough
   - Lack of mid-day mobility options (i.e. shuttle) to get around the installation once I am at work
   - Don't know anyone with whom to share the ride or to form a carpool/vanpool
   - Don't like to depend on others for a ride
   - Need my car for business travel during work hours
   - Need my car for personal errands during work hours
   - Need my car to take my children to and from daycare, school, or other functions
   - Need my car to do errands before or after work
   - My work schedule is inconsistent
   - I have a physical disability
   - Other reasons: _____
   - Does not apply – I currently carpool, vanpool, take transit, bike, or walk to work

5. What would encourage or cause you to begin to carpool or vanpool to Fort Belvoir? (check up to 3 choices):
   - Preferential parking available for carpools and vanpools at my worksite
   - Limited available parking for my personal vehicle at my worksite
   - Separate lane (HOV lane) at gates for carpools/vanpools
   - Help finding people with whom to share the ride
   - More flexible work hours (start and end times) each day
   - Predictable and convenient access from my workplace to the Fort Belvoir shuttle to use during the day
   - Access to a vehicle for business purposes during work
   - Use of bike-share or other transportation share programs for personal errands during work

- Guaranteed Ride Home in case of emergencies or unscheduled overtime
- Child care facilities at or near work site and child-friendly amenities in carpools and vanpools
- Increased subsidy ($) for carpool and/or vanpool program
- Other solutions: _____
- I do not wish to carpool or vanpool at this time
- Does not apply – I currently carpool, vanpool, take transit, bike, or walk to work

6. What would encourage or cause you to begin or continue to use public transit for your commute to Fort Belvoir? (check up to 3 choices)
   - Limited available parking for my personal vehicle at my worksite
   - More flexible work hours (start and end times) each day
   - Use of Telework or Compressed Schedule so I'm only commuting to Fort Belvoir 2-4 days per week
   - Increased subsidy ($) for transit fares
   - Help finding bus or rail services to meet my schedule
   - Convenient shuttle service from my workplace to the rail station or bus stop
   - Convenient access from my workplace to the Fort Belvoir shuttle to use during work hours
   - Access to a vehicle for business purposes during work
   - Use of bike-share or other transportation share programs for personal errands during work
   - Guaranteed Ride Home in case of emergencies or unscheduled overtime
   - Sale of transit passes at the work site
   - Child care facilities at or near work site
   - Other solutions: _____
   - I do not wish to ride transit at this time
   - Does not apply – I currently carpool, vanpool, take transit, bike, or walk to work

7. What would encourage or cause you to begin or continue to walk or ride a bicycle to Fort Belvoir? (check up to 3 choices)
   - Limited available parking for my personal vehicle at my worksite
   - Improved bicycle routes and trails to work
   - Secure, convenient bicycle parking racks or lockers at my worksite
   - Showers and clothing lockers at my worksite
   - Bicycle and safety equipment provided by the installation (i.e. a bike-share)
   - More flexible work hours (start and end times) each day
   - Use of Telework or Compressed Schedule so I'm only commuting to Fort Belvoir 2-4 days per week
   - Convenient access from my workplace to the Fort Belvoir shuttle to use during work hours
   - Access to a vehicle for business purposes during work
   - Use of bike-share or other transportation share programs for personal errands during work
   - Guaranteed Ride Home in case of emergencies or unscheduled overtime
   - Relocating my residence closer to Fort Belvoir
   - Other solutions: _____
   - I do not wish to walk or ride a bicycle to work at this time
   - Does not apply – I currently carpool, vanpool, take transit, bike, or walk to work

DAILY TRAVEL DETAILS:

NOTE: In this section, TYPICAL refers to activities that you normally do 3-5 times per week.

8. Approximately how many minutes does it typically take you to travel FROM HOME TO WORK (one way)?
    - o <5 minutes
    - o 5-10 minutes
    - o 10-20 minutes
    - o 20-30 minutes
    - o 30-45 minutes
    - o 45-60 minutes
    - o 60-90 minutes
    - o 90-120 minutes
    - o 120+ minutes

9. Approximately what time do you typically arrive at work?
    - o Before 0500
    - o 0500-0530
    - o 0530-0600
    - o 0600-0630
    - o 0630-0700
    - o 0700-0730
    - o 0730-0800
    - o 0800-0830
    - o 0830-0900
    - o 0900-0930
    - o 0930-1000
    - o After 1000
    - o Varies: My start time is not the same, it changes more than 2 times per week on most weeks.
    - o Other: My start time does not conform to the options provided.

10. What gate do you typically use to enter Fort Belvoir in the morning *(if needed, refer to map in Question 26 for gate names and locations)*?
    - o Kingman Gate
    - o Telegraph Gate
    - o Tulley Gate
    - o Pence Gate
    - o Walker Gate
    - o Farrar Gate
    - o I work at Fort Belvoir North Area (FBNA)
    - o I reside on Fort Belvoir
    - o Varies: I do not enter the same gate more than 2 times per week, most weeks.

11. Approximately what time do you typically leave work?
    - Before 1400
    - 1400-1430
    - 1430-1500
    - 1500-1530
    - 1530-1600
    - 1600-1630
    - 1630-1700
    - 1700-1730
    - 1730-1800
    - 1800-1830
    - 1830-1900
    - After 1900
    - Varies: My leave time is not the same more than 2 times per week, most weeks.
    - Other: My leave time does not conform to the options provided.

12. What gate do you typically use to leave Fort Belvoir in the afternoon *(if needed, refer to map in Question 26 for gate names and locations)*?
    - Kingman Gate
    - Telegraph Gate
    - Tulley Gate
    - Pence Gate
    - Walker Gate
    - Farrar Gate
    - Meeres Gate
    - I work at Fort Belvoir North Area (FBNA)
    - I reside on Fort Belvoir
    - Varies: I do not leave the same gate more than 2 times per week, most weeks.

13. Approximately how many minutes does it typically take you to travel FROM WORK TO HOME (one way)?
    - <5 minutes
    - 5-10 minutes
    - 10-20 minutes
    - 20-30 minutes
    - 30-45 minutes
    - 45-60 minutes
    - 60-90 minutes
    - 90-120 minutes
    - 120+ minutes

14. Do you typically make any additional stops on your way to/from work? (Check all that apply.)
    - Child daycare, school, or other functions
    - Work related
    - Personal business
    - Meal or snack
    - Shopping
    - Recreational
    - I do not typically make any stops on my way to/from work

15. Do you typically make any mid-day trips during work hours? (Check all that apply.)
    - Personal errands (e.g. lunch) *within* the installation
    - Personal errands (e.g. lunch) *outside* the installation
    - Business travel (e.g. meetings) *within* the installation
    - Business travel (e.g. meetings) *outside* the installation
    - I do not typically make mid-day trips during work hours

AWARENESS:

16. Are you aware that as of August 2011, Fort Belvoir runs an internal circulator shuttle, as shown on the following map?
    - Yes, and I have ridden it
    - Yes, but I have not yet ridden it
    - No

17. Are you aware that both REX and Fairfax Connector run public bus service into Fort Belvoir, as shown on the following map? As of September 2011, this includes the Eagle Express (Fairfax Connector Route 335) to Franconia-Springfield Metro, as well as Route 171 to the Lorton VRE and REX along Richmond Highway (Route 1).
    - Yes
    - No

18. Are you aware that Fort Belvoir hosts Commuter Fairs throughout the year?
    - Yes, I have attended
    - Yes, but I have not attended
    - No, I was not aware

19. Are you aware that Fort Belvoir hosts a rideshare website to provide information on commuting options that are available to Fort Belvoir personnel and employees, such as starting a carpool or vanpool (http://www.belvoir.army.mil/rideshare/)?
    - Yes
    - No

20. Are you aware of regional commuter benefits, such as: financial incentive for government employees that use mass transit and vanpooling; and the Guaranteed Ride Home program (available up to 4 times per year)?

- Yes
- No

21. If a new gate, called Lieber Gate, to the North Post from Route 1 is built directly across from the existing Pence Gate/Belvoir Road intersection, how likely are you to use this Gate as part of your typical daily commute (*if needed, refer to map in Question 26 for gate names and locations)*?
    - Very likely
    - Maybe
    - Not likely

EMPLOYEE INFORMATION:

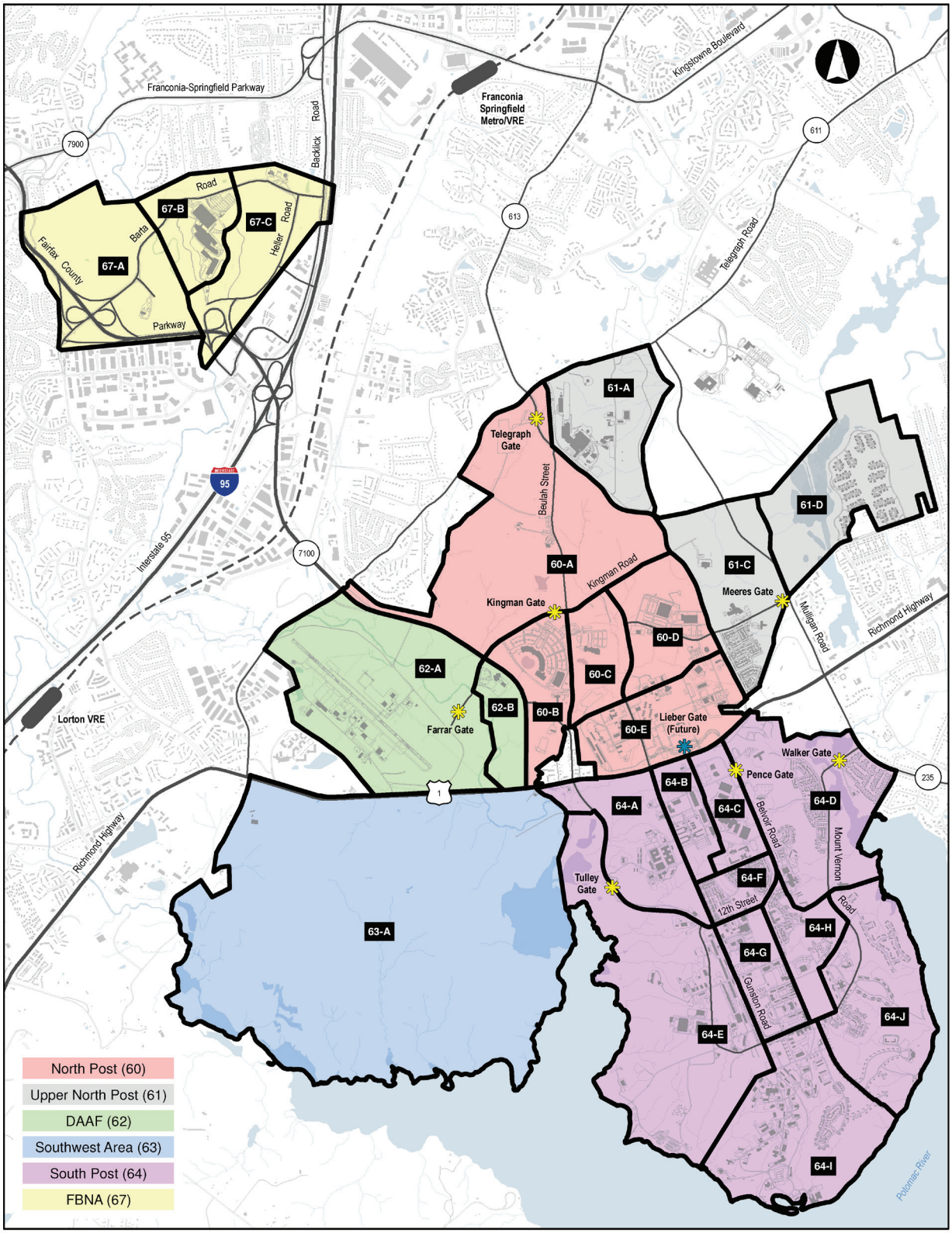
22. Please enter your current home zip code:

23. What is your daily employment status?
    - Active Duty Military or Military Reservist on Duty
    - DoD Civilian
    - Contractor
    - Other: _____

24. Is Fort Belvoir your current place of employment?
    - Yes, I currently work at Fort Belvoir
    - No, but I/my agency is being relocated to Fort Belvoir
    - No, I do not work at Fort Belvoir

25. What office/agency do you work for?
    - (*IDROPDOWN LIST OF AGENCIES TO SELECT FROM)*

Question 26. In which area shown on this map do you work?

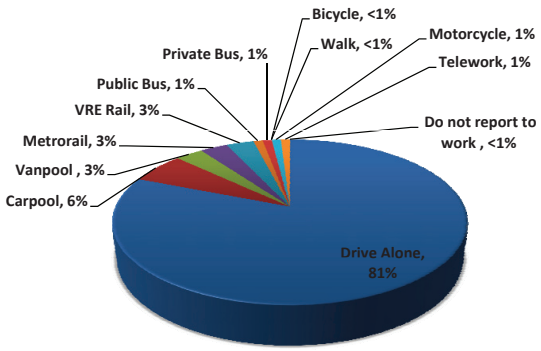


2011 Fort Belvoir
Commuter Survey Results

ATKINS

Question 1. For a TYPICAL work week, please indicate the main mode of transportation that you use to travel between home and work for each day of the week. (1 choice per day)

	Monday	Tuesday	Wednesday	Thursday	Friday
Drive Alone	81.5%	81.5%	81.4%	81.6%	79.3%
Carpool	5.0%	5.7%	5.5%	5.5%	4.5%
Vanpool	2.9%	3.0%	2.9%	3.0%	2.5%
Metrorail	2.6%	2.7%	2.6%	2.8%	2.6%
VRE Rail	2.6%	2.9%	2.9%	2.9%	2.9%
REX Public Bus	0.4%	0.5%	0.5%	0.5%	0.5%
Fairfax Connector Public Bus	0.4%	0.5%	0.4%	0.5%	0.5%
Private Bus	0.7%	0.7%	0.7%	0.8%	0.7%
Bicycle	0.3%	0.4%	0.4%	0.3%	0.3%
Walk	0.0%	0.1%	0.1%	0.1%	0.1%
Motorcycle	0.9%	1.0%	0.9%	0.9%	1.0%
Telework	0.8%	0.6%	0.9%	0.8%	1.5%
Do not report to work (day off)	1.8%	0.5%	0.8%	0.6%	3.9%



Note: chart is based on an average of the shaded cells of Tuesday, Wednesday, and Thursday responses only

Question 1. *MODE-SPLITS CONTINUED*

INSTALLATION-WIDE RESPONSES	
Tuesday, Wednesday, Thursday AVERAGE	
TOTAL	*6173*
Drive Alone	81%
Carpool	6%
Vanpool	3%
Metrorail	3%
VRE Rail	3%
REX Public Bus	0.5%
Fairfax Connector Public Bus	0.5%
Private Bus	1%
Bicycle	<1%
Walk	<1%
Motorcycle	1%
Telework	1%
Do not report to work (day off)	<1%
	100%

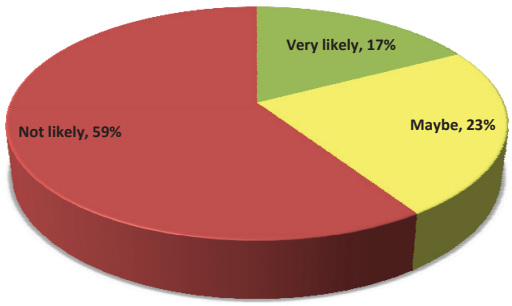
MAIN POST RESPONSES ONLY	
Tuesday, Wednesday, Thursday AVERAGE	
TOTAL	*3763*
Drive Alone	82%
Carpool	5%
Vanpool	2.5%
Metrorail	2%
VRE Rail	3%
REX Public Bus	1%
Fairfax Connector Public Bus	1%
Private Bus (Quick Bus or other)	1%
Bicycle	<1%
Walk	<1%
Motorcycle	1%
Telework	1%
Do not report to work (day off)	0.5%
	100%

FBNA RESPONSES ONLY	
Tuesday, Wednesday, Thursday AVERAGE	
TOTAL	*2410*
Drive Alone	80%
Carpool	7%
Vanpool	4.0%
Metrorail	4%
VRE Rail	2%
REX Public Bus	0%
Fairfax Connector Public Bus	0%
Private Bus (Quick Bus or other)	1%
Bicycle	<1%
Walk	<1%
Motorcycle	1%
Telework	<1%
Do not report to work (day off)	1.0%
	100%

Question 2. What are your greatest challenges during your current commute to Fort Belvoir? (check up to 3 choices)

Response Options:	**%:**
Traffic congestion on the roadways	59%
Traffic congestion at the gates	36%
The daily stress of driving variables (unsafe drivers, construction, accidents, etc.)	31%
Hard to find available parking at my worksite	31%
Lack of convenient, nearby transit to my home	18%
Other challenges	12%
Time delays associated with multiple transfers (car, rail, bus, shuttle, etc.)	11%
Lack of direct access between the installation and VRE/Metrorail stations	10%
Lack of convenient public bus service to and from the installation	8%
Unsafe/difficult/distance to bike and walk	7%
Inflexible work schedule	6%
Carpool/vanpool logistical issues (forming, maintaining, or timing of ridesharing)	6%
Lack of housing options near Fort Belvoir to relocate to	2%

Question 3. Assuming that your commute trip experience continues as it is now, how likely are you to CHANGE the way you commute in the next three years (i.e. change mode of travel, change leave time, relocate closer to work, etc.)?



Question 4. What is your main reason(s) for not carpooling, vanpooling, taking transit, biking, or walking to Fort Belvoir? (check up to 3 choices)

Response Options:	%:
Takes longer than driving alone	40%
My work schedule is inconsistent	23%
Don't live near a bus stop or rail station	21%
Don't like to depend on others for a ride	17%
Need my car to do errands before or after work	16%
Other reasons	15%
Don't know anyone with whom to share the ride or to form a carpool/vanpool	12%
Need my car to take my children to and from daycare, school, or other functions	12%
Does not apply – I currently carpool, vanpool, take transit, bike, or walk to work	12%
Need my car for business travel during work hours	11%
Costs more than driving alone	10%
Lack of nearby and convenient park and ride facilities for carpool, vanpool, or slugging	10%
Public transportation services are not reliable enough	9%
Lack of mid-day mobility options (i.e. shuttle) to get around the installation once I am at work	9%
Parking is available at my worksite	7%
Need my car for personal errands during work hours	4%
I have a physical disability	2%

Question 5. What would encourage or cause you to begin to carpool or vanpool to Fort Belvoir? (check up to 3 choices)

Response Options:	%:
I do not wish to carpool or vanpool at this time	44%
Guaranteed Ride Home in case of emergencies or unscheduled overtime	19%
Help finding people with whom to share the ride	18%
More flexible work hours (start and end times) each day	12%
Does not apply – I currently carpool, vanpool, take transit, bike, or walk to work	11%
Increased subsidy ($) for carpool and/or vanpool program	10%
Other solutions	8%
Predictable and convenient access from my workplace to the Fort Belvoir shuttle to use during the day	7%
Separate lane (HOV lane) at gates for carpools/vanpools	7%
Access to a vehicle for business purposes during work	6%
Preferential parking available for carpools and vanpools at my worksite	3%
Limited available parking for my personal vehicle at my worksite	3%
Child care facilities at or near work site and child-friendly amenities in carpools and vanpools	3%
Use of bike-share or other transportation share programs for personal errands during work	2%

Question 6. What would encourage or cause you to begin or continue to use public transit for your commute to Fort Belvoir? (check up to 3 choices)

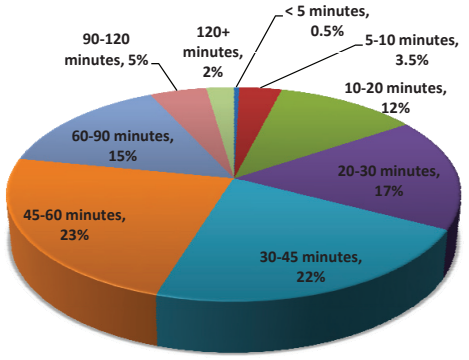
Response Options:	%:
I do not wish to ride transit at this time	38%
Use of Telework or Compressed Schedule so I'm only commuting to Fort Belvoir 2-4 days per week	20%
Convenient shuttle service from my workplace to the rail station or bus stop	19%
Increased subsidy ($) for transit fares	14%
Guaranteed Ride Home in case of emergencies or unscheduled overtime	13%
Other solutions	13%
Help finding bus or rail services to meet my schedule	11%
Does not apply – I currently carpool, vanpool, take transit, bike, or walk to work	10%
More flexible work hours (start and end times) each day	8%
Convenient access from my workplace to the Fort Belvoir shuttle to use during work hours	7%
Access to a vehicle for business purposes during work	4%
Sale of transit passes at the work site	3%
Limited available parking for my personal vehicle at my worksite	3%
Use of bike-share or other transportation share programs for personal errands during work	2%
Child care facilities at or near work site	2%

Question 7. What would encourage or cause you to begin or continue to walk or ride a bicycle to Fort Belvoir? (check up to 3 choices)

Response Options:	%:
I do not wish to walk or ride a bicycle to work at this time	55%
Improved bicycle routes and trails to work	16%
Does not apply – I currently carpool, vanpool, take transit, bike, or walk to work	11%
Relocating my residence closer to Fort Belvoir	10%
Other solutions	8%
Showers and clothing lockers at my worksite	7%
Use of Telework or Compressed Schedule so I'm only commuting to Fort Belvoir 2-4 days per week	5%
Secure, convenient bicycle parking racks or lockers at my worksite	4%
Guaranteed Ride Home in case of emergencies or unscheduled overtime	4%
More flexible work hours (start and end times) each day	2%
Bicycle and safety equipment provided by the installation (i.e. a bike-share)	2%
Access to a vehicle for business purposes during work	2%
Convenient access from my workplace to the Fort Belvoir shuttle to use during work hours	1%
Use of bike-share or other transportation share programs for personal errands during work	1%
Limited available parking for my personal vehicle at my worksite	1%

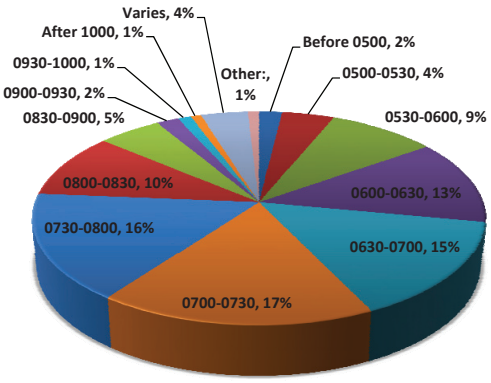
Question 8. Approximately how many minutes does it typically take you to travel FROM HOME TO WORK (one way)?

Response Options:	%:
< 5 minutes	0.5%
5-10 minutes	3.5%
10-20 minutes	12%
20-30 minutes	17%
30-45 minutes	22%
45-60 minutes	23%
60-90 minutes	15%
90-120 minutes	5%
120+ minutes	2%



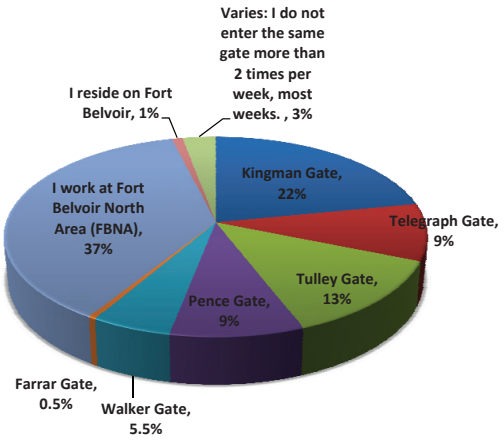
Question 9. Approximately what time do you typically arrive at work?

Response Options:	%:
Before 0500	2%
0500-0530	4%
0530-0600	9%
0600-0630	13%
0630-0700	15%
0700-0730	17%
0730-0800	16%
0800-0830	10%
0830-0900	5%
0900-0930	2%
0930-1000	1%
After 1000	1%
Varies: My start time is not the same, it changes more than 2 times per week on most weeks.	4%
Other: My start time does not conform to the options provided.	1%



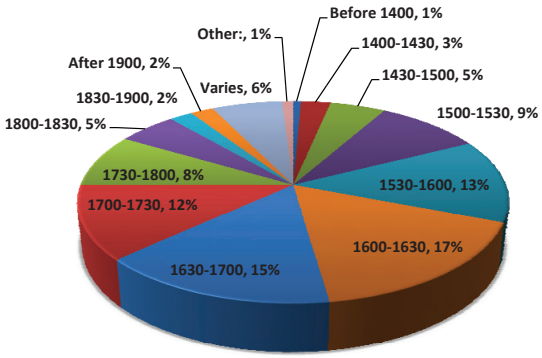
Question 10. What gate do you typically use to enter Fort Belvoir in the morning (if needed, refer to map in Question 26 for gate names and locations)?

Response Options:	%:
Kingman Gate	22%
Telegraph Gate	9%
Tulley Gate	13%
Pence Gate	9%
Walker Gate	5.5%
Farrar Gate	0.5%
I work at Fort Belvoir North Area (FBNA)	37%
I reside on Fort Belvoir	1%
Varies: I do not enter the same gate more than 2 times per week, most weeks.	3%



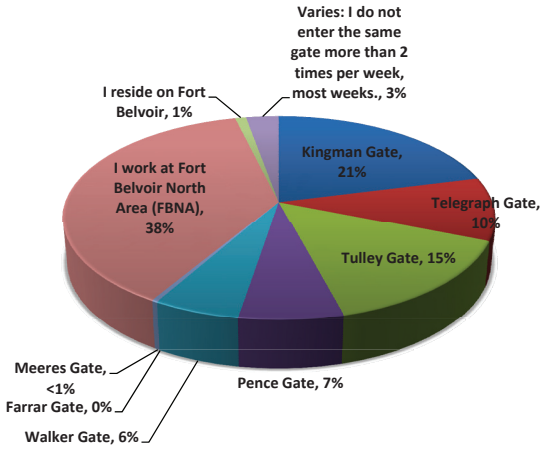
Question 11. Approximately what time do you typically leave work?

Response Options:	%:
Before 1400	1%
1400-1430	3%
1430-1500	5%
1500-1530	9%
1530-1600	13%
1600-1630	17%
1630-1700	15%
1700-1730	12%
1730-1800	8%
1800-1830	5%
1830-1900	2%
After 1900	2%
Varies: My start time is not the same, it changes more than 2 times per week on most weeks.	6%
Other: My start time does not conform to the options provided.	1%



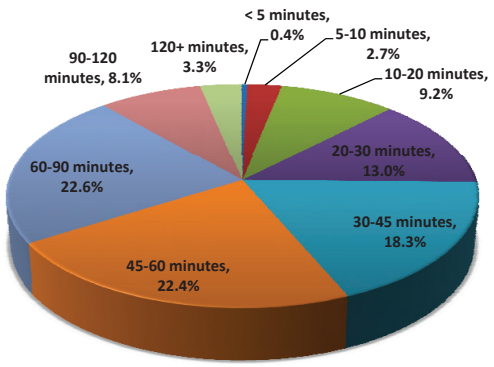
Question 12. What gate do you typically use to leave Fort Belvoir in the afternoon (if needed, refer to map in Question 26 for gate names and locations)?

Response Options:	%:
Kingman Gate	21%
Telegraph Gate	10%
Tulley Gate	15%
Pence Gate	7%
Walker Gate	6%
Farrar Gate	0%
Meeres Gate	<1%
I work at Fort Belvoir North Area (FBNA)	38%
I reside on Fort Belvoir	1%
Varies: I do not enter the same gate more than 2 times per week, most weeks.	3%



Question 13. Approximately how many minutes does it typically take you to travel FROM WORK TO HOME (one way)?

Response Options:	%:
< 5 minutes	0.5%
5-10 minutes	3%
10-20 minutes	9%
20-30 minutes	13%
30-45 minutes	18%
45-60 minutes	22.5%
60-90 minutes	23%
90-120 minutes	8%
120+ minutes	3%



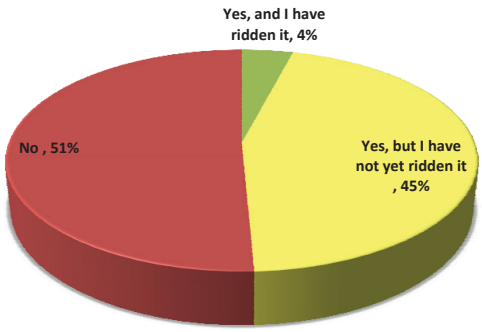
Question 14. Do you typically make any additional stops on your way to/from work? (Check all that apply.)

Response Options:	%:
I do not typically make any stops on my way to/from work	53%
Personal business	27%
Shopping	22%
Child daycare, school, or other functions	15%
Meal or snack	10%
Recreational	6%
Work related	3%

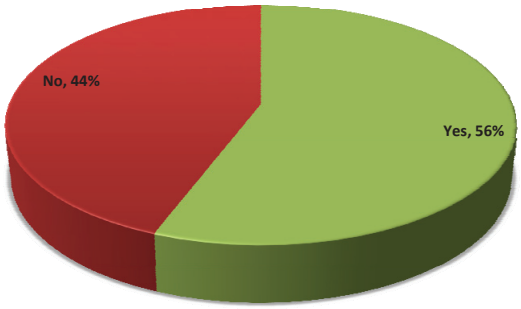
Question 15. Do you typically make any mid-day trips during work hours? (Check all that apply.)

Response Options:	%:
I do not typically make mid-day trips during work hours	60%
Personal errands (e.g. lunch) *outside* the installation	19%
Business travel (e.g. meetings) *outside* the installation	18%
Personal errands (e.g. lunch) *within* the installation	17%
Business travel (e.g. meetings) *within* the installation	9%

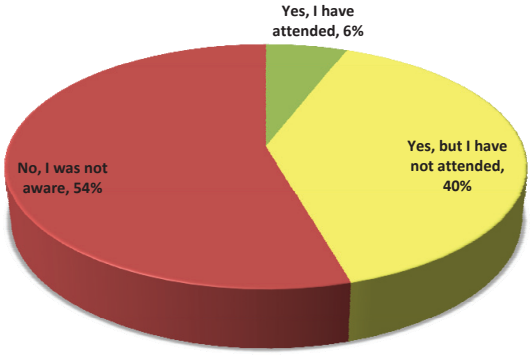
Question 16. Are you aware that as of August 2011, Fort Belvoir runs an internal circulator shuttle, as shown on the following map?



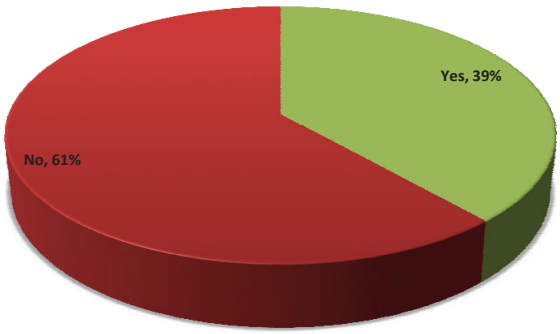
Question 17. Are you aware that both REX and Fairfax Connector run public bus service into Fort Belvoir, as shown on the following map?



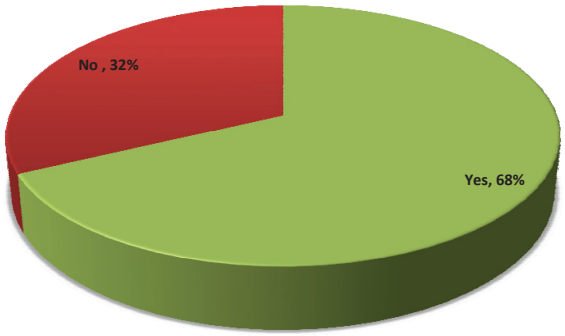
Question 18. Are you aware that Fort Belvoir hosts Commuter Fairs throughout the year?



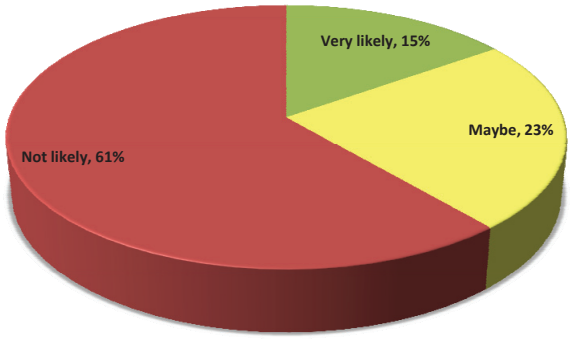
Question 19. Are you aware that Fort Belvoir hosts a rideshare website to provide information on commuting options that are available to Fort Belvoir personnel and employees



Question 20. Are you aware of regional commuter benefits, such as: financial incentive for government employees that use mass transit and vanpooling; and the Guaranteed Ride Home program (available up to 4 times per year)?

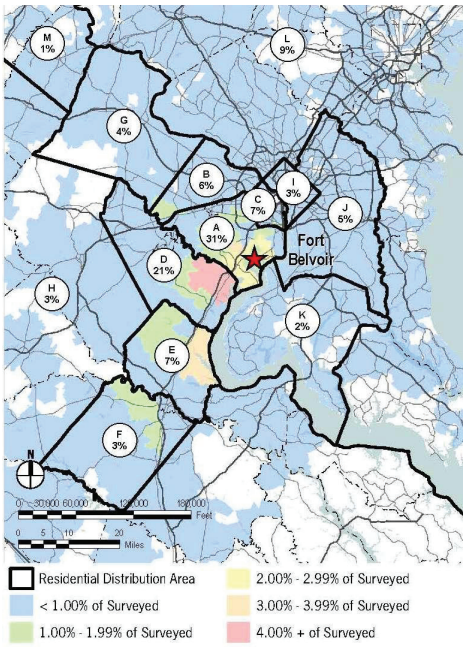


Question 21. If a new gate, called Lieber Gate, to the North Post from Route 1 is built directly across from the existing Pence Gate/Belvoir Road intersection, how likely are you to use this Gate as part of your typical daily commute?



