NSA Bethesda

2012 Transportation Management Program Update

Naval District Washington

Naval Facilities Engineering Command

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NSA Bethesda

2012 Transportation Management Program Update

Draft Version

June 2012

Prepared For:

NAVFAC
Naval Facilities Engineering Command

Prepared By:

ATKINS | THE Louis Berger Group, INC.

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NSA BETHESDA DRAFT
TRANSPORTATION MANAGEMENT PROGRAM UPDATE

1.0 INTRODUCTION AND CONTEXT

1.1 Introduction

This document is an update of the current Transportation Management Program (TMP) in use at the Naval Support Activity (NSA) Bethesda installation. Many of the measures identified in the previous 2008 TMP, as well as others have been implemented in an effort to limit the use of Single Occupancy Vehicles (SOVs) by daily commuters to the installation. These measures have been very successful in reducing SOV travel. This TMP update is offered in support of the 2012 NSA Bethesda Master Plan.

The baseline conditions at the NSA Bethesda installation have changed since completion of the 2008 TMP. Most notable among the changes that have occurred since 2008 is the completion of the transfer of relevant functions and staff from the former Walter Reed Army Medical Center (WRAMC), as required under the Base Closure and Realignment (BRAC) law, to combine with the former National Naval Medical Center (NNMC) to form the new Walter Reed National Military Medical Center (WRNMMC) on the NSA Bethesda installation. Additionally, NSA Bethesda has successfully implemented the majority of the previous measures in the 2008 TMP. These efforts include adjusting and improving internal facility/Metrorail shuttle bus service; establishing and implementing a Parking Management Plan; developing a commuting newsletter and a section of the NSA Bethesda website dedicated to commuting; performing ride matching services to increase the use of vanpools/carpools; and holding regular transportation/commuting meetings at the installation.

1.2 Goals and Objectives

The goals of this updated TMP are to help NSA Bethesda continue to successfully reduce traffic, conserve energy, and improve air quality by seeking to further reduce and/or shorten the number of employee SOV trips in the workday commute to and from the installation.

The objectives of this TMP update are to document and track over time, measures that have achieved or will achieve quantifiable trip reduction rates, modal split changes and average vehicle occupancy rate increases. Meeting these objectives will establish and maintain acceptable regional air quality, offer no degradation in vehicular levels of service, and provide a reduction in energy consumed.

1.3 Requirements for Transportation Management Programs

The National Capital Planning Commission (NCPC) was created by Congress to serve as the central planning agency for federal activities and interests in the National Capital Region (NCR). Section 5(a) of the National Capital Planning Act of 1952, as amended, provides that for proposed developments and projects or for commitments on the acquisition of land, paid for in whole or in part from federal or District funds, each federal and District of Columbia agency, prior to the preparation of construction plans by that agency, will consult with the NCPC while preparing their plans and programs in preliminary and successive stages since such plans may affect the Comprehensive Plan for the National Capital. NCPC approves District projects in the central area of the city, reviews and advises on other District projects and the DC elements of the Comprehensive Plan, in addition to reviewing and advising on amendments to city zoning regulations and maps. Given the location in Montgomery County, Maryland, NCPC provides

recommendations on the TMP, and NSA Bethesda will partner with NCPC in preserving the historic nature of the grounds and mitigating use of single occupancy vehicles.

One of NCPC's main responsibilities is to coordinate federal project development within the region and, as such, NCPC completed the *Comprehensive Plan for the National Capital: Federal Elements* in 2004. The comprehensive plan requires preparation of a TMP for all projects that will increase work site employment to 500 or more existing and proposed employees, and encourages a TMP for projects that will increase work site employment to 100 or more employees. To comport with federal air quality regulations, local trip reduction ordinances, and NCPC planning requirements, a TMP develops a program that minimizes SOV trips to federal agency worksites to encourage more efficient employee commuting patterns.

In 2008 the United States General Services Administration (GSA), the Metropolitan Washington Council of Governments (MWCOG) and the NCPC developed a handbook for preparing TMPs at federal facilities within the NCR. The handbook, which was used to prepare this TMP update, provides federal agencies with methods and guidance for preparing a TMP, and suggests updates to TMPs every two years. According to the handbook, while Travel Demand Management (TDM) measures are utilized to address overall strategies and policies that influence travel behavior, a TMP documents how these strategies and policies are applied at a given site. Both TMPs and TDM seek to optimize the use of existing and future transportation facilities and proven planning strategies in reducing single occupant automobile travel.

The guidance found in the 2008 handbook was used to develop this TMP update in support of the growth inherent in the 2012 NSA Bethesda Master Plan.

1.4 Regulatory Policy and Guidance

One of the key driving factors behind reducing the number and/or distance of vehicle trips is the need to reduce the amount of greenhouse gas (GHG) emissions from vehicles. Greenhouse gas emissions from motor vehicles include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and hydrofluorocarbon (HFC) emissions, with CO_2 being released in the largest volumes. There are a number of cross-cutting recommendations, regulations and Executive Orders relating to reducing GHG from motor vehicles. These initiatives include: E.O. 13514 which mandates a 2 percent per year reduction in GHG; Energy and Independence Security Act of 2007 requiring a 20 percent petroleum reduction and 10 percent alternative fuel increase by 2020; the Naval District Washington (NDW) Energy Vision; Maryland GHG Reduction Act of 2009 which targets a 25 percent reduction in GHG by 2020 (10 percent by 2012; 15 percent by 2015); and the MWCOG *Region Forward* calling for a 20 percent GHG reduction (below 2005 levels) by 2020 and an 80 percent emission reduction by 2050.

1.5 NSA Bethesda

The 243-acre NSA Bethesda installation is home to various land uses and numerous tenants. Located on the NSA Bethesda installation are tenants such as the newly renamed WRNMMC, the Uniformed Services University of the Health Sciences (USU), Armed Forces Radiobiological Research Institute (AFRRI), Naval Medical Research Center (NMRC), Navy Medicine National Capital Region (NAVMED NCA), Navy Medicine Professional Development Center (NMPDC), Joint Task Force National Capital Region Medical (JTF CapMed), Navy Exchange (NEX), Naval Dosimetry Center (NDC), Navy-Marine Corps Relief Society (NMCRS), Navy Medical Inspector General Office (IG), Veterans Affairs (VA), Fisher House Foundation, American Red Cross, Personnel Support Activity Detachment (PSD), Medical Evaluation and Treatment Unit (METU), Naval Criminal Investigation Service (NCIS), Navy Central HIV Program, Navy Federal Credit Union (NFCU), Navy Medical Support Command (NMSC) and National Intrepid Center of Excellence (NICoE).

The 2011 worker population for the overall installation was estimated at 11,686 people including 7,539 serving the medical mission, 3,521 in the education mission and 1,551 with a support mission. It should be noted that the worker population at NSA Bethesda changes by the day and that this level of accuracy was an estimate in time that offers reasonable numbers to work with in developing this TMP update. Based upon the results of a population survey conducted at the installation, approximately 45 percent of the worker population is military, 40 percent are civilians and 15 percent are contractor personnel. According to the 2011 commuter survey completed by NSA Bethesda (see Attachment 2), approximately 98 percent are full-time employees and approximately 2 percent work part-time. There are currently 3,525 employee parking spaces assigned installation-wide. This yields a parking ratio of 1:3.32 which is within the NCPC suggested ratio of one space for every three employees. The installation also has parking assigned to other users such as Wounded Warriors, visitors and patients, lodging, and retail. The installation receives approximately 1, 200,000 patient visits annually, plus other visitors.

The NSA Bethesda installation is located in Bethesda, Montgomery County, Maryland and is bounded by Maryland Route 355 (Rockville Pike), the National Institutes of Health (NIH) main campus and the Medical Center Metro station to the west; Stone Ridge School of the Sacred Heart (Pre-K to grade 12 girls' school) and residential uses to the north; North Chevy Chase Recreation Center, Rock Creek Park and residential uses, including the state designated Hawkins Lane Historic District to the east; and Columbia Country Club, residential units, and parks to the south. Interstate 495 (I-495) is adjacent to the northeastern corner of the installation. Jones Bridge Road is the southern boundary.

The Montgomery County Planning Department has divided the county into 37 community planning areas. NSA Bethesda is within the South Central Transit Corridor planning area. More specifically, NSA Bethesda lies within the Bethesda-Chevy Chase/North Bethesda/Friendship Heights Community Planning Area, which is bounded by the City of Rockville on the north, Rock Creek on the east, Western Avenue and the Potomac River on the south and I-270 and I-495 to the west. NSA Bethesda installation boundaries and the immediate surroundings are shown in Figures 1 and 2, respectively.

NNMC was established at the site in 1940 and was originally composed of the Naval Hospital, the Naval Medical School, the Naval Dental School, and the Naval Medical Research Institute. The installation has undergone many expansion and renovation projects over the years to become one of the Department of Defense's (DoD) largest medical facilities. Historically, the entire installation has been known as NNMC. However, in May 2010, the Navy changed the management of the installation from the Bureau of Medicine (BUMED) to the Commander, Navy Installations Command (CNIC), at which time the entire installation became NSA Bethesda and the hospital continued as NNMC, a tenant of the NSA Bethesda installation.

2.0 EXISTING TRANSPORTATION CONDITIONS NEAR NSA BETHESDA

NSA Bethesda is located in a suburban area north of downtown Bethesda. The area contains a mixture of land uses including institutional, residential, community facility, and commercial. The main roads in the area are congested during peak periods and carry a high vehicular volume.

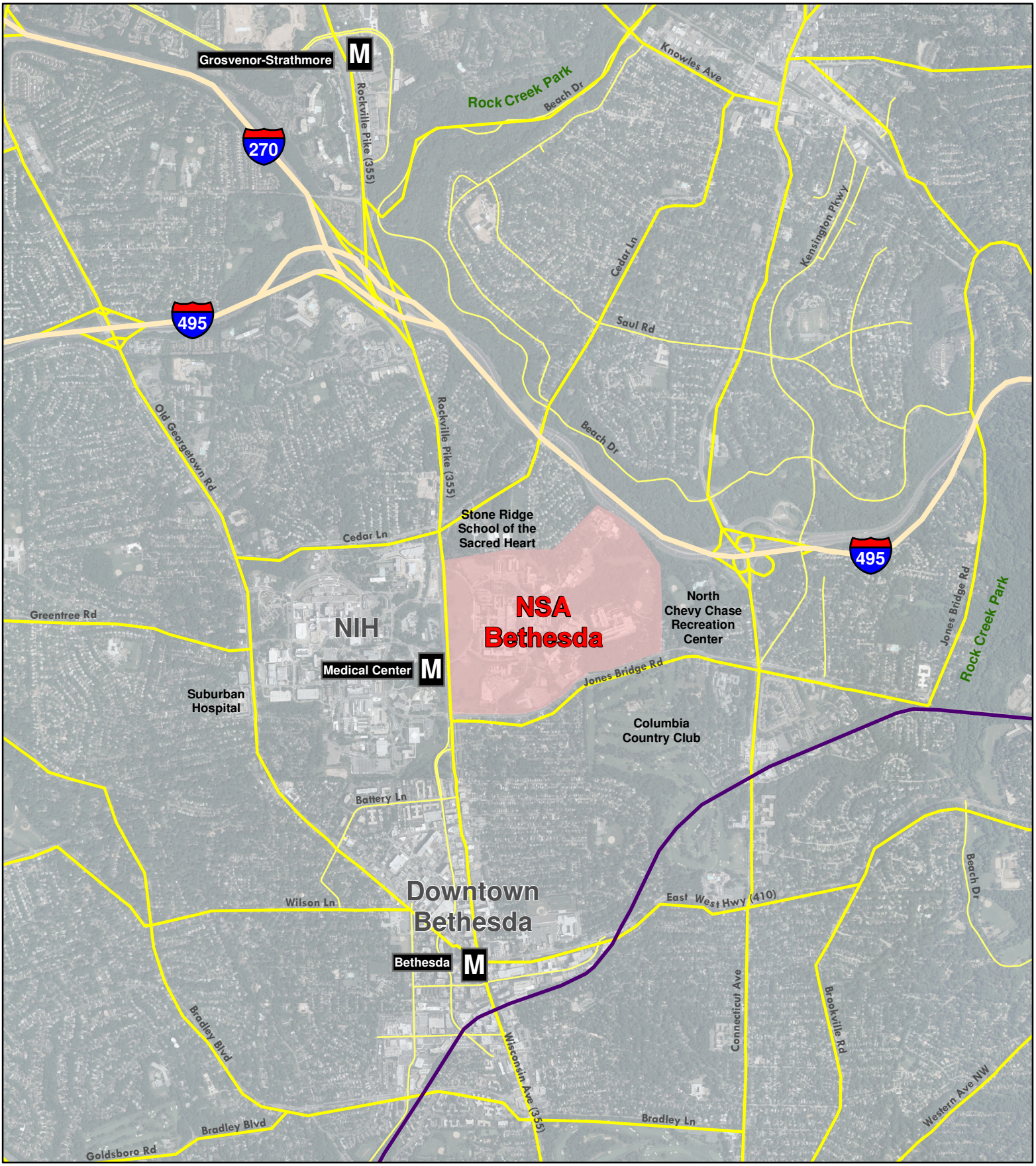

Figure 1
NSA Bethesda

- Interstate
- Major Road
- Local Road
- Capitol Crescent/Georgetown Branch Trail
- NSA Bethesda

N
W E
S

0 1,000 2,000 3,000
Feet

Coordinate System: NAD 1983 UTM Zone 18N
Prepared By: The Louis Berger Group 2012

MAP INDEX

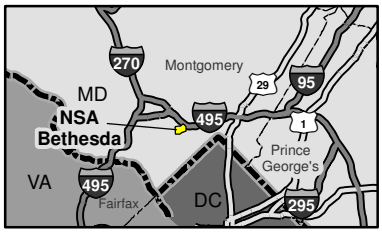

Figure 2
Location of NSA Bethesda

NSA Bethesda Boundary

N
W E
S

0 200 400 800

Feet

Coordinate System: NAD 1983 UTM Zone 18N
Prepared By: The Louis Berger Group 2012

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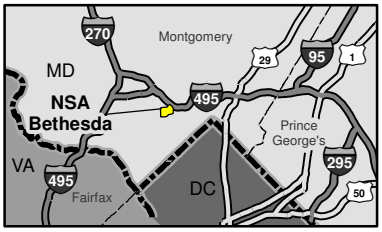

2.1 Metrorail and Bus Service

The NSA Bethesda installation's (see Figures 3 and 4) South Wood Road entrance is located directly across Rockville Pike from the Red Line Medical Center Metrorail station. This station is a major transfer point for several Montgomery County Ride-On and Metrobus routes. The station is open from 5:00 AM on weekdays and at 7:00 AM on weekends to 12:30 AM from Sunday through Thursday, and at 3:30 AM on Friday and Saturday.

The Medical Center Metrorail station is served by six-car and eight-car trains which provide service with headways of 3 to 6 minutes during the peak weekday morning and afternoon periods, and 6 to 15 minutes during the weekday off-peak periods. The 2011 ridership report entitled *Metrorail Passenger Surveys Average Weekday Passenger Boardings*[1] indicates that the average weekday boardings at the Medical Center station are 5,866 passengers; an increase of 520 passengers since 2008. A 2008 Washington Metropolitan Area Transit Authority (WMATA) system-wide study[2] indicated that there is currently sufficient capacity on the Red Line and there is expected to be sufficient capacity through 2030. In terms of peak hour utilization at the Medical Center Metrorail station, a 2009 study by WMATA[3] indicated that the 8:00 – 9:00 AM peak hour boardings and alightings total 1,470 passengers (455 boarding and 1,015 alighting) and the 5:00 – 6:00 PM peak hour boardings and alightings total 1,182 (874 boarding and 308 alighting). The station peak hours are later than the peak hours experienced at NSA Bethesda.

The following Montgomery County Ride-On bus routes serve the Medical Center Metrorail station and NSA Bethesda:

- Route 30 is a local collector bus that traverses nearby neighborhoods in route to the Bethesda Metrorail station.
- Route 33 and Route 34 provide rush hour service from Wheaton Plaza to the Medical Center Metrorail station in separate routes.
- Route 42 provides service to Friendship Heights from the Medical Center Metrorail station along Woodmont and Wisconsin Avenues.
- Route 46 connects the NSA Bethesda installation with 15- to 30-minute headways to Rockville along Rockville Pike primarily servicing the Metrorail stations along the route. Service is also provided to other locations as far away as the Shady Grove Metrorail station.
- Route 70 provides express service between the Germantown Milestone park-and-ride lot and Bethesda, with a stop at the Medical Center Metrorail station.

A number of people responding to the 2011 NSA Bethesda commuter survey indicated that Ride-On bus service's reliability inhibits use of the service. NSA Bethesda will continue to coordinate with Ride-On regarding concerns that they receive from patients, visitors and staff.

The Metrobus routes serving the Medical Center Metrorail station and NSA Bethesda are:

- The J1 route provides rush hour service, with 20-minute headways, between the Silver Spring and Medical Center Metrorail stations along Jones Bridge Road.
- The J2 and J3 routes offer service between the Silver Spring Metrorail station and Montgomery Mall, with stops in the Bethesda Central Business District and at the Medical Center Metrorail station. These routes generally schedule 15 to 20-minute headways. The combined Average Weekday Ridership for the J1, J2 and J3 buses are 5,881 passengers[4].

[1] http://www.wmata.com/pdfs/planning/FY11_Rail_Ridership_By_Station.pdf (October 25, 2011)
[2] WMATA Planning, Development and Real Estate Committee; April, 2008, *Future Metrorail Capacity Needs*
[3] Medical Center Station Access Improvement Study Final Report, July 2009
[4] http://www.wmata.com/pdfs/planning/FY11_Average_Weekday_Bus_Ridership.pdf (October 25, 2011)

Figure 3

Bus Stops and Metrorail Stations

- Metro Stop
- Metro Route
- MARC Stop
- MARC Route
- Montgomery County Ride-On Routes
- Metrobus Routes

N W E S

Map not drawn to scale

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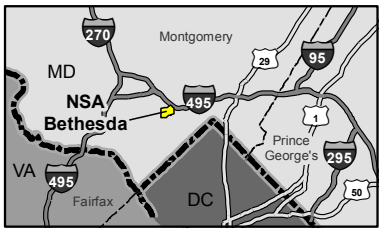

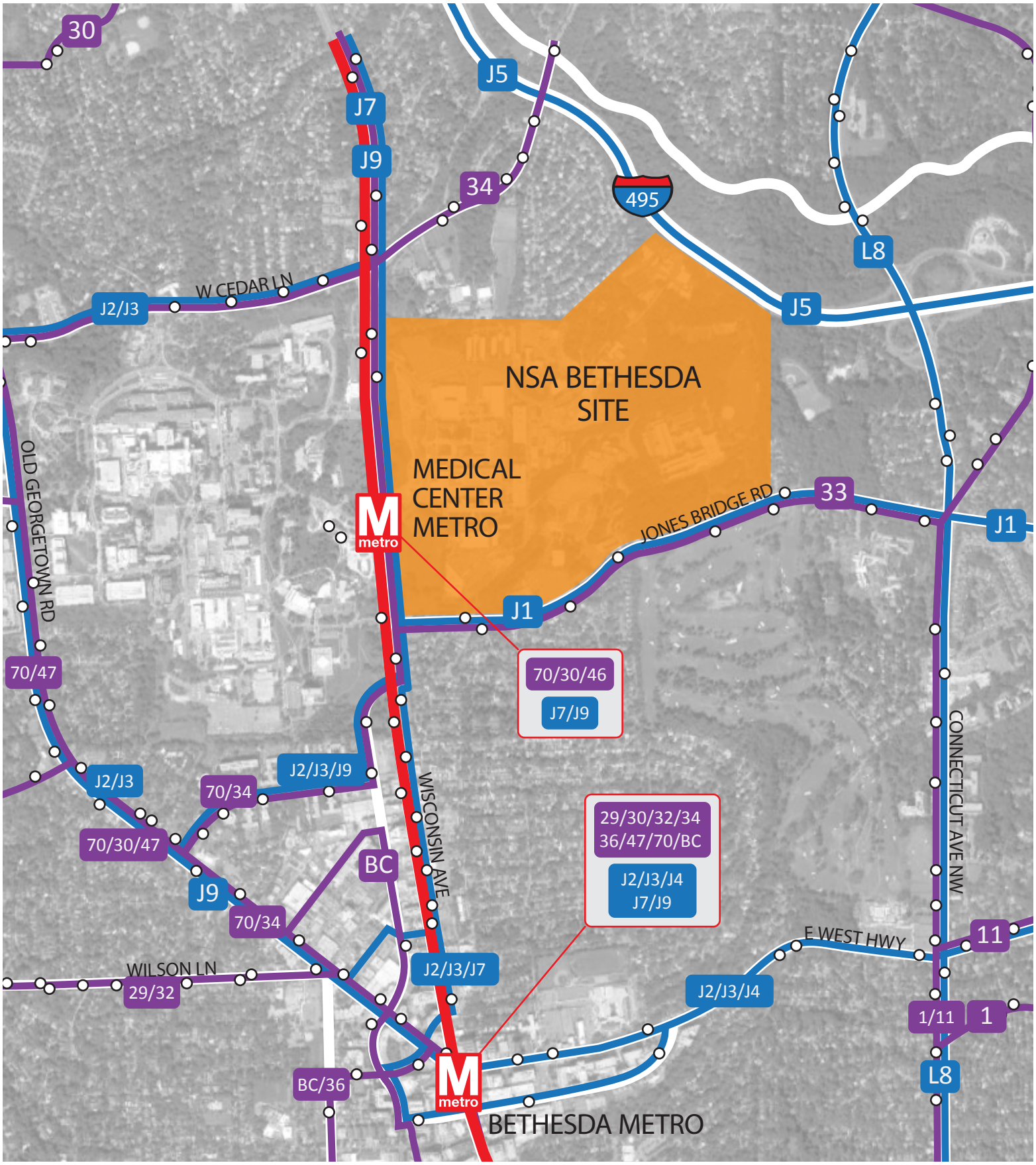

Figure 4
Bus Stops Adjacent to NSA Bethesda

Metro Stop
Bus Routes
Bus Stop
Bus Routes

Map not drawn to scale

Prepared By: The Louis Berger Group 2012

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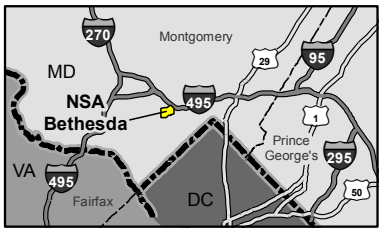


- Routes J7 and J9 provide express service between the Lake Forest Transit Center Station and the Bethesda Metrorail Station. The Average Weekday Ridership is 406 passengers.

2.2 Commuter Rail Service

The Washington, DC metropolitan area is served by three commuter rail providers: Virginia Railway Express (VRE), Maryland Rail Commuter service (MARC), and Amtrak. MARC service is illustrated in Figure 5 and VRE service is illustrated in Figure 6, though VRE is not a significant factor in this study.

Commuter rail service is available to the installation via transfer to the Metrorail from the MARC Brunswick line. MARC trains stop in Rockville, Maryland approximately six miles north of the NSA Bethesda installation, allowing a connection to the Metrorail Red Line. Brunswick trains originate in Martinsburg, West Virginia, or Brunswick and Frederick in Maryland, and travel to Union Station in Washington, D.C. in the morning hours with a reverse commute occurring in the evening. MARC operates nine trains inbound to Washington in the morning and 10 trains outbound in the evening.

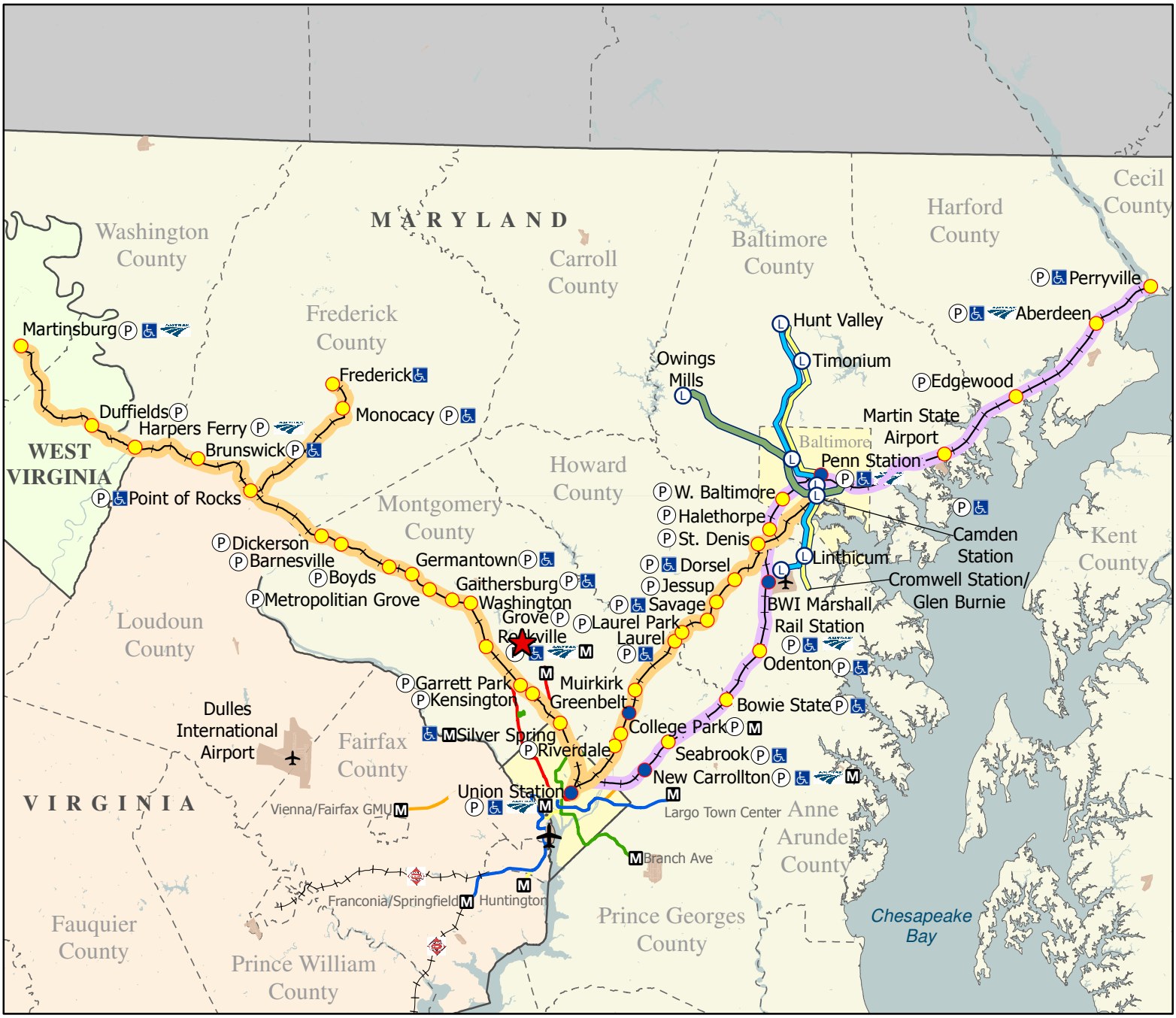
Amtrak provides regional train service between other cities from Massachusetts to Virginia into Union Station in Washington, DC. From there persons wishing to travel to NSA Bethesda via the Red Line could opt to do so, which is an approximate 35 - 40 minute trip. The MARC Camden and Penn lines also offer service into Union Station from Baltimore and other locations.

2.3 Commuter Bus Service

Commuter bus service in the NSA Bethesda area is limited. Commuter bus service in the area is provided by Maryland Transit Administration (MTA) and Montgomery County Department of Transportation (MCDOT). MTA commuter bus route 991 travels the I-70/I-270 corridor from Hagerstown to the Shady Grove Metrorail station (See Figure 7). This commuter bus also stops at the Rock Spring Business Park near the junction of I-270 and I-495. The MCDOT's new Intercounty Connector (ICC) Route 203 provides commuter bus service from Columbia to NSA Bethesda via the ICC. A number of other bus routes operated by the MCDOT bring commuters to various local Metrorail stations, where they can then take the Red Line to the Medical Center Metrorail station which is located across Rockville Pike from NSA Bethesda.

2.4 Shuttle Service

A free shuttle bus system is available at NSA Bethesda that circulates to various parts of the installation and to the nearby Medical Center and Silver Spring Metrorail stations. NSA Bethesda frequently modifies the number and routing of the shuttles based on demand, cost and other factors. Currently, four of the shuttle buses terminate at Building 10 on South Palmer Road between South Wood Road and R. B. Brown Drive with the Silver Spring shuttle terminating at the America Building. Figure 8 illustrates the NSA Bethesda Shuttle Service. The total monthly ridership in October 2011 (the latest data available) was 4,568 passengers. Average weekday ridership on the Metro shuttle was approximately 228 passengers for the same period. Since the distance between the shuttle termini is so short, this shuttle provides frequent service. Please note that there was one holiday during that month (Columbus Day).



MARC Trains
- Rail Transfer Station
- Station
- Penn Line
- Camden Line
- Brunswick Line
- Metro Subway

Light Rail Trains
- Hunt Valley to BWI Marshall Airport
- Hunt Valley to Cromwell Station/Glen Burnie
- Penn–Camden Shuttle (Penn Station to Camden Yards)

Park & Ride (Most are free, but selected MARC lots charge a fee.)

Accessible

Connecting Services
- Washington Metrorail
- Amtrak Station
- Virginia Railway Express

Figure 5
Maryland Area Rail Commuter Service

N W E S

0 5 10 15
Miles

Coordinate System: NAD 1983 UTM Zone 18N
Prepared By: The Louis Berger Group 2012

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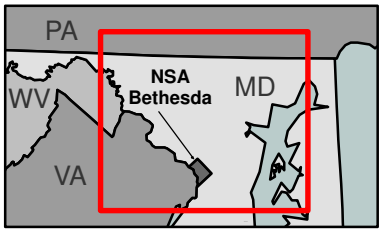

DC
ZONE 1
UNION STATION
L'ENFANT
ARLINGTON
CRYSTAL CITY
ALEXANDRIA
ZONE 2
BURKE CENTRE
ROLLING ROAD
BACKLICK ROAD
MANASSAS PARK
MANASSAS LINE
MANASSAS
FRANCONIA / SPRINGFIELD
MD
FAIRFAX
ZONE 3
BROAD RUN / AIRPORT
LORTON
PRINCE WILLIAM
WOODBRIDGE
ZONE 4
POTOMAC RIVER
RIPPON
ZONE 5
VA
QUANTICO
STAFFORD
ZONE 6
FREDERICKSBURG LINE
ZONE 7
BROOKE
KAPPAHANNOCK RIVER
LEELAND ROAD
SPOTSYLVANIA
ZONE 8
FREDERICKSBURG
KING GEORGE
ZONE 9

Figure 6
Virginia Railway Express Service

Map not drawn to scale

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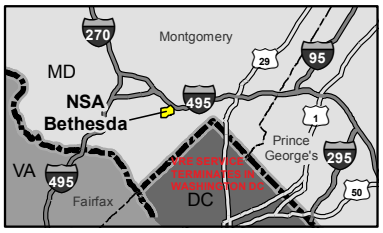

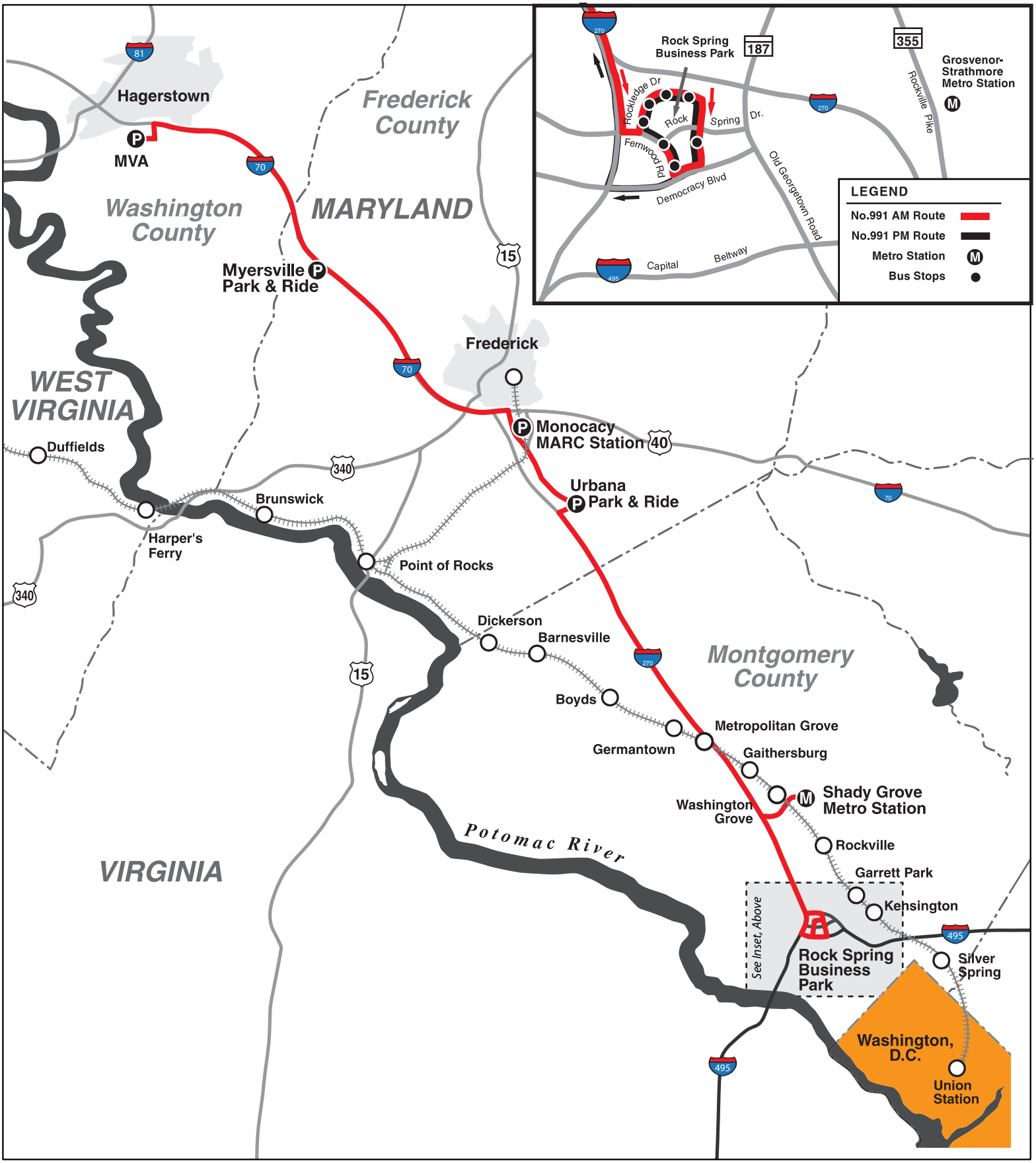

Figure 7
Maryland Transit Administration
991 Bus Service

Route No. 991
MARC Train Brunswick Line Stations
Park & Ride
Metro Station

Map not drawn to scale

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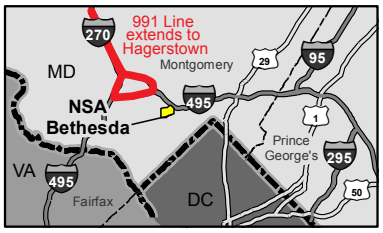