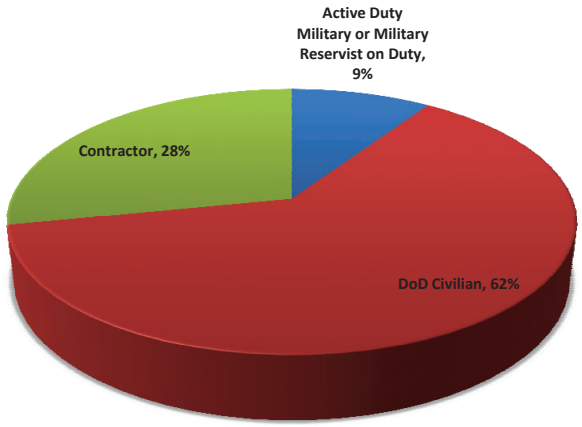
Note: This chart shows the results for Main Post employees only.

Question 22. Please enter your current home zip code.



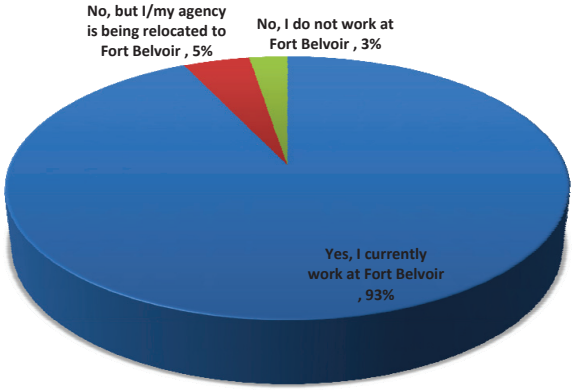
District	Location	Distribution (%)
VIRGINIA		
A	South Fairfax County	31
B	North Fairfax County	6
C	Arlington/Alexandria	7
D	Prince William County	21
E	Stafford County	7
F	Spotsylvania County	3
G	Loudoun County	4
H	Remainder of Virginia	3
WASHINGTON, DC		
I	District of Columbia	3
MARYLAND		
J	Prince George's County	5
K	Charles County	2
L	Remainder of Maryland	9
OUTSIDE DMV METRO AREA		
M	Outside DC/ MD, and VA	1

Question 23. What is your daily employment status?



2011 Fort Belvoir Commuter Survey Data| 24

Question 24. Is Fort Belvoir your current place of employment?



2011 Fort Belvoir Commuter Survey Data| 25

Question 25. What office/agency do you work for?

- Over 150 unique agencies/organizations had at least 1 response (based on UIC #)
- The following agencies had at least 50 responses:

	# Responses:
NATIONAL GEOSPATIAL -INTELLIGENCE AGENCY	2228
DEFENSE THREAT REDUCTION AGENCY (DTRA)	*426*
FORT BELVOIR COMMUNITY HOSPITAL	*387*
HQ INSCOM	*272*
NVESD (incl AERD, T&E Dir & conter res lab)	*239*
DEFENSE ENERGY SUPPORT CENTER (DESC)	*144*
PEO-EIS (PREVIOUSLY STAMIS)	*134*
DEFENSE ACQUISITION UNIVERSITY	*127*
HQ DEF LOGISTICS AGENCY (ARMY ELE - W1A1AA, 2AA, 3AA	*108*
MISSILE DEFENSE AGENCY	*87*
PROJ MGR SOLDIER SYSTEMS (PEO SOLDIER)	*86*
OFFICE CHIEF OF ARMY RESERVES (OCAR)	*80*
OTHER DOD TENANTS (DCEETA, ETC.)	*67*
INTEL & SEC CMD, LOGISTICS SERVICES BRANCH	*54*
OFFICE OF THE ADMINISTRATIVE ASSISTANT TO THE SECRETARY OF THE ARMY	*51*
US ARMY FORCE MGMT SPT AGCY	*51*
USA LEGAL SERVICES	*49*

Question 26. In which area shown on the following map do you work?

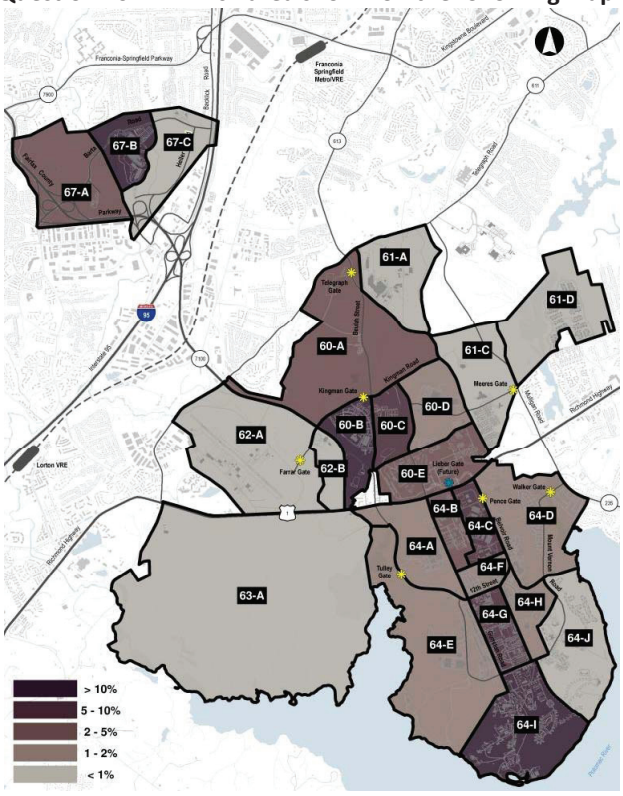


Figure X.X

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2013 Commuter Survey D2

The 2013 Fort Belvoir Commuter Survey was conducted during the summer of 2013. The survey is a useful tool for the Garrison to monitor SOVs and determine how to improve the use of alternative modes of travel. Only one-fifth of the questions corresponded to the previous 2011 Commuter Survey, so direct comparisons are limited. Questions 8, 11, 13, 15, 17, 19, 21, 26, and 30 solicited input from the commuters on the reasons why they choose to use or not use transit and/or rideshare options. Because there were from 300 to 3,000 responses, the Fort Belvoir TDM Coordinator can provide a summary of those responses.

FORT BELVOIR 2013 COMMUTER SURVEY QUESTIONS

1. Do you live on Fort Belvoir?
    - Yes
    - No
2. Do you live on post and someone in your household works off post or at another military installation other than Fort Belvoir?
    - Yes
    - No
3. Do you live off post and commute to Fort Belvoir for work?
    - Yes
    - No
4. Please enter your current home zip code.
5. What office/agency do you work for?
6. Which gate do you use to access Fort Belvoir?
    - Pence
    - Tulley
    - Telegraph
    - Walker
    - Davison Army Airfield
    - Meeres
    - Kingman
    - Lieber
    - Woodlawn
    - NGA Campus – Main Gate
    - NGA Campus – South Gate
    - NGA Campus – West Gate
7. Would you use an internal shuttle system if it were provided at Fort Belvoir? This shuttle system would be operated throughout the duty day and be available to move people around the installation.
    - Yes
    - No
    - Not Applicable
8. If you would not use the internal shuttle system, please explain why.
9. What means of travel do you typically use for your commute?
    - Drive Alone
    - Carpool
    - Vanpool (seven or more passengers)
    - Bus
    - Taxi
    - VA Railway Express

- Metrorail
- Bicycle
- Walk
- Other

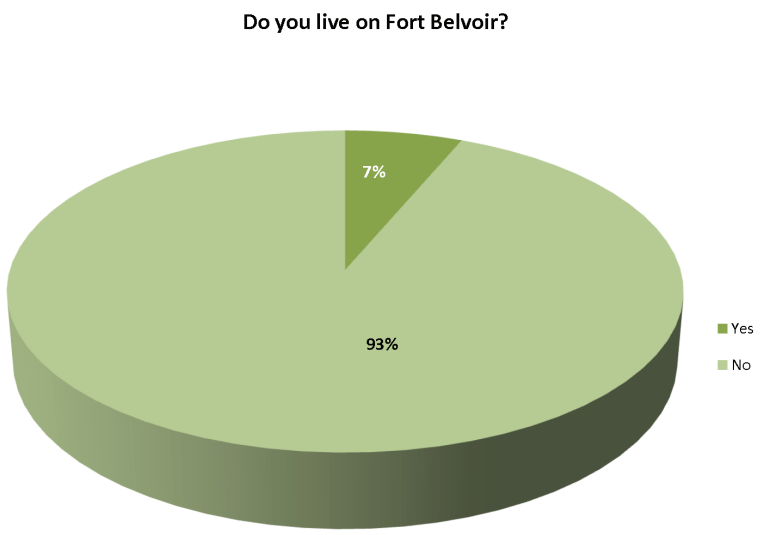
10. Would you use the VRE (Lorton or Springfield Metro Stations) or Metrorail (Springfield station)?
    - I currently use the rail services
    - Yes, I would use the rail services
    - No, I would not use rail services
    - Not Applicable
11. If you would not use the VRE, please explain why.
12. Would you use the regional bus system if it had scheduled stops at drop-off points along the perimeter of Fort Belvoir?
    - I currently use the regional bus system
    - Yes, I would use the regional bus system
    - No, I would not use the regional bus system
    - Not Applicable
13. If you would not use the regional bus system, please explain why.
14. Would you use the regional bus system if it had direct connections between nearby rail stations and drop-off points along the perimeter of Fort Belvoir? An internal shuttle would then distribute passengers throughout the installation.
    - I currently use the regional bus system
    - Yes, I would use the regional bus system
    - No, I would not use the regional bus system
    - Not Applicable
15. If you would not use the regional bus system, please explain why.
16. Would you be willing to rideshare (i.e., carpool or vanpool) with other Fort Belvoir employees if a matching service (website or online bulletin board) was made available?
    - I currently use rideshare
    - Yes, I would be willing
    - No, I would not be willing
    - Not Applicable
17. If you would not rideshare, please explain why.
18. Would you use an alternate mode of travel (carpool, vanpool, public transportation) if an internal shuttle system were provided at Fort Belvoir? This shuttle system would be operated throughout the entire duty day and be available to move people around the installation.
    - Yes
    - No
    - Not Applicable
19. If you would not use an alternate mode of transportation if an internal shuttle system was provided, please explain why.

20. Would you be willing to telecommute if allowed by your employer?
    - Yes
    - Occasionally
    - No
    - Not Applicable
21. If you would not be interested in telecommuting, please explain why.
22. What is your current work schedule?
    - 5/80 – work 40 hours in 5 days
    - 4/40 – work 40 hours in 4 days
    - 9/80 – work 80 hours in 9 days
    - 3/36 – work 36 hours in 3 days
    - Other
23. Please provide your start time.
    - Before 0500
    - 0500-0530
    - 0530-0600
    - 0600-0630
    - 0630-0700
    - 0700-0730
    - 0730-0800
    - 0800-0830
    - 0830-0900
    - 0900-0930
    - 0930-1000
    - After 1000
    - Varies – My start time is not the same; it changes more than 2 times per week on most weeks
    - Other
24. Would you be interested in an alternate schedule for your work week?
    - Yes
    - No
    - Not Applicable
25. (If you answered yes) Please select your preferred schedule:
    - 4/40 – work 40 hours in 4 days
    - 9/80 – work 80 hours in 9 days
    - 3/36 – work 36 hours in 3 days
26. If you would not be interested in an alternate work schedule, please explain why.
27. Are you aware that the government provides financial incentive for government employees who use mass transit, including vanpooling?
    - Yes
    - No

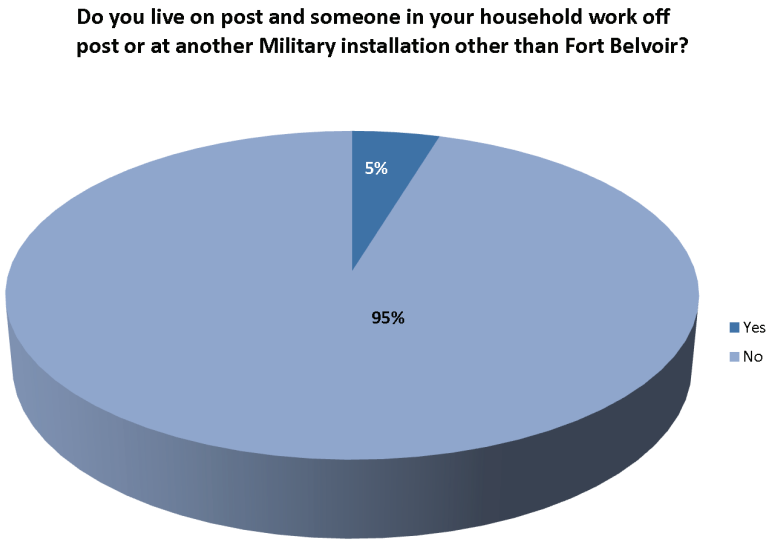
28. Are you aware of the regional Guaranteed Ride Home program offered by Metropolitan Washington Council of Governments (MWCOG)? This service is available up to 4 times per year.
    - Yes
    - No
29. Please select any of the following services you may be interested in (respondents are allowed to select multiple answers):
    - Bicycle Rental
    - Golf cart rental
    - Zipcar rental
    - Mobile lunch vehicles
    - Lunch
    - Other
30. Please provide any additional comments or recommendations that you have to help improve traffic in or around Fort Belvoir.

2013 Fort Belvoir Commuter Survey Results

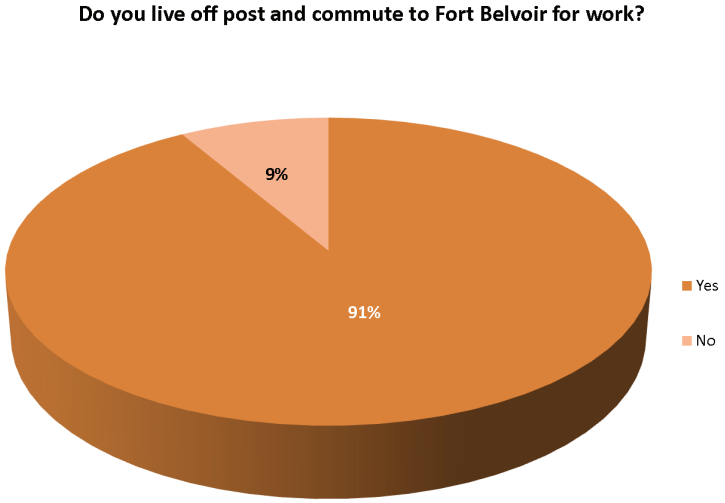
Question 1. Do you live on Fort Belvoir?



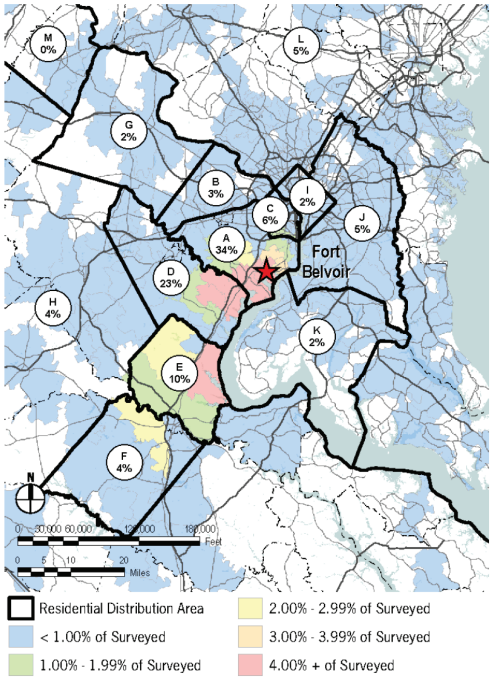
Question 2. Do you live on post and someone in your household works off post or at another military installation other than Fort Belvoir?



Question 3. Do you live off post and commute to Fort Belvoir for work?



Question 4. Please enter your current home zip code.



District	Location	Distribution (%)
VIRGINIA		
A	South Fairfax County	34%
B	North Fairfax County	3%
C	Arlington/Alexandria	6%
D	Prince William County	23%
E	Stafford County	10%
F	Spotsylvania County	4%
G	Loudoun County	2%
H	Remainder of Virginia	4%
WASHINGTON, DC		
I	District of Columbia	2%
MARYLAND		
J	Prince George's County	5%
K	Charles County	2%
L	Remainder of Maryland	5%
OUTSIDE DMV METRO AREA		
M	Outside DC/ MD, and VA	0%

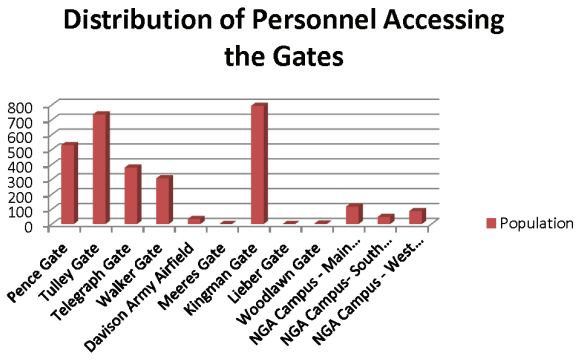
Question 5. What office/agency do you work for?

- Over 80 unique agencies/organizations had at least one response
- The following agencies had at least 50 responses:

Agency	# Responses
Fort Belvoir Community Hospital	419
Defense Logistics Agency	266
National Geospatial-Intelligence Agency – FBNA	232
US Army Garrison – Fort Belvoir	213
PEO Enterprise Information Systems	184
Defense Logistics Agency – Energy	162
Other (Not Listed)	154
U.S. Army Intelligence and Security Command	130
Missile Defense Agency – Headquarters Command Center	89
Defense Acquisition University	84
Night Vision and Electronic Sensors Directorate	78
Defense Threat Reduction Agency/STRATCOM	74
Office of the Chief, Army Reserves (OCAR)	66
North Atlantic Regional Medical Command	65
Rapid Equipping Force (REF)	61
PEO Soldier	57

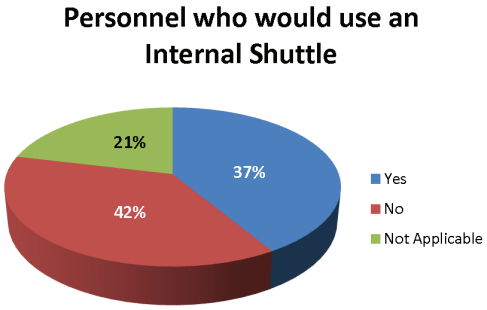
Question 6. Which gate do you use to access Fort Belvoir?

Options	Results	% Responses
Pence	530	17%
Tulley	736	24%
Telegraph	379	12%
Walker	307	10%
Davison Army Airfield	34	1%
Meeres	0	0%
Kingman	794	26%
Lieber	0	0%
Woodlawn	3	<1%
NGA Campus - Main Gate	117	4%
NGA Campus - South Gate	48	1%
NGA Campus - West Gate	87	3%
TOTALS	3,035	100%



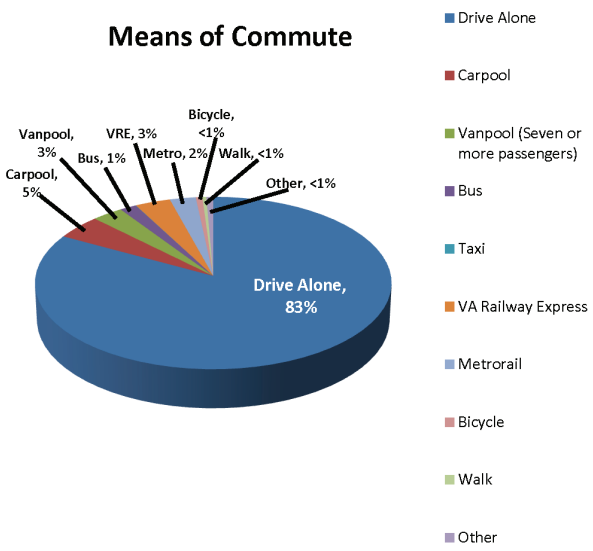
Question 7. Would you use an internal shuttle system if it were provided at Fort Belvoir? This shuttle system would be operated throughout the duty day and be available to move people around the installation.

Options	Results	% Responses
Yes	1,267	37%
No	1,145	42%
Not Applicable	651	21%
TOTALS	3,063	100%



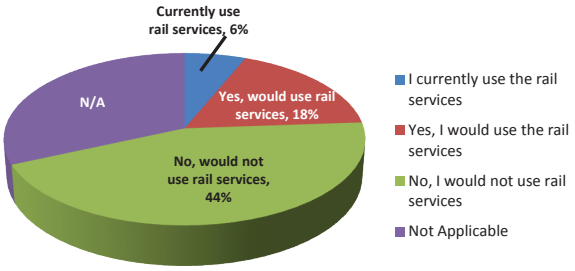
Question 9. What means of travel do you typically use for your commute?

Options	Results	% Responses
Drive Alone	2,572	83%
Carpool	141	5%
Vanpool (7 or more passengers)	95	3%
Bus	51	1%
Taxi	1	<1%
VA Railway Express	108	3%
Metrorail	79	2%
Bicycle	20	<1%
Walk	12	<1%
Other	21	<1%
TOTALS	3,100	100%



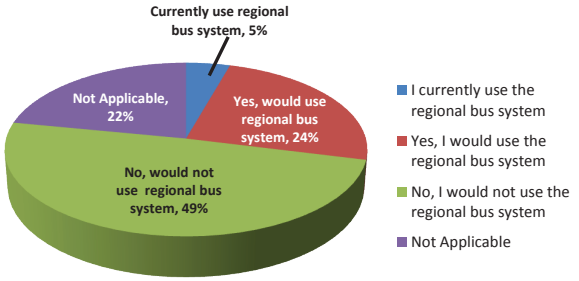
Question 10. Would you use the VRE (Lorton or Springfield Metro Stations) or Metrorail (Springfield Station)?

Options	Results	% Responses
Currently use	191	6%
Yes, would use	543	18%
No, would not use	1,367	44%
Not Applicable	974	32%
TOTALS	3,075	100%



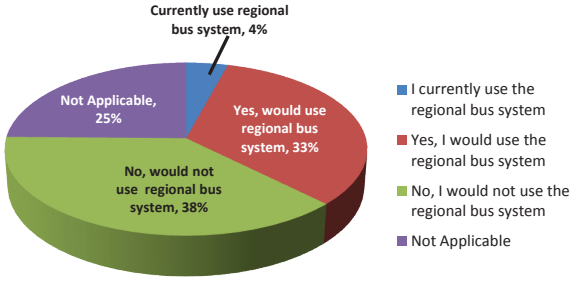
Question 12. Would you use the regional bus system if it had scheduled stops at drop-off points along the perimeter of Fort Belvoir?

Options	Results	% Responses
Currently use	136	5%
Yes, would use	751	24%
No, would not use	1,510	49%
Not Applicable	674	22%
TOTALS	3,071	100%



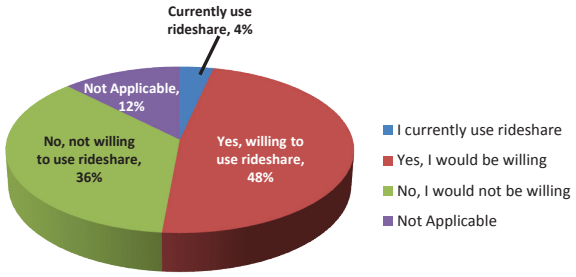
Question 14. Would you use the regional bus system if it had direct connections between nearby rail stations and drop-off points along the perimeter of Fort Belvoir? An internal shuttle would then distribute passengers throughout the installation.

Options	Results	% Responses
Currently use	128	4%
Yes, would use	1,009	33%
No, would not use	1,149	38%
Not Applicable	752	25%
TOTALS	3,038	100%



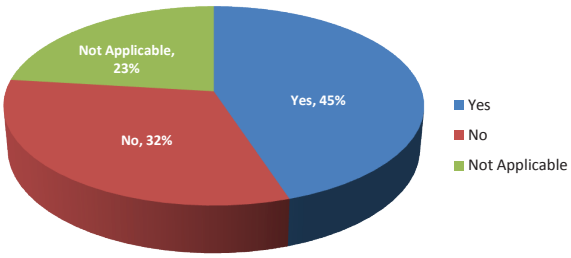
Question 16. Would you be willing to rideshare (i.e., carpool or vanpool) with other Fort Belvoir employees if a matching service (website or online bulletin board) was made available?

Options	Results	% Responses
Currently use	107	4%
Yes, would use	1,466	48%
No, would not use	1,103	36%
Not Applicable	381	12%
TOTALS	3,057	100%



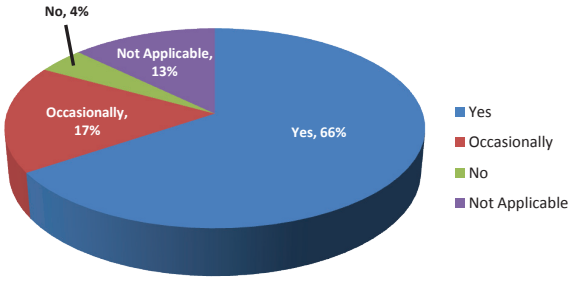
Question 18. Would you use an alternate mode of travel (carpool, vanpool, public transportation) if an internal shuttle system were provided at Fort Belvoir? This shuttle system would be operated throughout the entire duty day and be available to move people around the installation.

Options	Results	% Responses
Yes	1,364	4%
No	971	36%
Not Applicable	701	12%
TOTALS	3,036	100%



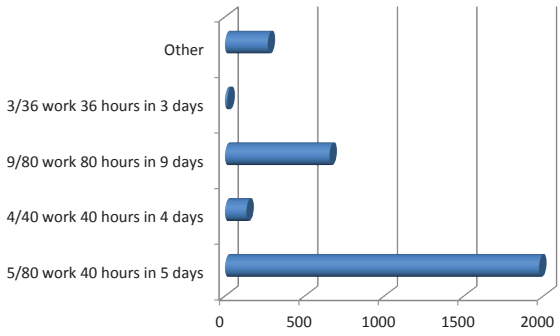
Question 20. Would you be willing to telecommute if allowed by your employer?

Options	Results	% Responses
Yes	2,016	66%
Occasionally	533	17%
No	128	4%
Not Applicable	395	13%
TOTALS	3,072	100%



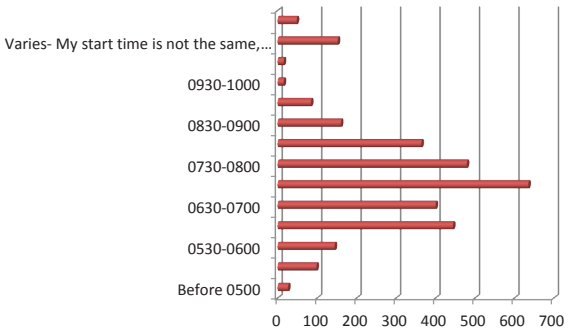
Question 22. What is your current work schedule?

Options	Results	% Responses
5/80 (work 40 hr in 5 days)	1,974	65%
4/40 (work 40 hr in 4 days)	135	4%
9/80 (work 80 hr in 9 days)	657	22%
3/36 (work 36 hr in 3 days)	16	<1%
Other	269	9%
TOTALS	3,051	100%



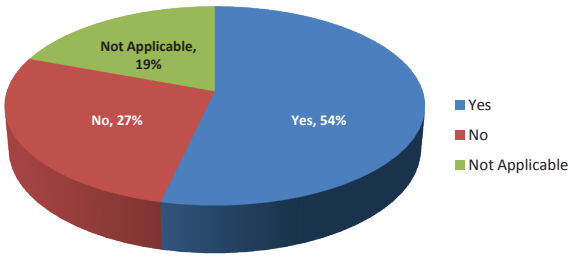
Question 23. Please provide your start time.

Options	Results	% Responses
Before 0500	27	<1%
0500-0530	99	3%
0530-0600	145	5%
0600-0630	445	14%
0630-0700	401	13%
0700-0730	636	20%
0730-0800	480	16%
0800-0830	365	12%
0830-0900	161	5%
0900-0930	85	3%
0930-1000	16	<1%
After 1000	16	<1%
Varies (changes more than 2 times/week)	153	5%
Other	49	1%
TOTALS	3,078	100%



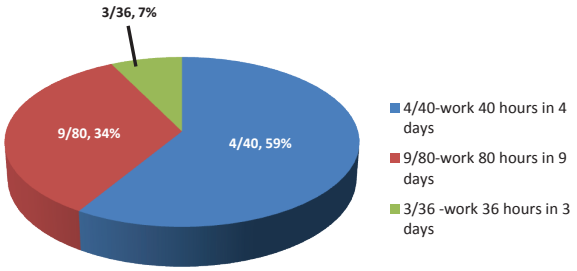
Question 24. Would you be interested in an alternate schedule for your work week?

Options	Results	% Responses
Yes	1,641	54%
No	829	27%
Not Applicable	592	19%
TOTALS	3,062	100%



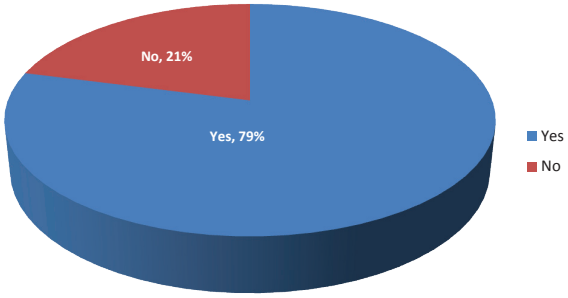
Question 25. (If you answered yes to Question 24) Please select your preferred schedule:

Options	Results	% Responses
4/40 (work 40 hr in 4 days)	1,015	59%
9/80 (work 80 hr in 9 days)	585	34%
3/36 (work 36 hr in 3 days)	127	7%
TOTALS	1,727	100%



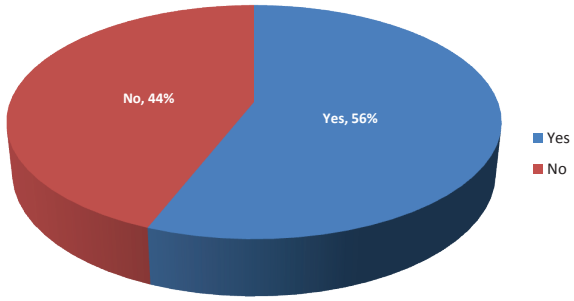
Question 27. Are you aware that the government provides financial incentive for government employees who use mass transit, including vanpooling?

Options	Results	% Responses
Yes	2,411	79%
No	639	21%
TOTALS	3,050	100%



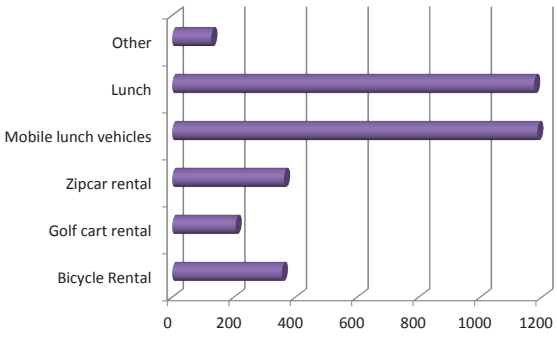
Question 28. Are you aware of the regional Guaranteed Ride Home program offered by Metropolitan Washington Council of Governments (MWCOG)? This service is available up to 4 times per year.

Options	Results	% Responses
Yes	1,714	56%
No	1,348	44%
TOTALS	3,062	100%



Question 29. Please select any of the following services you may be interested in (respondents are allowed to select multiple answers).