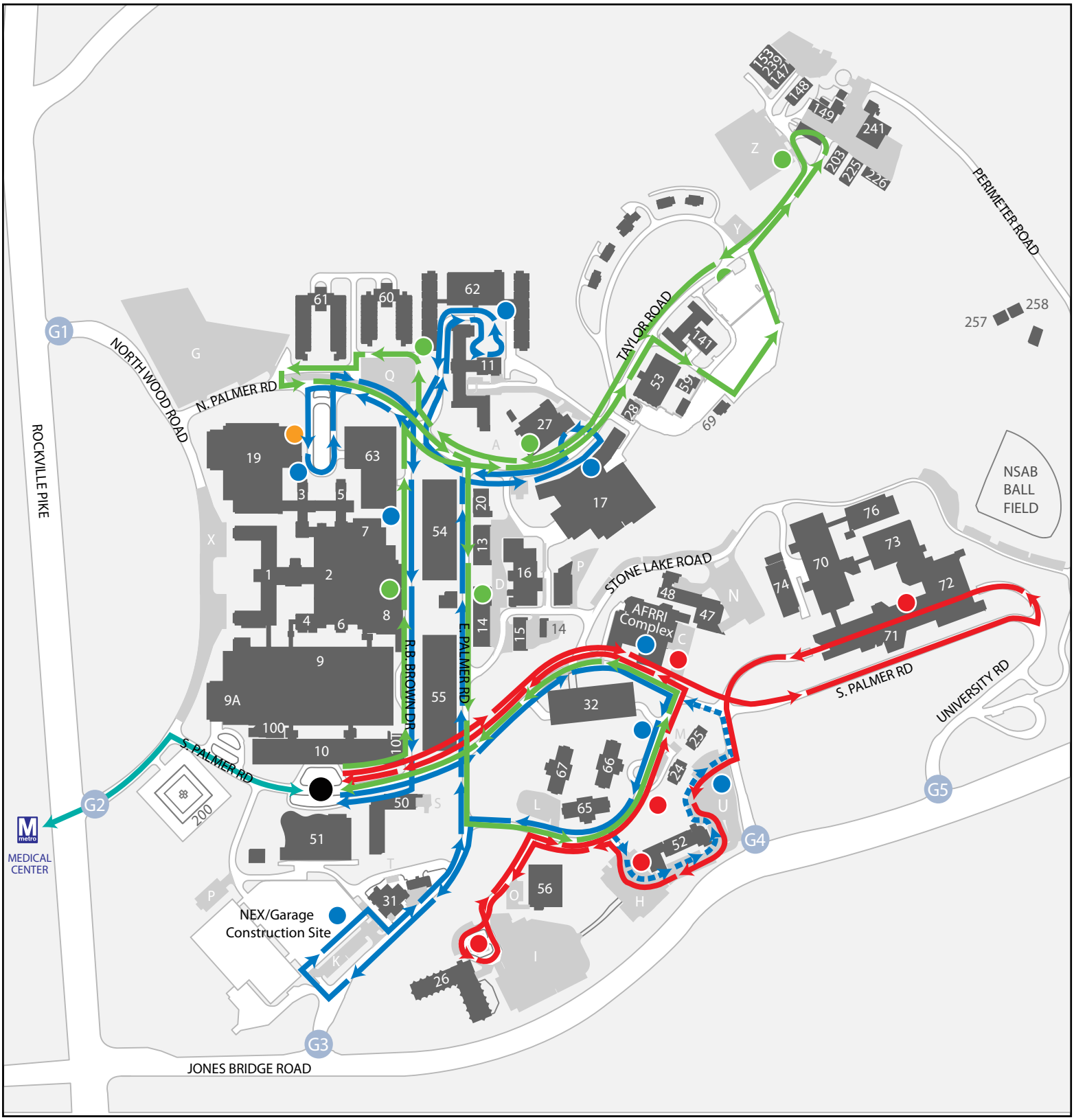

11	Buildings
G	Parking Lots
G#	Gates
M metro	Metro Stop
	Intermittent Route (9:00am - 2:45pm)
	Medical Center Metrorail Shuttle
	Start of Shuttle Routes
	Green Line Shuttle
	Red Line Shuttle
	Blue Line shuttle
	Silver Spring Metrorail Shuttle

Figure 8
NSA Bethesda Shuttle Service

Map not drawn to scale

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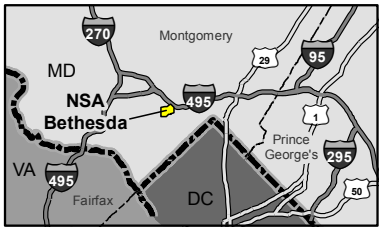


One shuttle, which is a patient shuttle that staff are able to utilize should space permit, operates between Building 10 and the Medical Center Metrorail station, which is located across Rockville Pike from the installation near Gate 2 (or South Gate at South Wood Road). This shuttle provides non-stop weekday service from 5:30 AM to 6:30 PM, transporting passengers back and forth between the Metrorail station and Building 10. Passengers can take any of the three internal NSA Bethesda shuttles at this point to access various parts of the installation, or walk to their destination.

The Blue Line shuttle operates weekdays between the hours of 5:30 AM and 6:30 PM. This shuttle originates at Building 10 and links the north and south part of the installation. Average weekday ridership along this route for the month of October 2011 was approximately 113 passengers with 2,261 total monthly riders.

The Green and Red Line shuttles cover the northern and southern parts of NSA Bethesda with a common transfer point at Building 10. Shuttles for these routes run during the morning peak period, from 5:30 AM to 9:00 AM and during the afternoon peak period from 2:45 PM to 6:00 PM.

The Red Line shuttle serves the southern portion of the installation and travels mostly along South Palmer Road, turns on to Stokes Road, loops around the Child Development Center and returns to South Palmer Road and then to USU garage. The Red Line makes stops at AFRRI, Parking Lot W, Navy Lodge, Parking Lot H and Parking Lot I. Average weekday ridership in October 2011 was approximately 76 passengers with 1,515 total passengers that month.

The Green Line shuttle serves the northern portion of the installation and runs along South Palmer Road, then turns north on R. B. Brown Drive, joins onto Taylor Road and continues toward the Research Institute to loop around the Navy Call Center and Health Services Building, before returning back to the south side of the installation along Palmer Road East where it branches out to Stokes Road before returning back to Building 10. Average Weekday Ridership in October 2011 was approximately 62 passengers with 1,245 total passengers that month.

Additional shuttle service was added to help accommodate patients (and staff if there is room) who travel from Silver Spring area. This shuttle operates between the America Building (Building 19) and the Silver Spring Metrorail station. This shuttle operates every 15 minutes from 5:30 AM to 6:30 PM. The buses average approximately 205 riders per day in total to and from NSA Bethesda. With 4 buses operating each weekday, the shuttle averages over 820 passengers each weekday.

In addition to the installation and Metro shuttles, NSA Bethesda is also served by several DoD shuttles. These shuttles service Naval Air Station Patuxent River, U. S. Naval Academy at Annapolis, Quantico Marine Corps Base, and various remote clinics. These shuttle bus services are provided exclusively for official DoD use.

2.5 Bicycle and Pedestrians

An assessment of pedestrian and bicycle facilities and services along study area roadways providing direct access to NSA Bethesda was completed as part of the 2012 NSA Bethesda Master Plan. The inventory and evaluation found most of the facilities to be in good condition, function efficiently, provide for a high level of user safety, and to be in compliance with the standards of the County and the American Association of State Highway and Transportation Officials (AASHTO).

The main NSA Bethesda pedestrian/bicycle access points and routes are along Rockville Pike between Cedar Lane and Jones Bridge Road and Jones Bridge Road between Connecticut Avenue and Rockville Pike. The pedestrian and bicycle activity is greatest in the vicinity of the Medical Center Metrorail station. Gates 1, 2, and 5 (at North Wood Road, South Wood Road and University Road respectively)

currently have dedicated bicycle lanes and the approved designs for Gate 4 (at Grier Road) also include dedicated bicycle lanes.

Bicycle use along Rockville Pike and Jones Bridge Road is fairly high. A vehicle classification count done as part of a traffic study in October 2011 found that 94 bicycles entered the NSA Bethesda installation between 5:30 AM – 8:45 AM via Gates 1, 2, 3 and 5 and were fairly evenly distributed across the four gates. The number of bicyclists during this count may be low due to the season. During the 3:00 PM to 6:15 PM period 87 bicycles exited the installation via all 5 gates with Gates 1, 2 and 3 having the highest volumes (21, 30 and 19, respectively).

The installation has 17 bike parking locations with 630 spaces in bicycle parking racks. Some of these areas are covered or inside a building and some are general bike racks. There are also 38 secure bike lockers and 88 general bike parking spaces across Rockville Pike at the Medical Center Metrorail station. The bicycle facilities are illustrated in Figure 9.

Bicyclists and pedestrians can take advantage of a number of shared-use paths in the vicinity of the site, including the Bethesda Trolley Trail spur that runs parallel to MD 355 along the western edge of NSA Bethesda. The Bethesda Trolley Trail spur provides connectivity with Rock Creek and the Rock Creek Park trail network to the north as well as with the North Bethesda Trail and downtown Bethesda to the south. To the north, trail users have access to a direct and efficient path between the installation and Kensington and other residential neighborhoods, while southbound travelers from NSA Bethesda can connect to the existing pedestrian network in downtown Bethesda, only one mile away. For a cyclist this trip would take only 5-10 minutes from Gate 2, making this connection ideal for local commuters and installation staff.

Generally the sidewalks along Jones Bridge Road are considered to be in good condition on both sides of the street. Sidewalks on Jones Bridge Road are 4 to 8 feet wide and their Americans with Disabilities Act (ADA) compliance was determined in the 2012 NSA Bethesda Master Plan as being fair with good intersection curb ramps and fair crosswalk markings overall (with the intersection of Connecticut Avenue and Jones Bridge Road not having a striped crosswalk). The sidewalks along Rockville Pike were determined to be in good condition on the west side, but in poor condition on the east side. The sidewalk widths are up to 8 feet on the west side and 3 to 5 feet on the east side of Rockville Pike. In terms of ADA compliance, there is a grade issue on the west side and the east side has utility poles obstructing the sidewalks to an effective width of under 5 feet. Rockville Pike intersection curb ramps on the east side are poorly maintained and oriented. The crosswalk markings are mostly striped on the west side with a poorly marked crosswalk on east side of Jones Bridge Road and lack of striping on Cedar Lane. Crossings at Gate 1 and Gate 2 have striped crosswalks but the remaining gates lack crosswalk striping. Both FHWA and the Institute of Transportation Engineers (ITE) recommend a minimum width of 5 feet for a sidewalk or walkway, with the NSA Bethesda Accessibility Plan recommending a minimum width of 6 feet for sidewalks and walkways at NSA Bethesda to allow comfortable passage of two wheelchairs. As discussed in Section 3 below, projects to be undertaken by the Maryland State Highway Administration (SHA) and the MCDOT will address mobility, pedestrian access and ADA requirements for projects outside the installation.

Based on information in Section 4.5.9 of the 2012 NSA Bethesda Master Plan, most streets on the installation have sidewalks and most areas have a sidewalk width of greater than 6 feet. Several areas including South Palmer Road near the Gate 2 entrance have sidewalks that are only 4 feet wide. There are a number of locations identified in the 2012 NSA Bethesda Master Plan as locations of pedestrian/vehicular conflict. There are also a number of locations where the crosswalks have no curb ramps including near the America Building. The NSA Bethesda Accessibility Plan also identified

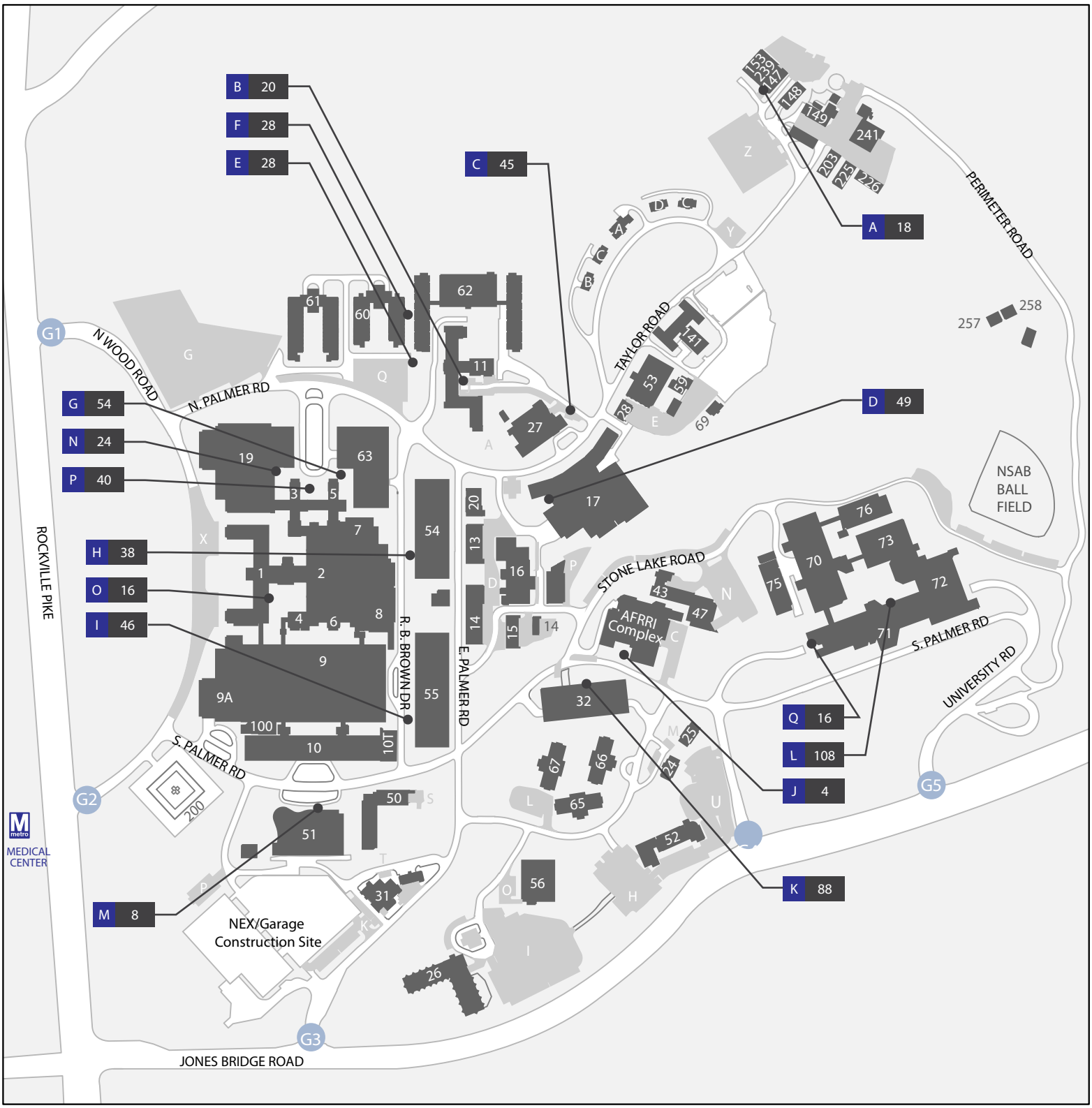


Figure 9
Bicycle Parking Facilities

11 Buildings
G Parking Lots
G# Gates
Metro Stop

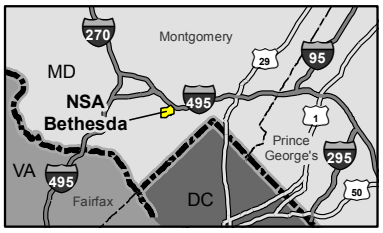
Bike Parking Area # A 10 # of Bike Parking Spaces

TOTAL: 17 Locations / 630 Bike Slots

Map not drawn to scale

Prepared By: The Louis Berger Group 2012

MAP INDEX



deficiencies with respect to the ADA accessibility of exterior pedestrian routes. In addition to missing curb ramps, these deficiencies included slopes that exceeded the threshold for accessible routes, inaccessible or problematic building entrances, and non-conforming railings. These issues have been recognized and design is underway to make repairs by the end of 2012.

2.6 Roadways

Based on the 2011 NSA Bethesda commuter survey it was determined that most people take Metrorail and bus combined (42 percent of the commuter trips) with people that drive alone to work accounting for 39.5 percent (including shift workers and flex-schedule staff).

The two main roadways serving the installation, Rockville Pike (MD355) and Jones Bridge Road, are discussed below.

Rockville Pike is oriented north-south along the western edge of the NSA Bethesda installation, connecting the site with Washington, D.C. to the south and the City of Frederick, Maryland to the north. In this area Rockville Pike is a six-lane divided roadway that is classified as a Major Highway by Montgomery County, since it serves as a major regional and commuter route with high traffic volumes during peak hours. This roadway provides connections to regional areas via an interchange with the I-270 / I-495 Freeway System located north of NSA Bethesda. It also intersects with major east-west arterials north and south of the installation. The posted speed limit on Rockville Pike near the installation is 35 mph. Both the name and posted speed limit change along the length of MD335 (Rockville Pike). Rockville Pike provides direct access through signalized intersections to the NSA Bethesda installation via Gate 1 at North Wood Road and Gate 2 at South Wood Road. The South Wood Road intersection also provides access to the NIH complex and WMATA's Medical Center Metrorail Station.

Significant traffic congestion and delay occurs in the southbound direction during the system-wide AM peak period, with similar conditions occurring in the northbound during the system-wide PM peak period. While NSA Bethesda commuters contribute to system-wide traffic, the peak hour at the installation gates is earlier than the system-wide peak hour and the contribution to system-wide traffic from the installation is only a fraction of the overall traffic along this roadway.

Jones Bridge Road is a four-lane roadway that is divided along certain segments. It is oriented east-west along the southern edge of the installation and intersects with Connecticut Avenue (MD 185) to the east, with a posted speed limit of 40 mph. This thoroughfare is classified by Montgomery County as an Arterial Road between Rockville Pike and Jones Mill Road. Jones Bridge Road provides installation access through three separate entrances / intersections at Gate 3, Gunnell Road; Gate 4, Grier Road; and Gate 5 at University Road.

2.7 Gate Counts and Vehicle Classification at NSA Bethesda

There are a total of five gates that serve NSA Bethesda, two from Rockville Pike and three from Jones Bridge Road. The two entrances off Rockville Pike, Gate 1 (North Gate) and Gate 2 (South Gate) are connected by an internal loop road (Wood Road) and are governed by traffic signals. The three entrances off Jones Bridge Road are Gate 3 (Navy Exchange/NEX Gate) at Gunnell Road, Gate 4 (Navy Lodge Gate) at Grier Road, and Gate 5 (USU Gate) at University Road. The gates at NSA Bethesda have been or will be modified/reconfigured so that conditions at these gates have changed over time. At the time that site observations were made, Gate 3 and Gate 4 were controlled by traffic signals with University Road terminating at a stop sign past Gate 5. At the time the observations were made, Gate 4 operated as the commercial vehicle inspection facility (CVIF), however the gate is currently under construction and not in operation. The traffic signal at Gate 5 is now in operation, and this gate contains the permanent CVIF. Not all gates open the same hours or duration, and the traffic volumes and vehicle mix at each gate is different. Figure 10 illustrates the location of the five gates.

Gate 1

Gate 1 or North Gate is located at North Wood Road just south of Cedar Lane, and is aligned with the entrance to the NIH truck inspection facility. At this intersection, a half signal controls the northbound, westbound, and southbound left turn movements while allowing southbound through traffic along Rockville Pike to continue without interruption. Inbound and outbound pedestrian traffic is permitted at all times the gate is open, as is bicycle traffic via the inbound and outbound on-street bicycle lanes. This gate is configured with a total of four lanes, two of which are reversible and operates under the following schedule:

- Monday - Friday, 5:00 AM – 5:30 AM & 8:31 AM – 2:00 PM: Two lanes inbound, one lane outbound
- Monday -Friday, 5:31 AM – 8:30 AM: Three lanes inbound, one lane outbound
- Monday - Friday, 2:01 PM – 6:00 PM: One lane inbound, three lanes outbound
- Monday - Friday, 6:01 PM – 7:00 PM: Two lanes inbound, one lane outbound
- Saturday - Sunday & Holidays: Closed
- Pedestrians have 5:00 AM – 7:00 PM inbound/outbound access
- All other times: Closed

Gate 2

Gate 2 or South Gate is located at South Wood Road and is the main entrance to the installation. Gate 2 is located across Rockville Pike from the NIH South Drive entrance and the Medical Center Metrorail station. This gate is open 24 hours per day, serving vehicular traffic and is the main access point for pedestrian traffic, which is mostly generated by the Medical Center Metrorail station, and adjacent transit bus terminal on the opposite side of Rockville Pike. Pedestrian access at Gate 2 is permitted 24 hours per day via a sidewalk checkpoint. Access for cyclists is provided by one inbound and one outbound on-street bicycle lane that is controlled by the main vehicular security checkpoint. Gate 2 is configured with a total of three lanes, one of which is reversible. Gate 2 operates under the following schedule:

- Monday - Friday, 5:00 AM – 2:00 PM: Two lanes inbound, one lane outbound
- Monday - Friday, 2:01 PM – 7:00 PM: One lane inbound, two lanes outbound
- Monday - Friday, 7:01 PM – 4:59 AM: One lane inbound, one lane outbound
- Saturday - Sunday, 5:00 AM – 4:59 AM: Two lanes inbound, one lane outbound
- Pedestrians have 24/7 inbound/outbound access

Gate 3

Gate 3 at Gunnell Road, permits pedestrian access during its operating hours because of its proximity to the NEX. Gate 3 is also convenient to the installation's gas station. The gate has one inbound and one outbound lane, with pedestrian access permitted during all times that the gate is open. Gate 3 operates under the following schedule:

- Monday-Friday, 5:00 AM – 7:00 AM: One lane inbound, one lane outbound
- All other times: Closed

Gate 4

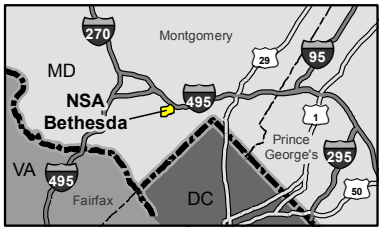
Gate 4 at Grier Road is the next gate to the east along Jones Bridge Road. This gate does not permit any non-vehicular access. The gate has one inbound travel lane and one outbound travel lane and operates under the following schedule:

Figure 10
Location of NSA Bethesda Gates

11 Buildings
G Parking Lots
G# Gates
Metro Stop

Map not drawn to scale
Prepared By: The Louis Berger Group 2012

MAP INDEX



- Monday-Friday, 5:00 AM – 2:00 PM: Inbound commercial vehicle traffic only
- Monday-Friday, 2:01 PM – 3:00 PM: One lane inbound commercial vehicle traffic, one lane outbound
- Monday-Friday, 3:01 PM – 6:00 PM: One lane outbound
- All other times: Closed

Gate 5

Gate 5, located at University Road and Jones Bridge Road, is the easternmost gate of NSA Bethesda. Gate 5 features an on-street bike lane in both the inbound and outbound directions, with these lanes integrating into vehicle lanes at the USU. The new gatehouse at Gate 5 contains two inbound lanes and one outbound lane, with one of the inbound lanes equipped to serve as a truck inspection facility. Gate 5 operates as the main gate for deliveries and truck traffic during its hours of operation. At all other times, delivery vehicles will be inspected at Gate 2, the 24-hour gate. Gate 5 currently operates under the following schedule

- Monday-Friday, 5:00 AM – 6:00 PM
- All other times: Closed

Traffic counts, vehicle occupancy and vehicle classification counts were taken at all five gates in October 2011. While the vast majority of vehicles entering the installation are privately owned vehicles, the survey was conducted at the five installation gates to determine the number of other vehicles that enter the site. The results of these counts are summarized below. The peaks traffic at the gates (Gate Peaks) was observed to arrive and depart earlier than the peak hour in the area (or the System Peak). The Gate Peak Hours are 6:00 to 7:00 AM and 3:45 to 4:45 PM while the System Peak Hours are 7:45 to 8:45 AM and 4:45 to 5:45 PM. Counts of vehicles by type (passenger cars, small trucks, large trucks and transit vehicles) were also completed for inbound vehicles as a separate effort. For the purposes of this count a small truck is defined as a vehicle that is the size of a UPS-type truck or larger, but smaller than a semi-trailer. A large truck is defined as a semi-trailer or larger. Transit vehicles are defined as any vehicle that appeared to have, as its sole purpose, transporting people ranging from a taxi to a bus, and including shuttles, and passenger vans with multiple passengers.

Table 1 below summarizes the AM and PM peak hour traffic that comes into and exits NSA Bethesda for both the Gates and the overall System. As indicated in the table, the peak arrival and departure time for traffic at the installation gates begins 1 hour and 45 minutes earlier than the peak hour for the overall traffic network in the area. The peak arrival time at the installation gates is 6:00 to 7:00 AM when a total of 2,339 vehicles entered and exited the gates. During the AM peak hour for the overall area or the System Peak (7:45 -8:45 AM) 1,332 vehicles entered and exited the installation.

During the afternoon 3:45 – 4:45 PM Gate Peak hour 2,194 vehicles entered and exited the gates, while during the 4:45 to 5:45 PM System Peak 1,566 vehicles entered and exited. The North Wood Road Gate (Gate 1) had the highest AM Gate Peak entering and PM Gate Peak exiting volume of any gate; 864 and 738 respectively. South Wood Road Gate (Gate 2) had the next highest entering volume in the AM Gate Peak hour with 482 vehicles. Grier Road Gate (Gate 4) had the second highest exiting volume in the PM Gate Peak with 478 vehicles but only received 57 cars in the AM Gate Peak period (the lowest entering vehicle volume). The lowest PM Gate Peak period exiting volume was at the University Drive Gate (Gate 5) with only 10 vehicles leaving (despite having 309 vehicles entering in the AM). It should be noted that the volumes for inbound Gate 4 would likely be higher than shown since the existing gate counts were obtained during a period when Gate 4 was the temporary CVIF, thus passenger vehicles arriving from the east along Jones Bridge Road would have been required to use Gate 3 or 5 instead of Gate 4 (Gate 5 was not signalized at the time and thus making exit onto Jones Bridge Road difficult).

Table 1 – Gate and System Peak Hour Traffic Volume

	Gate	Movement	Gate Peak Hour		System Peak Hour	
			AM	PM	AM	PM
			6:00 - 7:00 AM	*3:45 - 4:45 PM*	*7:45 - 8:45 AM*	*4:45 - 5:45 PM*
1.	**North Wood Road**	Inbound	864	99	416	71
		Outbound	75	738	113	451
2.	**South Wood Road**	Inbound	482	127	190	102
		Outbound	63	214	87	198
3.	**Gunnell Road**	Inbound	413	126	240	96
		Outbound	74	394	116	313
4.	**Grier Road**	Inbound	57	--	33	--
		Outbound	--	478	--	335
5.	**University Drive**	Inbound	309	8	135	7
		Outbound	2	10	2	7
	Overall Traffic Volume	Inbound	2,125	360	1,014	276
		Outbound	214	1,834	318	1,304
		Total	**2,339**	**2,194**	**1,332**	**1,580**

Table 2 - Vehicle Occupancy Summary

Direction/	*AM* Gate Peak					
Occupancy	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5	All Gates
Inbound 1	753	358	362	48	333	1854
Inbound 2	94	84	23	2	41	244
Inbound 3+	5	6	0	0	4	15
					Total	**2113**
Outbound 1	60	40	75	1	2	178
Outbound 2	0	1	0	0	0	1
Outbound 3+	0	0	0	0	0	0
					Total	**179**

Direction/	*PM* Gate Peak					
Occupancy	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5	All Gates
Inbound 1	97	65	106	0	9	277
Inbound 2	20	11	2	0	1	34
Inbound 3+	3	0	0	0	1	4
					Total	**315**
Outbound 1	690	168	350	374	11	1593
Outbound 2	106	55	37	57	2	257
Outbound 3+	5	4	5	9	0	23
					Total	**1873**

By far the largest percentage of vehicle trips to and from the installation is in SOVs. In the AM Gate Peak Hour 87.7 percent of the incoming and 99.4 percent of the outgoing vehicle trips are in SOVs for the five installation gates combined. In the PM Gate Peak Hour 85.1 percent of the vehicles exiting the installation and 87.9 percent entering are SOVs. Approximately 11-13 percent of vehicles have 2 occupants and approximately 1 percent has 3 or more occupants per vehicle. In the AM the inbound Average Vehicle Occupancy (AVO) is 1.13 while the PM outbound AVO was 1.16. Table 2 above provides a vehicle occupancy summary.

As identified in Table 3 below, 96 small trucks entered the installation from 5:30 AM to 8:45 AM and 33 exited in the same timeframe. There were also 40 large trucks entering and 24 exiting as well as 91 transit vehicles entering and 80 exiting, and 94 bicycles entering and 14 exiting. Gate 4 had the highest

Table 3 – Vehicle Classifications, All Gates Combined

All NSA Bethesda Gates								
Peak	*Small Trucks*		*Large Trucks*		*Transit Vehicles*		*Bikes*	
Period	In	Out	In	Out	In	Out	In	Out
5:30 AM	10	2	2	0	1	0	3	0
5:45 AM	6	5	1	0	1	2	5	0
6:00 AM	7	8	6	0	2	2	6	2
6:15 AM	11	2	2	1	6	8	5	0
6:30 AM	3	2	3	1	9	8	5	2
6:45 AM	2	0	4	1	8	6	7	2
7:00 AM	7	0	6	0	10	5	8	1
7:15 AM	10	1	1	1	10	9	14	0
7:30 AM	6	2	3	4	5	3	8	0
7:45 AM	8	2	2	5	9	9	13	0
8:00 AM	8	1	4	3	7	8	8	0
8:15 AM	9	2	6	5	7	5	3	0
8:30 AM	6	4	0	2	10	9	8	0
8:45 AM	3	2	0	1	6	6	1	7
Total	**96**	**33**	**40**	**24**	**91**	**80**	**94**	**14**
3:00 PM	3	12	1	8	11	4	0	7
3:15 PM	3	7	0	7	5	8	0	3
3:30 PM	3	14	1	12	4	4	1	9
3:45 PM	1	4	0	3	7	6	0	0
4:00 PM	2	3	0	3	13	2	2	10
4:15 PM	2	2	0	1	5	6	0	7
4:30 PM	1	0	0	3	8	6	1	7
4:45 PM	2	0	0	1	8	5	0	8
5:00 PM	4	1	0	3	5	8	1	11
5:15 PM	1	0	0	3	6	4	0	5
5:30 PM	1	1	0	2	4	6	0	6
5:45 PM	1	1	0	1	5	3	0	8
6:00 PM	3	1	0	3	3	8	1	4
6:15 PM	1	2	0	1	3	4	1	2
Total	**28**	**48**	**2**	**51**	**87**	**74**	**7**	**87**

Note: All other vehicles entering the installation were privately owned vehicles.

number of small trucks and large trucks entering in the morning (65 and 40 respectively). Gate 2 had the largest number of transit vehicles entering with 45 (this could be influenced by the Metro Shuttle which operates during this timeframe). Bicycle trips were fairly evenly distributed with Gate 2 having the most trips at 31.