Options (multiple answers allowed)	Results
Bicycle Rental	356
Golf cart rental	206
Zipcar rental	363
Mobile lunch vehicles	1,185
Lunch	1,175
Other	127
TOTALS	3,412



Parking Inventory

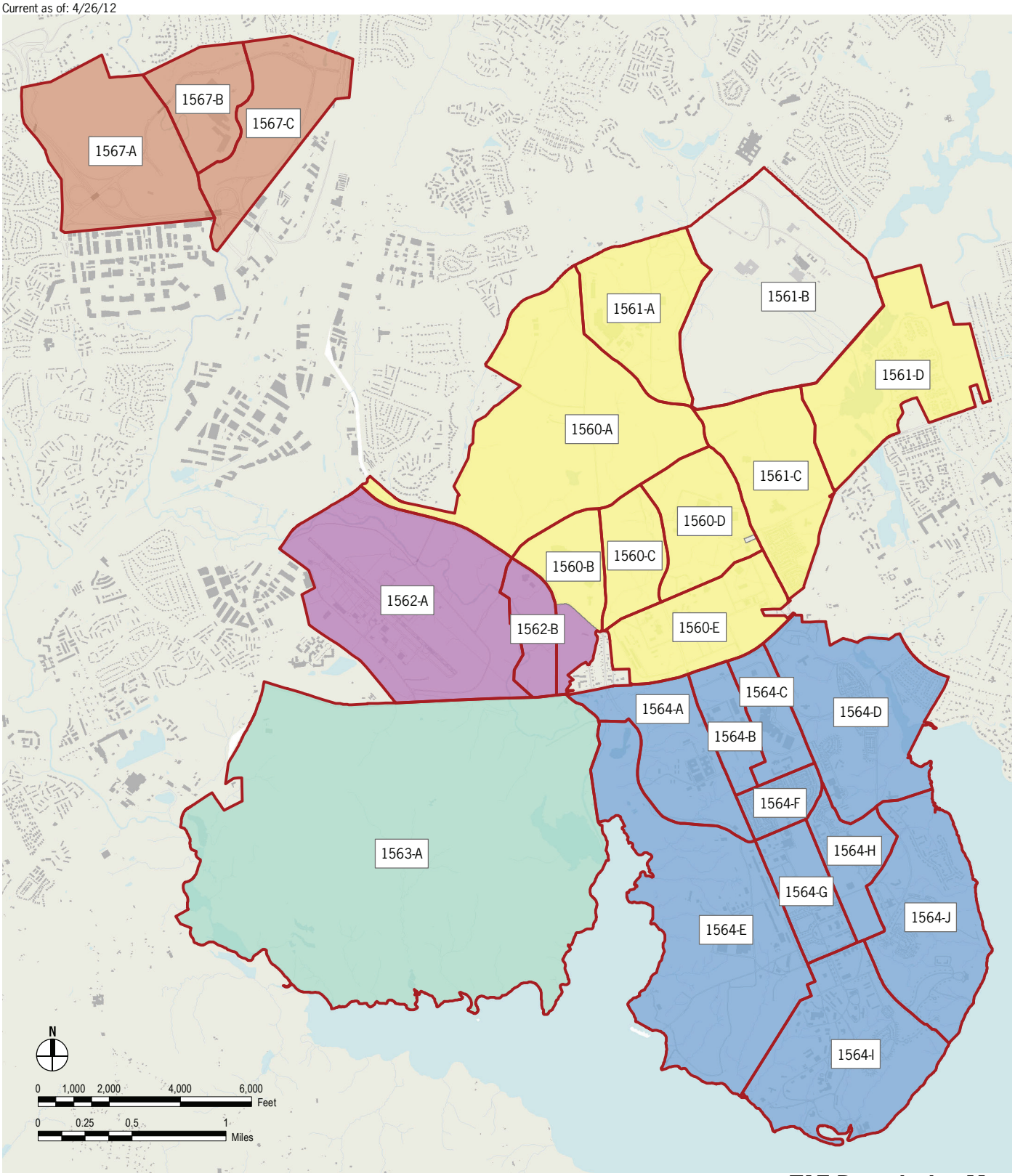
E

This Appendix contains the details of the 2011 physical parking inventory and associated analysis as discussed in ***Section 4 Parking Assessment***. On the following pages, each Traffic Analysis Zone (TAZ) area is presented on a single sheet that includes a map and table that identifies:

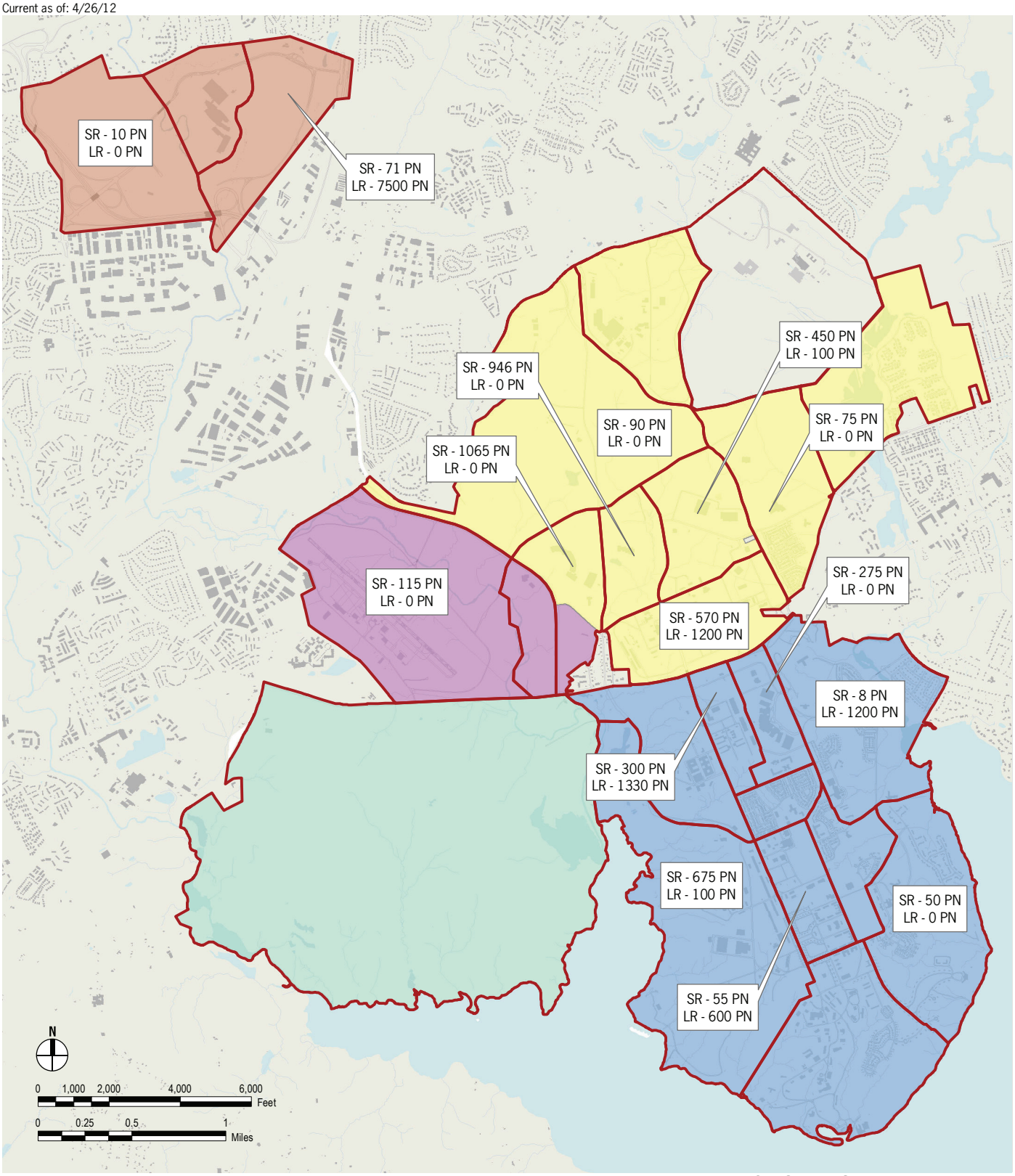
- Parking Information:
  - Each parking area (on-street, parking lot, and parking structure)
  - The total number and type of spaces in each parking area
- Building Information:
  - Building number
  - Building type (community, administrative, etc.)
  - Building mission partner(s)
  - The total number of personnel in each building
- Summary TAZ information:
  - Total PN
  - Total legal parking spaces
  - Overall parking ratio (based on total legal parking spaces divided by total PN)

As stated in Section 1.3 Assumptions, the personnel totals in this TMP document and appendix are a reflection of confirmed building assignments. Note that this slightly differs (~1 percent) from the ASIP data that reflects the total authorized personnel at Fort Belvoir, which is used in the Master Plan and EIS.

Current as of: 4/26/12

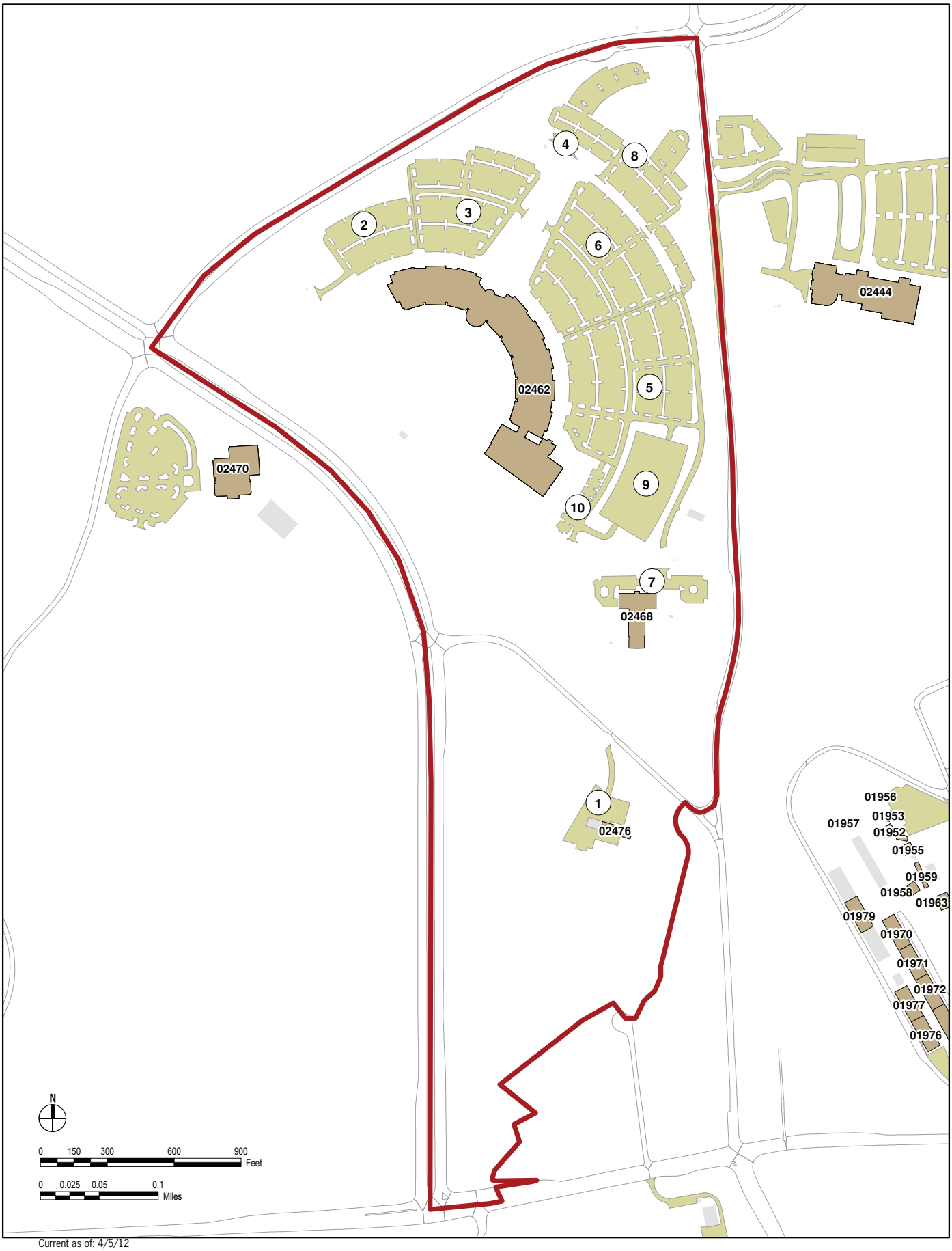


TAZ Boundaries Map



TAZ Boundary
Davison Army Airfield
Fort Belvoir North Area
South Post
Southwest Area
North Post

SRC/LRC Projected PN
SRC: 4,755 PN
LRC: 12,030 PN
Total: 16,785 PN



Current as of: 4/5/12

Summary of TAZ 1560-B:

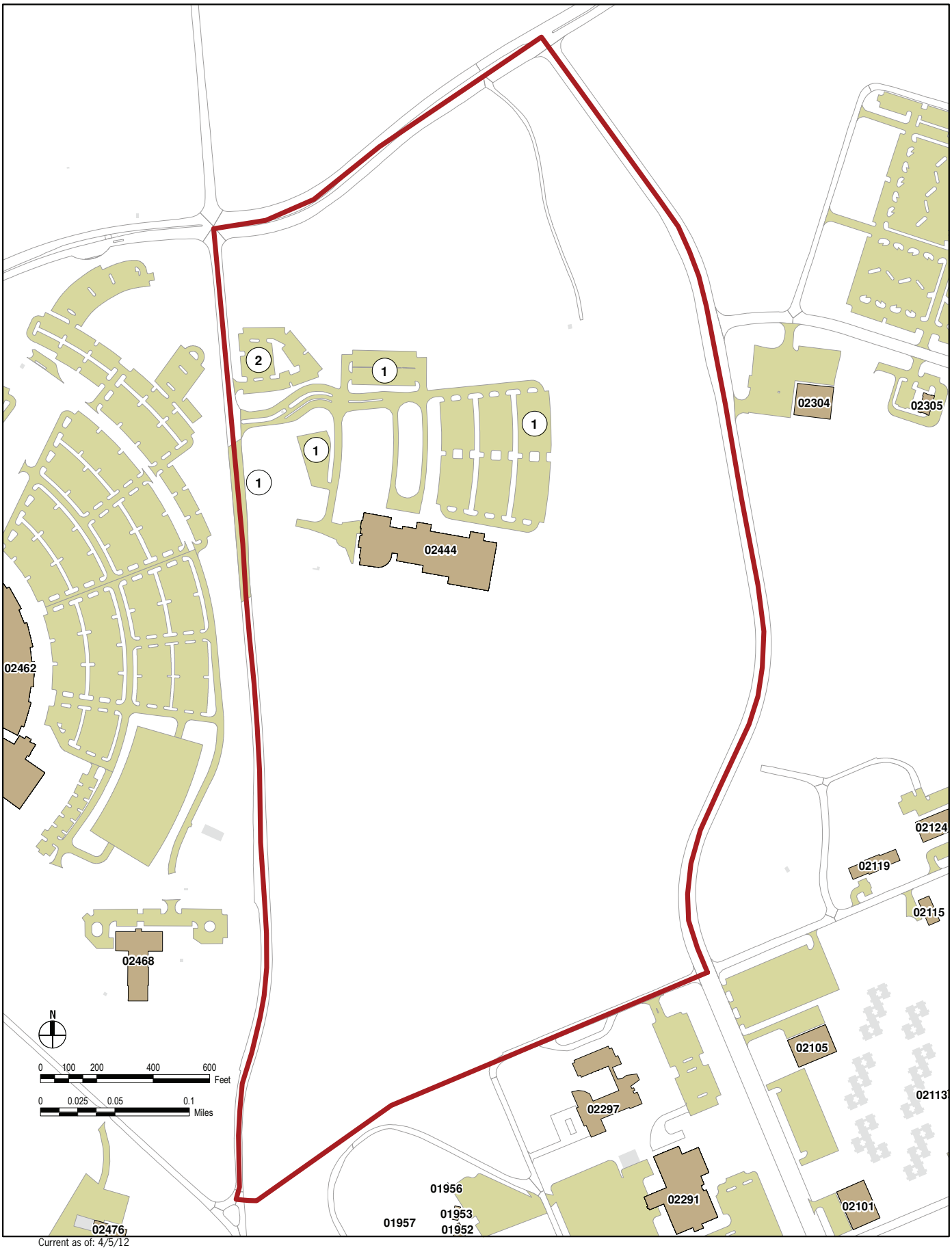
5324 Total PN
3271 Legal Parking Spaces
61% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
02462	DSZAD0	DEFENSE ENTERPRISE SUPPORT (DES) (LA1001, @SZAK6)	1020
02462	W6GWAA	STRATCOM (F3QFJ, N6GWAA, , W6GWNA)	41
02462	W06H07	ITA - DIR OF DEF TELECOM SVC	14
02462	I4VN06	DEFENSE AUTOMATED PRINTING SERVICE (DAPS - DAU/DLA) (DSZSD0, @4VNJZ)	19
02462	N3581A	NAVY PETROLEUM OFFICE	25
02462	M30010	USMC DET - DLA	5
02462	W1KJAA	DEF THREAT REDUCTION AGENCY (!1KJAA, @1KJAA, FBOW, FSS8, FTNK, FTSH, M54008, N32372	1682
02462	W3GHX7	ARMY PETROLEUM	18
02462	DSPAD0	DEFENSE ENERGY SUPPORT CENTER (DESC) (W1A3AA, N62850, FZDR)	736
02462	DSHXD0	DEFENSE NATIONAL STOCKPILE CENTER (DNSC)	61
02462	DD00UA	DEFENSE TECHNICAL INFO CTR (DTIC)	317
02462	HAA770	DEFENCE CONTRACT AUDIT AGENCY (DCAA) (@AA7K8)	160
02462	DD00HC	HQ DEF LOGISTICS AGENCY (ARMY ELE - W1A1AA, W1A2AA, [FH9T, FBWR, FBWF, FZDS], N65	931
02462	W8G7AA	ELE USA ELE HQ DLA S (W8G7YY, W0ZPZG, W6KFDK)	204
02462	FSBM	AIR FORCE PETROLEUM OFFICE (DLA) (FSMB1, @SBM00)	38
02468	<Null>	TBD	30
02476	W40RAA	911TH RESCUE ENGINEER COMP	24

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	54								54	Y	1.1
2	215	12		52					227	Y	2.1
3	365	8		108		6			379	Y	3.9
4	4								4	Y	0.1
5	536	23		216	10	6			575	Y	6.7
6	451	6		146		6			463	Y	5.1
7	85	4							89	Y	0.9
8	470								470	Y	3.9
9	939	17							956	Y	2.5
10	54								54	Y	0.8

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings



Current as of: 4/5/12

Summary of TAZ 1560-C:

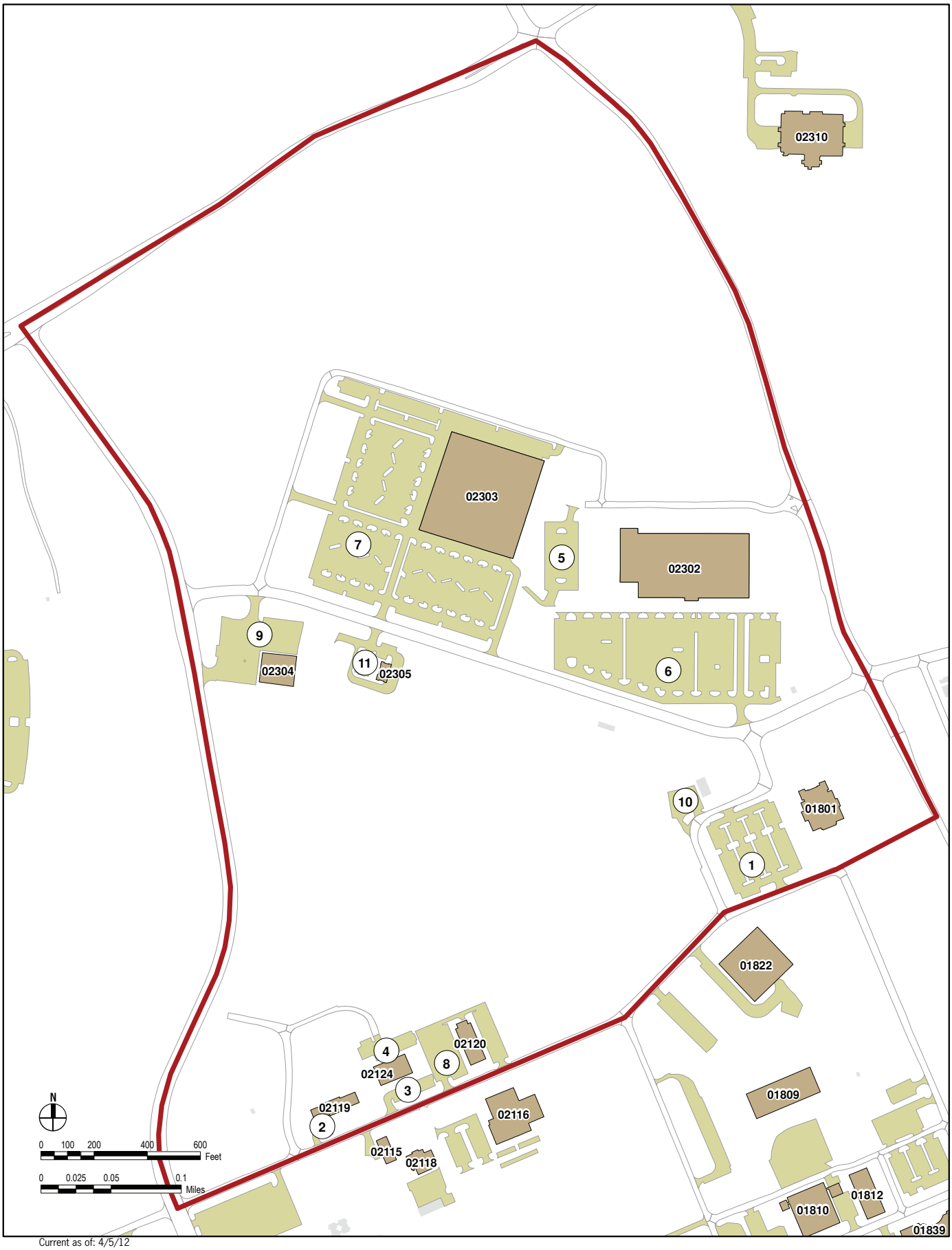
1512 Total PN
813 Legal Parking Spaces
53% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
02444	WNF8X1	1ST BN FLD SPT/VULNERABILITY (!NF8AA)	95
02444	I025/Y	TDY STUDENTS [INSCOM SCHOOL]	5
02444	WNF9X1	2ND IO BN REG COMPUTER EMERGENCY (@NF9L$)	276
02444	WNERR1	1st Intelligence Operations Command (WNERX1, WNER9A, W0ZPJA, W0ZPJJ, !NERAA)	83
02444	XXXXXX	HQ INSCOM (Contractors under FB Contractors)	617
02444	W4AHAA	USAISC-INSCOM (NETCOM)	59
02444	WG7CAA	ARMY NETWORK OPS AND SECURITY CENTER (ANOSC) (WG7C99, WCD29A, WCD2A1, WCD2A2, @G7CL~	210
02444	WNF9R1	2ND BN REG COMPUTER EMERG (WNF99A)	93
02444	WNF8R1	1ST BN FLD SPT/VULNERABILITY (WNF89A, W0ZPJC, W0ZPJL)	74

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	696	22	6	13	56	15		19	808	Y	6.8
2		5	119						5	N	1

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings



Current as of: 4/5/12

Summary of TAZ 1560-D:

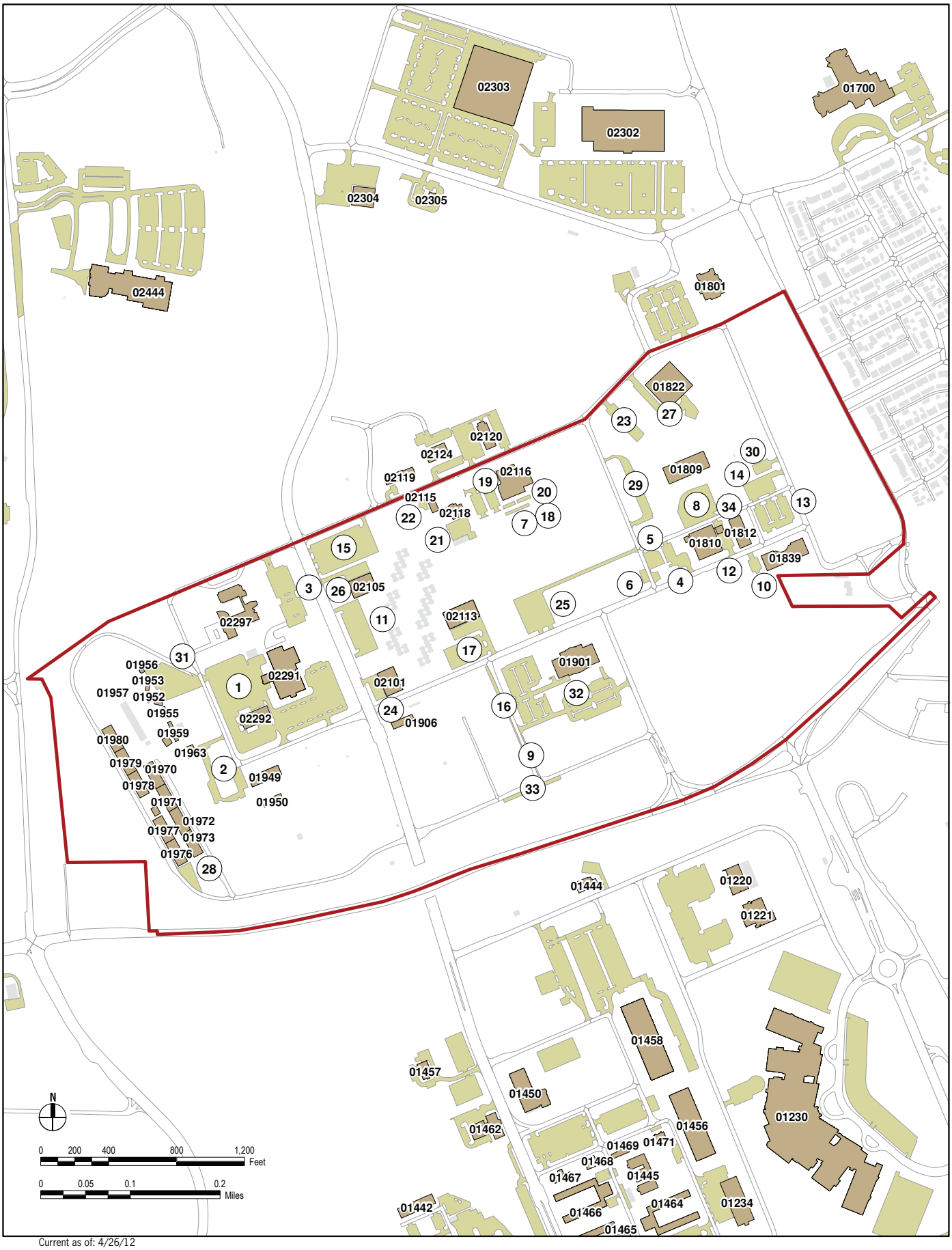
642 Total PN
1836 Legal Parking Spaces
282% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
01801	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	6
02119	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	16
02120	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	4
02124	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	30
02302	W3U4B2	NATIONAL CAP VET SVC-SPT DIST (W3U4B1, RE4001)	10
02302	DCE24F	DEFENSE COMMISSARY AGENCY (@CNEK5)	268
02303	41701	AAFES	280
02303	TBD	AAFES CONCESSIONAIRES	16
02304	41701	AAFES	6
02305	$4VN01	SUNTRUST BANK	6

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	183	8			2				193	N	1.6
2	5	1							6	N	0.1
3	14	2		1	1				17	N	0.2
4				42					0	Y	0.3
5	91								91	N	0.8
6	551	15			10				576	N	5.3
7	658	30			9				697	N	9.1
8	124	2							126	N	1
9	64	3							67	N	1.4
10	34								34	N	0.3
11	28	1							29	N	0.6

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings



Current as of: 4/26/12

Summary of TAZ 1560-E:

2579 Total PN
1887 Legal Parking Spaces
73% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
01809	WZ9902	OTHER ACTIVITIES (WZ9990, W99942, W9995E)	100
01810	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	10
01812	W3YU!B	CENTER MILITARY HISTORY - ARMY MUSEUM (@3YUK[)	39
01822	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	15
01839	W3WCAA	US ARMY CENTER FOR ARMY ANALYSIS (@3WCK{, W3WCNA)	208
01901	W0Z4AA	OFFICE CHIEF OF ARMY RESERVES (OCAR) (W0Z4NA, @0Z4KT)	433
01906	<Null>	ADA	10
01949	W8T413	FIELD MAINTENANCE SHOP #13 (W!VA18, W!VA7V)	17
01949	WV5KAA	29TH ID (L) (WX49AA, W!VA15, W!VA16, W!VA19, W!VA2Q, W!VA4H, W!VA8F)	115
01950	W40RAA	911TH RESCUE ENGINEER COMP	24
01952	N08863	NMCB-23	1
01953	N08863	NMCB-23	1
01954	N08863	NMCB-23	1
01955	N08863	NMCB-23	1
01956	N08863	NMCB-23	1
01957	N08863	NMCB-23	1
01958	N08863	NMCB-23	1
01959	N08863	NMCB-23	1
01963	N08863	NMCB-23	1
01970	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	40
01971	<Null>	PEO SOLDIER	7
01972	<Null>	DTRA	10
01973	<Null>	MDA	10
01976	<Null>	DTRA	0
01977	<Null>	DTRA	15
01978	<Null>	TBD	10
01979	<Null>	DTRA	5
01980	<Null>	TBD	10
01981	<Null>	TBD	10
02101	<Null>	CID	10
02101	<Null>	INSCOM	30
02105	WV5KAA	29TH ID (L) (WX49AA, W!VA15, W!VA16, W!VA19, W!VA2Q, W!VA4H, W!VA8F)	115
02105	W40RAA	911TH RESCUE ENGINEER COMP	24
02113	W6LHAA	PROTECTIVE SVC BATTALION (!6LHAA, !6LHA1)	219
02113	WBZ3AA	521ST MP DET, FB	21
02113	WX56B0	116th MI Co (W!VA17)	69
02113	WCVCAA	212TH MP DET (WCVC99)	74
02115	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	8
02116	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	10
02118	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	292
02291	WRBEAA	165TH QM HHC (WRBE99, W6KF+4))	101
02291	WZFJAA	398TH FINANCE GROUP (W6KJ$9)	40
02291	WSQ7AA	942ND QM PETROLEUM LIAISON	10
02291	WV3QAA	299TH ENG CO (W6KF*Q)	196
02291	W73PAA	11TH BATTALION 80TH REGIMENT (W4PHX3)	56
02291	W73KAA	3D BRIGADE, 104TH TRAINING DIVISION (W4PHX1)	52
02291	W8G8AA	LOGCAP (LOG CIVIL AUG PROGRAM - SPT UNIT (!8G801, W6KFDJ)	75
02291	WS0ZAA	464TH TRANSPORTATION CO. (MEDIUM BOAT) (W6KHZU, W6KFJ!, W6KHZJ)	29
02292	W6KH22	AREA MAINT SPT ACT	20
02297	W8F5AA	260th Regional Training Institution (W!DCZU)	32

TAZ Zone Boundary
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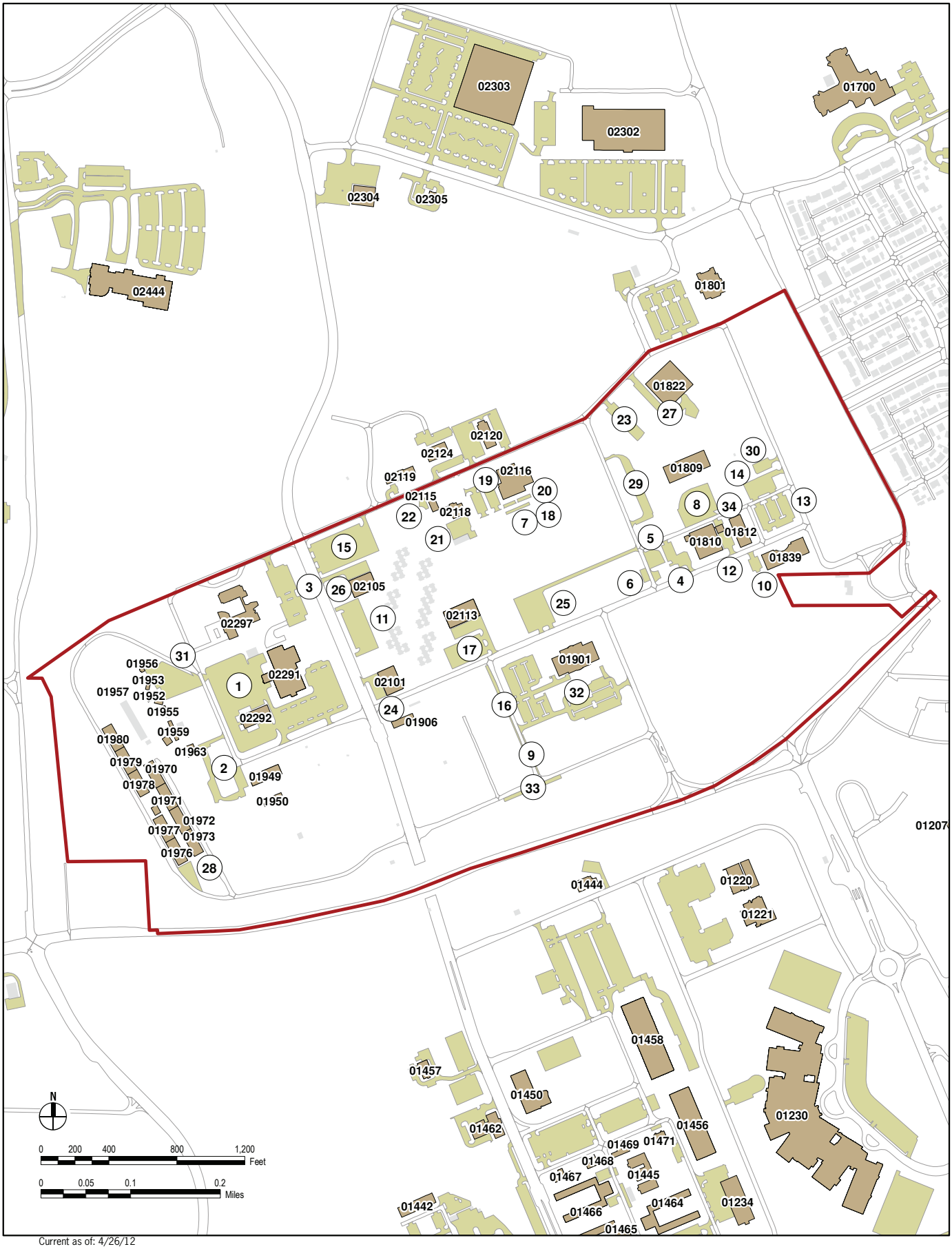
Buildings with Known Populations
Other Existing Buildings