During the 3:00 PM to 6:15 PM period 48 small trucks exited, along with 51 large trucks, 74 transit vehicles and 87 bicycles. Gate 3 had the largest number of small and large trucks exiting in the evening each at 25. Gate 2 had the highest number of transit vehicles (34) exiting and bicycles (30) in the evening period.

2.8 Parking

There are currently eight parking structures on the NSA Bethesda installation, four freestanding garages and four parking garages under buildings. Additionally there are multiple surface parking lots on the installation including 7 fairly large facilities. The total 7,686 parking spaces are broken down as follows:

Staff, 3,525 spaces; Patients, 2,436 spaces; Visitor/Retail, 1,120 spaces; Lodging, 457 spaces; and Government, 148 spaces. There are approximately 11,686 employees and 3,525 staff parking spaces for a parking ratio of 1:3.32.

Based on the results of the commuter survey, 80.1 percent of the employees that drive to work daily park at the installation. Staff parking at the installation is by permit only while patients and visitors have dedicated parking available for their use. While patients and other select designations have dedicated parking, staff parking is allotted to the various tenant commands at the installation based on the size of the command. Locations where staff from the various tenant commands can park are also identified. Preferential parking spaces are available and assigned to carpools/vanpools, with roughly 450 carpool groups currently registered. Employees receiving federal transit subsidies are not allowed to receive parking privileges.

Electronic message boards (intelligent parking system) have been installed on the outside of some of the parking structures (e.g. America Garage and Multi-Use Parking Garage) to inform drivers of available parking within buildings and to identify on which level the spaces are located. Projects are underway to install similar systems in the vast majority of garages on the Installation.

2.9 Commuter "Slugging"

Based on a search of the slug-lines.com website there are no established slug lines serving NSA Bethesda.

2.10 Area Intersection Level of Service

Intersection capacity is not considered the best benchmark for assessing the effectiveness of a TMP since the factors influencing intersection capacity often are more far reaching than traffic volumes from a single facility. However as detailed below, existing capacity analyses for the external NSA Bethesda network were conducted for a traffic study over a wide network utilizing two separate methodologies based on the Highway Capacity Manual (HCM), while intersections internal to the installation were evaluated using a single methodology. A total of 29 intersections (17 external and 12 internal to the installation) were evaluated. This study was conducted by Gorove/Slade in November 2011.

External Intersections

Capacity analyses for each of the signalized intersections for the external network were conducted utilizing the Critical Lane Volume (CLV) methodology required by the Maryland-National Capital Park and Planning Commission's (M-NCPPC) Local Area Transportation Review Guidelines (LATR). The CLV methodology calculates level of service using a planning procedure that considers the geometrics and individual intersection volumes.

According to the traffic study, the existing traffic capacity at 14 of the 17 external study area intersections currently operate at acceptable levels of service during both the AM and PM peak periods. Rockville Pike and Cedar Lane during both the AM and PM peak hours, Connecticut Avenue & Jones Bridge Road & Kensington Parkway during the PM peak hour and Old Georgetown Road & Oakmont Avenue/Cedar Lane during the PM peak hour are shown to operate above acceptable levels during these periods. These are the only intersections shown to operate at levels beyond the acceptable range using this methodology, however it is acknowledged that several of the intersections along Rockville Pike experience delay due to heavy congestion in the area and that due to this congestion, traffic progression along this roadway is compromised. Given that the capacity analyses techniques utilized as part of the CLV methodology depict conditions that analyze each intersection individually and not as an entire network, an additional analysis was conducted to review the entire network utilizing the HCM methodology as part of the Synchro, Version 7.0 software. This methodology is used to evaluate the entire network instead of evaluating on an individual intersection basis. Level of Service is expressed as letter grades A through F.

Instead of showing the CLV value, this methodology shows levels of service in terms of seconds of delay for the overall intersection as well as each movement and approach.

The results of the analysis indicated that most (11 of the 17) study area intersections operate at acceptable levels during both the AM and PM peak hours. The following intersections are operating with an unacceptable delay (level of service E or F): Rockville Pike and Grosvenor Lane during both the AM and PM peak hours; Rockville Pike & Pooks Hill Road during the AM peak hour; Rockville Pike and Cedar Lane during both the AM and PM peak hours; Jones Bridge Road and University Road during the AM peak hour; Jones Bridge Road and Connecticut Avenue during both the AM and PM peak hours; and Jones Bridge Road and Manor Drive during the PM peak hour.

Internal Intersections
To evaluate the internal NSA Bethesda roadway network, the study area intersections were evaluated utilizing the Synchro methodology established by the HCM since all of these intersections are stop sign controlled. Each of the 12 internal study intersections evaluated operate at acceptable levels of service during both AM and PM peak periods. The only exception is the intersection of R. B. Brown Drive at the American Garage entrance and at the staff parking garage entrance during the PM peak period. The exiting movements from each of the garages currently operate beyond acceptable levels of service. This is primarily due to the heavy pedestrian volume at this location. Over 900 pedestrians walk past these intersections during the PM peak hour which causes significant delays in traffic. In the absence of such a high pedestrian volume these intersections would operate at acceptable levels, as is the case during the AM peak period.

3.0 PLANNING CONTEXT

By 2030, the population of the region is expected to increase by 40 percent while the workforce is expected to increase by 45 percent. It is anticipated that the majority of this growth will occur outside the Beltway, in areas with limited road capacities and public transportation services. It is projected that 92 percent of population growth will occur in suburban areas.[6] The number of trips made daily by Washington residents is expected to grow by more than 48 percent, between 2000 and 2030, and the number of miles driven will increase by more than 45 percent. At the same time, current regional long range transportation plan projects would only nominally increase the region's highway system capacity with very little planned expansion of the transit system during the same period of time. In 2030 suburb to suburb travel is expected to be 77.4 percent, while future planned highway infrastructure is largely intended to improve mobility between suburban areas and downtown Washington, DC. These trips are most often SOV trips, as there are fewer non-personal vehicle travel options available in suburban areas. Therefore, it is important for TMPs to consider regional projects.

There are a number of projects and planning initiatives in Montgomery County, Maryland, in the vicinity of NSA Bethesda, as well as several on-going and planned projects located on the NSA Bethesda installation (also see Section 3.3 below for a discussion of projects identified in the 2012 NSA Bethesda Master Plan for development on the installation) that may also effect transportation in the area. These projects are discussed below.

3.1 Roadway Projects

The roadway projects and initiatives are shown in Table 4, followed by descriptions of the most relevant off-installation mobility projects and their current status.

[6] *Implementing a Successful TMP, May 2008*, General Services Administration, Metropolitan Washington Council of Governments, National Capital Planning Commission

Enhanced Commuter Bus Service

MCDOT, WMATA, and Maryland Department of Transportation (MDOT)/MTA are exploring the

Table 4 – Background Roadway Projects

	Project	Description	Primary Agency	Status	Target Completion
On-Installation Projects					
1	NSA Bethesda On-Installation Traffic Projects	On-installation road and gate improvements to help on- and off-installation traffic flow	NSA Bethesda	In NSA Bethesda Master Plan	2012
2	North Wood Road. Turn Lane/Signal	Mitigate traffic impact on Rockville Pike (MD 355) at North Gate	NSA Bethesda	In progress, SHA to start construction to lengthen the S/B Rockville Pike turn lane in 2013.	In Progress
3	New WRNMMC Garages	Construct parking garages to provide additional capacity for realignment with Walter Reed Army Medical Center	WRNMMC	Patient parking garage; two multi-use garages	Completed September 2011
Off-Installation Project					
4	Medical Center Metro Crossing Project	New pedestrian tunnel between NSA Bethesda and the Medical Center Metro station along with high-speed elevators connecting directly to the mezzanine of the Metrorail station; improve pedestrian mobility and safety	MCDOT	FHWA approved, May 2011	2015
5	Improve Major Intersections •MD 355 at Cedar Lane •Connecticut Ave (MD 185) at Jones Bridge Road • MD 355 at Jones Bridge Road •Cedar Lane at Old Georgetown Road (MD 187)	Joint MDOT & SHA projects to improve traffic & pedestrian movement at intersections exterior to NSA Bethesda.	MDOT/SHA	Design and Engineering in progress; public meetings & mandatory referrals held; utility relocation underway MD 335-Cedar Lane	2014 or later
6	Pedestrian/Bike Paths •Cedar Lane (MD 187 to MD 355) •Cedar Lane Bridge over Rock Creek •MD 355 (Cedar Lane to Jones Bridge Road) •Jones Bridge Road (MD 355 to MD 185) •Battery-Glenbrook neighborhoods (signage and safety upgrades)	MCDOT initiative to improve and complete paths around NSA Bethesda.	MCDOT	Facilities study complete/ in CIP; County executive requests >$5 million for construction	September 2011

expansion of bus and depot capacity in order to increase commuter bus and shuttle service. Initiatives include the introduction of a new bus route along the new Intercounty Connector (ICC) toll road, and a new Montgomery County maintenance and bus depot.[7] The proposed North County Maintenance Depot will be located on the west side of I-270 near Ten Mile Creek, serving as a staging, operations and maintenance center for Montgomery County's Departments of Transportation and General Services. The depot also will accommodate the planned future growth of the County's transit fleet. Design of the proposed facility, currently underway, is expected to be completed in 2012. Construction of the depot will last approximately three years and is expected to commence in late 2012[8].

3.2 Area Facility and Planning Projects

A number of background facility and planning projects have been identified in the vicinity of NSA Bethesda, based on correspondence with the Montgomery County Planning Department. These projects are presented below in Table 5.

Table 5 – Background Facility and Planning Projects

	Project Name	Location	Project Description
1	FASEB Office Addition	Southwest quadrant of Rockville Pike and Pooks Hill Road; north of Alta Vista Road; access to Rockville Pike & Pooks Hill Road	40,000-square-foot (SF) Office addition
2	Alta Vista @ACC	Southeast quadrant of Old Georgetown Road and Alta Vista Road; access to Alta Vista Road and Camberly Avenue	37 Single-Family dwelling units (DU's)
3	NIH - Main Campus	East side of Old Georgetown Rd; south of West Cedar Lane	*See below
4	Suburban Hospital	Southwest corner of Old Georgetown Road and Southwick Street	114,996 SF Expansion; 134,996 SF Standard of Care Expansion
5	Glen Aldon on Battery Lane	North/south sides of Battery Lane; West of Woodmont Avenue	694 High-Rise DU's replacing 260 Mid-Rise DU's
6	Woodmont View	Northwest corner of Woodmont Avenue and Battery Lane	46 Mid-Rise DU's, 3,200 SF Restaurant, and 1 Extended Stay Multi-Family Facility for 5 families replacing 4,200 SF General Office and 1 Single-Family DU
7	8300 Wisconsin Avenue	Between Wisconsin Avenue and Woodmont Avenue; north of Battery Lane	150-Room Hotel, 350 High-Rise DU's, and 50,000 SF Grocery Store
8	Woodmont Central – A	Southwest corner of Wisconsin Avenue and Battery Lane	81,107 SF Office and 10,505 SF Retail replacing existing Gas Station (with Conv. Retail and Car Wash)
9	Chevy Chase Lake East	Southeast quadrant of Connecticut Avenue and Manor Road	74,356 SF Office and 174,016 SF Retail replacing 67,009 SF Retail
* NIH indicated that, the only significant project in the applicable timeframe would be the (Phase II) Porter Neuroscience Research Lab that presently fronts Old Georgetown Road and the anticipated net full time equivalent gain would be in the range of 300 people (which includes volunteers, fellows and others who are not necessarily at the facility Monday-Friday). Of those estimated 300 additional people, NIH expects that fully one half to two thirds will be arriving via Metrorail, Metrobus, Ride-On, car/van pools, bicycles, or on foot.			

Source: Montgomery County Planning Department, Maryland National Capital Park and Planning Commission, November 22, 2011 and NIH January 12, 2012.

[7] http://www.mta.maryland.gov/sites/default/files/ICC_Bus_Plan_FINAL_082511.pdf

[8] http://www.montgomerycountymd.gov/mcgtmpl.asp?url=/content/DGS/DBDC/RegionalProjectPages/UpcountyProjects/north_county_maint_depot.asp

3.3 NSA Bethesda Master Plan: Transportation Implications

3.3.1 Anticipated Land Use Changes

As summarized in the 2012 NSA Bethesda Master Plan, there are several land use changes proposed that will have implications on the future transportation network. These changes will renovate, modify or construct facilities, roads, parking and infrastructure and will increase density, add traffic, enhance accessibility and add (and modify) parking facilities by 2018.

3.3.2 Employee Density Implications

Based on the program identified in the 2012 NSA Bethesda Master Plan, the population at NSA Bethesda will grow over time. In 2011 the population of NSA Bethesda is estimated to be 11,686, consisting of 7,483 medical mission personnel, 2,995 education mission personnel, and 1,208 support mission personnel. By 2022 it is estimated that the installation population will increase by 925 employees or almost 8 percent, for a total of 12,611. By 2022, medical mission personnel is projected to increase to 7,539, education mission personnel is projected to increase to 3,521, and support mission personnel is projected to increase to 1,551. The proposed land use changes, future facilities program, and projected 925 personnel population increase by 2022 will result in employee densities shifting in several locations, as summarized below.

- The medical campus (central western portion in particular) will see a small increase in employee density (approximately 50 employees) due to the Medical Building C project. This project entails demolition of several buildings, and new construction of 562,592 SF ; also included are renovations to an additional 120,000 SF of existing medical facility space in Buildings 1 through 10 in the hub of the medical campus. At the southern end of the medical campus, the Building 50 Site Redevelopment project (currently un-programmed) could introduce new employees or shift existing employees to this location in the long term. The G-Lot Medical Expansion project (currently un-programmed) could introduce new employees and/or shift existing employees to the northern end of the medical campus.
- In the central part of NSA Bethesda, the USU Building F project (construction of a 341,151 SF education research facility that eliminates an existing shortfall) will increase employee density at the USU campus. As the location of Building F will be west/southwest of the existing USU campus, this project will also result in a slight shift in employee concentration.
- In the northeast part of installation, the existing industrial/warehouse area will see an increase in employees and/or a shifting of existing employee concentration due to the proposed warehouse consolidation and introduction of new administrative/lab/office space.
- The south central/southwestern portion of NSA Bethesda, primarily consisting of community and administrative uses, is expected to experience a minor increase in employee densities due to the planned 5,262 SF CDC project and the 62,812 SF Navy Lodge expansion project.

To summarize, short term employee growth is expected to occur mainly at the core of the medical campus and in the vicinity of the USU campus. Long-term employee growth will depend on the development of programs for these proposed projects, but is envisioned as occurring in the northeastern and northwestern portions of installation, in the existing industrial/warehouse and G-Lot areas.

3.3.3 Trip Generation/Modal Split Impacts

Since growth of the NSA Bethesda workforce will come from existing tenants familiar with the transportation and parking conditions in the area and at the installation, and on-installation parking will be limited, the SOV mode of travel to and from the installation is expected to decline over time relative

to the population. It is believed that the Medical Center Metro Crossing project will likely increase the mass transit modal share since it eases the crossing of Rockville Pike.

3.3.4 2012 NSA Bethesda Master Plan Parking Supply Impacts

The 2012 NSA Bethesda Master Plan includes the provision of parking to replace capacity that will be lost both permanently and temporarily due to construction, and to fulfill future demand projected as a result of the employees from the new installation development.

3.3.5 Bicycle Provisions

As per the 2012 NSA Bethesda Master Plan, an assessment of bicycle facilities and services along roadways providing direct access to NSA Bethesda found that most facilities are in good condition, function efficiently, and provide for a high level of user safety. Primary installation bicycle (and pedestrian) access points and circulation routes occur along Rockville Pike between Cedar Lane and Jones Bridge Road, and Jones Bridge Road between Rockville Pike and Connecticut Avenue. The area of installation adjacent to the Medical Center Metrorail station experiences the greatest level of bicycle (and pedestrian) activity.

A survey of bicycle facilities was conducted as part of the 2012 NSA Bethesda Master Plan and again more recently in December 2011 to support this TMP Update. Based on the December 2011 bicycle survey and as discussed in Section 2.5 above, the installation has bike parking in 17 locations with the highest uses being near the MUPS with 88 spaces; in the USU with 108 spaces inventoried. Combined these locations provide 630 spaces in bicycle parking.

According to the 2012 NSA Bethesda Master Plan, future development should replace any bike racks that may be displaced by new construction, adding to existing capacity as necessary to support new program areas/employees. To accommodate and encourage bicycle traffic, rights-of-way and street cross-sections should be updated to incorporate adequate bicycle lanes or shared lane markings. The installation currently provides showers and locker rooms for bicycle commuters to promote bicycling as an alternate form of transportation.

4.0 NSA BETHESDA TRANSPORTATION MANAGEMENT

A TMP for the installation was completed in 2008 and NSA Bethesda has implemented and refined a number of TMP measures over the past few years. A critical step in achieving the goals of the 2008 TMP was appointing a Transportation Program Manager (TPM) and Transportation Program Coordinator (TPC) to oversee transportation and parking considerations at the installation. Specific measures have been initiated or advanced since these two positions were established.

Since the new parking management plan was established in August 2011 (prior to the realignment with WRAMC), the number of carpool groups grew from approximately 120 to approximately 450 installation-wide and 2 vanpool parking spaces were added. There has also been a strong shift in the number of people arriving at work in the morning prior to the background peak period. Previously, approximately 46 percent of the workforce arrived between 5:00 AM and 7:00 AM, and now that number has grown to approximately 64 percent. The installation has 11,686 employees and 3,525 employee-assigned parking spaces (or a 1:3.32 ratio of parking spaces per employee). As evidence of the success of the current TMP at NSA Bethesda, the pre-BRAC employee parking supply ratio discussed in the previous TMP was 1 parking space for every 2.5 employees.

Smart Benefits are provided to military and civilian employees under the Mass Transit Fringe Benefit (MTFB) program. The transportation survey indicated that 33.8 percent of respondents have some or all

of their travel costs off-set by the transit benefit program. Given the number of employees that transferred from the Walter Reed facility and the fact that parking was not provided for all people transferring, it is likely that the number of people (and likely the percent of the population) applying as qualified federal employees for the MTFB program has increased. Each month benefits can be used toward expenses incurred when riding any mass transit option to and from work such as the WMATA Metrorail and Metrobus, MARC train, commuter buses and registered vanpools.

This TMP update is being provided due to the changes related to the Post-BRAC condition and the changes being planned and mentioned in an EIS being prepared for anticipated Post-BRAC projects. Many changes would result over time in the way that NSA Bethesda handles traffic, parking, and pedestrians on the installation. One recent change that has been a big success is the implementation of an improved parking management plan for the installation. Since the improved parking management plan was implemented in August 2011 there have been approximately 320 new carpools formed, and 18 percent more people arrive out of the peak hour and 5 percent more depart outside the peak hour than in the past. NSA Bethesda has also completed studies on traffic, sidewalk conditions accessibility, and other mobility concerns with a goal of improving conditions. For example, NSA Bethesda was found to generally have adequate sidewalk widths and curbing, but the NSA Bethesda *Accessibility Capital Improvement Plan* recommends improving the sidewalks along the entire length of R.B. Brown Drive and Taylor Road, which will improve the future connections between the Medical Buildings and the proposed parking structures along Taylor and Grounds Roads.

If employed alone, most of the TMP measures discussed below would only have a modest effect on the number of single occupancy vehicles commuting to the site each day. However, combined these measures can provide a sizable affect. Estimates are presented on the size of the effect with the conclusion supported by research, the results of the commuter survey and in some cases professional judgment. The commuter survey asked which service is one that may encourage them to explore other travel options. The percentage of responses from people that drive alone to work is as follows:

- Flexible Work Schedule 31.2 percent
- Express Bus or Vanpool near Home 23.7 percent
- Increased Transit Subsidies 20.3 percent
- Improved Shuttle Service to Metro 11.3 percent
- Guaranteed Ride Home 4.8 percent
- Carpool/Vanpool Ridematching Service 4.4 percent
- Increased Installation Daycare Capacity 2.8 percent
- Extended Daycare Hours 1.6 percent

4.1 NSA Bethesda Commuter Survey Results

A web-based commuter survey was completed by employees at NSA Bethesda over a two-week period in October 2011. Questions were developed for the survey to solicit information on multiple transportation factors such as trip origin, travel mode, vehicle occupancy, ability to telecommute, and use of bicycles. A copy of the survey is presented in Attachment 2 of this report. Each anonymous respondent also identified her/his primary work location and the zip code of their primary place of residence. The results of the survey for NSA Bethesda employees are summarized below to provide an understanding of the current travel behavior of workers at NSA Bethesda. A total of 1,326 responses were received or approximately 11.4 percent of the working population. The respondents were approximately 98 percent full-time workers. People responded from 33 of the tenant commands at the installation, plus responders to the “Other” category. The Walter Reed National Military Medical Center is the largest employer at the installation and had the largest number of responders (845 or 63.7 percent) of all commands. The next highest level of response to the survey were from USU/AFRRI with 88 responders, NMPDC with 69 responders, NSA Bethesda with 53 responders and Joint Taskforce National Capital Medical with 52

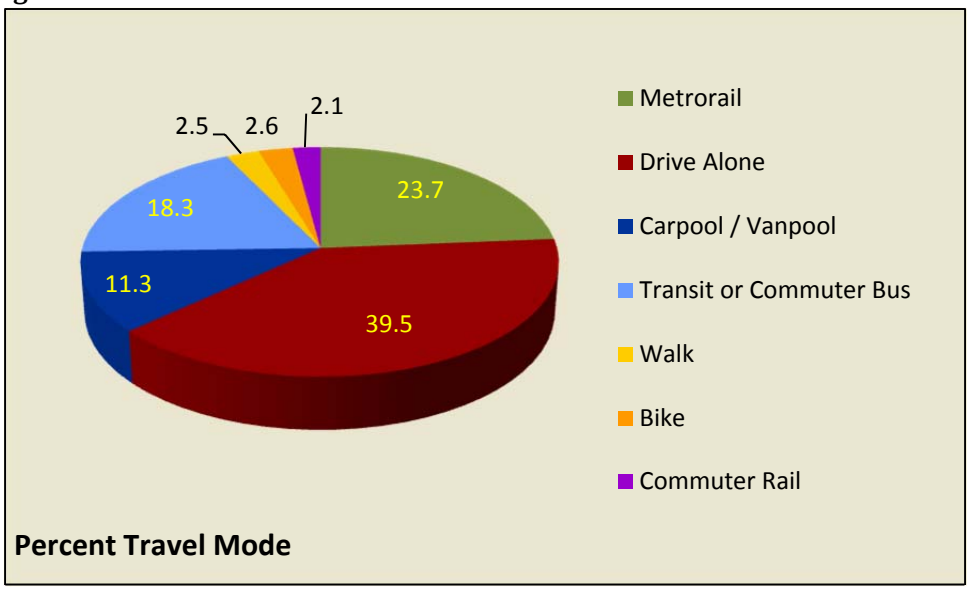
responders. These responses mirror the composition of the installation well and appear to be representative.

4.1.1 Travel Mode

The travel modes available for selection in the commuter survey were: drive alone, rail, commuter or transit bus, carpool/vanpool, bicycle, walk, telecommute and other (see Figure 11). At 42.0 percent mass transit use (combined Metrorail and bus) had a higher mode share than using single occupancy vehicles. Based on the results of the commuter survey 60.5 percent of commuters used non-SOV to get to work while 39.5 percent of commuters (including shift workers and flex staff) drive to work using SOVs.

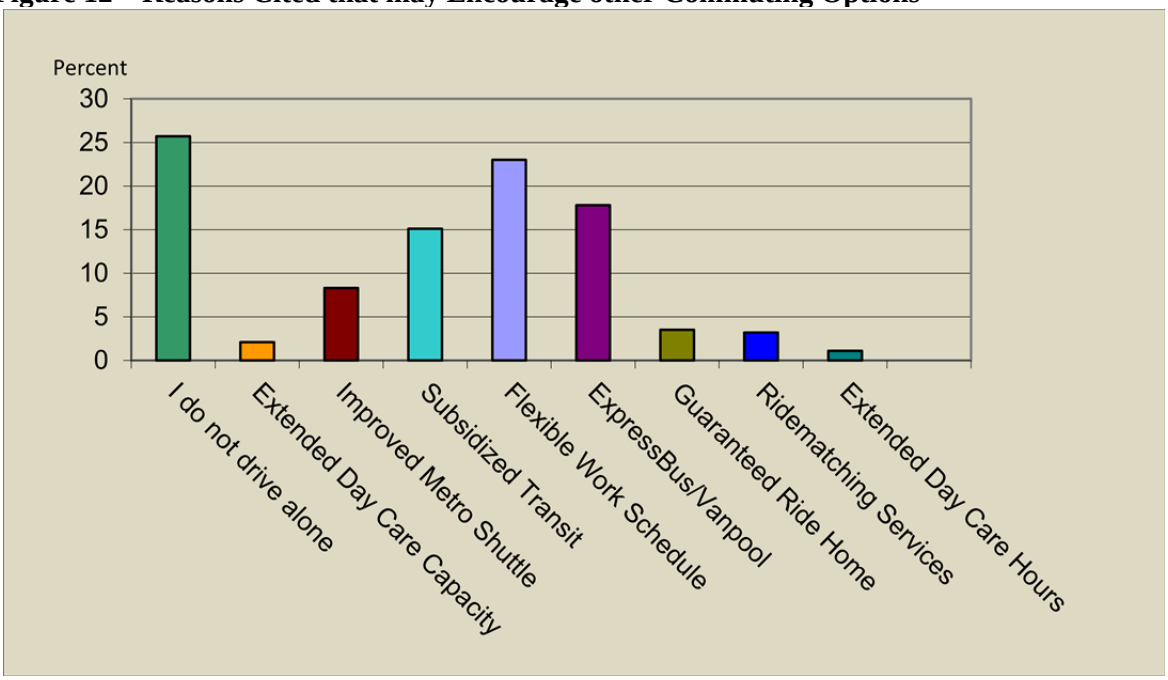
When asked in the commuter survey why they do not use mass transit to get to work 25.7 percent stated that they did not drive alone to work (and thus already are taking mass transit or alternate transportation). Another 23.1 percent had a flexible work schedule making mass transit use inconvenient. The next highest category (17.8 percent) reported that they use express bus or vanpool service followed by 15.1 percent that wanted to receive transit subsidies. The need for improved shuttle to Metrorail was reported by 8.3 percent, and better ridematching services and guaranteed ride home services were reported by 3.2 and 3.5 percent of respondents as to why they do not take mass transit to work.

Figure 11 - Travel Modes



Other services identified by people that drive to work that may encourage them to explore alternate commuting options included 23.0 percent who would like a more flexible work schedule. Express bus service or vanpool from place of residence (17.8 percent) and providing transit subsidies (15.1 percent; this number may reflect contractors responding that are not eligible for the Mass Transportation Benefit Program (MTBP) were cited as the next most important service that affect travel mode choice. Extended Daycare Hours was identified by the lowest number of responders (1.1 percent) and extended daycare capacity was the next least often expressed factor (2.1 percent). Figure 12 below graphically illustrates the response rates to this question. It should be noted that people may be encouraged by things for which they are not eligible (e.g. transit subsidies or flexible work schedule).

Figure 12 – Reasons Cited that may Encourage other Commuting Options



4.1.2 Travel Commuting Range

Home zip codes identified in the survey are distributed widely throughout the region with 257 different zip codes reported as a place of residence for NSA Bethesda personnel. A small percentage of employees live within walking distance to the installation. Readily available commuting modes decrease with distance from the installation. Figure 13 illustrates the employee home zip code distribution with the location of major roadways and Figure 14 shows the zip code distribution with the location of mass transit lines.

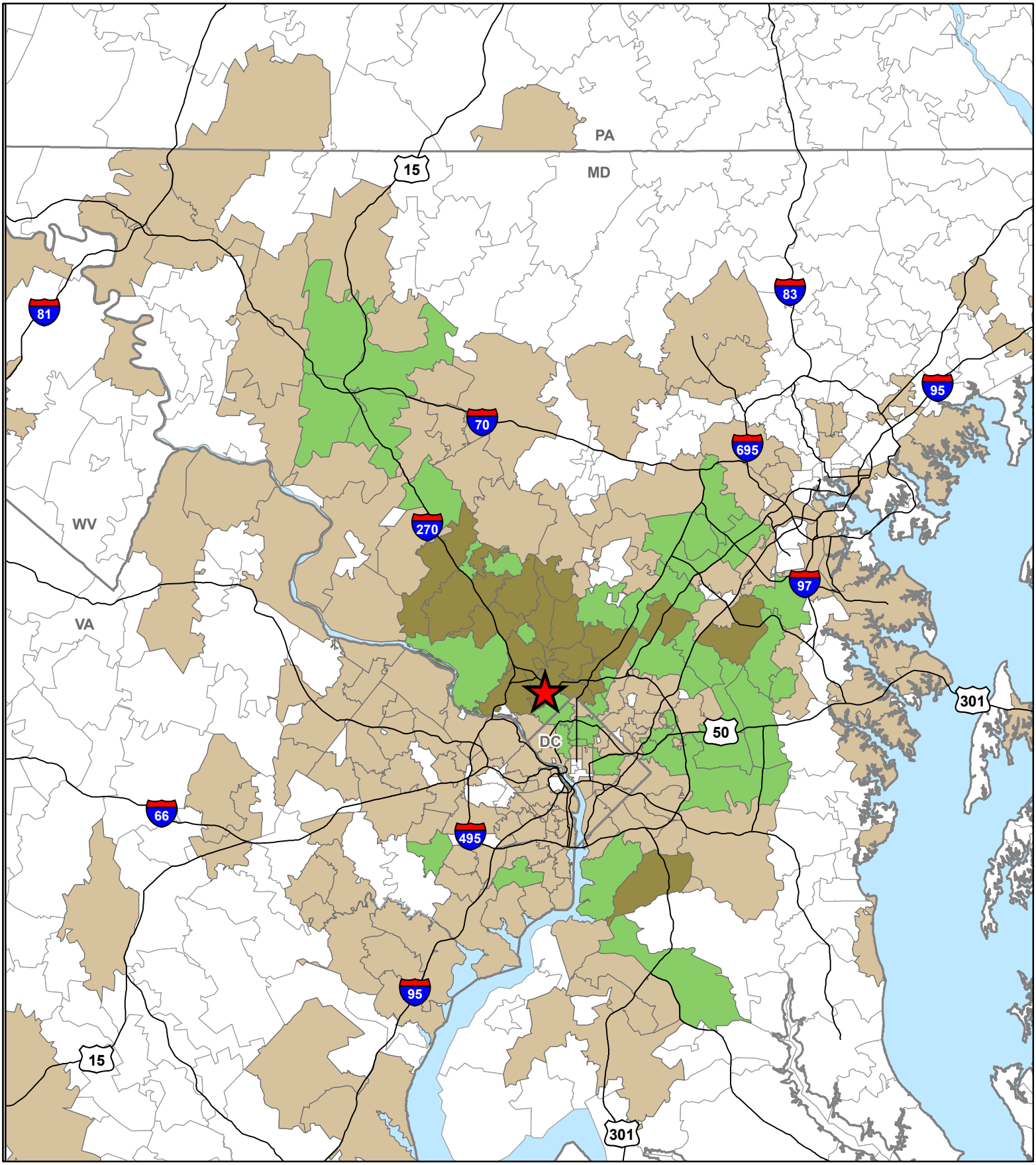
4.1.3 Entry and Exit Gates

There are five access gates to NSA Bethesda: Gate 1 at North Wood Road, Gate 2 at South Wood Road, Gate 3 at Gunnell Road, Gate 4 at Grier Road and Gate 5 at University Road. As identified in Section 2.7 above, the gates are open various times during the day and week with several gates allowing directional shifts at middle lanes to accommodate traffic demand during the AM and PM peak hours.

4.1.3 Peak Commuting Times

Most employees coming to and leaving NSA Bethesda travel outside of the system-wide peak travel times. The system-wide peak period is the period of time when the area surrounding NSA Bethesda experiences its highest traffic volumes. The installation peak is the time period when the gates at the installation receive their highest traffic volumes. Work at NSA Bethesda installation starts and ends earlier than most other facilities in the area and the installation peak is before the system-wide peak. While this question was asked in the commuter survey, the best measure for determining this information is from the gate counts done at the installation. According to the gate counts the peak hour arrival and departure times at the installation were 6:00 to 7:00 AM and 3:45 to 4:45 PM, for morning and evening commutes, respectively.