Current as of: 4/26/12

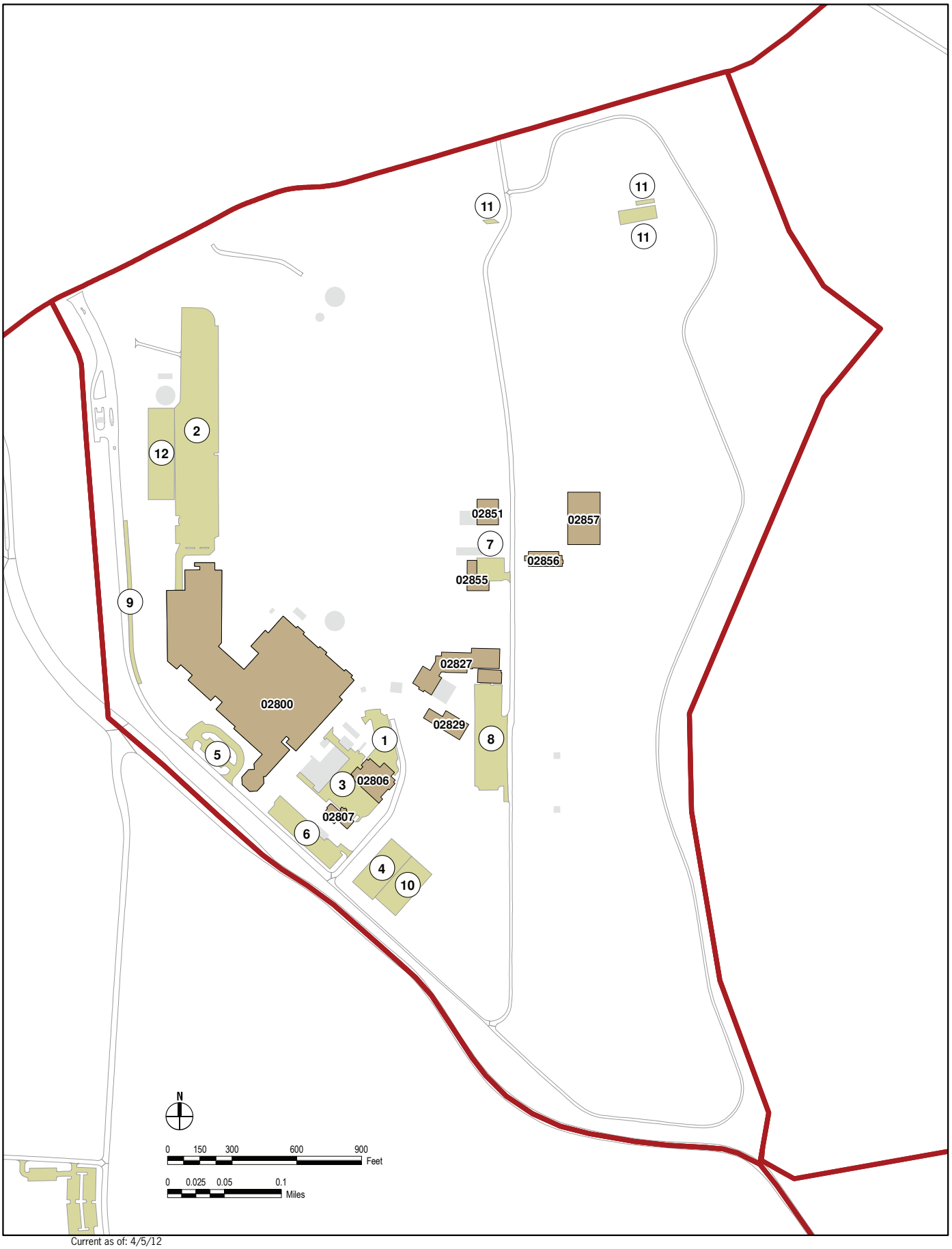
Summary of TAZ 1560-E:

2579 Total PN
1887 Legal Parking Spaces
73% Parking Ratio

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	199	2							201	N	5.2
2	9								9	N	0.8
3	107	5							112	N	1
4	36								36	N	0.3
5	28								28	N	0.3
6	9								9	N	0.1
7	16								16	N	0.1
8	30								30	N	0.9
9	10								10	N	0
10	8	5							13	N	0.1
11	104	6				6			116	N	0.9
12	17								17	N	0.2
13	95								95	N	0.7
14	43								43	N	0.5
15	119	1							120	N	1.6
16	40								40	N	0.2
17	121	4				5			130	N	1.1
18	7								7	N	0
19	54	2							56	N	0.5
20	8								8	N	0
21	22				3				25	N	0.3
22					2				2	N	0.1
23	43								43	N	0.4
24	27								27	N	0.2
25	127								127	N	1.2
26	22	1							23	N	0.3
27	43								43	N	0.6
28	17								17	N	0.2
29	52			19					52	Y	0.6
30	20								20	N	0.2
31	99	2							101	Y	1
32	232	10	35	4		12	3	15	272	N	2.9
33	35								35	N	0.2
34	4								4	N	0

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings



Current as of: 4/5/12

Summary of TAZ 1561-A:

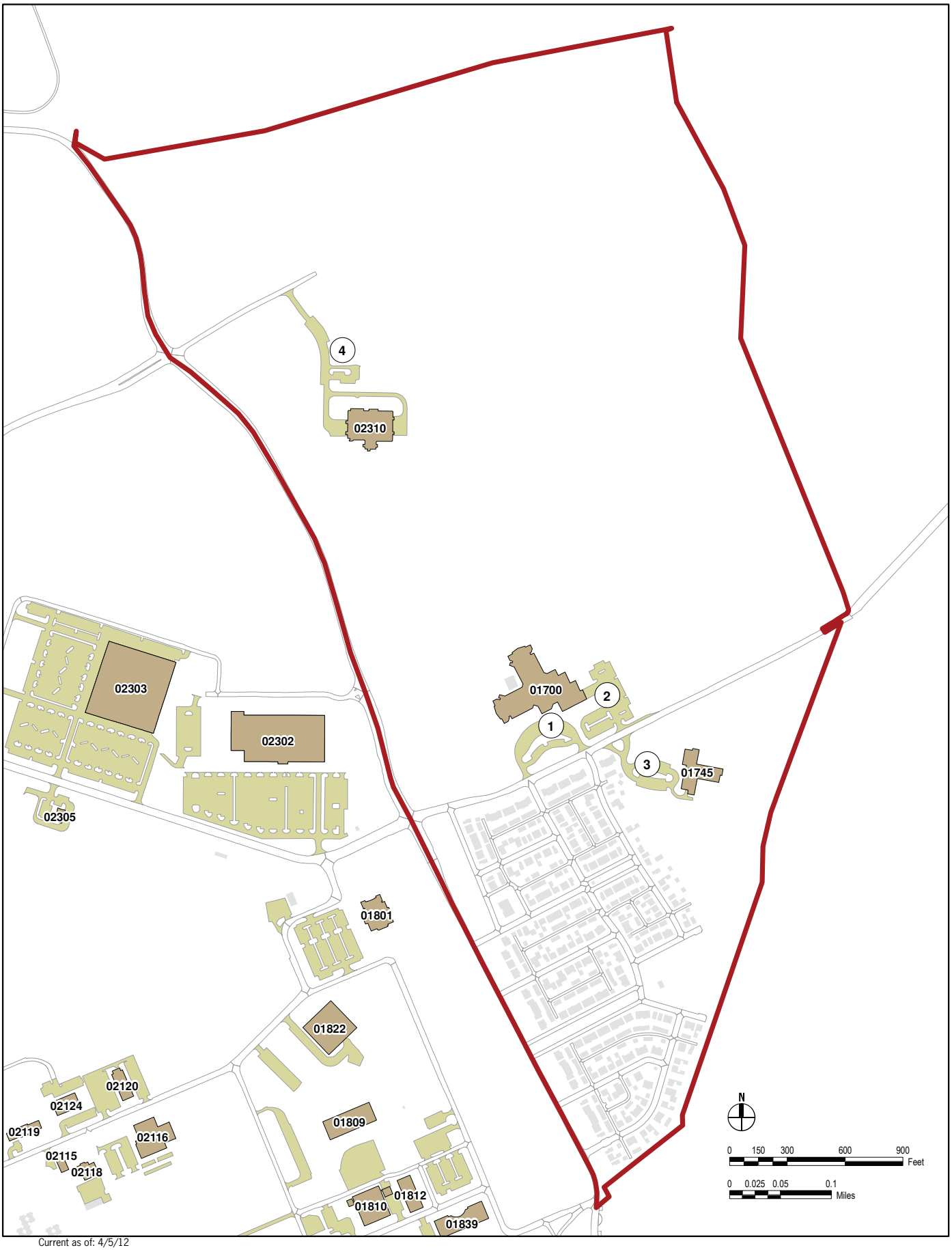
2230 Total PN
2184 Legal Parking Spaces
98% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
02800	WZ9902	OTHER ACTIVITIES (WZ9990, W99942, W9995E)	221
02800	!4VN02	OTHER DOD TENANTS (ADF-E previously DCEETA) (W32DAA)	1545
02806	!4VN02	OTHER DOD TENANTS (ADF-E previously DCEETA) (W32DAA)	200
02807	!4VN02	OTHER DOD TENANTS (ADF-E previously DCEETA) (W32DAA)	100
02827	!4VN02	OTHER DOD TENANTS (ADF-E previously DCEETA) (W32DAA)	15
02827	!4VN02	OTHER DOD TENANTS (ADF-E previously DCEETA) (W32DAA)	15
02829	!4VN02	OTHER DOD TENANTS (ADF-E previously DCEETA) (W32DAA)	75
02851	!4VN02	OTHER DOD TENANTS (ADF-E previously DCEETA) (W32DAA)	15
02855	!4VN02	OTHER DOD TENANTS (ADF-E previously DCEETA) (W32DAA)	15
02856	!4VN02	OTHER DOD TENANTS (ADF-E previously DCEETA) (W32DAA)	15
02857	!4VN02	OTHER DOD TENANTS (ADF-E previously DCEETA) (W32DAA)	15

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	8	6							14	Y	0.6
2	488	16						27	531	Y	5
3	22								22	Y	1.1
4	411								411	Y	0.8
5	44	11							55	Y	0.7
6	58	13						22	93	Y	0.9
7	13								13	Y	0.3
8	230								230	Y	1.6
9	115								115	Y	0.3
10	97								97	Y	0.7
11	34	6							40	Y	0.3
12	563								563	Y	1.2

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings



Current as of: 4/5/12

Summary of TAZ 1561-C:

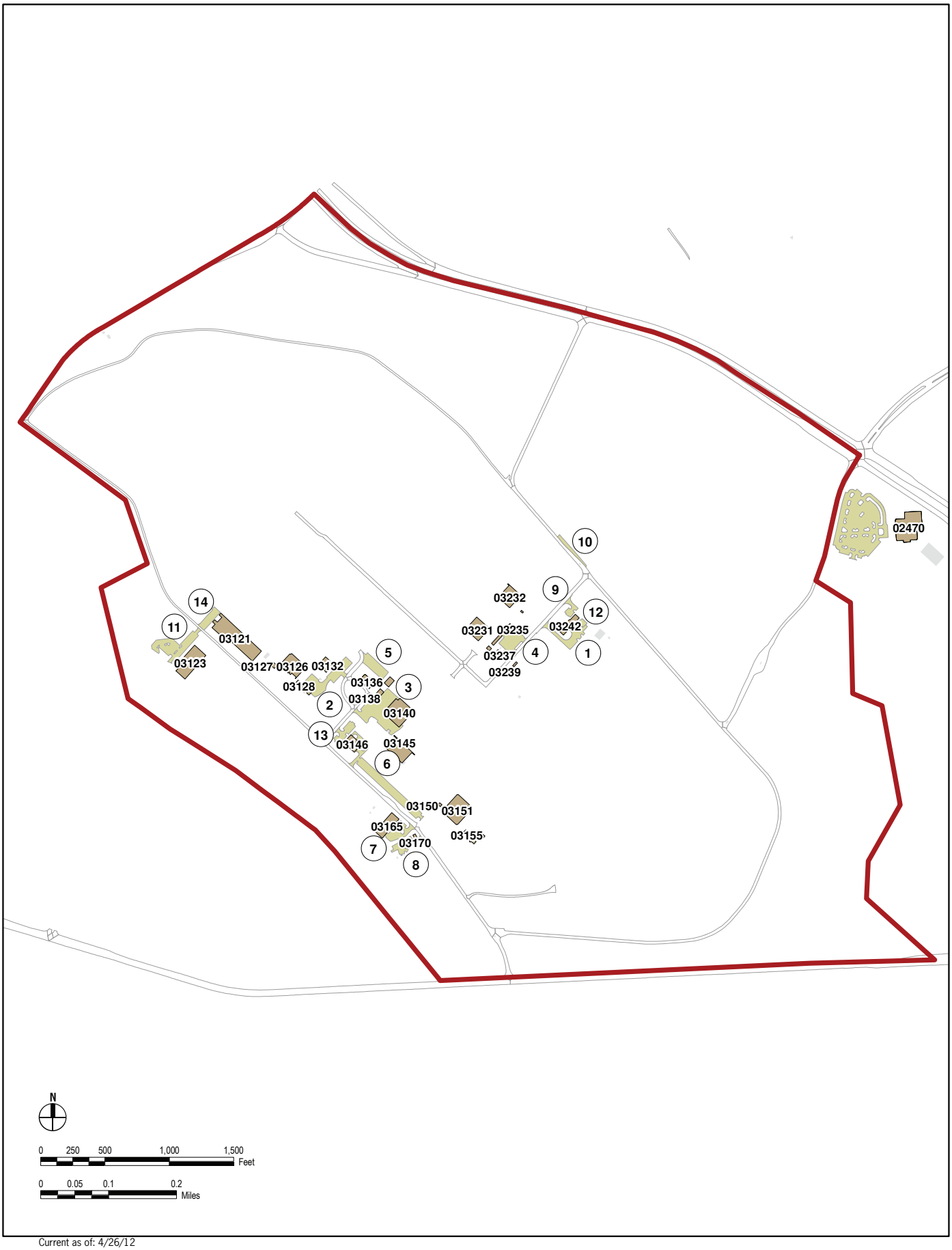
337 Total PN
327 Legal Parking Spaces
97% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
01700	*4VN01	FB ELEMENTARY SCHOOL	165
01745	W4VNAA	USAG FORT BELVOIR (¦4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	50
02310	WCF9AA	596th SIGNAL COMPANY (WCF999, @CF900)	122

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	10			14	12			18	40	N	1
2	115	7	17		3				125	N	1.3
3	54	2	6		1				57	N	0.8
4	105								105	Y	1.5

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings



Current as of: 4/26/12

Summary of TAZ 1562-A:

590 Total PN
557 Legal Parking Spaces
94% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
03121	<Null>	DC GUARD	40
03123	<Null>	DC GUARD	60
03126	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
03127	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
03128	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
03130	W6GY!A	USA AIR OPERATIONS GROUP	8
03132	<Null>	NIGHT VISION	0
03136	W6GY!A	USA AIR OPERATIONS GROUP	8
03136	FHNQ	18TH WEATHER SQD	4
03136	W3G2AA	FB REGIONAL FLIGHT CENTER, OSACOM (W3G202, @3G2K(, W3G2NA)	50
03136	W36VAA	HQ ARNG, (OSAA) (W36VNA)	59
03137	W6GY!A	USA AIR OPERATIONS GROUP	8
03138	W6GY!A	USA AIR OPERATIONS GROUP	8
03140	W0Y4AA	12TH AVIATION BN	9
03145	W0Y4AA	12TH AVIATION BN	9
03146	W0Y4AA	12TH AVIATION BN	9
03150	W0Y4AA	12TH AVIATION BN	9
03151	W0Y4AA	12TH AVIATION BN	9
03153	W0Y4AA	12TH AVIATION BN	9
03154	W0Y4AA	12TH AVIATION BN	9
03155	W0Y4AA	12TH AVIATION BN	9
03165	<Null>	<Null>	59
03170	W0Y4AA	12TH AVIATION BN	9
03230	W6GY!A	USA AIR OPERATIONS GROUP	8
03231	W0Y4AA	12TH AVIATION BN	9
03232	W0Y4AA	12TH AVIATION BN	9
03233	W0Y4AA	12TH AVIATION BN	9
03234	W0Y4AA	12TH AVIATION BN	9
03235	W0Y4AA	12TH AVIATION BN	9
03236	W0Y4AA	12TH AVIATION BN	9
03237	W0Y4AA	12TH AVIATION BN	9
03239	W0Y4AA	12TH AVIATION BN	9
03242	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF0	24

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	8								8	N	0.5
2	54	1		1	2				57	N	0.8
3	53	1		1					54	N	1.2
4	25		2	13	2				27	N	0.5
5	19								19	Y	0.4
6	117				5				122	N	1.1
7	20	1		1	3				24	N	0.4
8	31								31	N	0.3
9	9	1							10	N	0.2
10	22								22	N	0.1
11	97								97	N	0.8
12	8								8	N	0.1
13	28				2				30	N	0.3
14	48			11					48	N	0.3

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
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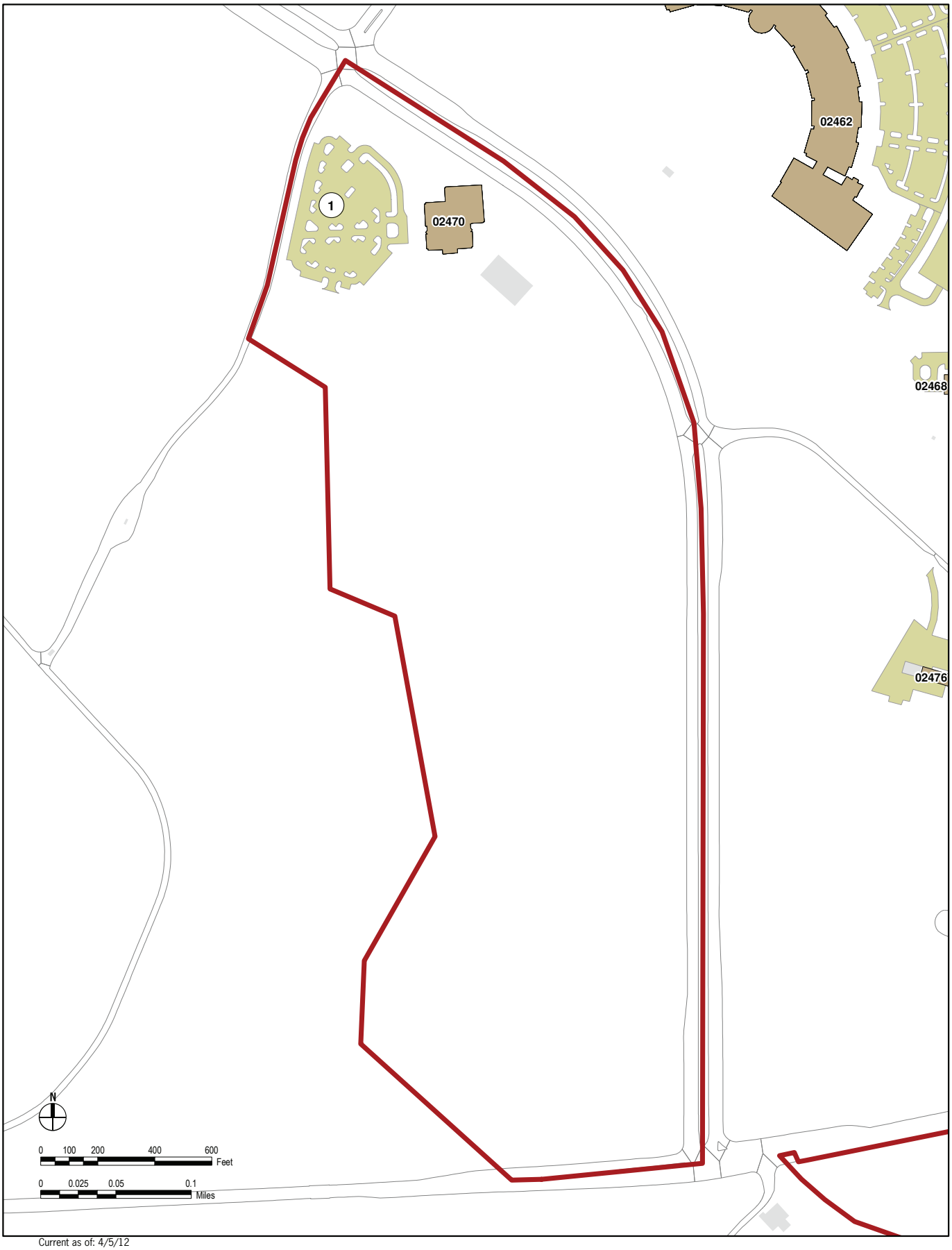
Other Existing Buildings



Current as of: 4/5/12

Summary of TAZ 1562-B:

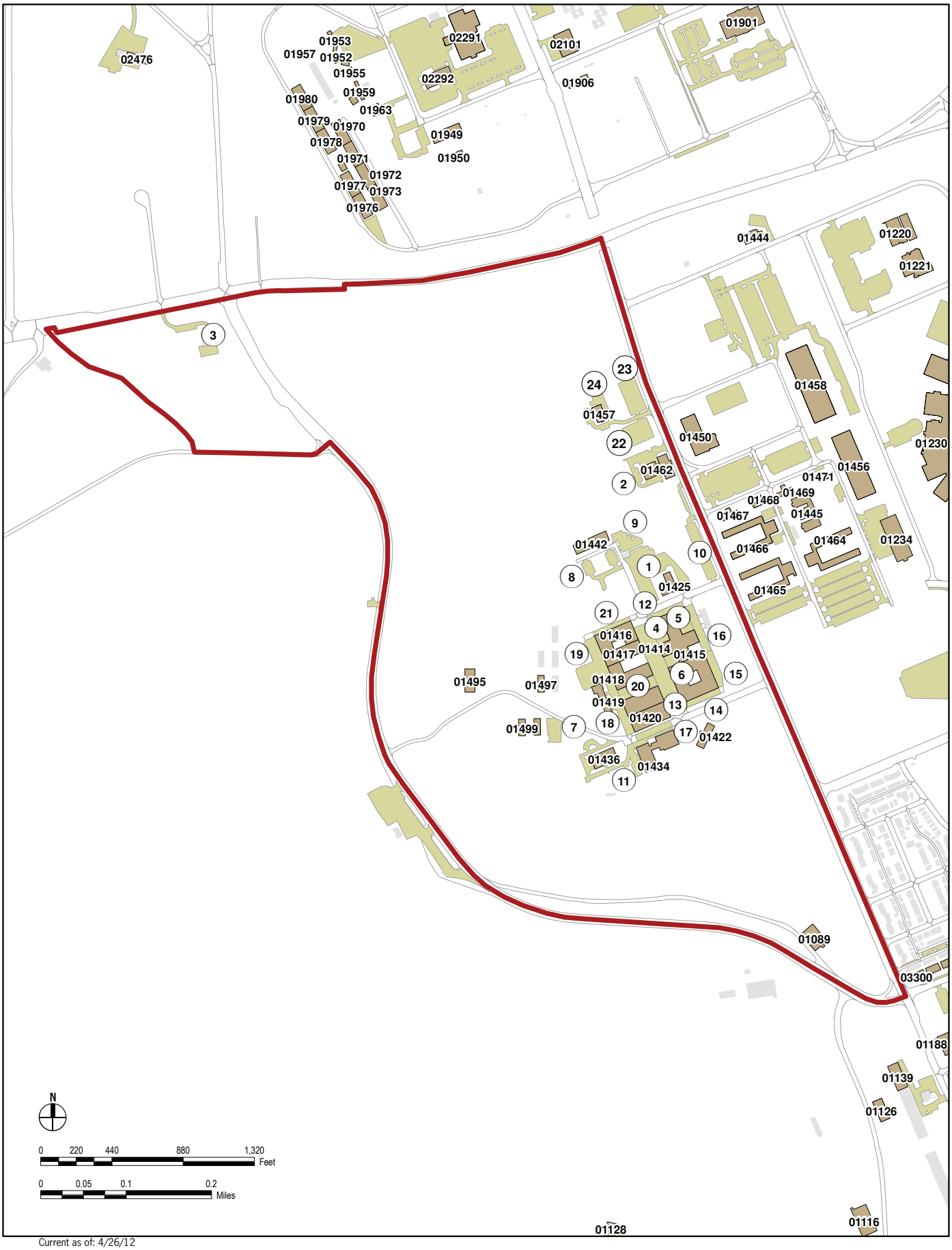
804 Total PN
324 Legal Parking Spaces
40% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
02470	W85FA1	MILITARY INTEL READINESS CMD (MIRC) (W6FTAA, W6FTKA, W6FTZS, W6FTKJ, W6FTNA, W6FTXX, W85HAA	340
02470	WVFCAA	55TH CS HHC, SUS BDE (W6KF*R, WVFC99)	338
02470	WR0TA2	374TH FINANCE BN DET 2	26
02470	WZ4HAA	751ST MI PLT INTERPRETER/TRANS CO	50
02470	WZ4JAA	752 MI PLT INTERPRETER/TRANS CO	50

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	305	6			9	4			324	Y	3.2

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Buildings with Known Populations
Surveyed Parking Areas
Other Existing Buildings



Current as of: 4/26/12

Summary of TAZ 1564-A:

826 Total PN
741 Legal Parking Spaces
89% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
01089	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	10
01414	!WAG10	NATIONAL NUCLEAR SECURITY AGENCY (DOE) (NA42 Joint Technical Operations Team)	5
01414	W6F1AA	USA MEDDAC FORT BELVOIR (FBCH) (!6F1AA, @6F1LW, $2DH01)	100
01415	WB09AA	55TH ORDNANCE CO (EOD)	31
01416	WNBFXC	249TH ENGR BN (PRIME POWER) (WNBFXT, WNBF9A)	58
01417	WNBFXC	249TH ENGR BN (PRIME POWER) (WNBFXT, WNBF9A)	58
01418	WNBFXC	249TH ENGR BN (PRIME POWER) (WNBFXT, WNBF9A)	58
01419	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	60
01420	<Null>	ISS	60
01422	<Null>	POWER PLANT	4
01425	W6QM06	Mission Installation Contracting Command (Prev.CDCC/ MDWAC)	49
01434	41701	AAFES	56
01436	!D00H1	AFGE - LOCAL 1052	1
01440	<Null>	ISS	0
01442	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	84
01457	WCU2AA	75TH MP DET	11
01457	W3LD11	FORT BELVOIR CID OFFICE (!3LD11)	2
01462	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	4
01495	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	3
01497	W06H07	ITA - DIR OF DEF TELECOM SVC	14
01498	WNERR1	1st Intelligence Operations Command (WNERX1, WNER9A, W0ZPJA, W0ZPJJ, !NERAA)	80
01499	WNERR1	DTRA	80

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	121	4		1					125	N	1.4
2	31	1							32	N	2.3
3	21	2							23	N	0.4
4	13	2							15	N	0.1
5	11								11	N	0.1
6	10								10	N	0.1
7	21								21	N	0.3
8	34			2					34	N	0.4
9	36	2							38	N	0.3
10	56								56	N	0.7
11	57	1		3					58	N	0.9
12	8								8	N	0.2
13	38				2				40	N	1.3
14	16				1				17	N	0.2
15	7								7	N	0.2
16	2								2	N	0.4
17			7	1					0	N	0.2
18	8								8	N	0.5
19	40			4					40	Y	0.8
20	28								28	N	0.4
21					5				5	N	0.2
22	53								53	N	0
23	80								80	N	0
24	30								30	Y	0

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
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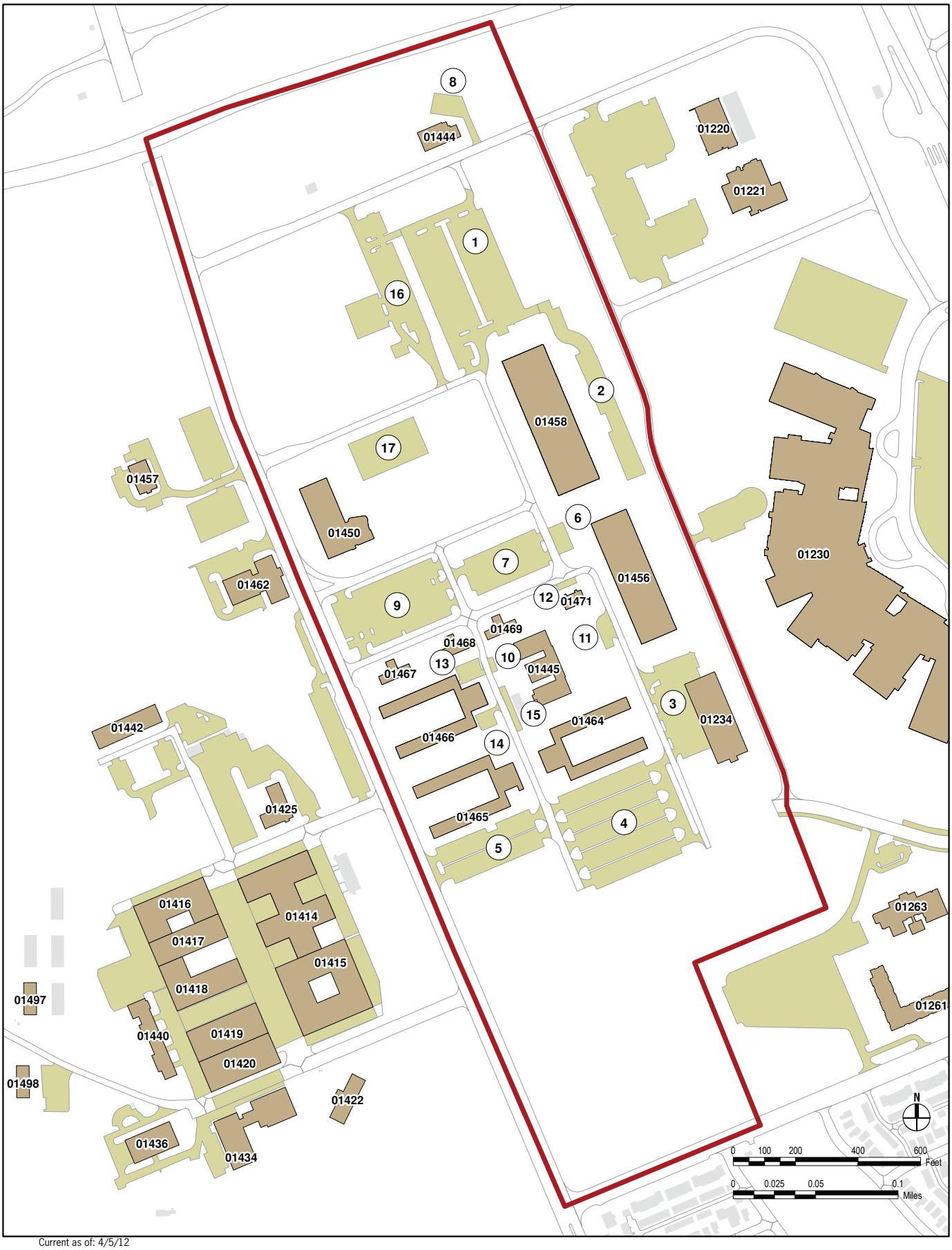
Other Existing Buildings



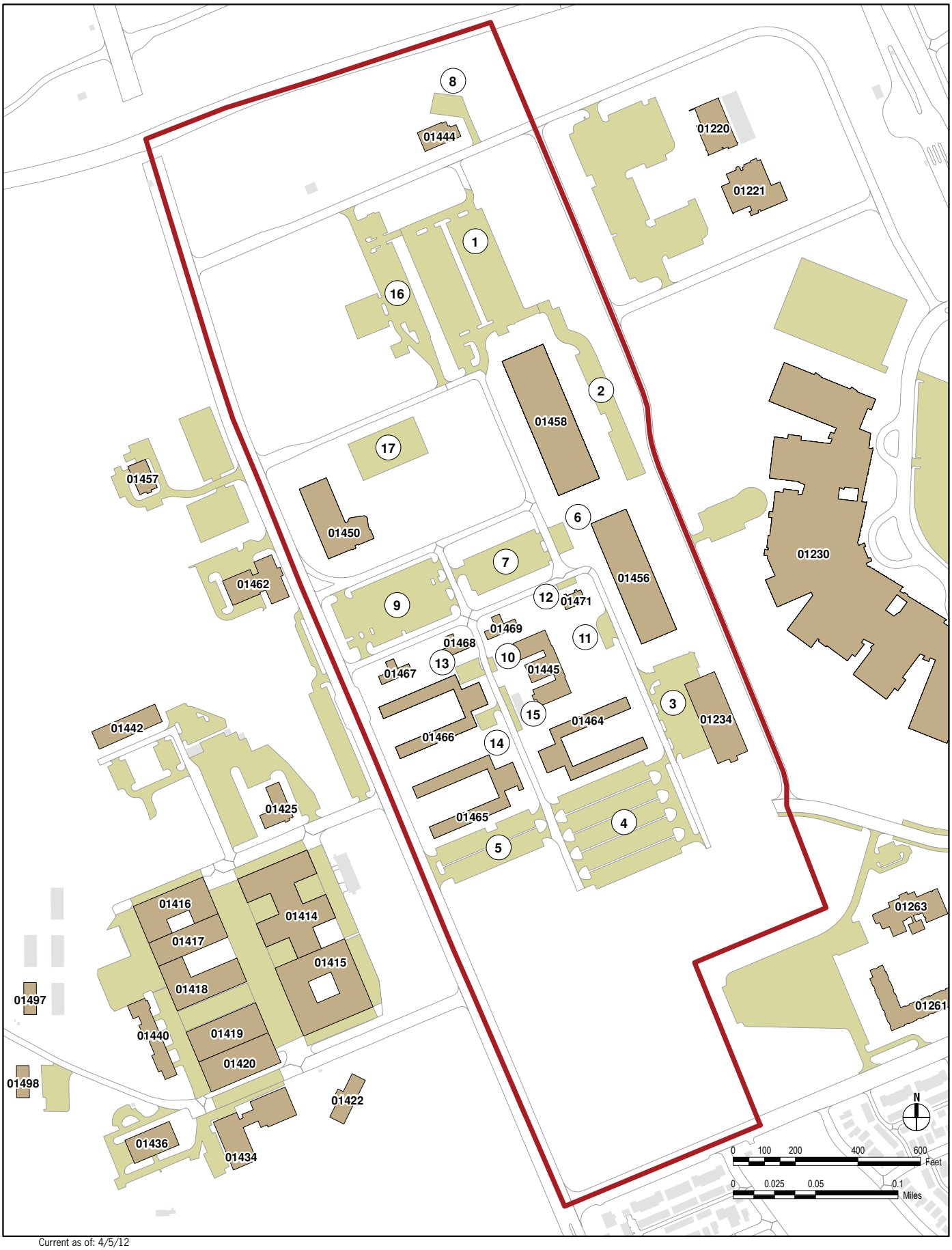
Current as of: 4/5/12

Summary of TAZ 1564-B:

3039 Total PN
1659 Legal Parking Spaces
54% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
01234	<Null>	HOSPTIAL CUP	10
01444	W2SD1G	CAPITAL AREA OFC, BALT DIST	47
01445	W6DYAA	PEO-EIS (PREVIOUSLY STAMIS) (@6DYLS, W6DYNA, !6DYAA, !6DY15)	335
01450	W0KEAA	USA LEGAL SERVICES (@0KEKN)	328
01450	W0KE04	USALSA, TRIAL DEFS SVC	1
01450	W0NTAA	ARMY AUDIT AGENCY (@0NTKP)	86
01456	W6DYAA	PEO-EIS (PREVIOUSLY STAMIS) (@6DYLS, W6DYNA, !6DYAA, !6DY15)	335
01456	W40M01	NARCO	9
01456	W0ZU!A	USA SAFETY OFFICE AND OSAA	12
01456	W4FH!B	ENTERPRISE SOLUTIONS DIRECTORATE (W4FH13, !4FH!A)	88
01458	W31303	AHS - SPACE & BUILDING MGMT	19
01458	W31304	AHS - DIRECTORATE OF SECURITY & SAFETY OFC	21
01458	W06H06	ITA - DIR OF ARMY INFO MGMT SPT SVC CTR (@06HKJ)	219
01458	W2TZ04	HQDA RESOURCE MANAGEMENT DIRECTORATE	124
01458	W31309	AHS - DIRECTORATE OF LOGISTICS WASHINGTON	34
01458	W06H!5	ITA - DIRECTORATE OF PENTAGON TELECOM SVCS	5
01458	W30M06	TECOM METOROLOGICAL TEAM	1
01458	W31301	AHS - ARMY VISUAL INFOAL CTR (@313K^)	130
01458	W3Q213	USA TEST AND EVALUATION	4
01458	W06H02	ITA - DIR. OF NETWORK SECURITY PENTAGON (@06HKG)	137
01458	W06H!A	ITA - PROGRAM SUPPORT OFFICE (@06HKE)	57
01458	W31311	AHS - DISPOSAL AND REUTILIZATON	12
01458	W313!A	AHS - ARMY HEADQUARTERS SERVICES FRONT OFFICE (@31301)	103
01464	W049AA	ARMY RESEARCH INSTITUTE	68
01464	W0ZU!B	QUALITY ASSESSMENT BRANCH (@0ZUKU)	5
01464	W0ZZ!A	HRC - G1 (@0ZZ00)	173
01465	W6D310	USA CIV PERS ADVISORY CTR WRAMC	32
01465	TBD	TBD	232
01466	W462AA	US ARMY AERONAUTICAL SVCS (@462K>)	31
01466	W0VP70	ARMY CIVILIAN UNIVERSITY (!0VP70)	18
01466	W24803	ISEC - FORT BELVOIR ENG OFFICE (@24800)	38
01466	W1MHAA	JPPSO-WA (F1MH, N1MHAA, M1MHAA)	111
01466	W313!B	INSTITUTE OF HERALDRY	29
01466	W3U4B2	NATIONAL CAP VET SVC-SPT DIST (W3U4B1, RE4001)	10
01467	W40M01	NARCO	9
01467	W6F1AA	USA MEDDAC FORT BELVOIR (FBCH) (!6F1AA, @6F1LW, $2DH01)	25
01468	W0GV!B	FORT BELVOIR IG OFFICE	30
01468	<Null>	IG	30
01469	<Null>	MEDCOM	25
01471	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, RE	6
01471	W6F1AA	USA MEDDAC FORT BELVOIR (FBCH) (!6F1AA, @6F1LW, $2DH01)	50

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings



Current as of: 4/5/12

Summary of TAZ 1564-B:

3039 Total PN
1659 Legal Parking Spaces
54% Parking Ratio

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	295	12		6	7	2			316	N	2.6
2	100	3							103	N	0.8
3	47	6			2				55	N	0.9
4	281			12					281	N	2.4
5	92				16				108	N	1
6		8							8	N	0.1
7	93	11							104	N	0.8
8	19	1							20	N	0.2
9	183	3			2				188	N	1.6
10		2			2				4	N	0
11	7				4				11	N	0.1
12	3				3				6	N	0
13	10	2		2	2				14	N	0.1
14		1			4				5	N	0.1
15	1	4		7					5	N	0.1
16	171								171	N	1.5
17	215	8	74	5	3	16		18	260	N	0.7

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings

Current as of: 4/26/12

Summary of TAZ 1564-C:

4161 Total PN
4170 Legal Parking Spaces
101% Parking Ratio (70% with addt'l 1,216 visitor spaces)

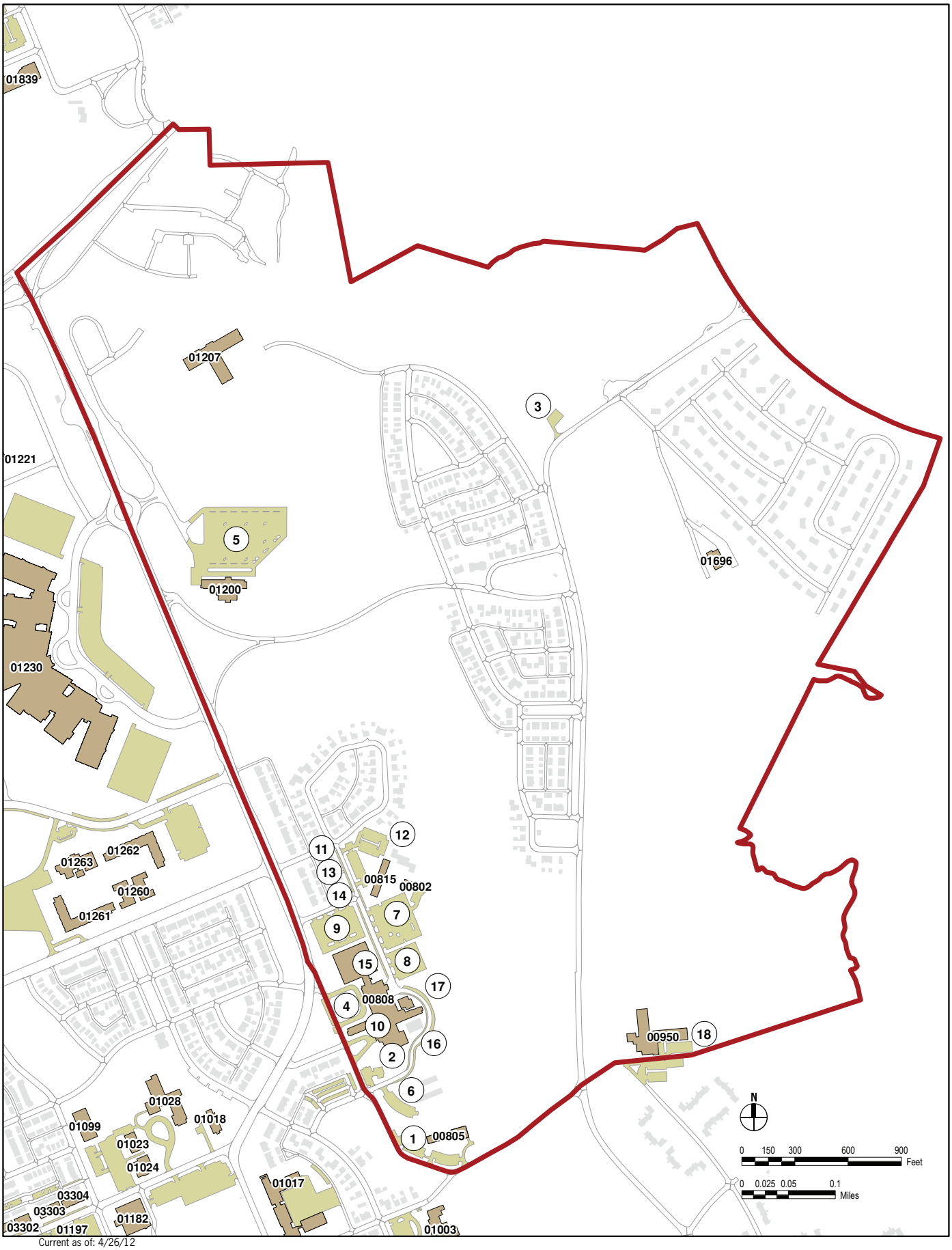
Building #	Agency UIC	Agency Name	Total PN
01220	W40M01	NARCO	77
01221	W07TAA	NRMC (W07TNA, @07T00)	172
01221	W40M01	NARCO	9
01230	!6B501	JACKSON FOUNDATION (hospital)	10
01230	I836/P	WRAMC PHASE II MEDICAL TRAINING (I836/PP, I836/Y, I836/PY, I840PY))	80
01230	!2DH06	OTHER SERVICE PART OF LEAD AGENT (hospital)	34
01230	WX3XAA	121ST MEDICAL CO, AIR AMBULANCE	111
01230	!2DH01	UNIFORMED SERVICES UNIVERSITY HEALTH SCIENCES	100
01230	<Null>	HOSPITAL	3080
01260	<Null>	WT BARRACKS	104
01261	<Null>	WT BARRACKS	144
01262	<Null>	WT	144
01263	<Null>	CO HQ	20

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	290	36							326	N	2.6
2	269	12		5					281	N	2.9
3	1303	53	209		5		97	95	1553	N	2
4	1271	54	22	10	3	9	32	179	1548	N	2
5	199	24							223	N	2.9
6	129	25							154	N	1.3
7	34	2							36	N	0.5
8	24								24	N	0.3
9	23								23	N	0.2

**Visitor and Gov't spaces are not included in 60%

**Field counts shown above in the parking table were adjusted to reflect an additional 1,216 patient (visitor) spaces based on FBCH Chief of Facilities review and input provided to Atkins on 1-28-2013.

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings



Current as of: 4/26/12

Summary of TAZ 1564-D:

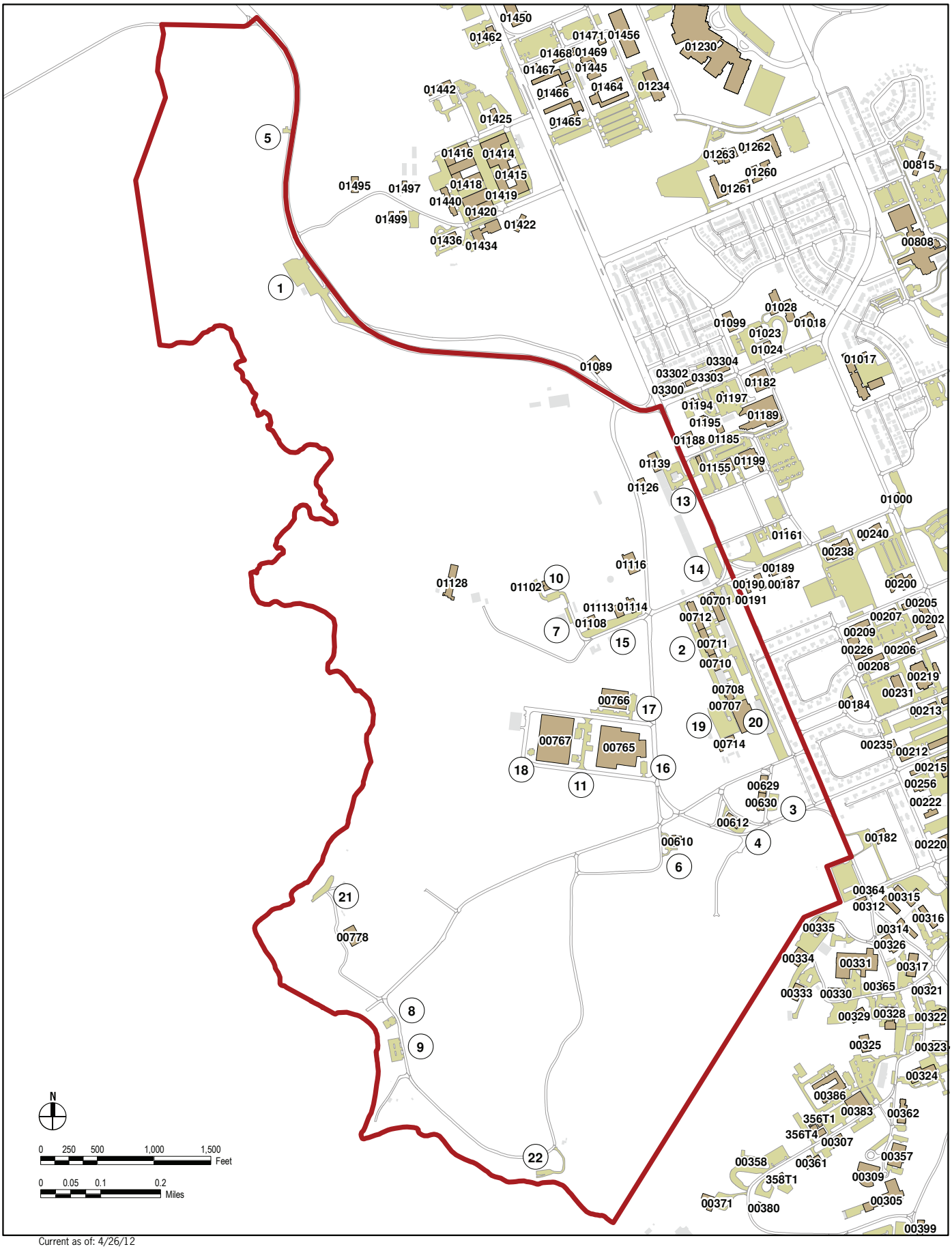
394 Total PN
1075 Legal Parking Spaces
272% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
00802	W4K706	CO E, 169TH ENG BN	12
00805	W4K706	CO E, 169TH ENG BN	4
00805	W6F1AA	USA MEDDAC FORT BELVOIR (FBCH) (!6F1AA, @6F1LW, $2DH01)	34
00805	I136/P	MODELING AND SIMULATION [TRADOC SCHOOL] (I136/Y)	29
00808	W6F1AA	USA MEDDAC FORT BELVOIR (FBCH) (!6F1AA, @6F1LW, $2DH01)	70
00808	W6F1AA	USA MEDDAC FORT BELVOIR (FBCH) (!6F1AA, @6F1LW, $2DH01)	70
00815	W6F1AA	USA MEDDAC FORT BELVOIR (FBCH) (!6F1AA, @6F1LW, $2DH01)	50
00950	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	25
01200	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	12
01207	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	85
01696	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	3

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	60	2							62	N	0.6
2	13	3	6						16	N	0.2
3	15								15	N	0.1
4		11	6						11	N	0.3
5	336	15							351	N	3.8
6		1	35						1	N	0.3
7	157		2		7				164	X	1.4
8	85								85	X	0.7
9	120								120	Y	1.1
10	8				2				10	N	0.2
11	8								8	N	0.1
12	52			3					52	N	0.5
13	30								30	N	0.3
14	6								6	N	0
15	20								20	N	0.1
16	22								22	N	0.1
17	46	6							52	N	0.2
18	46	4	29						50	N	0.9

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings



Current as of: 4/26/12

Summary of TAZ 1564-E:

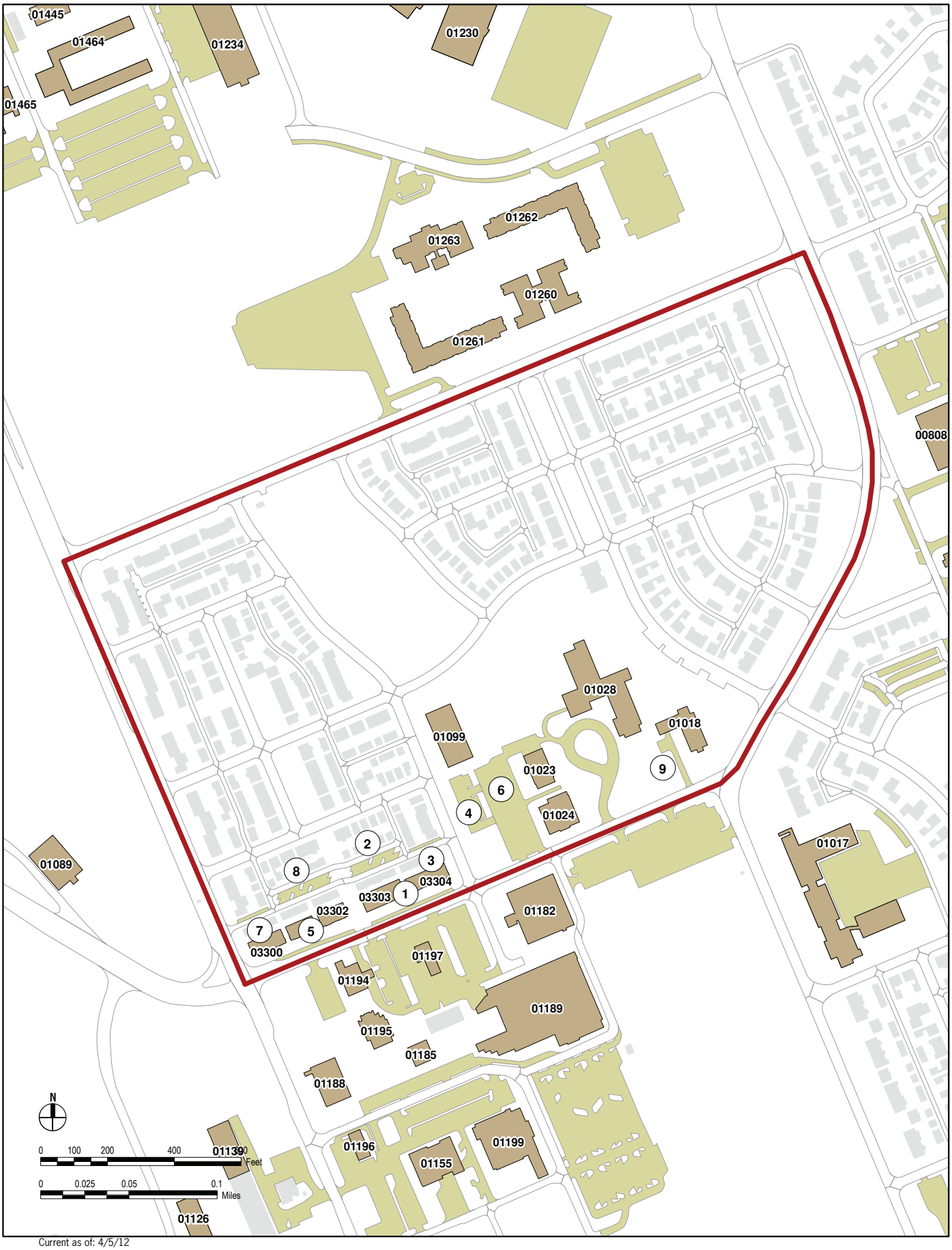
1117 Total PN
735 Legal Parking Spaces
65% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
00610	W3U4B2	NATIONAL CAP VET SVC-SPT DIST (W3U4B1, RE4001)	10
00612	WV5KAA	29TH ID (L) (WX49AA, W!VA15, W!VA16, W!VA19, W!VA2Q, W!VA4H, W!VA8F)	115
00629	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	1
00630	W3U4B2	NATIONAL CAP VET SVC-SPT DIST (W3U4B1, RE4001)	10
00701	W6RCAA	Warriors in Transition (!4VN80, !4VN81, W6RCNA, @6RC00)	50
00707	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	10
00708	<Null>	SERVICE SUPPORT	10
00710	W36L!A	Health Facility Planning Agency	24
00711	<Null>	INSCOM	10
00712	<Null>	INSCOM	10
00714	!3KP01	CID INVESTIGATION TASK FORCE (!3KP1A, !3KP1B, @3KPK), F2KPA1, F3KP01, ,M3KPA1, N3KP01, N3KPA1)	174
00765	W3YU!B	MUSEUM SUPPORT CENTER	18
00766	@4VN12	CLARK-PINNACLE HOUSING/REALTY	80
00767	W31310	DOL-W (OFF OF THE ADMIN ASSISTANT - Prev DSS-W) (@313K&)	52
00778	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	12
01102	<Null>	DOG TRAINING/KENNEL	8
01108	<Null>	RCI	5
01113	<Null>	GROUND STAFF	10
01114	<Null>	GROUND STAFF	10
01116	<Null>	DTRA	30
01126	<Null>	OSEG	21
01126	<Null>	OSEG	221
01128	WZ9902	OTHER ACTIVITIES (WZ9990, W99942, W9995E)	221
01139	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	6

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	45								45	N	1.9
2	113	5			3				121	N	3.1
3	32								32	N	0.3
4	7		2		2				9	N	0.3
5	4								4	N	0.1
6	12	1							13	N	0.2
7	12	1							13	N	0.1
8	8	2							10	N	0.2
9	50	6							56	N	0.4
10	12			10					12	Y	0.3
11	39								39	N	0.8
13	15								15	N	0.7
14	52								52	N	0.6
15	14								14	Y	0.8
16	21	2							23	N	0.2
17	47	2			1				50	N	0.5
18	9								9	N	0.1
19	74			6	6	4			84	N	1.2
20	92								92	N	1.9
21	32								32	N	0.3
22	5	5							10	N	0.3

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings



Current as of: 4/5/12

Summary of TAZ 1564-F:

188 Total PN
215 Legal Parking Spaces
114% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
01018	W00C!A	OFC OF CHIEF OF CHAPLAINS	6
01023	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	2
01024	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	4
01028	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	24
01099	W3ZSAA	US ARMY DENTAL CLINIC CMD (@3ZSK])	70
03300	TBD	AAFES CONCESSIONAIRES	16
03301	TBD	AAFES CONCESSIONAIRES	16
03302	TBD	AAFES CONCESSIONAIRES	16
03303	TBD	AAFES CONCESSIONAIRES	16
03304	TBD	AAFES CONCESSIONAIRES	16

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	11								11	N	0.1
2	20	2							22	N	0.1
3	5								5	N	0
4	25	2		1					27	N	0.3
5	9								9	N	0.1
6	102	7							109	N	1.4
7	5								5	N	0
8	22	2							24	N	0.1
9		3							3	N	0.1

**Visitor and Gov't spaces are not included in 60%

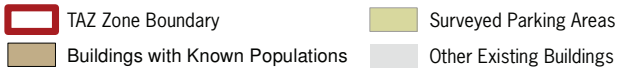
TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings


01099
01023
01024
00805
01017
8
03304
03303
03302
03301
03300
01182
01003
18
01197
01194
7
10
01189
01195
01185
11
01188
13
01139
01196
01199
12
01155
14
01126
01000
9
20
01161
00240
16
00238
00245
2
01116
00189
00186
00190
00187
00191
15
00200
21
00205
01114
00701
17
00207
00712
00202
00209
1
00204
00711
00226
00206
00208
00710
00258
00219
00231
00708
3
5
00203
00184
00213
00201
00707
6
4
00210
00765
00235
00211
19
00214
00212
00215
00714
00256
00223
00629
00222
00630
00221
N
0 100 200 400 600 Feet
0 0.025 0.05 0.1 Miles
Current as of: 4/5/12

Summary of TAZ 1564-G:

1461 Total PN
2147 Legal Parking Spaces
146% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
00184	W1JRAA	DEFENSE ACQUISITION UNIVERSITY (!1JRAA, @1JRKY, !1JRA1, F1JRAA, M1JRAA, N64254)	5
00186	<Null>	VOLUNTEER STAFF	2
00187	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	0
00189	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	7
00190	<Null>	WAREHOUSE	5
00191	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	12
00200	#4VN02	USO	7
00201	W27PAA	ARMY ACQUISITION SUPPORT CENTER (@27PK@), W27PNA)	129
00201	W4PCAA	US ARMY FORCE MGMT SPT AGCY (@4PCLB, W6PCNA)	70
00202	W1JRAA	DEFENSE ACQUISITION UNIVERSITY (!1JRAA, @1JRKY, !1JRA1, F1JRAA, M1JRAA, N64254)	53
00203	W1JRAA	DEFENSE ACQUISITION UNIVERSITY (!1JRAA, @1JRKY, !1JRA1, F1JRAA, M1JRAA, N64254)	53
00203	W4PCAA	US ARMY FORCE MGMT SPT AGCY (@4PCLB, W6PCNA)	70
00204	W1JRAA	DEFENSE ACQUISITION UNIVERSITY (!1JRAA, @1JRKY, !1JRA1, F1JRAA, M1JRAA, N64254)	53
00205	W1JRAA	DEFENSE ACQUISITION UNIVERSITY (!1JRAA, @1JRKY, !1JRA1, F1JRAA, M1JRAA, N64254)	53
00205	!4VN07	FEDERAL ACQUISITION INSTITUTE	4
00206	W1JRAA	DEFENSE ACQUISITION UNIVERSITY (!1JRAA, @1JRKY, !1JRA1, F1JRAA, M1JRAA, N64254)	53
00207	W1JRAA	DEFENSE ACQUISITION UNIVERSITY (!1JRAA, @1JRKY, !1JRA1, F1JRAA, M1JRAA, N64254)	53
00208	W1JRAA	DEFENSE ACQUISITION UNIVERSITY (!1JRAA, @1JRKY, !1JRA1, F1JRAA, M1JRAA, N64254)	53
00209	W1JRAA	DEFENSE ACQUISITION UNIVERSITY (!1JRAA, @1JRKY, !1JRA1, F1JRAA, M1JRAA, N64254)	53
00210	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	20
00211	W6AP!A	FORCE DEVELOPMENT - G8 (@6AP00)	107
00212	W2VNAA	LOGISTICS INNOVATION AGENCY (LIA) (@2VNK1, W2VNNA)	69
00213	W27PAA	ARMY ACQUISITION SUPPORT CENTER (@27PK@), W27PNA)	129
00213	W0GV!A	RETENTION OFFICE	2
00219	W1J5A2	USACE FINANCE CEN FT BELVOIR	1
00219	W3ZL01	PM SANG	6
00219	!49079	DEF MIL PAY OFFICE, NCR (!4907A)	41
00219	W1VW05	HQ USASAC, WASHINGTON FIELD OFC	3
00226	W1JRAA	DEFENSE ACQUISITION UNIVERSITY (!1JRAA, @1JRKY, !1JRA1, F1JRAA, M1JRAA, N64254)	53
00231	W1JRAA	DEFENSE ACQUISITION UNIVERSITY (!1JRAA, @1JRKY, !1JRA1, F1JRAA, M1JRAA, N64254)	53
00235	WDKVA4	NCR, RO, 308TH MI BN (WDKVA1, WDKV89, WDKV8A)	20
00238	W1YY10	US ARMY NUCLEAR & CHEMICAL AGCY	34
00238	W1YNAA	US ARMY MANPOWER ANALYSIS AGENCY	44
00240	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	0
00258	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	6
01155	W6DSAA	PROJ MGR SOLDIER SYSTEMS (PEO SOLDIER) (@6DSLP, W6DSNA, !6DSAA)	64
01161	#4VN01	RED CROSS (#6B501)	4
01182	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	2
01185	<Null>	OPM	0
01188	41701	AAFES	3
01189	41701	AAFES	20
01194	$D00H2	CARLSON-WAGONLIT TRAVEL	10
01195	$4VN02	FB CREDIT UNION	14
01196	TBD	AAFES CONCESSIONAIRES	16
01197	41701	AAFES	3
01199	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	7



Current as of: 4/5/12

Summary of TAZ 1564-G:

1461 Total PN
2147 Legal Parking Spaces
146% Parking Ratio

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	136	10		2	2				148	N	1.9
2	96	1							97	N	1.5
3	8	1							9	N	0.1
4	218	18	1	8	10				246	N	2.8
5	370	2		7	1				373	N	3.1
6	24								24	N	0.2
7	28	2							30	N	0.3
8	135	5			4				144	N	1.5
9	14	7							21	N	0.5
10	39								39	N	0
11	21	1							22	N	0.4
12	168	7							175	N	2.1
13	246	7			1				254	N	2.6
14	6								6	N	0.2
15	399	10							409	N	5.2
16	2				2				4	N	0.1
17	15	1							16	N	0.1
18	8	2							10	N	1.7
19	10								10	N	0
20	18								18	N	0.2
21	92								92	N	1

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
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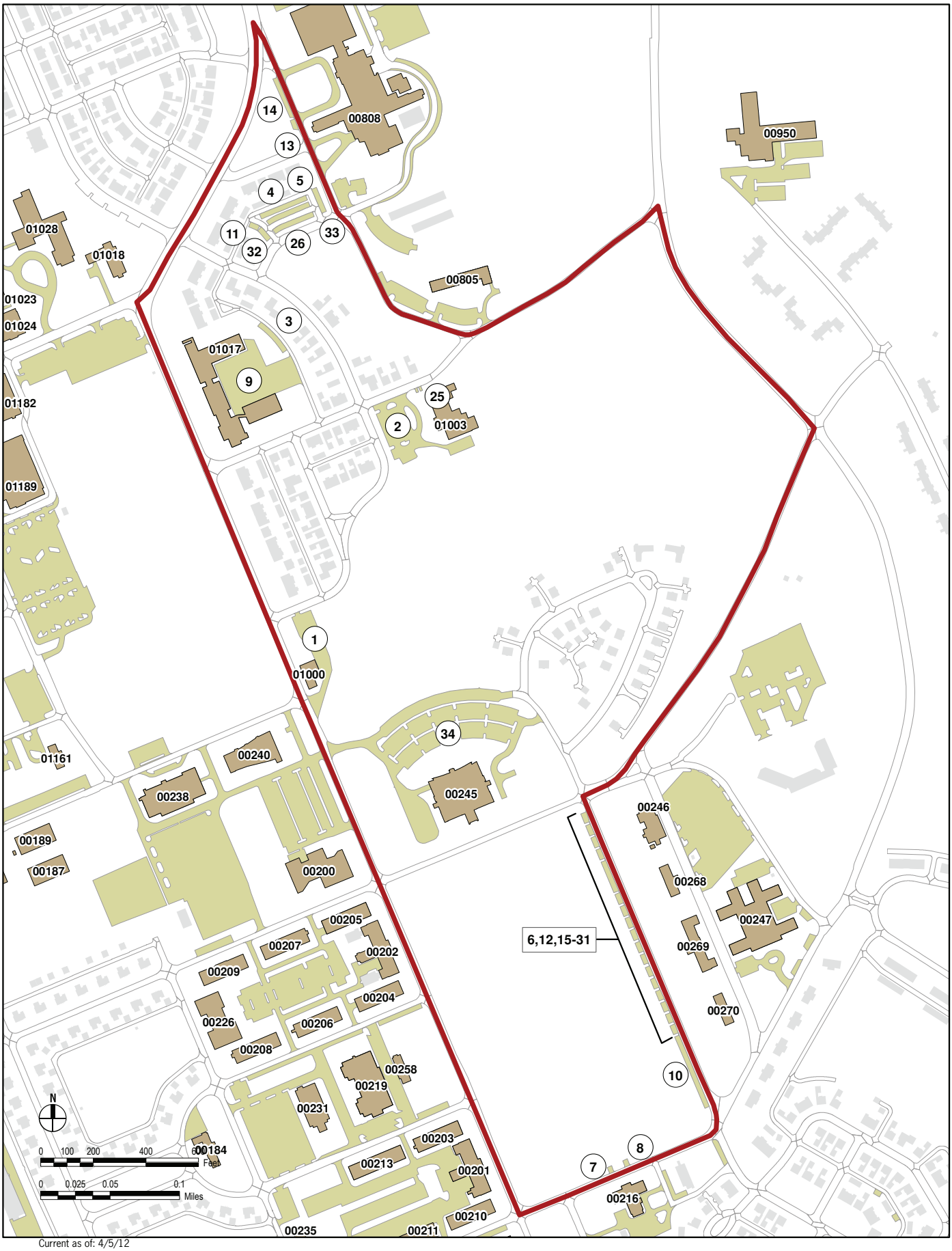
Other Existing Buildings



Current as of: 4/5/12

Summary of TAZ 1564-H:

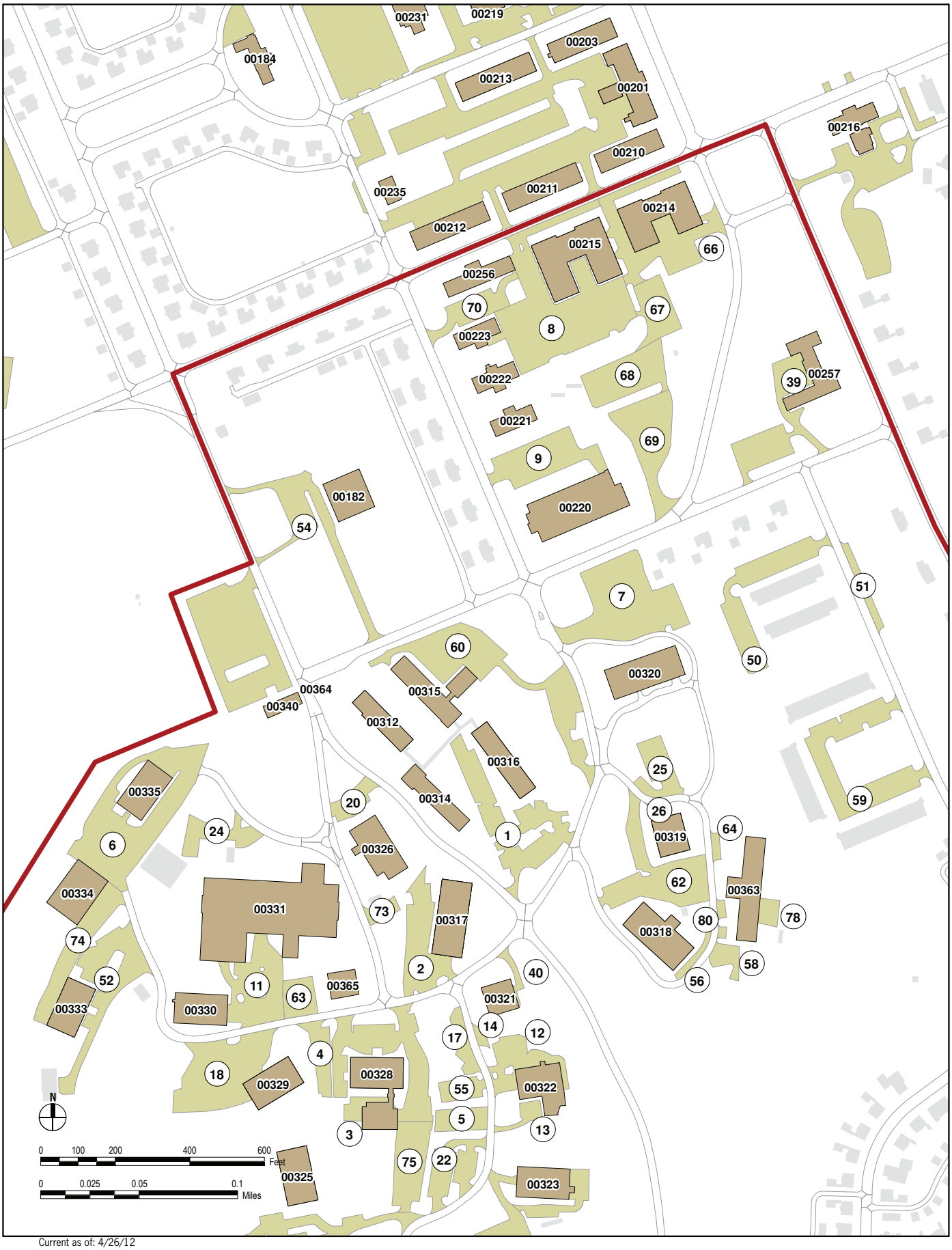
482 Total PN
653 Legal Parking Spaces
135% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
00245	!4VN74	MISSILE DEFENSE AGENCY (@4VN01)	292
01000	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	15
01003	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	20
01017	W0VP!5	COMMAND & GENERAL STAFF COLLEGE	26
01017	W0UC!A	BARDEN EDUCATION CENTER (FT MYER) (#4VN03, !0UC!B, !701FY, 1701HY)	129

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	35	2	2						37	N	0.5
2	54								54	N	0.8
3	15								15	N	0.1
4	21								21	N	0.1
5	18								18	N	0.1
6	4								4	N	0
7					2				2	N	0
8					2				2	N	0
9	107	4			2				113	N	1.1
10	32								32	N	0.1
11	4								4	N	0
12	4								4	N	0
13					3				3	N	0
14					17				17	N	0.1
15	4								4	N	0
16	4								4	N	0
17	1				3				4	N	0
18					4				4	N	0
19	4								4	N	0
20					4				4	N	0
21	4								4	N	0
22	4								4	N	0
23	4								4	N	0
24	2				2				4	N	0
25		2							2	N	0
26	19								19	N	0.1
27	4								4	N	0
28	4								4	N	0
29	13	1							14	N	0.1
30				1	3				3	N	0
31	1				3				4	N	0
32	6								6	N	0
33	11								11	N	0
34	165	8	7	4	19	4	12	12	220	N	2.9

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings



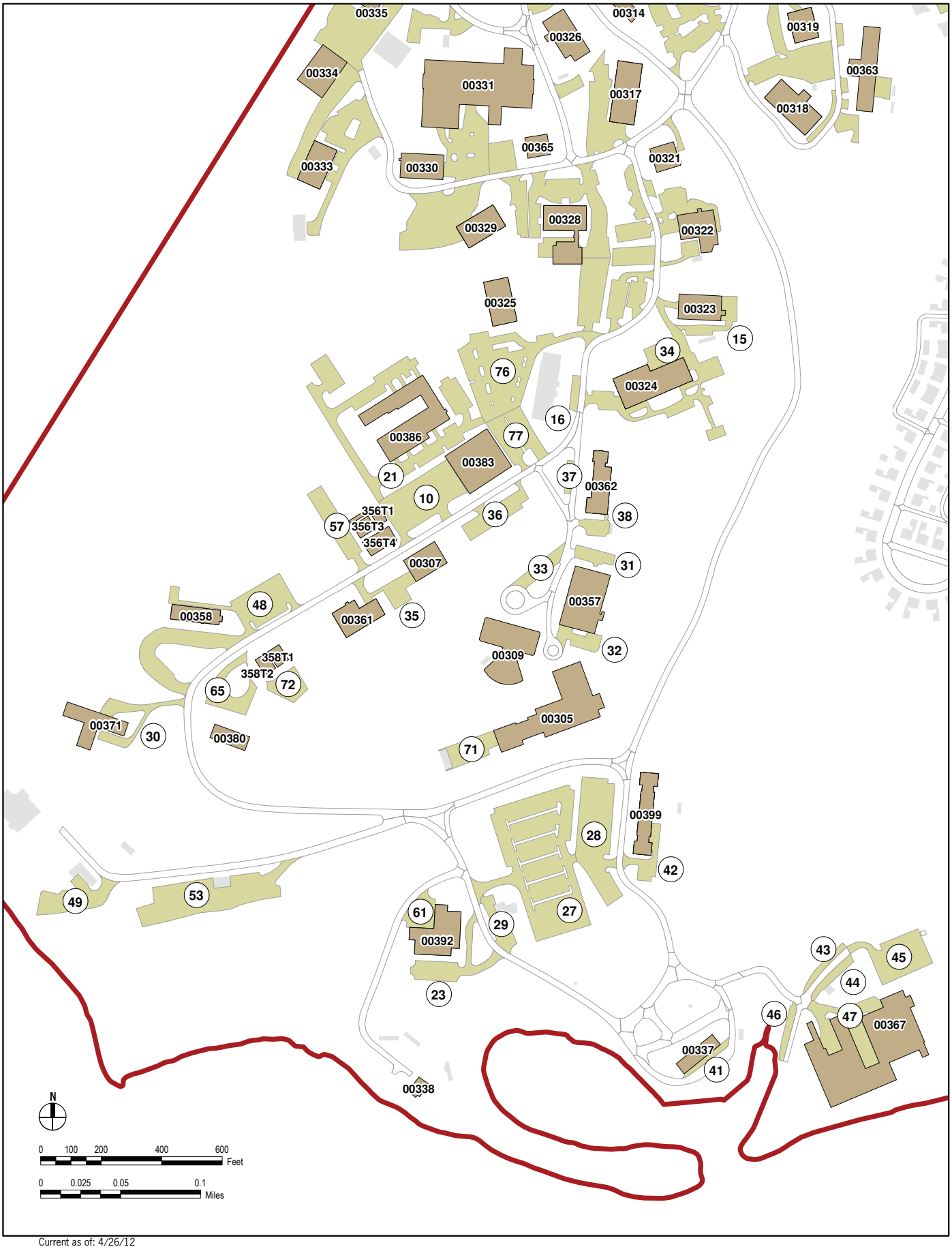
Current as of: 4/26/12

Summary of TAZ 1564-I:

3675 Total PN
3127 Legal Parking Spaces
84% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
00182	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	6
00214	W336AA	DEPT ARMY REVIEW BOARD (@336K*)	145
00214	W40WAA	USA EEO & CIVIL RIGHTS	3
00215	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	292
00215	W06H07	ITA - DIR OF DEF TELECOM SVC	14
00220	W4NJ!A	CIO/G6 (@4NJ01, !4NJAA)	274
00221	WNBFXC	249TH ENGR BN (PRIME POWER) (WNBFXT, WNBF9A)	36
00222	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	15
00223	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	15
00256	!4VN05	US POST OFFICE (NORTH & SOUTH)	16
00257	<Null>	SJA	42
00312	W06H07	ITA - DIR OF DEF TELECOM SVC	14
00312	W6SHAA	Fort Belvoir Network Enterprise Center	100
00314	W6DZ04	PM FORCE PROTECTION SYSTEMS (W6DZJA, @6DZLT)	10
00315	TBD	TBD	100
00316	W4GV75	CECOM LOGISTICS & READINESS CTR, IEWS (@4GVL6)	14
00316	W4EG!A	MILITARY PROGRAMS (SPEC MISSIONS OFC) (!4EGAA)	19
00316	W0JV!A	SPECIAL MISSIONS OFF, TECH REVIEW & MOD	3
00317	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00317	W6DSAA	PROJ MGR SOLDIER SYSTEMS (PEO SOLDIER) (@6DSLP, W6DSNA, !6DSAA)	64
00317	W26211	ARMY RESEARCH LAB	4
00318	W4G8!B	RDEC, POWER GEN BR ARMY POWER DIVISION	11
00318	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00319	UNK	NEC	12
00319	UNK	GSO	6
00319	UNK	OPM	4
00320	W6D302	CIVILIAN PERSONNEL ADVISORY CENTER (!4VN04)	41
00321	W6DZ04	PM FORCE PROTECTION SYSTEMS (W6DZJA, @6DZLT)	10
00322	W6DYAA	PEO-EIS (PREVIOUSLY STAMIS) (@6DYLS, W6DYNA, !6DYAA, !6DY15)	335
00323	<Null>	AKO	50
00325	W6DSAA	PROJ MGR SOLDIER SYSTEMS (PEO SOLDIER) (@6DSLP, W6DSNA, !6DSAA)	64
00325	W6DSAA	PROJ MGR SOLDIER SYSTEMS (PEO SOLDIER) (@6DSLP, W6DSNA, !6DSAA)	64
00326	W4G8!5	RDEC, ENVIRONMENTAL SYS & FUEL CELL BR.	12
00328	W6DSAA	PROJ MGR SOLDIER SYSTEMS (PEO SOLDIER) (@6DSLP, W6DSNA, !6DSAA)	64
00328	W6DSAA	PROJ MGR SOLDIER SYSTEMS (PEO SOLDIER) (@6DSLP, W6DSNA, !6DSAA)	64
00329	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00329	W6DZ04	PM FORCE PROTECTION SYSTEMS (W6DZJA, @6DZLT)	10
00329	!4VN03	UNEXPOLODED ORD COOR OFF (UXOXO) (M4VN03)	3
00330	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00331	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00333	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00333	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00334	FJJS	HQ JOINT PERSONNEL RECOVERY AGENCY (@JJSK7, W6EAAA)	89
00335	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00340	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00363	W6DP06	PD CHARCS (@6DP09, W6DPJE)	44
00364	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00365	W6DZ04	PM FORCE PROTECTION SYSTEMS (W6DZJA, @6DZLT)	10

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings



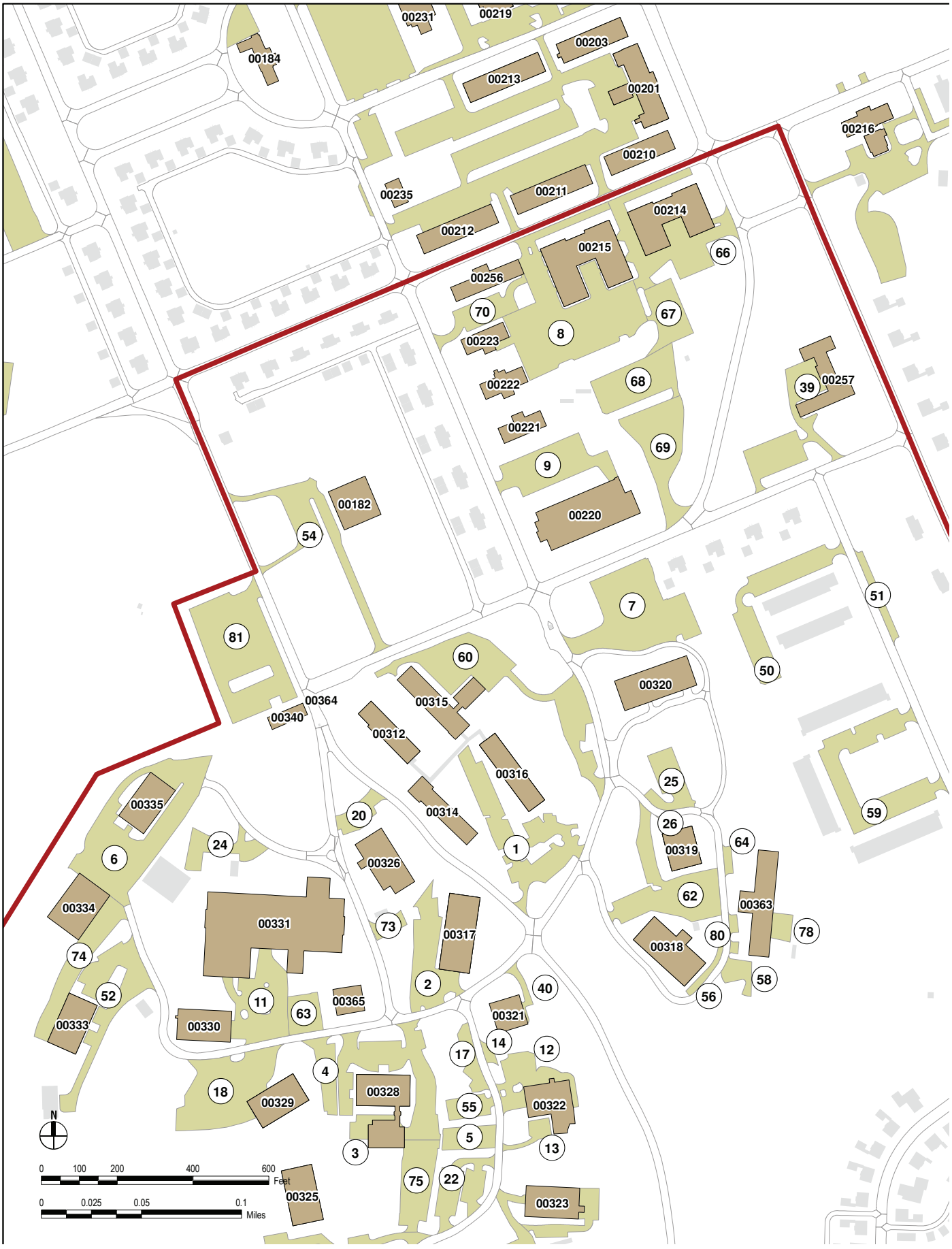
Current as of: 4/26/12

Summary of TAZ 1564-I:

3675 Total PN
3127 Legal Parking Spaces
84% Parking Ratio

Building #	Agency UIC	Agency	Total PN
00305	W4GV75	CECOM LOGISTICS & READINESS CTR, IEWS (@4GVL6)	14
00307	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00309	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00323	<Null>	AKO	50
00324	W6DR!3	PM MEP (@6DR03)	53
00324	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00325	W6DSAA	PROJ MGR SOLDIER SYSTEMS (PEO SOLDIER) (@6DSLP, W6DSNA, !6DSAA)	64
00325	W6DSAA	PROJ MGR SOLDIER SYSTEMS (PEO SOLDIER) (@6DSLP, W6DSNA, !6DSAA)	64
00337	W4HPAA	US ARMY SPECIAL OPS GRND APP PROG OFFICE (GAPO) (@4HPL7)	28
00338	WS0ZAA	464TH TRANSPORTATION CO. (MEDIUM BOAT) (W6KHZU, W6KFJ!, W6KHZJ)	29
00357	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00358	FJJS	HQ JOINT PERSONNEL RECOVERY AGENCY (@JJSK7, W6EAAA)	89
00358	W1YY25	RAPID EQUIPPING FORCE (W1YY26, @1YYK!)	75
00361	W1YY25	RAPID EQUIPPING FORCE (W1YY26, @1YYK!)	75
00361	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00362	W4GV75	CECOM LOGISTICS & READINESS CTR, IEWS (@4GVL6)	14
00362	W6QK31	CECOM CONTRACTING CENTER (@6QKLZ)	21
00362	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00367	W6DT01	PM CLOSE COMBAT SUPPORT (@6DTLQ, W6DTJA)	21
00371	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00380	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00383	<Null>	WAREHOUSE	12
00386	<Null>	TBD	100
00392	W4GV75	CECOM LOGISTICS & READINESS CTR, IEWS (@4GVL6)	14
00392	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00399	W4G828	NVESD (incl AERD, T&E Dir & conter res lab) (@4G8L4)	31
00399	W4GV75	CECOM LOGISTICS & READINESS CTR, IEWS (@4GVL6)	14
00399	W4HPAA	US ARMY SPECIAL OPS GRND APP PROG OFFICE (GAPO) (@4HPL7)	28
00399	W6DP02	PM-NV/RSTA (@6DPLK, W6DPJB)	206
356T1	<Null>	REF	30
356T2	<Null>	REF	30
356T3	<Null>	REF	30
356T4	<Null>	REF	30
358T1	<Null>	REF	30
358T2	<Null>	REF	30

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings


00231
00219
00184
00203
00213
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66
00256
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67
00223
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00222
68
39
00257
00221
69
9
00182
00220
54
7
51
81
60
50
00320
00364
00315
00340
00312
00316
25
00335
20
00314
59
26
24
1
64
00319
6
00326
00334
00331
62
00363
73
00317
80
78
00318
74
2
58
52
40
11
63
00365
56
00333
00330
00321
14
17
12
4
00328
00329
18
55
00322
5
13
3
75
22
00325
00323
N
0 100 200 400 600 Feet
0 0.025 0.05 0.1 Miles

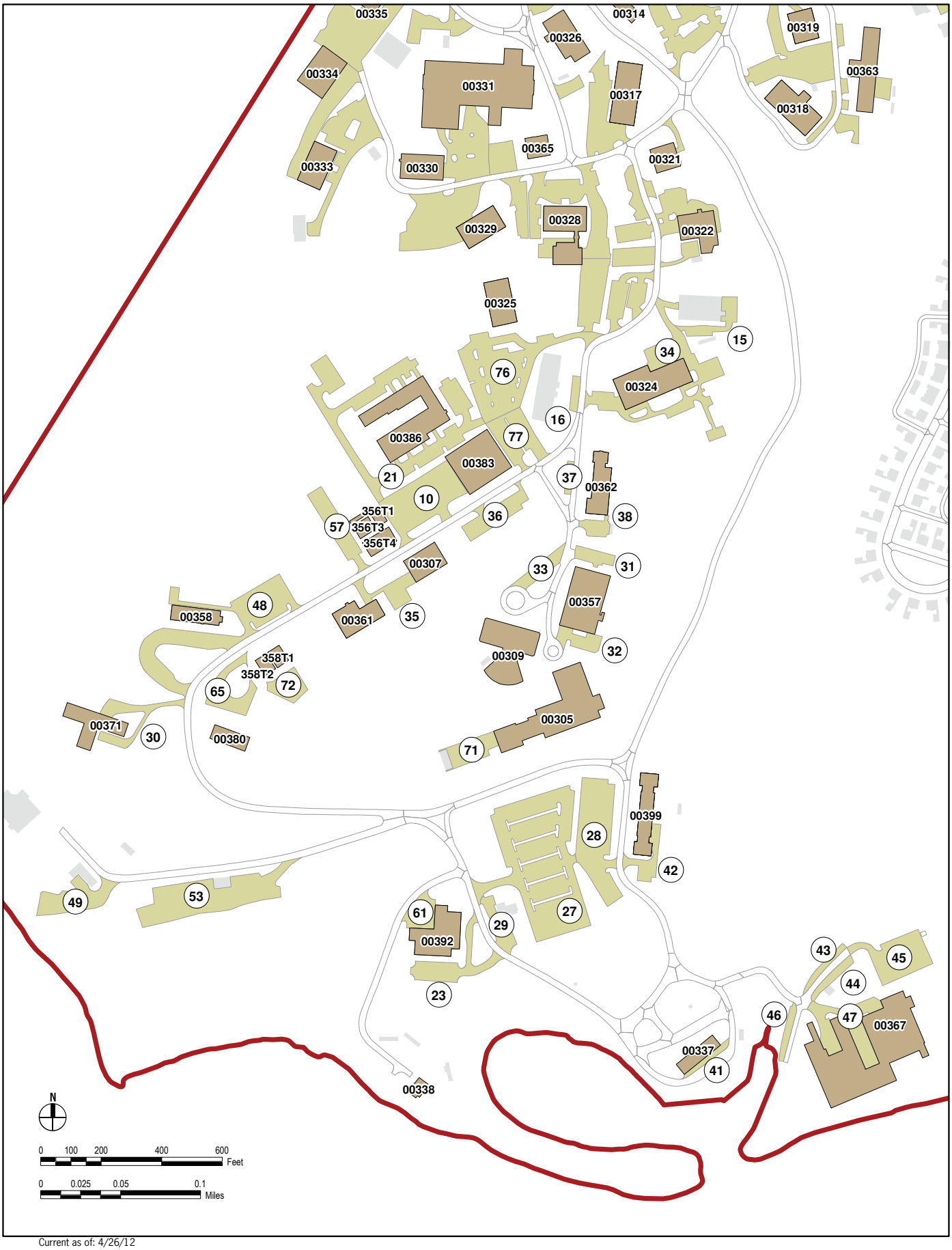
Summary of TAZ 1564-I:

3675 Total PN
3127 Legal Parking Spaces
84% Parking Ratio

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acr
1	50	3			21				74	N	0.8
2	49				3				52	N	0.6
3	63	3			8				74	N	1
4					20				20	N	0.2
5	30								30	N	0.2
6	26	4			8				38	N	1.2
7	79								79	N	1.1
8	117	1		6					118	N	1.7
9	67	4							71	N	0.6
11	28				5				33	N	0.6
12	9	4			5				18	N	0.3
13					3				3	N	0.1
14	4	1			6				11	N	0
17	13				10				23	N	0.1
18	21				1				22	N	0.9
20	9				9				18	N	0.2
22	44								44	N	0.4
24	4								4	N	0.3
25	34								34	N	0.3
26	17								17	N	0
39	50	1						3	54	N	0.6
40	12								12	N	0.1
50	95								95	N	0.6
51	28								28	N	0.1
52	29	1			8				38	N	0.7
54	26	4							30	N	0.6
55	23								23	N	0.1
56	20				1				21	N	0.1
58	12								12	N	0.1
59	93	3							96	N	0.8
60	106			4					106	N	1.1
62	56				2				58	N	0.8
63	14	1			5				20	N	0.2
64	7				1				8	N	0
66	30	1							31	N	0.8
67	15								15	N	0.3
68	56								56	N	0.5
70	25	1							26	N	0.3
73	7								7	N	0.1
74	31				3				34	N	0.5
75	10								10	N	0.4
78	15								15	N	0.1
79		2			1				3	N	0
80		2			3				5	N	0
81	94	2	11		1				97	N	1.2

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary Surveyed Parking Areas



Current as of: 4/26/12

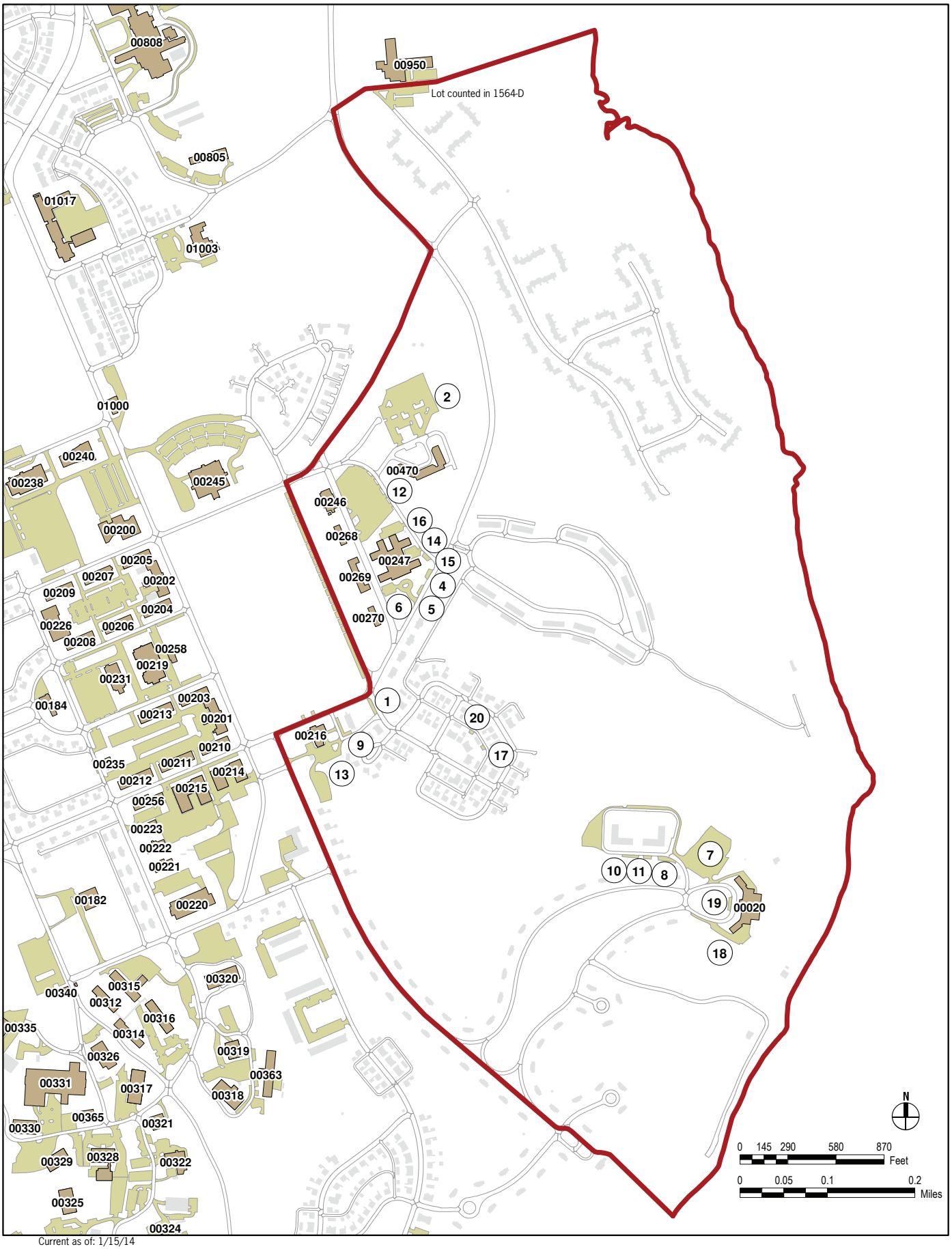
Summary of TAZ 1564-I:

3675 Total PN
3127 Legal Parking Spaces
84% Parking Ratio

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
10	74				7				81	N	0.9
15	21	2			1				24	N	0.2
16	12								12	N	0.1
21	128	1			4				133	N	1.4
23	23	1			10				34	N	0.4
27	205	1			22				228	N	2.2
28	93	3			7				103	N	0.9
29	23								23	N	0.2
30	17								17	N	0.3
31		1			11				12	N	0.1
32	1	1			14				16	N	0.2
33	2	3			19				24	N	0.2
34	49				8				57	N	1
35	14				1				15	N	0.2
36	34	3			3				40	N	0.3
37	2	1			11				14	N	0.1
38	9				4				13	N	0.1
41	11	1			2				14	N	0.1
42	3				5				8	N	0.2
43	15								15	Y	0.1
44	13				6				19	Y	0.1
45	63								63	Y	0.6
46	20				1				21	Y	0.1
47	10	5							15	Y	0.5
48	91	2			18				111	N	1.2
49	6				6				12	N	0.4
53	9								9	N	1.1
57	44	2			6				52	N	0.4
61	1				3				4	N	0.2
65	11								11	N	0.3
71	12				2				14	N	0.3
72	11								11	N	0.2
76	107	1			5				113	N	1.2
77	64								64	N	0.4

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings



Current as of: 1/15/14

Summary of TAZ 1564-J:

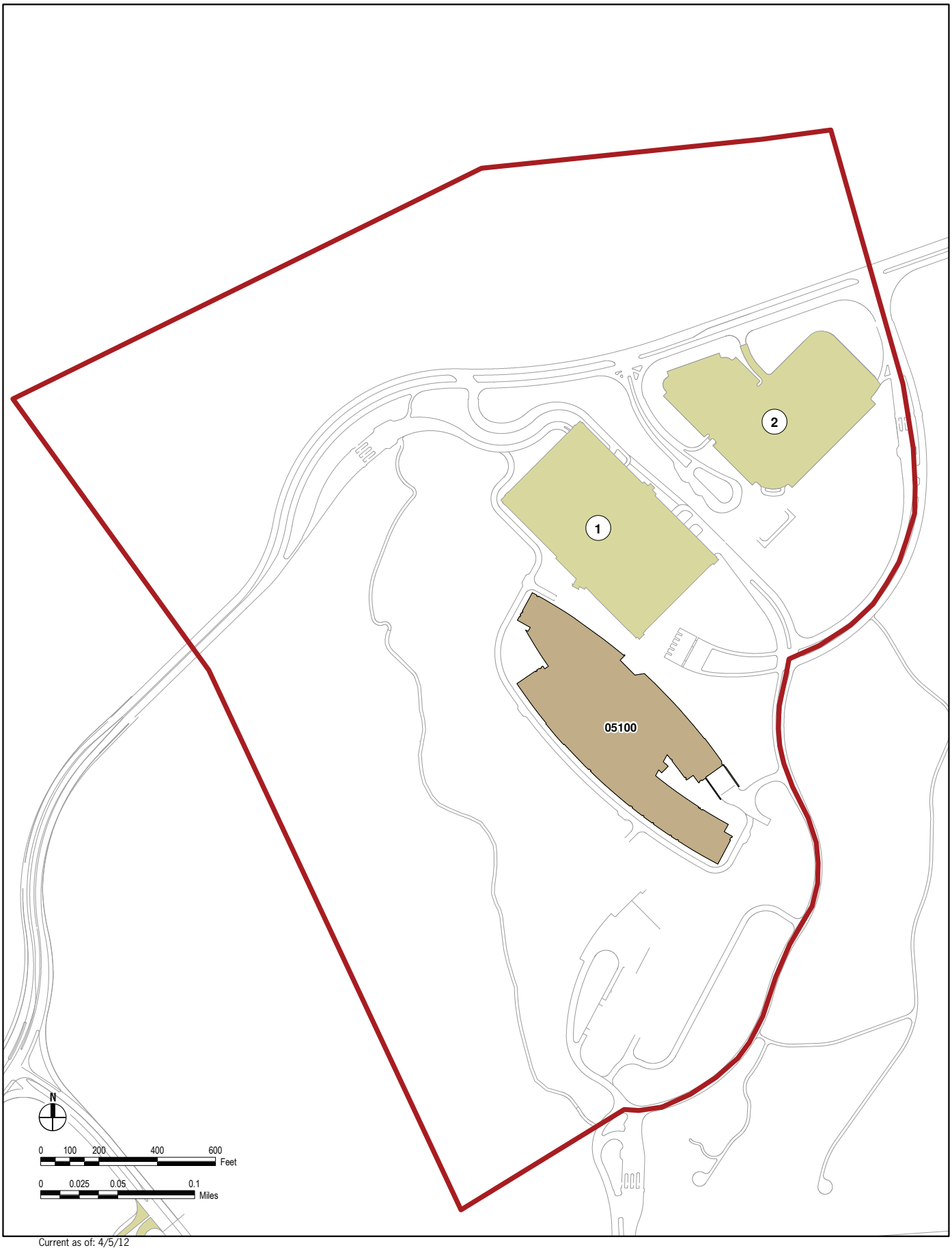
906 Total PN
922 Legal Parking Spaces
98% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
00020	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	30
00216	W00G!A	ASA (FM&C) INTERNAL REVIEW	7
00216	W00G!B	ASA (FM&C) - COST ESTIMATING (@00GKA, !00GAA)	56
00246	W06H07	ITA - DIR OF DEF TELECOM SVC	14
00246	W06H07	ITA - DIR OF DEF TELECOM SVC	14
00247	W0Z2!B	US ARMY FORCE MANAGEMENT SCHOOL (I134/Y, @0Z2KS)	22
00247	W4YXAA	ARMY MANAGEMENT STAFF COLLEGE (!4YXAA, @4YXLG, I704/Y)	145
00247	W303!A	INSPECTOR GEN SCHOOL (I015/Y)	36
00268	WV5KAA	29TH ID (L) (WX49AA, W!VA15, W!VA16, W!VA19, W!VA2Q, W!VA4H, W!VA8F)	115
00269	W4VNAA	USAG FORT BELVOIR (!4VN01, @4VNLE, RE1001, @E10K9, RE3001, REF001)	292
00270	W4YXAA	ARMY MANAGEMENT STAFF COLLEGE (!4YXAA, @4YXLG, I704/Y)	145
00470	HOTEL	STAYBRIDGE HOTEL	30

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	11								11	N	0
2	188	4	14		2				194	N	1.8
4	5								5	N	0
5	6								6	N	0
6					18				18	N	0.3
7	265	4							269	N	2.2
8	13	1							14	N	0.1
9	6	3							9	N	0.1
10	12								12	N	0
11	6								6	N	0
12	232	4			4				240	N	2
13	40	1	16		4	1			46	N	0.9
14		10			2				12	N	0.1
15		6							6	N	0
16	26								26	N	0.2
17	3								3	N	0
18	22				1				23	N	0.4
19	13	6							19	N	0
20	3								3	N	0

**Visitor and Gov't spaces are not included in 60%

Buildings with Known Populations
Surveyed Parking Areas
TAZ Zone Boundary
Other Existing Buildings



Current as of: 4/5/12

Summary of TAZ 1567-B:

8628 Total PN
5122 Legal Parking Spaces
59% Parking Ratio

Building #	Agency UIC	Agency Name	Total PN
05100	!4VN12	NGA (@4VN00)	8361
05100	I802/P	DEFENSE MAPPING SCHOOL (NGA) (I802/Y, I802/T)	267

Lot ID	Unassigned	Handicap	Visitor	Gov't	VIP	Motorcycle	LEV	Rideshare	Total Parking (60%)	Fenced	Acres
1	4938	156				18			5112	N	6
2	0	10	563						11	N	5.4

**Visitor and Gov't spaces are not included in 60%

TAZ Zone Boundary
Surveyed Parking Areas
Buildings with Known Populations
Other Existing Buildings

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Traffic Assessment Details

F

This Appendix contains the details of the traffic count information and associated operational analysis (baseline January 2012) as discussed in ***Section 5 - Traffic Assessment***.

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Existing (2012) Supplemental Traffic Data

F1

Data Collection and Processing Methodology

The majority of the data in Tables F.1 and F.2 was collected during various traffic counting studies conducted between October 2011 and January 2013. During these traffic studies, data was collected for three hours in the AM and PM peak periods on two consecutive midweek days (Tuesday-Thursday). At each location, the starting time of the peak hour was determined separately on each day. Where the individual movement volumes during the peak hours were consistent on both days, the peak hour volumes shown in these tables reflect the average of these two peak hour values. If the volumes for an individual high volume movement were not consistent in the two peak hours, the higher value is shown for that particular movement. As noted in the footnote to Table F.1, some of the locations within the Main Post were collected in 2009 as part of the October 2010 *Fort Belvoir Comprehensive Traffic Engineering Study*.

Table F.1 Existing (2012) Traffic Volumes - Fort Belvoir Intersections									
		AM Peak Hour Volumes				PM Peak Hour Volumes			
		NB	SB	EB	WB	NB	SB	EB	WB
1	John J. Kingman Road and DLA West Gate*	28	0	720	143	49	0	70	974
2	John J. Kingman Road and DLA East Gate	52	1	963	397	584	0	273	765
3	John J. Kingman Road and Beulah Street	52	871	691	323	251	277	510	1145
4	John J. Kingman Road and Gunston Road	389	0	1075	28	1326	0	538	32
5	Gorgas Road and Woodlawn Road	44	21	115	109	32	28	290	96
6	Gunston Road and Abbot Road	421	990	13	160	1223	388	21	123
7	Gunston Road and Goethals Road	479	1022	15	76	1234	423	23	99
8	Gunston Road and 1st Street	423	1015	0	142	903	483	0	396
9	Gunston Road and 9th Street	613	566	0	110	508	594	0	142
10	Gunston Road and 12th St / Pohick Road	206	479	852	307	452	446	305	430
11	Gunston Road and 16th Street	84	510	102	77	293	136	88	140
12	Gunston Road and 21st Street (SC)	84	181	464	1	418	58	35	48
13	Gunston Road and 23rd Street (SC)*	42	519	0	144	495	42	0	56
14	Belvoir Road and Roundabout	307	982	137	5	615	188	504	14
15	Belvoir Road and Surveyor Road	331	618	94	1	744	186	188	0
16	Belvoir Road and 9th Street	306	547	145	27	516	323	210	17
17	Belvoir Road and 12th Street	228	402	443	0	500	191	344	0
18	Belvoir Road and 16th Street (SC)	203	426	116	0	456	174	90	1
19	Belvoir Road and 21st Street (SC)	111	136	34	211	177	140	80	90
20	Belvoir Road and 23rd Street (SC)*	73	47	71	0	81	48	32	0
21	Theote Road and Pohick Road	75	0	1458	138	518	0	294	579
22	Theote Road and 16th Street (SC)*	52	539	45	55	352	36	43	106
23	Flagler Road and 21st Street (SC)*	30	18	228	193	24	24	222	159
24	Mount Vernon Road and Surveyor Road (SC)*	142	419	72	0	373	195	154	0
25	Mount Vernon Road and Gillespie Road (SC)*	25	62	251	73	81	50	113	217
26	Gunston Road and 3rd Street	453	703	2	9	860	346	8	57
27	Gunston Road and Jackson Loop Road North	543	568	51	0	663	460	107	0

**2009 Data from the Fort Belvoir Comprehensive Traffic Engineering Study (Gannett Fleming, 2010).*
SC- indicates stop-controlled intersections.

Table F.2 Existing (2012) Traffic Volumes - Public Road Intersections									
		AM Peak Hour Volumes				PM Peak Hour Volumes			
		NB	SB	EB	WB	NB	SB	EB	WB
28	Franconia-Springfield Parkway Eastbound Exit Ramp to Rolling Road	1683(R)		3415(M)		491(R)		1463(M)	
29	Franconia-Springfield Parkway Westbound on Ramp from Rolling Road	654(R)		857(M)		1667(R)		2940(M)	
30	Franconia-Springfield Parkway and Spring Village Drive	212	100	3660	1015	133	191	1337	3662
31	Backlick Road at Franconia-Springfield Parkway Eastbound Ramps	1291	722	1421	4	1455	1040	595	3
32	Backlick Road at Franconia-Springfield Parkway Westbound Ramps	2405	799	374	10	1730	1939	459	61
33	Franconia-Springfield Parkway and Interstate 95 HOV Ramps	207	0	2571	1151	0	376	1448	2910
34	Frontier Drive at Franconia-Springfield Parkway Eastbound Ramps	384	943	1181	0	1263	1128	385	0
35	Frontier Drive at Franconia-Springfield Parkway Westbound Ramps	725	1080	0	678	1046	1708	0	827
36	Franconia-Springfield Parkway and Beulah Street	1385	623	1965	1246	1160	1088	2092	1367
37	Southbound Barta Road to Eastbound Fairfax County Parkway	64(R)		1414(M)		258(R)		494(M)	
38	Barta Road at Fairfax County Parkway Eastbound Ramps	2	935	599	161	1	601	461	622
38a	Fairfax County Parkway Southbound exit to Barta Road	935(R)		2349(M)		601(R)		1095(M)	
39	Barta Road at Fairfax County Parkway Westbound Ramps	353	0	1208	55	286	0	467	845
39a	Westbound Barta Road entrance to Fairfax County Parkway Northbound	17(R)		980(M)		485(R)		1668(M)	
40	Northbound Barta Road to Westbound Fairfax County Parkway	450(R)		530(M)		441(R)		1227(M)	
41	Northbound Barta Road to Eastbound Fairfax County Parkway	Not Available-Insufficient Data							
42	Barta Road and Backlick Road	1408	675	73	0	812	850	750	0
43	Interstate 95 HOV Access Ramp	Not Available							
44	Interstate 95 Southbound Exit Ramp to Heller Road	Ramp diverge data available, but not applicable							
45	Interstate 95 and Fairfax County Parkway	Not Available							
46	Fairfax County Parkway and Loisdale Road	Not Available							
47	Fairfax County Parkway and Terminal Road	1401	2972	141	53	1663	1706	431	164
48	Fairfax County Parkway and 750' South of Terminal Road	1461	2587	0	70	1675	1683	0	200
49	Telegraph Road and Hayfield Road	647	628	651	163	1055	613	533	99
50	Telegraph Road and Mulligan Road	Not Available							
51	Telegraph Road and Road B (DCEETA Entrance)	39	2	1211	686	319	2	803	932
52	Beulah Street and Telegraph Road	111	876	1412	623	805	710	758	1140
53	Telegraph Road and Newington Road	1269	531	104	0	671	1219	184	0
54	Telegraph Road at Fairfax County Parkway Eastbound Ramps	0	293	1501	362	0	721	458	1327
54a	Fairfax County Parkway Southbound exit to Telegraph Road	293(R)		2017(M)		721(R)		938(M)	
54b	Telegraph Road entrance to Fairfax County Parkway Southbound	409(R)		2017(M)		167(R)		938(M)	
55	Telegraph Road at Fairfax County Parkway Westbound Ramps	151	0	1379	450	533	0	609	1117
55a	Telegraph Road entrance to Fairfax County Parkway Northbound	592(R)		985(M)		232(R)		1327(M)	
55b	Fairfax County Parkway Northbound exit to Telegraph Road	151(R)		1136(M)		533(R)		1860(M)	
56	Fairfax County Parkway at Ehlers Road	Reserved for possible future National Museum of the U.S. Army intersection							
57	Fairfax County Parkway and John J. Kingman Road	1276	2219	12	199	767	1207	51	1582

Table F.2 Existing (2012) Traffic Volumes - Public Road Intersections (Continued)									
		AM Peak Hour Volumes				PM Peak Hour Volumes			
		NB	SB	EB	WB	NB	SB	EB	WB
58	Lorton Road and Interstate 95 Southbound Ramps	Not Available							
59	Lorton Road and Interstate 95 Northbound Ramps	Not Available							
60	Route 1 and Lorton Road	2505	713	751	0	688	3295	239	0
61	Route 1 and Pohick Road	2	422	3322	715	0	345	898	3305
62	Route 1 and Telegraph Road/Old Colchester Road	355	251	3495	611	49	1338	909	2329
63	Route 1 and Fairfax County Parkway	0	855	2467	1490	0	1424	679	2311
64	Pohick Road and Route 1	163	172	2890	1490	800	107	1481	1673
65	Belvoir Road and Route 1	234	0	1992	1693	822	0	1228	1413
66	Woodlawn Road and Route 1	0	2	1457	1738	0	2	1530	1527
67	Mulligan Road and Mill Road/Pole Road (SC)	81	1	0	222	219	0	174	112
68	Mount Vernon Memorial Highway and Route1	375	255	1454	1342	490	157	1647	1033
69	Mount Vernon Memorial Highway and Mount Vernon Road (SC)	790	565	189	0	511	441	600	0

SC- indicates stop-controlled intersections.

£ Some locations are ramps, and that volume is reported as a ramp volume (R) and a mainline volume (M). For diverging ramps (exit ramps), the ramp volume is included in the mainline volume.

TAZ Structure for 2017 and 2030 Employment and Household Populations

F2

Table F.3 2017 Employment Comparison in Fort Belvoir Study Area (Zone Split)

COG	TAZ	2017 NO BUILD (2013 ADJ.)					2017 ALT. 1				
		TOTEMP	INDEMP	RETEMP	OFFEMP	OTHEMP	TOTEMP	INDEMP	RETEMP	OFFEMP	OTHEMP
2112	382	5,395	60	347	4,988	0	6,505	60	347	5,988	110
2112	770	750	7	42	677	25	910	7	117	677	110
2112	777	2,663	29	168	2,416	50	3,216	29	168	2,716	303
2036	2036	2,260	18	0	2,115	127	2,260	18	0	2,115	127
2089	2089	9,541	86	82	9,337	35	10,022	86	82	9,747	106
2090	2090	0	0	0	0	0	0	0	0	0	0
2111	2111	1,440	487	0	925	28	1,783	487	0	925	370
2112	2112	1,532	17	99	1,417	0	2,578	17	99	2,363	100
2123	2123	8,822	0	0	8,743	79	8,822	0	0	8,743	79
2124	2124	11	0	0	0	11	11	0	0	0	11
2036	2555	424	3	0	320	102	424	3	0	320	102
2036	2629	0	0	0	0	0	0	0	0	0	0
2089	3103	837	8	7	822	0	837	8	7	822	0
2089	3266	1,322	12	11	1,296	4	1,327	12	11	1,296	8
2089	3267	4,871	44	42	4,770	15	5,341	44	42	5,170	85
2112	3478	0	0	0	0	0	100	0	0	0	100
TOTAL		**39,869**	**769**	**799**	**37,826**	**475**	**44,136**	**769**	**874**	**40,882**	**1,611**

Table F.4 2030 Employment Comparison in Fort Belvoir Study Area (Zone Split)

COG	TAZ	2030 NO BUILD (2013 ADJ.)					2030 ALT. 1				
		TOTEMP	INDEMP	RETEMP	OFFEMP	OTHEMP	TOTEMP	INDEMP	RETEMP	OFFEMP	OTHEMP
2112	382	5,395	60	347	4,988	0	6,505	60	347	5,988	110
2112	770	750	7	42	677	25	1,010	7	117	677	210
2112	777	2,663	29	168	2,416	50	4,416	29	168	2,716	1,503
2036	2036	2,260	18	0	2,115	127	2,260	18	0	2,115	127
2089	2089	9,541	86	82	9,337	35	11,952	86	82	11,277	506
2090	2090	0	0	0	0	0	0	0	0	0	0
2111	2111	1,440	487	0	925	28	1,783	487	0	925	370
2112	2112	1,532	17	99	1,417	0	2,578	17	99	2,363	100
2123	2123	8,822	0	0	8,743	79	16,322	0	0	16,243	79
2124	2124	11	0	0	0	11	11	0	0	0	11
2036	2555	424	3	0	320	102	424	3	0	320	102
2036	2629	0	0	0	0	0	0	0	0	0	0
2089	3103	837	8	7	822	0	837	8	7	822	0
2089	3266	1,322	12	11	1,296	4	2,527	12	11	1,296	1,208
2089	3267	4,871	44	42	4,770	15	5,441	144	42	5,170	85
2112	3478	0	0	0	0	0	100	0	0	0	100
TOTAL		**39,869**	**769**	**799**	**37,826**	**475**	**56,166**	**869**	**874**	**49,912**	**4,511**

Table F.5 2017 Population Comparison in Fort Belvoir Study Area

TAZ	2017 NO BUILD (2013 ADJ.)				2017 ALT. 1			
	HH	HHPOP	GQPOP	TOTPOP	HH	HHPOP	GQPOP	TOTPOP
382	0	0	0	0	0	0	0	0
770	0	0	0	0	0	0	0	0
777	0	0	778	778	0	0	778	778
2036	0	0	0	0	0	0	0	0
2089	517	1,843	620	2,462	517	1,843	620	2,462
2090	0	0	0	0	0	0	0	0
2111	0	0	0	0	0	0	0	0
2112	0	0	0	0	0	0	0	0
2123	0	0	0	0	0	0	0	0
2124	0	0	0	0	0	0	0	0
2555	277	988	0	988	277	988	0	988
2629	340	1,212	0	1,212	340	1,212	0	1,212
3103	0	0	0	0	0	0	0	0
3266	870	3,099	203	3,302	870	3,099	203	3,302
3267	101	358	0	358	101	358	0	358
3478	0	0	0	0	0	0	0	0
TOTAL	**2,106**	**7,500**	**1,600**	**9,100**	**2,106**	**7,500**	**1,600**	**9,100**

Table F.6 2030 Population Comparison in Fort Belvoir Study Area

TAZ	2030 No Build (2013 Adj.)				2030 Alt. 1			
	HH	HHPOP	GQPOP	TOTPOP	HH	HHPOP	GQPOP	TOTPOP
382	0	0	0	0	0	0	0	0
770	0	0	0	0	112	400	0	400
777	0	0	778	778	0	0	778	778
2036	0	0	0	0	0	0	0	0
2089	517	1,843	620	2,462	555	1,975	620	2,595
2090	0	0	0	0	0	0	0	0
2111	0	0	0	0	0	0	0	0
2112	0	0	0	0	0	0	0	0
2123	0	0	0	0	0	0	0	0
2124	0	0	0	0	0	0	0	0
2555	277	988	0	988	272	970	0	970
2629	340	1,212	0	1,212	374	1,330	0	1,330
3103	0	0	0	0	0	0	0	0
3266	870	3,099	203	3,302	678	2,416	203	2,618
3267	101	358	0	358	115	409	0	409
3478	0	0	0	0	0	0	0	0
TOTAL	**2,106**	**7,500**	**1,600**	**9,100**	**2,106**	**7,500**	**1,600**	**9,100**

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Short-Term (2017) Supplemental Traffic Data

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Table F.7 Short-Term (2017) Traffic Volumes - Fort Belvoir Intersections									
		AM Peak Hour Volumes				PM Peak Hour Volumes			
		NB	SB	EB	WB	NB	SB	EB	WB
1	John J. Kingman Road and DLA West Gate*								
2	John J. Kingman Road and DLA East Gate								
3	John J. Kingman Road and Beulah Street								
4	John J. Kingman Road and Gunston Road								
5	Gorgas Road and Woodlawn Road								
6	Gunston Road and Abbot Road								
7	Gunston Road and Goethals Road								
8	Gunston Road and 1st Street								
9	Gunston Road and 9th Street								
10	Gunston Road and 12th St / Pohick Road								
11	Gunston Road and 16th Street								
12	Gunston Road and 21st Street (SC)								
13	Gunston Road and 23rd Street (SC)*								
14	Belvoir Road and Roundabout								
15	Belvoir Road and Surveyor Road								
16	Belvoir Road and 9th Street								
17	Belvoir Road and 12th Street								
18	Belvoir Road and 16th Street (SC)								
19	Belvoir Road and 21st Street (SC)								
20	Belvoir Road and 23rd Street (SC)*								
21	Theote Road and Pohick Road								
22	Theote Road and 16th Street (SC)*								
23	Flagler Road and 21st Street (SC)*								
24	Mount Vernon Road and Surveyor Road (SC)*								
25	Mount Vernon Road and Gillespie Road (SC)*								
26	Gunston Road and 3rd Street								
27	Gunston Road and Jackson Loop Road North								

**2009 Data from the Fort Belvoir Comprehensive Traffic Engineering Study (Gannett Fleming, 2010).*
SC- indicates stop-controlled intersections.

Table F.8 Short-Term (2017) Traffic Volumes - Public Road Intersections									
		AM Peak Hour Volumes				PM Peak Hour Volumes			
		NB	SB	EB	WB	NB	SB	EB	WB
28	Franconia-Springfield Parkway Eastbound Exit Ramp to Rolling Road								
29	Franconia-Springfield Parkway Westbound on Ramp from Rolling Road								
30	Franconia-Springfield Parkway and Spring Village Drive								
31	Backlick Road at Franconia-Springfield Parkway Eastbound Ramps								
32	Backlick Road at Franconia-Springfield Parkway Westbound Ramps								
33	Franconia-Springfield Parkway and Interstate 95 HOV Ramps								
34	Frontier Drive at Franconia-Springfield Parkway Eastbound Ramps								
35	Frontier Drive at Franconia-Springfield Parkway Westbound Ramps								
36	Franconia-Springfield Parkway and Beulah Street								
37	Southbound Barta Road to Eastbound Fairfax County Parkway								
38	Barta Road at Fairfax County Parkway Eastbound Ramps								
38a	Fairfax County Parkway Southbound exit to Barta Road								
39	Barta Road at Fairfax County Parkway Westbound Ramps								
39a	Westbound Barta Road entrance to Fairfax County Parkway Northbound								
40	Northbound Barta Road to Westbound Fairfax County Parkway								
41	Northbound Barta Road to Eastbound Fairfax County Parkway								
42	Barta Road and Backlick Road								
43	Interstate 95 HOV Access Ramp								
44	Interstate 95 Southbound Exit Ramp to Heller Road								
45	Interstate 95 and Fairfax County Parkway								
46	Fairfax County Parkway and Loisdale Road								
47	Fairfax County Parkway and Terminal Road								
48	Fairfax County Parkway and 750’ South of Terminal Road								
49	Telegraph Road and Hayfield Road								
50	Telegraph Road and Mulligan Road								
51	Telegraph Road and Road B (DCEETA Entrance)								
52	Beulah Street and Telegraph Road								
53	Telegraph Road and Newington Road								
54	Telegraph Road at Fairfax County Parkway Eastbound Ramps								
54a	Fairfax County Parkway Southbound exit to Telegraph Road								
54b	Telegraph Road entrance to Fairfax County Parkway Southbound								
55	Telegraph Road at Fairfax County Parkway Westbound Ramps								
55a	Telegraph Road entrance to Fairfax County Parkway Northbound								
55b	Fairfax County Parkway Northbound exit to Telegraph Road								
56	Fairfax County Parkway at Ehlers Road								
57	Fairfax County Parkway and John J. Kingman Road								

Table F.8 Short-Term (2017) Traffic Volumes - Public Road Intersections (Continued)									
		AM Peak Hour Volumes				PM Peak Hour Volumes			
		NB	SB	EB	WB	NB	SB	EB	WB
58	Lorton Road and Interstate 95 Southbound Ramps								
59	Lorton Road and Interstate 95 Northbound Ramps								
60	Route 1 and Lorton Road								
61	Route 1 and Pohick Road								
62	Route 1 and Telegraph Road/Old Colchester Road								
63	Route 1 and Fairfax County Parkway								
64	Pohick Road and Route 1								
65	Belvoir Road and Route 1								
66	Woodlawn Road and Route 1								
67	Mulligan Road and Mill Road/Pole Road (SC)								
68	Mount Vernon Memorial Highway and Route1								
69	Mount Vernon Memorial Highway and Mount Vernon Road (SC)								

SC- indicates stop-controlled intersections.

£ Some locations are ramps, and that volume is reported as a ramp volume (R) and a mainline volume (M). For diverging ramps (exit ramps), the ramp volume is included in the mainline volume.

Strategy Framework Plans

G

This Appendix contains the Framework Plans for the 20 potential trip-reduction strategies that are referenced in ***Section 6.5 Potential Strategies.***

Strategy PM -1. Implement designated parking, Installation-wide.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.	■	
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.		■
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40% of commuters using non-SOV options.		■

WHY it is important: Designated parking spaces are intended for certain occupants and are clearly signed and/or striped as such, including: visitors, community functions (such as gyms, theaters, etc.), carpools, vanpools, low-emission vehicles, housing, and government storage. Signing and striping on their own (separate from enforcement) can be a deterrent to commuters parking in areas that are not intended for their use. As discussed in Section 4 Parking Assessment, designated visitor, housing, and storage spaces are not included in the commuter parking ratio. Therefore, implementation of this strategy will lower the overall parking ratio at the Installation.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Reduces the overall parking ratio by correctly removing non-commuter spaces from the calculation
  - Standardizes parking throughout the Installation
  - Increases understanding of the existing parking supply, demand, and needs
  - Reduces illegal parking
  - Reduces commuters using parking that is intended for other purposes (such as community functions)
- **Benefits to Agencies:**
  - Reduces agency parking ratios by correctly removing non-commuter spaces from the calculation
  - Allows unique parking needs of agencies to be understood and met
  - Standardizes guidance for all agencies
  - Improves parking for agency visitors by clearly designating spaces for their use
- **Benefits to Employees:**
  - Increases awareness of allowable parking
  - Awards employees who choose to rideshare

HOW it gets done:

- All tenant agency parking lots, new and existing, should include designated parking for visitors, priority parking, and storage:
  - Consider newer agencies that recently designated parking as a model for implementation.
  - Create a design standard to be distributed to agencies for ease of implementation.
  - For established agencies, determine demand through agency collaboration, and sign/stripe accordingly.
- If entire parking lots are intended for a specific purpose such as the PX/Commissary, gyms, recreation areas, etc. and not intended for commuter use include:
  - Signs at entrances and/or
  - Striping each space in that area
- If areas are not intended for any parking, install "do not park" signs (such as along roadway shoulders or in open areas where illegal parking is observed). This will allow those areas to be enforced by MPs under existing policy. However, the Garrison does not want to have excessive signage for aesthetics and cost reasons.
- Determine process, such as emails or news stories, to inform Installation employees about parking requirements, improvements, and signing/striping designation definitions.

CONCLUSIONS: This is the first step towards successfully managing parking at Fort Belvoir and can happen immediately under the current parking contract. Monitoring and enforcing parking are successive steps that rely upon signed and striped parking.

Strategy PM - 2. Monitor parking throughout the Installation to identify and assess improvements to parking operations.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.	■	
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.		■
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40% of commuters using non-SOV options.		■

WHY it is important: This strategy is intended as a proactive approach to improve parking operations for the entire Installation, including common areas as well as tenant parking. Identification of parking opportunities/challenges and subsequent improvements can guide development and determine innovative solutions that are not currently in place. Certain improvements can help reduce parking in accordance with requirements, while others have the potential to minimize the need of expanded enforcement by Fort Belvoir.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Explores innovative improvements to solve parking challenges
  - Identifies ongoing deficiencies, challenges, and needs through monitoring
  - Identifies opportunities for shared parking as new development occurs, such as new structures
  - Reduces the parking ratio as new development occurs
  - Standardizes parking throughout the Installation
  - Manages where commuters can park
  - Minimizes future parking enforcement
- **Benefits to Agencies:**
  - Incorporates agency site parking into an overall monitoring effort
  - Minimizes individual burden of each agency
  - Provides standardized guidance to agencies
  - Reduces cost to construct and maintain facilities
  - Eliminates excess facilities and reduces footprint on the land as well as maintenance costs
- **Benefits to Employees:**
  - Increases employee awareness of parking requirements and procedures

HOW it gets done: Monitoring is completed by maintaining the Parking Inventory (that was completed as part of this TMP) as development and improvements occur. Potential future improvements, while requiring additional funding sources and coordination with DES, include:

- Standardizing visitor parking for all agencies.
  - For example, requiring agency-issued placard to park in a designated visitor parking space
  - Necessary step for enforcement
- Installing gates at every tenant parking area that allow only identified personnel into the areas.
  - Essentially assigns each agency to a parking area(s), but allows for multiple agencies to share a single parking area
  - Employees would need a card to enter
  - Manages where employees can park while limiting the need for enforcement
- Issuing parking decals to all employees.
  - Tied to parking areas within the Installation (i.e., designated decal areas)
  - Parking violators could lose the parking decal
- Implementing time-limited parking in common areas.
  - For example, two-hour limit along 12th Street and in the PX/Commissary area with kiosks in each area that prints time-stamped receipts to be placed in the vehicle
  - Purpose is to limit common area parking from commuter use without charging for it
- Strategies that can be beneficial in general but likely not viable given projected growth at Fort Belvoir:
  - Paid parking (single occupant vehicles) to limit the supply/demand of parking spaces
  - Centralizing a single parking lot

CONCLUSIONS: The success of this strategy relies on the prior implementation of designated parking (PM-1). Monitoring parking is crucial to the TMP Monitoring Plan.

Strategy PM - 3. Implement expanded parking enforcement policies.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.	■	
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.		■
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40% of commuters using non-SOV options.		■

WHY it is important: Without enforcement, parking management at Fort Belvoir will not be as effective. For example, while signing and striping areas can deter improper use, violations will occur unless commuters know that there are active repercussions. The Garrison (Military Police) is the entity that enforces parking as agencies cannot ticket or tow. Enforcement is an important final parking management step to ensure that commuters and agencies are being held accountable to parking requirements.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Advances the success of parking management at Fort Belvoir
  - Ensures compliance with parking requirements
  - Reduces illegal parking
- **Benefits to Agencies:**
  - Increases on-site compliance with parking allocations since agencies cannot enforce themselves
- **Benefits to Employees:**
  - No direct benefits; managing and enforcing parking is viewed as a negative by employees

HOW it gets done:

- While coordinating with DES, draft the expanded parking policy to include ticketing and/or towing of:
  - Priority parking
  - Commuter parking in common areas
- Obtain approval of policy.
- Requires standardized designated parking spaces and visitor policies.
- Will likely require additional funding to implement.

CONCLUSIONS: Expanding the enforcement policy is contingent upon implementation of other parking management strategies (PM-1 and PM-2) and cannot be determined until those decisions are made. For example, until spaces are clearly designated Installation-wide, there is nothing more to enforce.

Strategy AC - 1. Establish a designated Employee Transportation Coordinator (ETC) at each agency, beginning with those 100 personnel or greater.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.		■
Align with regional initiatives.	■	
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40% of commuters using non-SOV options.		■

WHY it is important: The Garrison, with its ~39,000 employees, cannot meet TMP requirements alone. Nor can each agency separately provide their employees with comprehensive access to Installation and regional resources. Success on both levels lies in proactive communication, collaboration, and partnerships between Fort Belvoir and their 140+ mission partners. An ETC at each agency would provide a means for the mutually beneficial information exchange and pooling of resources with the already established Fort Belvoir TMP Coordinator and TDM Working Group meetings.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Provides a mechanism to engage every agency in the implementation of the TMP
  - Increases understanding of individual agency needs and challenges
  - Improves coordination of Installation resources
  - Streamlines communication and outreach efforts
  - Increases participation in and success of TMP efforts
- **Benefits to Agencies:**
  - Ensures the needs of all agencies are being met
  - Gives each agency a "voice" with Installation resources
  - Increases access to resources and information
  - Removes duplication of efforts by agencies and the Installation
- **Benefits to Employees:**
  - Provides a single, accessible, known co-worker to approach with questions or problems

HOW it gets done:

- Requires endorsement by agency leadership since such a position could be viewed as above or beyond agency mission. Agreeing on a job description is a joint responsibility of the agency and the Installation.
- For incoming agencies, identify an ETC at the agency.
- For established agencies without a designated ETC, utilize the existing Task Environmental Officer at each agency.
- Determine if an additional or secondary ETC position is needed to successfully accomplish the tasks and responsibilities of a ETC, or to have an alternate person to contact when the ETC is not available. ETC could be a full- or part-time position, depending on agency size and needs. Responsibilities could include:
  - Participation in TDMWG meetings
  - Reporting to agency leadership on the goals and initiatives of the TMP
  - Implementing Belvoir TMP strategies at the agency-level
  - Proactively communicating site and employee needs
  - Outreaching information and resources to employees
  - Providing baseline data to Fort Belvoir
  - Defining annual work plans
  - Reporting on work plan, strategies, and baseline data

CONCLUSIONS: This strategy is one of the most important first steps of the TMP because 1) it is how the TMP can impact all Installation personnel and 2) its immediate implementation will benefit and enable numerous other strategies. This strategy is also crucial to the ongoing monitoring of TMP success.

Strategy AC - 2. Establish a standardized agreement between Fort Belvoir and agencies for TMP commitments, beginning with those 100 personnel or greater.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.	■	
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.	■	
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40% of commuters using non-SOV options.		■

WHY it is important: The intent of this strategy is to formalize the agreement process between mission partners and Fort Belvoir. This official contract is essential to communicate and agree upon the expected roles and responsibilities of TMP-related items. Standardizing such an agreement ensures that each agency is held equally accountable. These commitments are important to achieving overall TMP success because certain elements fall outside the direct influence of Fort Belvoir. For example, telework and alternate work schedule policies are under the purview of each agency, not the Garrison (which already has its own policies). This type of agreement is how Fort Belvoir can influence agency-level decisions.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Creates standardized agreements to which all agencies are held
  - Ensures that agencies are bound and contributing to the success of the TMP
  - Clarifies expectations and responsibilities
  - Streamlines communication between the Installation and agencies
  - Sets the precedent to which all future development is held
- **Benefits to Agencies:**
  - Establishes a framework for leadership level buy-in at each agency
  - Guarantees that no agency is unnecessarily burdened
  - Provides clear roles, responsibilities, and tools
- **Benefits to Employees:**
  - Increases access to information and scheduling options that are available to employees

HOW it gets done:

- Requires leadership-level understanding and approval.
- Preparing agreement language could take a number of forms, such as a stand-alone Memorandum of Understanding (MOU) or integrated as part of the Installation Services Support Agreement (ISSA).
  - Every agency has an ISSA, which is renewed at least every two years.
  - Current agency-level TMP protocol is signing an ISSA.
- Elements of the agreement could include:
  - Ongoing coordination and communication to the Fort Belvoir TMP Coordinator, as needed
  - Establishing an ETC at the agency
  - Establishing the roles and responsibilities of the ETC, the agency and the Installation
  - Establishing telework/scheduling policies for all personnel, given mission needs
  - Determining and managing parking demands at the site
  - Establishing a process for visitors and visitor parking
  - Implementing designated at the site
  - Providing support facilities for bicycling and walking

CONCLUSIONS: This strategy is crucial to establish and maintain a working relationship between Fort Belvoir and its 140+ mission partners to collectively move forward the TMP. It is an important first step that can be implemented immediately.

Strategy AC - 3. Expand the role of the TDM Working Group actively set policies and best practices for implementation of the TMP.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.		■
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.		■
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40% of commuters using non-SOV options.		■

WHY it is important: The TDM Working Group (TDMWG) is an opportunity to collectively influence the success of the TMP vision and goals, and actively engage in its implementation. Through this already established structure, Fort Belvoir can immediately begin to work with the TDMWG to take full advantage of agency representation, expertise, and experience. This is the vehicle that can successfully undertake the TMP strategies by updating, expanding and possibly reorganizing the representation, roles, and responsibilities of the TDMWG. For example, the TDMWG could become an representative and participant in regional meetings. One action that will greatly benefit from this strategy is taking a collective approach for information outreach. Embracing the TDMWG goes a long way in providing full involvement of everyone.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Supports and advances the role of the TMP Coordinator
  - Utilizes an existing structure to advance the TMP
  - Provides a collaborative approach and an efficient process for TMP implementation
  - Actively involves everyone – Installation, agencies and prominent stakeholders
  - Streamlines the outreach process to engage agencies (saves time and effort)
- **Benefits to Agencies:**
  - Gives the agency a "voice" in the Fort Belvoir TMP efforts
  - Effectively utilizes agency involvement (saves time and effort)
- **Benefits to Employees:**
  - Increases accessibility to readily available commuter information and mobility choices
  - Provides for improvements and options to commuting to all employees

HOW it gets done:

- Examine existing TDMWG representation and expand to engage representation from a greater number of agencies and stakeholders.
- Set roles and responsibilities so that each representative contributes to implementing action items.
- Create a TDM Working Group Action Plan, updating every two years based on successful measures.
- Determine if monthly group meetings are the most effective measure for communication and action, or whether other measures would be more effective.

CONCLUSIONS: This strategy can be implemented immediately, and is a cost-effective and forward-thinking collaborative process to increase information outreach and achieve TMP success.