In order to identify the proportion of installation traffic versus commuter traffic throughout these corridors, it was determined that the most appropriate means of calculating the percentage was in comparing through traffic along each route versus turning movements into and out of each gate serving



NSA Bethesda

Employee Counts by Zip Code (based on Survey)

- 0 Employees
- 1 - 5 Employees
- 6 - 15 Employees
- 15 - 53 Employees

Figure 13

Home Zip Code Distribution

Map not drawn to scale

Prepared By: The Louis Berger Group 2012

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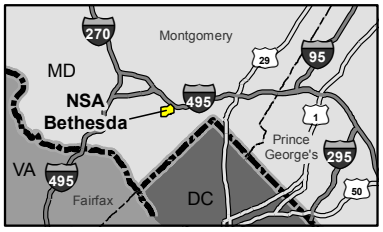

NSA Bethesda

Employee Counts by Zip Code (based on Survey)

- 0 Employees
- 1 - 5 Employees
- 6 - 15 Employees
- 15 - 53 Employees

Commuter Rail

Metro Rail

- Station
- Blue Line
- Green Line
- Orange Line
- Red Line
- Yellow Line

Figure 14

Home Zip Code Distribution with Transit

N
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Map not drawn to scale

Prepared By: The Louis Berger Group 2012

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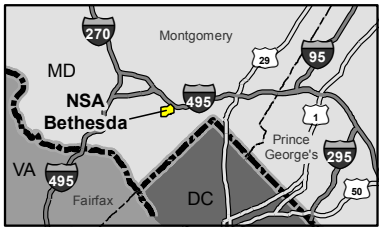

NSA Bethesda. Also, since the peak hour of the adjacent street is generally associated with the commuter peak hour and the peak hour of the site is generally associated with the NSA Bethesda peak, the full peak period, was utilized for determining the requested percentage. This time period of nearly four hours would account for both the peak of the site as well as the commuter peak providing a more approximate percentage through the AM and PM periods. The percentages do not take into account installation traffic associated with visitors and/or patients outside of when the peak periods traffic counts were collected. In order to fully approximate the daily percentage of traffic along Rockville Pike and Jones Bridge Road associated with NSA Bethesda, continuous traffic counts would be necessary along both corridors.

Based on the evaluation of the counts along Rockville Pike, it was determined that during the AM and PM peak periods, approximately 27 percent to 24 percent of the traffic was associated with NSA Bethesda, respectively (see Table 6). Overall, approximately 25 percent of the traffic along Rockville Pike was associated with NSA Bethesda. Conversely, the percentage of NSA Bethesda traffic along Jones Bridge Road was significantly higher at 44 percent during the AM peak period and 38 percent during the PM peak period for a combined percentage of approximately 40 percent. While this percentage is higher, the overall number of trips throughout the Jones Bridge Road corridor was lower due to the lower number of commuter trips through this area.

Table 6 – Traffic on Major Streets versus Installation Gates

Roadway/Gate	AM	PM	Total
Rockville Pike			
Through Traffic	14,134	14,339	28,473
IB/OB Gate Traffic	3,761	3,378	7,139
Total	**26.6%**	**23.6%**	**25.1%**
Jones Bridge Road			
Through Traffic	5,548	7,382	12,930
IB/OB Gate Traffic	2,427	2,774	5.201
Total	**43.7%**	**37.6%**	**40.2%**

Note: The AM volumes were from 5:30 – 8:45 AM and the PM volumes were for 3:00 – 6:15 PM

4.1.4 Employee Breakdown

There are currently approximately 11,686 employees at the NSA Bethesda installation. The breakdown in the workforce is 45 percent military personnel, 40 percent civilian workers, and 15 percent contractors. Based on the results of the commuter survey approximately 98 percent of workers are full-time.

4.2 Transportation Program Manager and Transportation Program Coordinator

As stated above the NSA Bethesda installation currently has a full-time employee Transportation Program Manager (TPM) and a Transportation Program Coordinator (TPC) working at the installation. Work completed by these professionals includes: conducting workshops on ridesharing and transit benefits; implementing a visitor and new commuter information section on the NSA Bethesda website;[9] participation in an annual Bike to Work Day event; coordinating a bi-annual commuter fair; set-up information booths once or twice per month in busy locations; setting-up literature racks in high-trafficked areas; conducting orientation sessions for new employees; holding zip code get-togethers for rideshare matching; conducting Town Hall meeting on commuting; development of the web-based *NSA Bethesda Commuter Solutions;*[10] participating in meetings and discussions with other transportation professionals from SHA, MCDOT, MNCPPC, NIH, NCPC, the community and advocacy groups; coordinating with transportation service providers; developing commuter information packages for new

[9] http://www.bethesda.med.navy.mil/Visitor/ (December 8, 2011)
[10] http://www.cnic.navy.mil/Bethesda/NewsAndCurrentInfo/CommuterNews/index.htm (December 8, 2011)

employees; complete an annual State of the Union report; implement and review commuter surveys of employees to determine commuting modes, times and behaviors. Many of these activities were spelled out as part of the 2008 TMP for the facility.

Establishment of full-time transportation positions at the installation has allowed the installation to take numerous positive steps toward controlling parking, increasing ridesharing and mass transit use, and decreasing SOV use. These positions also help the installation control potential adverse impacts from special events, construction and emergencies, and enables the installation to coordinate with the state and county on road and sidewalk usage issues. It is suggested that NSA Bethesda slightly enhance and/or expand the functions of the TPM/TPC to include more direct communication with staff on commuting options; development of new ideas; coordination with installation and tenant management on transportation issues; and coordinating and advocating with off-installation agency and transportation professionals on obtaining necessary changes to facilitate better commuting. The TPM/TPC should complete annual commuter surveys and evaluate the data received to help identify areas for improvement. The TPM/TPC should work with the service providers to identify similar initiatives or perhaps joint projects. It is also important to update the TMP as time goes on. In this case, since the situation is so dynamic with so many potential projects and other variables, the TMP should be updated in approximately two years to assist the TPM/TPC in improving commuting and parking at the facility.

4.3 Parking Supply and Control

4.3.1 Parking Supply

Overall the installation has 7,686 parking spaces available for staff, patients, visitors/retail, lodging and government vehicles. The parking spaces are broken down in the following manner:

User Group	Capacity
Staff	3,525 spaces
Patients	2,436 spaces
Visitor/Retail	1,120 spaces
Lodging	457 spaces
Government	148 spaces
Installation Total	7,686 spaces

The vast majority of employees cannot park at the installation since there are not enough parking spaces to accommodate the need. It was determined that most people that drive to work park at the installation and do not pay for parking. Of the total number of people responding to the survey, 58.8 percent park on the installation, 26.5 park in a public lot or garage off installation, and 14.6 percent reported that they never drive to work. According to the Commuter Survey, of those staff who drive to the installation, 80.2 percent do not pay for parking.

NSA Bethesda's parking needs are subject to multiple design and planning criteria including: the Unified Facilities Criteria (UFC); the Comprehensive Master Plan for the National Capital Region (NCR); and the Montgomery County Building Code. These various design criteria differ in the specific parking ratios/guidelines for development, in particular relative to the provision of staff parking. Attachment 3 at the end of this document describes how NSA Bethesda would provide the required parking, based on these various guidelines, including maintenance of the 1:3 staff parking ratio recommended by NCPC in the Transportation Element of the Comprehensive Master Plan for the NCR. It is important to note that if parking were designed and developed strictly according to the established UFC criteria the installation would require 14,446 parking spaces; however, when accounting for the 1:3 staff parking ratio the installation would require 9,830 parking spaces.

Figure 15 illustrates the location of the existing parking facilities at NSA Bethesda. Figure 16 illustrates the potential parking configuration at the installation in 2022 with short-term planned projects from the Installation Master Plan in place. Table 7 indicates the existing parking breakdown and provides a high and low estimate of parking that may occur for the range potential development at the installation through 2022.

Table 7 - Anticipated Parking Space Losses/Gains

Parking	Staff	Patient	Visitor/ Retail	Barracks/ Lodge	Gov't	Capacity
Existing - 2011	3,525	2,436	1,120	457	148	7,686
2018 parking with Short-Term Projects - High Estimate*	3,884	2,786	1,512	601	229**	9,012
2018 parking with Short-Term Projects - Low Estimate*	3,712	2,786	1,512	601	229**	8,840

*An Environmental Impact Statement is being prepared that evaluates a number of alternatives for locating parking at NSA Bethesda. Each alternative under consideration would add 500 patient parking spaces above the no build total, and between 228 and 400 staff spaces depending on the alternative. Thus, the alternatives range from a total of 8,840 parking spaces with 3,712 staff spaces on the low end to a total of 9,012 parking spaces with 3,884 staff spaces on the high end. The total worker population would be the same at 12,611 in all alternatives.

**The 100 swing parking spaces identified above were assigned to government use.

4.3.2 Parking Control

A prescriptive parking management plan was instituted in 2011 to accommodate the realignment with Walter Reed Army Medical Center. Staff parking is divided equitably among tenant commands based on their percentage of population. Each tenant command identifies which staff receives parking privileges based on their specific business rules. Since the parking management system was modified in September 2011, the number of carpool groups increased by about 3.5 times and the number of applications for mass transit benefit applications increased significantly as well.

As part of their parking management efforts, NSA Bethesda has added electronic message boards on some parking structures to inform commuters of the availability of parking spaces within the structure and the level on which they can be found. This "smart parking" technology should be added to all parking facilities to improve vehicle movement. NSA Bethesda is exploring adding access control to garages and lots for both patients and staff (with specific control technology for each end user). There is a desire to link all parking to a central control that can post updates at the five entry points to the installation. These measures, along with minor roadway work within the installation (lane widening, adding turn lanes, etc.) would all be useful measures to employ and their strong consideration is recommended.

There is always a loss of parking spaces due to ongoing construction/renovation projects on the installation, so the full complement of staff parking is not available. As such, the installation always has a quantity of staff parking spaces ("swing parking") that is needed for general construction-related parking. These spaces are not in a specific location, but are generally supplied from the spaces available for staff parking. During an individual construction project, space is made available near the construction site for the construction staff and laydown, and the installation staff that use those displaced parking spaces are temporarily reassigned to other parking spaces. This essentially provides "floating" laydown/staging

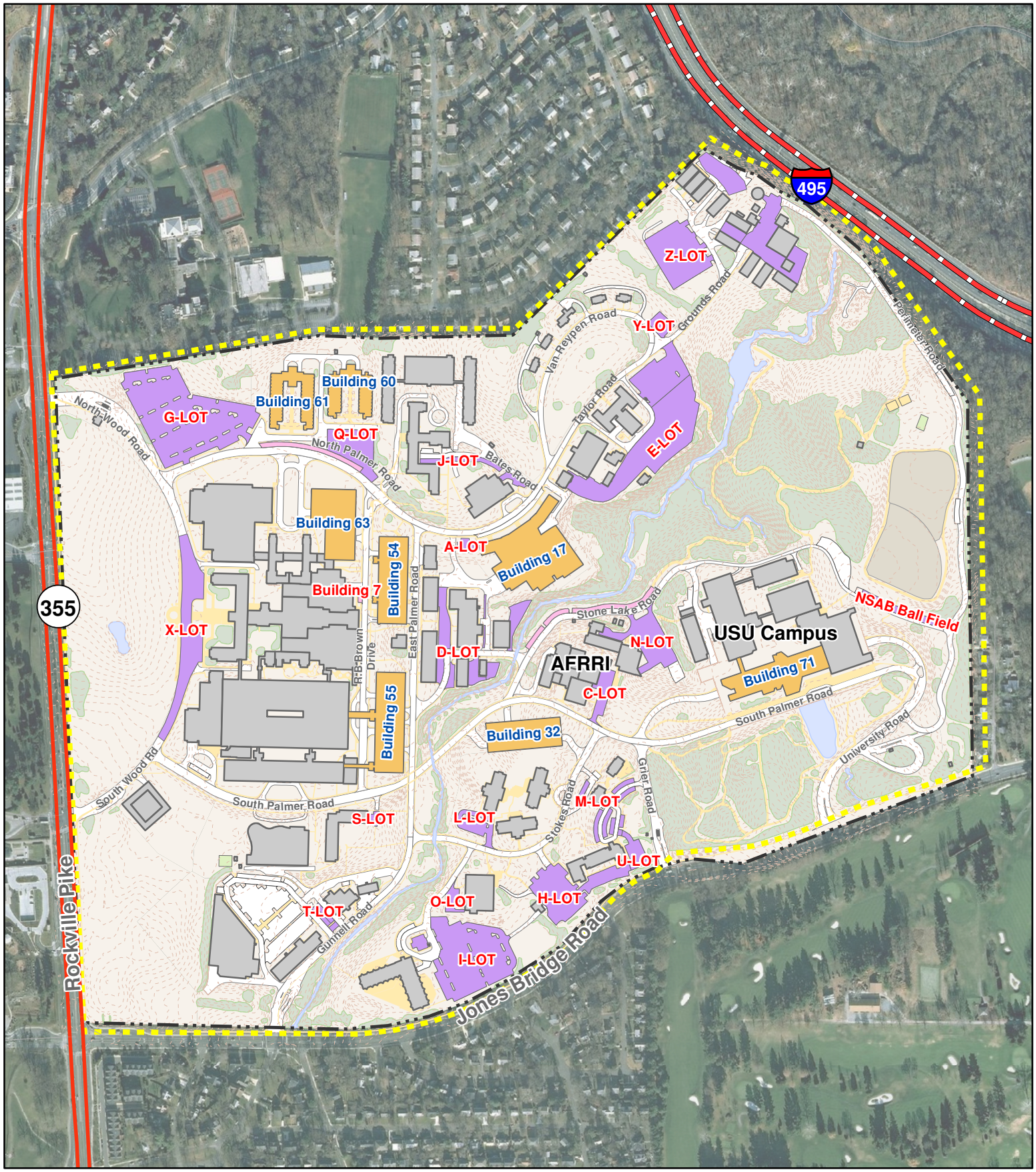

Figure 15
Existing Parking Facilities

Legend

- Parking Structure
- Building
- Parking Area
- On Street Parking

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0 200 400 600 800 Feet

Sources: NSAB 2010, ESRI 2010
Coordinate System: NAD 1983 UTM Zone 18N
Prepared By: The Louis Berger Group 2012

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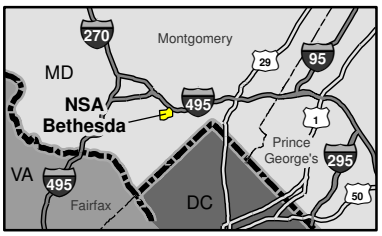


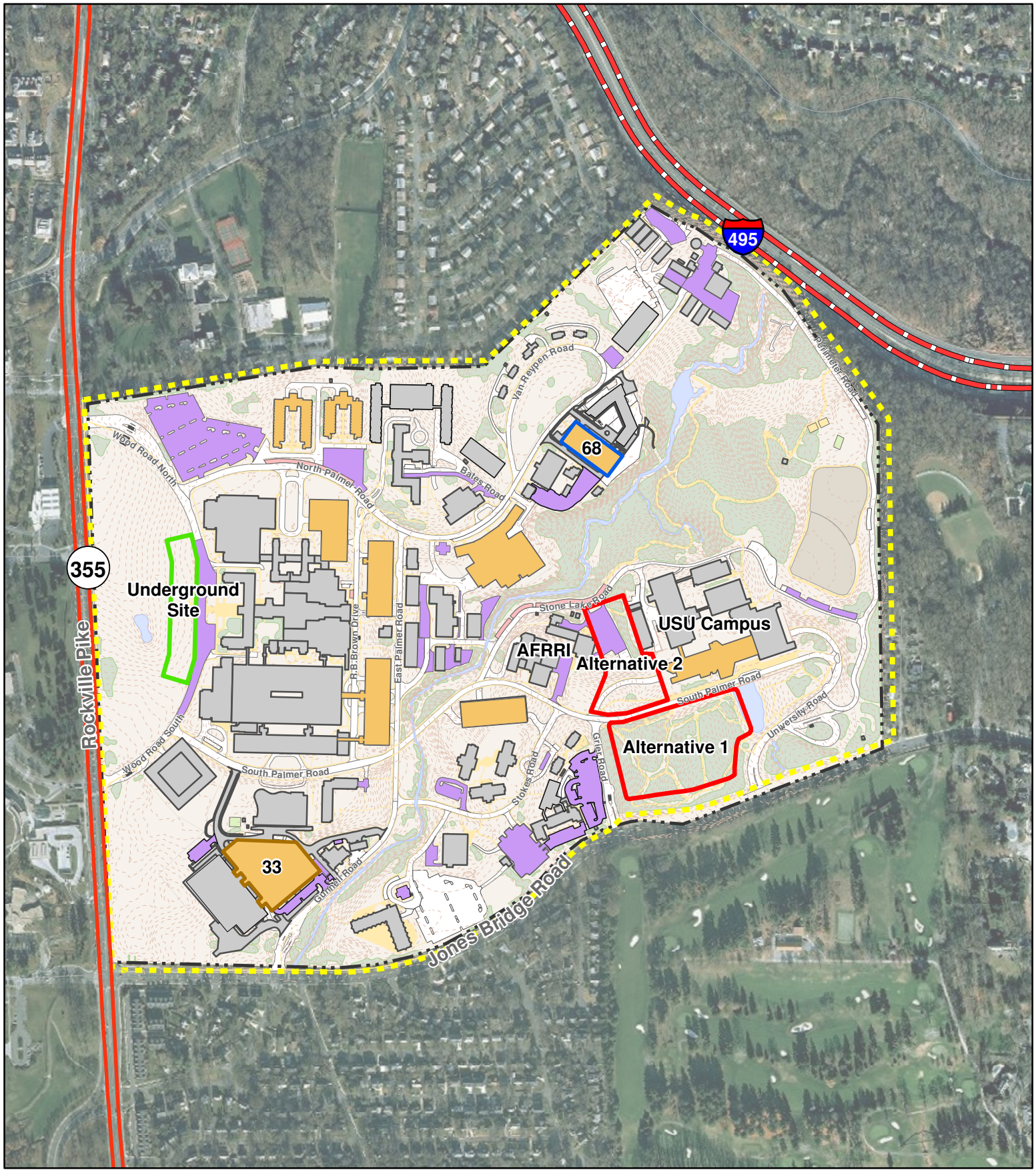


Figure 16
Future and Proposed Parking Locations

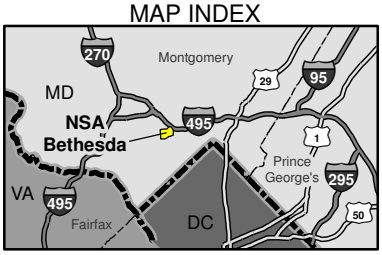
- USU Alternative Parking
- MED Facilities Underground Parking
- NEX Parking Garage
- WWTL Parking Garage
- Existing Parking Area
- Existing On Street Parking
- Existing Parking Structure

N W E S

0 200 400 600 800 Feet

Sources: NSAB 2010, ESRI 2010
Coordinate System: NAD 1983 UTM Zone 18N
Prepared By: The Louis Berger Group 2012

MAP INDEX



space to accommodate construction as it progresses throughout the installation. It is estimated that at least 100 parking spaces are lost due to construction conditions on the average day; often more. To keep the installation functioning, and to provide adequate parking during construction, NSA Bethesda has taken three basic steps. First, as possible, temporary parking lots are provided on-installation to accept displaced vehicles; second, the installation regularly displaces approximately 100 parking spaces out of the pool of available employee spaces for construction (the location and actual number of these spaces varies by need but it is estimated that on average 100 cars are continually unavailable for employees); and last, NSA Bethesda is leasing remote parking on a short-term basis. Staff is required to use public transit to access the installation from the off-site parking.