Strategy RC - 1. Partner with all transit stakeholders to improve service to and from the Installation.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.	■	
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.	■	
TMP Target:		
At least 40% of commuters using non-SOV options.	■	

WHY it is important: Fort Belvoir employees commute to and from the Installation on transportation facilities that are managed by others. Because Fort Belvoir has no direct control over this network, it is imperative that the Installation engages and participates in regional discussions and decision-making that influences transit improvements in the interest of Fort Belvoir and its future demands. Transit providers actively adjust to meet Fort Belvoir's needs, within budgets and demands. Improving regional connections to the Installation or planning for transportation connectivity and facilities to increase transit as an alternative travel mode can directly lead to reducing single-occupancy vehicle trips.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Strengthens regional partnerships and public relations with outside stakeholders
  - Capitalizes on regional resources to increase the number of employees who use transit
  - Increases effectiveness of stakeholder transit facilities and infrastructure
  - Increases understanding of regional initiatives
  - Improves coordination of Installation support services and facilities
  - Provides potential pooling of resources
  - Reduces traffic congestion and bottlenecks
  - Reduces the number of commuter vehicles coming to the Installation
- **Benefits to Agencies:**
  - Improves commuting options for agency employees at no or minimal cost to agency
  - Reduces the number of vehicles parking at the site
- **Benefits to Employees:**
  - Provides real transit options that are connected and convenient
  - Decreases travel time and stress for transit commuters

HOW it gets done:

- Establish a structure to actively and proactively engage with stakeholders on a regular basis both internally and externally:
  - Externally, Fort Belvoir is an established representative at stakeholder meetings and takes part in regional initiatives, such as the Commuter Ferry.
  - Internally, establish transit stakeholders as participants in focused or regular meetings such as being a representative at the TDWMG.
- Determine in advance desired improvements, connections or projects in which to collaborate with stakeholders:
  - Connections to the Franconia-Springfield Transit Center and Lorton VRE Station.
  - Connections to the future Route 1 Enhanced Public Transportation Corridor.
  - Improvements to bus service:
    - Expand peak-hour service routes and schedules throughout the Installation.
    - Accommodate all-day travel.
    - Eliminate redundant service with Installation and agency shuttles.
    - Plan for the demands of future populations.
- Identify ways to pool resources such as information outreach or facility construction.

CONCLUSIONS: The Garrison can continue to improve on its ongoing collaborative efforts to align with regional transit stakeholders and expand transit choices for its employees. There are numerous forward-thinking benefits to the Installation if this strategy is embraced immediately.

Strategy RC - 2. Coordinate with Fairfax County on mutually beneficial locations for improvements and facilities as shown in their Comprehensive Plan.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.	■	
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.		■
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40% of commuters using non-SOV options.	■	

WHY it is important: In their Comprehensive Plan, Fairfax County has identified numerous initiatives to improve the roadway network as well as providing for future multimodal options. These options include identification of: Route 1 as an Enhanced Public Transportation Corridor (EPTC); two transit transfer centers to serve the EPTC; park and ride lots; Potomac Heritage Trail and other trails; and potential intersection improvements to increase mobility between Fort Belvoir and the regional roadways. As part of its Master Plan, Fort Belvoir has identified roadway and multimodal improvements to support development and circulation as the Installation grows. Coordination between the County and Fort Belvoir is imperative to determine mutually beneficial locations of these improvements, and to utilize knowledge about the Installation to guide analysis and implementation.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Integrates Installation and Fairfax County resources and development
  - Guides County initiatives with Installation knowledge
  - Capitalizes on County resources to improve conditions at the Installation
  - Saves time and money by collaborating efforts and resources that benefit all parties
- **Benefits to Agencies:**
  - Provides improved access and options to the Installation at no or minimum cost to the agency
- **Benefits to Employees:**
  - Provides improved access and options to the Installation
  - Reduces commute times on transit

HOW it gets done:

- Initiate communication and collaboration through regular and ongoing working group meetings.
- Examine the best approach for implementing improvements, such as the transit transfer centers as shown in the Comprehensive Plan. Fort Belvoir, given its development initiatives, has specific locations where it would prefer the centers to be located to achieve the most benefits for the Installation.

CONCLUSIONS: This is a useful TMP strategy; however, the extent of its implementation at this time (inclusion in the Implementation Plan) is dependent upon what is already occurring to collaborate with Fairfax County to move forward any current efforts. As future development occurs, it could also be considered an effective strategy for implementation as improvement and facilities are initiated.

Strategy IO - 1. Develop a TMP marketing campaign.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40% of commuters using non-SOV options.	■	

WHY it is important: A cohesive marketing campaign that showcases Fort Belvoir-specific resources on "how to get there" is a simple yet effective tool to increase employee awareness Installation-wide. Providing targeted information directly to employees removes the time and uncertainty from having to individually search separate regional resources. It also removes the redundancy and potentially incomplete and outdated information that each agency may be distributing to its employees. A Fort Belvoir brand establishes a standard and recognizable image that can be used on a line of marketing materials that Fort Belvoir, agencies, and others use to disseminate information about mobility choices.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Creates a Fort Belvoir branding for electronic and printed materials that unites all marketing efforts
  - Establishes a recognizable and unified line of products for distribution
  - Coordinates efforts (saves time and cost) of all information outreach efforts Installation-wide
  - Increases awareness of mobility options
  - Increases use of non-SOV travel modes
- **Benefits to Agencies:**
  - Provides agencies with a comprehensive line of products for their use
  - Saves time and money of creating unique and independent materials
  - Reduces duplication of efforts at the agency level
  - Gives agencies the flexibility to include site-specific information to a line of products
- **Benefits to Employees:**
  - Increases awareness with information that is easy-to-understand, accessible and all-inclusive
  - Removes uncertainty of not knowing how transit, trails, etc. connect to the Installation

HOW it gets done: There are four distinct steps to creating a successful marketing campaign:

- Develop a Fort Belvoir "brand" for all elements of the marketing campaign that employees instantly remember and associate with, such as:
  - Logo
  - Slogan
  - Iconic images
- Create targeted materials after understanding and incorporating existing marketing materials:
  - Transit routes, schedules, and fares
  - Trails
  - Internal circulator and shuttles
  - The true "cost" of commuting
  - Installation parking requirements and designations
  - Regional transit benefits such as Guaranteed Ride Home and transit subsidy
  - Telework and alternate work schedules, as applicable since agencies dictate scheduling
  - New employee information that gets distributed prior to their first day
  - Site-specific materials for agencies
- Produce materials.
- Establish a process for dissemination of product line that incorporate brand image, such as:
  - Commuter Centers and kiosks; Commuter Fairs; Webinars; Distribution at agencies and regional locations such as transit centers; and Electronic marketing elements such as webpages, electronic kiosks, mobile apps, etc.

CONCLUSIONS: This can be a low-cost, high-yield strategy that is important to begin immediately, updated on a regular basis, and continue as additional information and options become available.

Strategy IO - 2. Modernize the concept of the "Commuter Fair."

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.		■
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40% of commuters using non-SOV options.		■

WHY it is important: While over half of Fort Belvoir employees were aware of the ongoing Commuter Fairs as of the 2011 Commuter Survey, only a small percentage of them actually had attended one. In this age of ever-present technology, people expect and want information at their fingertips . The current concept of the Commuter Fair is an important one – bringing employees together to gain information and interact with stakeholders – but can be improved upon by embracing technology. Bringing the information directly to employees' desks and phones removes the time and hassle of having to get to a traditional Commuter Fair in the middle of a busy work day and takes advantage of electronic media as a powerful tool. Additionally, the concept of the "Commuter Fair" can be developed to be mobilized outside of a centralized location to travel to and present information at specific agencies.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Modernizes how the Installation disseminates information
  - Increases effectiveness of "Commuter Fair" efforts
  - Provides valuable information in a more accessible and convenient format
- **Benefits to Agencies:**
  - Increases productivity of employees
  - Saves cost and time of creating unique materials
- **Benefits to Employees:**
  - Increases convenience of getting information
  - Saves time in gaining useful information

HOW it gets done:

- Create mobile apps or build upon existing applications such as the Real-time Ridesharing app.
- Develop webinars:
  - Hosted by TDMWG
  - Presentations by stakeholders
  - Agency focus
  - Topical areas
- Develop a process, format, and materials to mobilize the "Commuter Fair" to travel to the agencies.

CONCLUSIONS: Use of technology is proven to effectively reach targeted audiences. It is a cost effective measure that reaches a wide audience and meets employee expectation that they can access information quickly from any location, and the majority of employees have the ability and access to computers and phones.

Strategy MC - 1. Expand on-Post shuttle service to better meet the needs of commuters.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.	■	
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.	■	
TMP Target:		
At least 40% of commuters using non-SOV options.		■

WHY it is important: Improving the existing functions of on-Post shuttle services is an important factor to increasing the number of personnel who use non-SOV methods. Shuttles are the critical support system to commuters who use alternate methods of transportation and the regional transit system. To leave a personal car at home, commuters must know that, once they are at the Installation, they can travel where and when they need to throughout the day. Shuttle service on the Installation must be convenient, reliable, available all day, and connected to provide the choice of using non-SOV modes.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Increases mobility throughout the Installation for all personnel
  - Aligns with and supports regional transit services to the Installation
  - Reduces vehicle trips and congestion on Installation and regional roadways
  - Coordinates the needs of multiple agencies in a single effort
  - Provides mid-day mobility for business-related trips on-Post
- **Benefits to Agencies:**
  - Increases connectivity between individual facilities and other on-Post activities
  - Minimizes the need for agency-implemented shuttles
  - Brings more remote agencies into the reach of transit
- **Benefits to Employees:**
  - Provides a reliable system other than personal vehicles
  - Increases mobility throughout the Installation during the work day
  - Provides service to employees who do not drive

HOW it gets done:

- Examine existing service to determine gaps and potential modifications to increase service such as:
  - Increase reliability of service, which may include additional routes, buses, or drivers
  - Provide continuously-running service throughout the work day
    - Expand service from the existing peak-hour only service
    - Connect to future development, including Commuter Centers (LUF-1)
  - Increase connectivity to agency buildings, including outlying secure campuses
    - Requires coordination with mission partners to determine need, demand, and potential schedules
  - Pursue connectivity to residential/community areas
    - Not currently allowed per DoD policy, would require modification
    - One of the reasons commuters choose to drive their car is to get to work, get to business meetings, and run errands on-Post such as the gym, shopping, and lunch
- Determine need of future populations, which will indicate planning for future changes to the system.

CONCLUSIONS: Shuttle service is a desirable and necessary travel option that is immediately necessary to realistically increase the number of non-SOV commuters now and in the future. An immediate consideration to advance the benefits of providing a shuttle service is the option for a continuously-running service throughout Main Post.

Strategy MC - 2. Transform the historic military railroad track bed into a multimodal connection.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.	■	
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.	■	
TMP Target:		
At least 40% of commuters using non-SOV options.	■	

WHY it is important: **Bringing this concept to fruition would be the single most progressive strategy to transform Fort Belvoir into a multimodal destination.** The historic military railroad track bed with the exception of a communications line that was recently installed inside the corridor, has been maintained as an opportunity for future use as a multimodal corridor including transit and multipurpose biking and hiking trails. It would not only provide a direct connection between the Installation and the Metrorail and VRE stations, but would also support all future regional initiatives including the Route 1 Enhanced Public Transit Corridor and the future regional trail network. Options for the corridor include bus rapid transit (BRT), light rail, or other non-stop service as well as a multiuse trail for commuters and recreational users. This strategy is distinct from the regional collaboration strategies (RC-1 and RC-2) in that it is a capital improvement that Fort Belvoir can assess and implement.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Establishes a regionally-connected multimodal transit network on the Installation
  - Supports future regional multimodal initiatives
  - Serves both North and South Post
  - Reduces traffic congestion on the Installation and regional roadways
  - Reduces the amount of commuter vehicles that park on the Installation
- **Benefits to Agencies:**
  - Improves commuting options for agency employees
  - Increases employee retention and recruitment
  - Reduces the number of commuter vehicles parking at the site
- **Benefits to Employees:**
  - Provides a regionally-connected multimodal transit system that is a real alternative to driving
  - Saves time and stress of transit commuters

HOW it gets done:

- Establish a process for engaging all stakeholders such as an ongoing working group.
- Identify the stakeholders (Fairfax County, Metrorail, VRE, CSX freight rail, others?).
- Conduct a feasibility study to determine demands and conceptual design alternatives.
- Determine program and process for implementation.

CONCLUSIONS: Implementation of this strategy is the greatest action that the Installation can directly take to provide a complete multimodal network at Fort Belvoir. While this is a long-term strategy in terms of implementation, understanding the feasibility and determining the preferred alternative for design, including costs, can and should be started immediately to guarantee success and minimize future complications such as conflicting development.

Strategy MC - 3. Pursue car-share and bike-share programs on-Post.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.		■
Align with regional initiatives.	■	
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.	■	
TMP Target:		
At least 40% of commuters using non-SOV options.		■

WHY it is important: Car-share and bike-share programs have emerged as successful solutions in the region for providing mid-day mobility. As such, the programs are a support system for commuters who do not drive their personal vehicle to the Installation. A car-share program would provide a collective pool of vehicles that any Fort Belvoir employee could reserve to use for business-related needs, such as attending meetings on- and off-Post. A bike-share program would provide access to bicycles throughout the Installation that employees can utilize to travel on-Post and connect to the regional trail network.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Supplies a multimodal resource directly on the Installation
  - Aligns with Fairfax County trails plan and Master Plan initiatives
  - Increases commuting options for military personnel who live on-Post
- **Benefits to Agencies:**
  - Provides multimodal options for employees' use
- **Benefits to Employees:**
  - Increases mid-day mobility options for all employees
  - Provides a recreational amenity

HOW it gets done:

- Conduct a feasibility study to determine the demand and ideal locations of share programs.
  - Car-share could be provided in a centralized location or dispersed in lots throughout the Installation
  - Bike-share locations could be provided throughout the Installation to align with other multimodal services
- Engage the Directorate of Family, Morale, Welfare and Recreation (DFMWR) under existing guidance to provide a bike-share program.

CONCLUSIONS: A bike-share program, if implemented by DFMWR, can be an immediate "win." A car-share program would require more assessment to determine the demand and feasibility, given current and future needs, and be a longer-term strategy.

Strategy MC - 4. Evaluate the feasibility of an HOV-only lane or gate.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.	■	
Proactively address transportation needs and limits.	■	
Align with regional initiatives.	■	
Reduce its share of traffic congestion, fuel consumption, and air pollution.	■	
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.	■	
TMP Target:		
At least 40% of commuters using non-SOV options.	■	

WHY it is important: Regionally, the interstate roadway network includes High Occupancy Vehicle (HOV) lanes to incentivize carpooling, vanpooling, buses, and motorcycle use and to mitigate the high levels of congestion through the region. In the near-term, HOV lanes will be constructed on I-95 that will serve Fort Belvoir (both Main Post and FBNA). Congestion at the gates during peak periods is on-going, and the Installation does not currently have any lanes or gates dedicated to HOV vehicles to speed their access. Time to travel to/from work is the number one factor Belvoir commuters use to choose how they get to work. Use of HOV-only lane or gate should be incentivized given the existing transit system. Reliance on carpooling and vanpooling will need to increase to meet the TMP target in the near term.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Decreases the time HOV vehicles spend accessing the Installation from the regional roadway network
  - Increases the use of regional resources for non-SOV vehicles
  - Increases the number of HOV vehicles
  - Decreases traffic and congestion to and on the Installation
- **Benefits to Agencies:**
  - Reduces the number of individual vehicles parking at the site
  - Helps agencies meet parking requirements
- **Benefits to Employees:**
  - Provides an incentive to choose HOV travel
  - Reduces travel time for employees who choose HOV lanes

HOW it gets done: Prior to establishing such an entrance, there is need for a study to determine how effective such a dedicated entrance would be, and which location(s) are ideal. An HOV entrance would be for peak periods only and not preclude bicyclists, buses, or motorcycles from entering.

- Converting existing gates to this use is desirable but challenging since existing facilities to convenient gates are established and not programmed to be modified. Implementation would impact other traffic lanes if a dedicated lane is taken out of the current assets.
- Beulah Gate is the closest to the existing HOV lanes on I-95, and is the most under-utilized gate (based on the Commuter Survey).
- The design of the future Lieber Gate, while intended to serve Route 1 traffic to North Post, can be modified to incorporate HOV-only access (either the entire gate or a dedicated lane at the gate). Its location is ideal for this use because it is:
  - Directly accessible to Route 1
  - Centrally located within the Installation
  - Directly accessible to an on-Post primary roadway network
  - Accessible to both North and South Posts
- Engage Installation Security and DPTMS to determine screening and operational considerations.

CONCLUSIONS: Given the need to increase ridesharing and the implementation of HOV vehicles on the regional system that serves the Installation, immediately incorporating HOV access into Fort Belvoir is an intelligent "win." Further study is warranted to determine if/where such a dedicated entrance/exit would most benefit Fort Belvoir commuters.

Strategy MC - 5. Evaluate the feasibility of pedestrian/bicycle-only gates.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.		■
Align with regional initiatives.	■	
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.	■	
TMP Target:		
At least 40% of commuters using non-SOV options.	■	

WHY it is important: Pedestrian and bicycle entrance to the Installation currently occurs at the vehicular ACPs, which may or may not be the most logical and convenient points of access for non-vehicle users. Pedestrians and bicyclists do not need the same level of examination as vehicles to enter a secure facility or Installation; other government sites have installed pedestrian/bicycle-only gates where users simply need to swipe an access card to enter. Such dedicated gates at Fort Belvoir could increase the convenience and mobility of pedestrian and bicyclist commuters.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Increases mobility and connectivity between the Installation and regional trails, sidewalks, and bicycle lanes
  - Increases the number of employees who choose to bike or walk to work
  - Decreases the number of vehicles on the roadway network
  - Encourages multimodal options for employees
- **Benefits to Agencies:**
  - Provides a multimodal option to employees with no cost to the agency
- **Benefits to Employees:**
  - Streamlines access for bicyclists and pedestrians
  - Reduces travel time and stress for bicyclists and pedestrians

HOW it gets done:

- Assess pedestrian and bicycle travel patterns to determine any logical locations.
- Engage Installation Security and DPTMS to determine screening and operational considerations.

CONCLUSIONS: While a good idea in theory, there do not seem to be any beneficial locations given the existing roadway and gate network at Fort Belvoir. There is no real applicability for off-Post pedestrian commuters given the land uses surrounding this suburban Installation, and bicyclist commuters have relatively good accessibility with the current network.

Strategy LUF - 1. Evaluate and establish Commuter Service Center(s).

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40% of commuters using non-SOV options.		■

WHY it is important: The concept behind the Commuter Store is to establish information outreach as an interactive destination and not a static kiosk. Commuter Stores, like retail stores, must be visible, accessible, and attractive to invite customers in and provide them with choices. The Real Property Master Plan recommends that one store be located in the South Post Town Center, but more locations should be considered. Opportunities for Commuter Stores exist within the prominent commercial and employment centers as well as smaller hubs near transit access points. The Commuter Stores will provide one-stop shopping for planning a commute and will offer access to farecards, transit schedules, trail and transit maps, and an easy system for commuters to find a carpool or vanpool.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Integrates information outreach with development efforts
  - Provides access to information in prominent and convenient locations
  - Promotes awareness of commuting options during daily activities
  - Provides one-stop shopping for information on commuting options and mobility choices
- **Benefits to Agencies:**
  - Provides an outlet for information distribution
- **Benefits to Employees:**
  - Provides access to information in prominent and convenient locations
  - Minimizes the need to individually search out information

HOW it gets done:

- Identify locations that support access by transit (shuttle stops), sidewalks, and trails.
- Utilize the catchy branding logo or slogan to provide instant recognition.
- Plan for locations as areas develop and resources are available.
- Assess the potential to provide a mobile commuter store for more remote locations or secure campuses.

CONCLUSIONS: Bringing the information to places where employees and personnel are already going is an easy and effective way to help them understand and make mobility choices. Clustering the Commuter Stores in prominent activity centers, such as the South Post Town Center, with other services makes the destination more desirable and inviting.

Strategy LUF - 2. Pursue the feasibility of establishing Satellite Commuter Centers.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.		■
TMP Target:		
At least 40% of commuters using non-SOV options.		■

WHY it is important: Based on the commuter survey, employees are frustrated with their daily commutes, travel long distances between home and work, are open to considering other travel options, and would like to work closer to home. Time spent on the region's highways can be reduced through innovative space planning and policy guidance by the Garrison and Fort Belvoir agencies. Establishing Satellite Commuter Centers at military Installations that are located near densely populated employee residential areas could support the use of Alternative Work Schedules and Telework policies that are already in place. Additionally, these Centers could allow agencies with high security requirements to implement Telework policies since their employees cannot work from unsecure home networks. Certain high security tenants at Fort Belvoir are recently pursuing/showing interest in this, but **Fort Belvoir managing this effort for ALL agencies could increase its applicability and overall success.**

WHAT it accomplishes:

- **Benefits to Installation:**
  - Allows for maximum flexibility in work schedules and locations
  - Maximizes use of telework and scheduling policies
  - Utilizes space that might not be fully utilized
  - Creates alliances between military bases and agencies to achieve mutually beneficial goals
  - Creates a structure for flexible work scheduling
- **Benefits to Agencies:**
  - Provides an opportunity for all agencies, including secure agencies, to advance the percentage of employees who telework
  - Increases employee productivity
- **Benefits to Employees:**
  - Provides flexibility and choice to work closer to home
  - Reduces employee stress and travel time
  - Increases flexibility for personal needs

HOW it gets done:

- Discuss agencies' current efforts to understand the status and feasibility of their efforts.
- Identify possible locations where there is a large cluster of employee residential communities, such as:
  - Fort AP Hill (Army) for the Fredericksburg, VA area, which operates through the Fort Belvior communication network
  - Fort Meade (Army) for the Frederick, MD area
  - Joint Base Anacostia-Bolling for the Washington, D.C. area
  - Quantico (Marine Corps) for the Woodbridge, VA area
  - Washington Navy Yard (Navy) for the Washington, D.C. area
- Engage agencies to determine interest, locations, physical space needs, and costs (including remote access to networks and leases).
- Engage other military Installations to determine:
  - Interest, locations, and physical space availability for Fort Belvoir to occupy
  - Interest and physical space needs for other Installations to hotel at Fort Belvoir
- Establish agreements for an implementation and monitoring process:
  - Between Fort Belvoir and agencies
  - Between Fort Belvoir and other military Installations

CONCLUSIONS: Fort Belvoir managing this Satellite Commuter Center concept creates a structure for flexible office space that can be mutually beneficial to the Installation, its agencies, and other military Installations. This structure provides a realistic approach to implementing this strategy on a mass scale. However, the additional leases needed to implement this strategy might conflict with the intent of BRAC.

Strategy LUF - 3. Guide the Site Selection of new and redeveloped buildings, facilities, and infrastructure.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.		■
Transform Fort Belvoir into a multimodal destination.	■	
TMP Target:		
At least 40% of commuters using non-SOV options.		■

WHY it is important: Fort Belvoir already has both internal and external guidance from which to base a policy that supports accessibility and multimodal land development, including: the RPMP and IPS; Unified Facilities Code (UFC) for Installation Master Planning; and Leadership for Energy and Environmental Design (LEED) Criteria and Requirements.

The Master Plan promotes a mixed-use development plan. Mixing land uses, including housing, within walking distance of the workplace is a powerful strategy for reducing reliance on vehicle trips. Compact and transit-oriented development that encourages a "walk first" approach can eliminate internal trips both during the day or before and after work. This effort begins with site selection that supports the master planning principles of key documents and the physical design elements to encourage people to get out of their car. The intent of this strategy is to tie future decision-making about site development to account for the benefits of multimodal communities/campuses.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Expands the criteria to support multimodal design
  - Promotes accessibility to transit
  - Achieves recognition for land use planning
  - Advances the Installation toward meeting executive orders and environmental compliance targets
- **Benefits to Agencies:**
  - Provides guidance for site selection of their buildings, facilities, and infrastructure
  - Increases commuting choices at the site through construction that supports walkability and transit
  - Takes advantage of the LEED credits (site selection and transportation) and certification
- **Benefits to Employees:**
  - Provides access to amenities and services near work
  - Reduces time spent in the car

HOW it gets done:

- Draft a policy that:
  - Locates a mix of uses near each other to encourage walking, biking and transit as viable travel modes for commuting and mid-day trips
  - Addresses needed services and amenities near work, such as child development centers, restaurants, and dry cleaners
  - Creates incentives for people to use transit and other non-SOV travel modes because the campuses are more compact and accessible
  - Incorporates principles used in GSA's "walkability score" index to assess site selections for new projects
- Determine:
  - Garrison staff involvement
  - Agency involvement
  - Approval process

CONCLUSIONS: Establishing this policy will assure that the Garrison and its agencies understand and comply with these new criteria that encourage multimodal transportation design at Fort Belvoir. The continuous and ongoing development of the Installation suggests that immediate implementation of this strategy can further advance the multimodal benefits to Fort Belvoir.

Strategy LUF - 4. Guide development of the proposed "Transit Transfer Centers."

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.	■	
Reduce its share of traffic congestion, fuel consumption, and air pollution.		■
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.	■	
TMP Target:		
At least 40% of commuters using non-SOV options.		■

WHY it is important: Potential locations for Transit Transfer Centers within the Installation boundary are identified in both the Fairfax County Comprehensive Plan and the Real Property Master Plan. The intent of these centers is to establish hubs where multimodal services connect conveniently and seamlessly for commuters. Fort Belvoir can plan for and influence the criteria that would make the centers most effective through the development of a design process and its elements. Taking this proactive approach establishes the "blueprint" to incorporate forward-thinking and innovative elements to meet future demands.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Creates a "blueprint" for future Transit Transfer Center development
  - Creates a regionally-connected multimodal system within the Installation
  - Ensures that centers meet the needs of multimodal commuters
  - Aligns with and influences Fairfax County plans
  - Builds upon framework development in the Real Property Master Plan
- **Benefits to Agencies:**
  - Provides multimodal infrastructure to support agency personnel
- **Benefits to Employees:**
  - Provides easy, convenient connection between different multimodal options
  - Saves time transferring between modes of non-SOV travel

HOW it gets done:

- Define the elements of the guide and process for accomplishing Transit Transfer Centers:
  - Such as, inclusion in the Installation Planning Standards
- Examine potential locations, assess network connections and needs, and provide a conceptual design for:
  - Two locations along Route 1 in alignment with the County's Enhanced Public Transit Corridor (EPTC)
  - Three locations internal to Main Post as part of the historic military railroad track bed transformation to a multimodal corridor
  - Any other identified locations, such as a future site at FBNA
- Prepare the design guide to include any design templates to guide the conceptual plan for near-term and long-term recommendations.
- Conduct a DoD 1391 design charrette to secure approved site and establish costs.

CONCLUSIONS: This guide directly supports the transit improvements identified in the Real Property Master Plan and Fairfax County Comprehensive Plan and provides a beneficial step to moving those plans forward to multimodal transportation.

Strategy LUF - 5. Modify policy to increase housing on-Post for Fort Belvoir employees.

TMP Objectives:	Directly Meets	Indirectly Meets
Meet both Army and regional requirements for parking and transportation.		■
Proactively address transportation needs and limits.	■	
Align with regional initiatives.		■
Reduce its share of traffic congestion, fuel consumption, and air pollution.	■	
Improve its employees' commutes, productivity, and quality of life.	■	
Transform Fort Belvoir into a multimodal destination.	■	
TMP Target:		
At least 40% of commuters using non-SOV options.	■	

WHY it is important: Most of the employees who work at Fort Belvoir commute from other locations in the region, with the majority of commuters driving personal vehicles. Increasing the number of personnel who can live close to work offers the potential to reduce vehicle trips and commute times and increase employee use of shuttles, bicycles, and walking as viable options for their daily commute. On-Post housing is dedicated to military personnel; however, almost all of the existing housing at Fort Belvoir is occupied by individuals and families who commute off-Post to another location in the region which adds more vehicles to the already congested roads. To create a walkable Installation as a truly multimodal option, additional housing must be on the Installation as no regional housing is within walking distance to Installation work locations.

WHAT it accomplishes:

- **Benefits to Installation:**
  - Meets the existing and increasing demand for military housing
  - Allows for a needed land use to support other Fort Belvoir functions to improve transportation options
  - Promotes a "good-neighbor" policy at a small cost
- **Benefits to Agencies:**
  - Provides an option to their military employees at no cost to the agency
- **Benefits to Employees:**
  - Reduces long commute times and stress associated with commuting
  - Presents the possibility of living close to work improving quality of life factors

HOW it gets done:

- Change/modify DoD housing policy to prioritize offering on-Post housing to on-Post military personnel.
- Identify locations for additional housing at Fort Belvoir and pursue development.
- Address need for schools and other services related to housing on the installation.
- Work with Fairfax County to plan residential zoning near the Post in their Comprehensive Plan.

CONCLUSIONS: Living close to work offers many benefits including reduction in transportation costs, vehicle travel miles, and employee stress, while establishing Fort Belvoir as a multimodal destination. Without this policy change, priority for on-Post housing will not be given to military personnel and their families who work on-Post.

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Acronyms and Abbreviations

H

A

AAG	Agency Advisory Group (VDOT and FCDOT)
AASHTO	American Association of State Highway and Transportation Officials
AC	Agency Coordination
ACP	Access Control Point
AIE	Automated Installation Entry
ART	Arlington Transit
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASIP	Army Stationing and Installation Plan
AT/FP	Anti-Terrorism/Force Protection
AWS	Alternate Work Schedule

B

BRAC	Base Realignment and Closure Act of 2005
BRT	Bus Rapid Transit

C

CIP	Capital Improvement Plan, also Capital Improvement Program
CLRP	Constrained Long Range Transportation Plan
CSC	Commuter Service Center

D

DAAF	Davison Army Airfield
DAR	Defense Access Road
DAU	Defense Acquisitions University
DC	District of Columbia
DCEETA	Defense Communications-Electronics Evaluation and Testing Agency
DES	Directorate of Emergency Services
DFMWR	Directorate of Family and Morale, Welfare and Recreation
DLA	Defense Logistics Agency
DMU	Diesel multiple unit
DMV	District, Maryland, and Virginia
DoD	Department of Defense
DOL	Directorate of Logistics
DPTMS	Directorate of Plans, Training, Mobilization, and Security
DPW	Directorate of Public Works
DRPT	Department of Rail and Public Transportation

E

EA	Environmental Assessment
EB	Eastbound
ECG	East Coast Greenway
EIS	Environmental Impact Statement
EPTC	Enhanced Public Transportation Corridor
ETC	Employee Transportation Coordinator

F

FAMPO	Fredericksburg Area Metropolitan Planning Organization
FBNA	Fort Belvoir North Area (formerly Engineer Proving Ground (EPG))
FCDOT	Fairfax County Department of Transportation
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FY	Fiscal Year

G

GHG	Greenhouse Gas
GIS	Geographic Information System
GSA	General Services Administration
GW	George Washington

H

HCM	Highway Capacity Manual
HEC	Humphreys Engineer Center
HOT	High Occupancy/Toll
HOV	High Occupancy Vehicle
HQ	Headquarters

I

IDG	Installation Design Guide
IMCOM	Installation Management Command
INSCOM	Intelligence and Security Command
IO	Information Outreach
IPS	Installation Planning Standards (formerly IDG)
ISSA	Installation Services Support Agreement

J

JBAB	Joint Base Anacostia-Bolling

K

(none)

L

LEED®	Leadership in Energy and Environmental Design
LEV	Low Emission Vehicle
LOS	Level of Service
LRC	Long Range Component
LRT	Light rail transit
LUF	Land Use and Facilities

M

MC	Mobility Choices
MD	Maryland
MDA	Missile Defense Agency
MOA/MOU	Memorandum of Agreement/Understanding
MP	Military Police
MSDDC	Military Surface Deployment and Distribution Command
MWCOG	Metropolitan Washington Council of Governments

N

NA	Not applicable
NB	Northbound
NCHRP	National Cooperative Highway Research Program
NCPC	National Capital Planning Commission
NCR	National Capital Region
NEC	Network Enterprise Center
NEPA	National Environmental Policy Act
NGA	National Geospatial-Intelligence Agency
NHT	National Historic Trail
NMUSA	National Museum of the U.S. Army
NPS	National Park Service
NSF	Naval Support Facility
NVRC	Northern Virginia Regional Commission

O

OAA	Office of the Administrative Assistant to the Secretary of the Army
OCAR	Office of the Chief, Army Reserve

P

PAL	Privatized Army Lodging; also predictable, alert, lawful (Arlington County logo)
PAO	Public Affairs Office
PHNST	Potomac Heritage National Scenic Trail
PM	Parking Management
PN	Personnel
POC	Point of Contact
POV	Privately Owned Vehicle
PX	Post Exchange

Q

(none)

R

RC	Regional Collaboration
RCI	Residential Communities Initiative
REX	Richmond Highway Express
RFID	Radio-frequency Identification
RIF	Remote Inspection Facility
ROD	Record of Decision
RPMP	Real Property Master Plan

S

SB	Southbound
SDDCTEA	Military Surface Deployment and Distribution Command Transportation Engineering Agency
SOV	Single Occupancy Vehicle

T

TAP	Transportation Alternative Program
TAZ	Transportation Analysis Zone
TCP	Traffic Control Point
TBD	To Be Decided
TDM	Transportation Demand Management, also Travel Demand Management
TDMWG	Travel Demand Management Working Group
TEO	Task Environmental Officer
TI	Technical Instruction
TIA	Traffic Impact Assessment
TMC	Turning Movement Count
TMP	Transportation Management Plan
TOC	Task Order Contract
TPB	(National Capital) Transportation Planning Board

U

UFC	Unified Facilities Criteria
UIC	Unique Identifier Code
USACE	U.S. Army Corps of Engineers
USALSA	U.S. Army Legal Services Agency
USBR 1	U.S. Bike Route 1
USDOT	U.S. Department of Transportation

V

VA	Virginia
VC	volume-to-capacity
VDOT	Virginia Department of Transportation
VDP	Installation Vision and Development Plan
VIP	Very Important Person
VRE	Virginia Railway Express

W

W3R-NHT	Washington-Rochambeau Revolutionary Route National Historic Trail
WB	Westbound
WMATA	Washington Metropolitan Area Transit Authority
WT	Warrior Transition

X

(none)

Y

(none)

Z

(none)

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