With the 100 parking spaces removed and other interim parking changes completed, the parking ratio for the alternative with the most employee parking has a parking space to employee ratio of 1:3.25; and the alternative with the least amount of employee parking would have a ratio of 1:3.40. In either case the parking space to employee ratio would be greater than the NCPC suggested guidance ratio of 1:3 for a facility in this suburban location.

4.4 Transit Subsidies

In terms of transit benefits, 5.0 percent of survey respondents were unaware of the transit benefit programs, 34.5 percent of respondents have chosen not to participate and 26.8 said that they were not eligible. Overall people participating in the transit benefits program include 33.8 percent of respondents who receive some or all of their commuting costs (13.3 percent of employees reported having all of their transit costs offset).

Using incentives for transit usage are emphasized both by the 2008 *Transportation Management Program Handbook* and the Transportation Element of the *Comprehensive Plan for the National Capital*. Department of Defense employees are currently eligible to receive up to $125 per month[11] in transit subsidies from the NCR MTBP. This subsidy can be applied to offset employee commuting costs. These subsidies can be utilized to pay for travel costs on Metrorail, Metrobus, commuter rail, commuter buses, and for certified vanpools. The subsidy cannot be used for parking fees at mass transit locations, and people receiving mass transit subsidies are not allowed to receive a parking pass at NSA Bethesda[12].

There are nearby transit and vanpool options available to federal employees and contractors at NSA Bethesda, and the NSA Bethesda website offers links to information on obtaining benefits. Additionally the TPC has conducted employee workshops where mass transit benefits were discussed. Based on the results of the commuter survey conducted for this TMP update 33.8 percent of respondents receive some or all of their commuting costs with 13.3 percent of employees reporting having all of their transit costs offset by the mass transit benefit program.

Mass transit benefits are currently available to federal employees and NSA Bethesda has set up workshops for commuters and published articles in their on-line publication *Commuter Solutions* on how to apply. NSA Bethesda has seen a recent increase in applications for mass transit benefits which is evidenced by increases in mass transit mode share. Additionally, of those that drive alone to work 20.3 percent cited increased transit subsidies as a service that may encourage them to explore a non-SOV commute mode. Thus, it is suggested that the program continue as it is, with new employees being made aware of the benefit and workshops being held to support application preparation. Perhaps a modest 1 – 2 percent increase in people taking mass transit may occur. Additionally, construction of the MD355 Metro Crossing Project could lead to increased transit use given the improvement in safety for pedestrians.

[11] The benefit was expanded to $230 as part of the American Reinvestment and Recovery Act in 2009; however, it was reverted back to the original $125 per month allowance on January 1, 2012.
[12] Personal Communication, October 2011, Jeffrey Miller, NSA Bethesda.

4.5 Telecommuting

In terms of the overall population, responses on telecommuting indicated that 9.4 percent currently telecommute between 1 and 10+ days per month. Given the mission of the various tenants at the installation this is not surprising. Of overall respondents, 82.4 percent do not have the telecommute option available but would like to telecommute a portion of their work week (while it may be desired by some of the respondents, telecommuting may not be available to them), and 17.6 reported that they would not use telecommuting if it were available.

Federal policies allow employees the option of "Working-from-Home," at "Satellite Work Centers," and at "Neighborhood Work Centers." The Telework Enhancement Act of 2010 calls for at least 20 percent of the hours worked in every two administrative weeks by federal employees to be on a telework basis. The nature of much of the work done at NSA Bethesda (patient care, retail, maintenance, security, research, and education) requires an employee to be present at the site to successfully execute their job. However, certain tenants are utilizing telecommuting for a portion of their workforce.

Only eligible people can telecommute and they must be approved by their management via a formal application process. Obstacles to teleworking are the need to have appropriate laptops with software and server access, and the mission and nature of the work of given individuals. The work environment and other equipment also need to be approved as meeting federal requirements before an employee can telecommute.

Given that telecommuting is allowed and desired by employees, and that the current rate is so low, it is suggested that an increase in participation is possible. It is suggested that the TPC work closely with management from the various tenants to determine if a greater percentage of their workforce could telecommute on a regular basis. The resultant decrease in single occupancy vehicle use would likely be rather modest, perhaps 1 to 2 percent, if a greater effort was dedicated to marketing telecommuting to tenant management.

4.6 Shuttle Bus Service

When asked which service is one that may encourage them to explore other commuting options, 11.3 percent of people who drive to work responded that improved shuttle service would encourage them to use mass transit. The primary function of the shuttles is to transport staff across the installation and to make use of mass transit more attractive. It is suggested that improvements and additions to the existing shuttle service be explored as a means of decreasing the number of vehicles traveling directly to the installation.

4.7 Rideshare (Carpooling and Vanpools)

The commuter survey asked employees at NSA Bethesda if they currently participate in a carpool or vanpool to commute to and from work. The survey identifies that 16.3 percent of respondents currently participate in a carpool or vanpool for commuting to and from work. Reasons expressed for not carpooling/vanpooling include 22.0 percent who work inconsistent hours, 18.9 percent that prefer walking, biking or taking transit, 12.8 percent who reported that outside obligations interfere with their ability to carpool/vanpool and 9.4 percent that are concerned with how they would get home in an emergency. Additionally 81.5 percent of respondents said that they were aware of preferential parking for carpools.

Currently there are 450 carpool groups on installation. Two employee-driven vanpools also operate and park on the installation. While not available for carpool participants, employees using a vanpool are eligible to receive mass transit benefits to off-set costs.

New employees receive information on ridesharing as part of their orientation package and a link to the MWCOG Commuter Connections website is available on the NSA Bethesda website. The TPC also holds ridesharing workshops and zip code get-togethers to help employees with ride matching, and *Commuter Solutions* has published articles on ridesharing to assist employees.

The reason cited most often in the commuter survey for not carpooling is the need to work inconsistent hours. The commuter survey identified that 22 percent of employees are in this situation and that 18.9 percent prefer mass transit, walking, or biking, and 12.8 percent have after work obligations. The portion of the workforce discussed above would be difficult to relocate into carpools or vanpools. However, 9.4 percent are concerned about how they would leave early in the event of an emergency, and 7.7 percent stated that they would carpool/vanpool if one were available in their area with another 1.6 percent stating that they do not know how to apply.

Thus, with greater understanding and use of the Guaranteed Ride Home program, continued diligence in informing the workforce about ridesharing, and continued hosting of zip code get-togethers it is possible to increase the percentage of people using the carpool/vanpool travel mode by perhaps 3 to 4 percent.

4.8 Bicycle Facilities

According to the 2012 NSA Bethesda Master Plan, most bicycle facilities are in good condition, function efficiently, and provide a good level of user safety. Primary installation bicycle access points are located along Rockville Pike and Jones Bridge Road. The area of installation adjacent to the Medical Center Metrorail station experiences the greatest level of bicycle activity.

Bicycles are not restricted on the installation but some areas are easier to traverse than others. Primary installation bicycle pathways are South Wood Road, South Palmer Road and the southern half of R. B. Brown Drive. The installation has bike parking in 17 locations. Combined these locations have 630 slots for bicycle parking (a few are currently not available). The available types of lock-up racks used include ladder racks, serpentine racks, U-racks, and wall anchors. There are also 38 secure bike lockers and 88 general bike parking spaces across Rockville Pike at the Medical Center Metro station. Figure 9 above illustrates the location and capacity of bicycle facilities. It should be noted that the utilization of bike parking facilities is not 100 percent and that overall the installation has adequate bicycle parking available.

The results of the Commuter Survey indicate that 2.6 percent of commuters to the NSA Bethesda installation use bicycle as their primary mode of travel. Extending that percentage to the entire worker population of 11,686 would indicate that approximately 300 people bicycle to and from work. The gate count survey summarized in Table 3 above indicates that on the day that counts were taken 108 bicycles entered and exited the installation between 5:30 and 8:45 AM (although this number may be low due to the time of year the counts were taken).

The December 2011 bicycle parking survey of the NSA Bethesda installation illustrates that the 630 bicycle spaces provided throughout the installation are enough to handle the existing overall demand. The utilization rate of these spaces varies by location with certain facilities having excess capacity and certain locations having the need for additional bicycle storage. Specifically, utilization is low at Buildings 61, 11, and 27 and high at the west side of the hospital building and the USU garage (which during good weather far exceeds the capacity of the bicycle racks provided). It is suggested that additional bicycle racks be considered for the USU garage and on the west side of the hospital (Building 19). It is also suggested that as possible, outdoor bicycle racks be covered and that storage lockers and showers be considered for high use locations. It is not anticipated that improving bicycle facilities would cause a significant decrease in SOV use but it may allow a small increase in the number of bicycle riders

and would help maintain the current level of bicycle use. Perhaps another 1 percent of workers will start using bicycles to get to work.

4.9 Variable Work Schedules

Certain tenants at the installation presently allow alternate work schedules as it fits their mission, which lessens traffic to the installation and diverts trips away from the peak hour. The largest employee workforce is present during the day shift. Most functions on the day shift need to be present between the core hours of 10 AM to 2 PM. Many of the functions of the medical center need to be available 24 hours per day and thus not all workers report on the same work shift. However, the bulk of the activities at the medical center and at the other tenants at NSA Bethesda occur during the day. The results of the commuter survey indicate that 86.6 percent of workforce arrives between 5:00 AM and 7:59 AM.

This was the number one service selected (31.2 percent) as the option that may encourage people who drive to work alone to explore other commuting options. A percentage of respondents identified that they report to work too early to take advantage of mass transit options that only start operation later in the day, or that they leave too late for other options. Additionally, several people reported that flexible work schedules are not available to military employees, or those with direct contact with patients.

In reviewing the commuter survey data it is noted that approximately 15 percent of those responding indicated that an alternate work schedule is available to them but they choose not to use it. It is also noted that greater than 30 percent of people responding to the survey stated that they would or likely would benefit from a flexible work schedule.

It is recommended that the TPC meet with the management of the various tenant commands to determine if work hours can be spread more across the day and if work arrangements like four 10-hour days can be implemented. The TPC can also explore if some tenants could implement two work shifts, or start work later in the day. The TPC also needs to determine where and when transit service breaks down, then meet with relevant transit providers to see if some of the gaps can be filled with additional service. Since there are encumbrances like transit availability and the need for work shift extensions, it is unlikely that establishing more flexible work hours would have a large effect on the number of people that leave their SOV for other travel modes. Perhaps a 2 - 3 percent travel mode shift could be attained via increased use of flexible work schedules.

4.10 Guaranteed Ride Home

Employees were asked if they are aware of or utilize the Guaranteed Ride Home (GRH) program administered by MWCOG. Based upon the results of the transportation survey 52.5 percent of respondents are aware of the GRH program.

The TPC at NSA Bethesda has identified the existence and function of the Guaranteed Ride Home (GRH) program in the *Commuter Solutions*[14], and has put a link on the NSA Bethesda website to the MWCOG website where information about the program can be obtained. The GRH program has also been discussed in commuter workshops that were given at NSA Bethesda. Brochures on the GRH program are placed in common areas throughout the installation.

Having a guaranteed ride home in case of an emergency or when working late can provide a piece of mind to employees using mass transit or carpool/vanpool, and encourage people to use such services. Based on the commuter survey, 3.5 percent of respondents cite not knowing how to get home in an

[14] http://www.cnic.navy.mil/navycni/groups/public/@ndw/@bethesda/documents/document/cnicp_a279369.pdf (December 9, 2011)

emergency as a reason for not using transit and 9.4 percent of respondents cite this as the reason for not using rideshare.

Given the above, there is a need for the TPC to more strongly advertise and promote the GRH program and make information readily available and easily accessible to NSA Bethesda employees. In addition to making information available, the TPC needs to continue to offer help in understanding how to sign up for the program on the commuter website, in published brochures and at informational meetings.

A GRH program provides reliable, convenient and free emergency ride home from work for commuters who regularly carpool, vanpool, bicycle, walk, or take transit to work. Thus, having a successful GRH program available for use by employees is a fundamental component of this TMP as it would support a decrease in the need for parking spaces and an increase in ride sharing, walking or bicycle use. It is recommended that the existing MWCOG GRH program be utilized by employees at the NSA Bethesda.

MWCOG offers comprehensive GRH service under their *Commuter Connections* program. The *Commuter Connections* program is used by many employers in DC including federal agencies. Additionally, this type of program encourages employees to rideshare without concern about working overtime or attending to personal emergencies. Employees are generally receptive to GRH programs. The existence of the program can increase interest in the other elements of the TMP by encouraging commuters with an initial interest in GRH program to explore various alternative commute options. Based on the results of the commuter survey there is a demand to do so. Thus, with additional support from the TPC, a percentage of those expressing concern about how to get home in an emergency may switch to alternate commute options with reliable GRH service available. Perhaps 1 – 2 percent of the drive-alone population may be encouraged to switch to alternate travel modes if they had a guaranteed ride home. The TPC should also continue to have zip code get-togethers to help people in common zip codes find companion riders/drivers.

4.11 Other Measures

There are a number of other measures that can be taken to have a positive impact on the decreasing the number of people using SOVs to access the installation for work. It is difficult to gauge interest in these options or how well they would work since no data were collected for these measures during the preparation of this TMP update.

There have been requests by the BRAC Implementation Committee for putting a Kiss & Ride facility directly adjacent to the NSA Bethesda installation. A Kiss & Ride facility would be used when one party who works elsewhere drops off a worker on their way to or from their destination. This is a form of carpooling that can reduce SOV trips. While there is a Kiss & Ride facility across Rockville Pike adjacent to the Medical Center Metro station, that facility is best accessed from the southbound Rockville Pike and is shared with Metro riders and NIH employees, which likely limits its utility for NSA Bethesda employees.

Employees may need an automobile during the day and will drive alone to work when this is the case. This can be addressed by having available, carshare, bikeshare, or Guaranteed Ride Home service. Motor pools are available for military and civilian workers at the installation and any problems or utilization issues with these vehicles need to continue to be monitored to ensure continued availability. Another useful option is car-sharing service (such as ZipCar or others), which is a large car-sharing service available throughout the NCR region. Nearly any licensed driver with a credit card can register for a nearby car on the internet. TPC will also evaluate feasibility of supporting a car-sharing service beyond

the motor pool. The all-inclusive hourly or daily rates (rental fee, gas, insurance) are typically lower than for major car rental companies and according to their website[15]:

- 10 percent of the population is expected to adopt car sharing as their primary mode of transportation.
- ZipCar members save more than $500 per month on average versus car ownership.
- Every ZipCar takes at least 15 individually-owned vehicles off the road.

TPC will evaluate feasibility of supporting a Capital Bikeshare program on the installation. For those wishing to use them, the Bikeshare bicycles could be used to transport people from the Metro to the installation and back again. This would be similar to facilities throughout Washington D.C. that are not within an installation but serve large employment centers.

Other measures that the TPC can work with management to obtain funding for include using an enhanced intelligent transportation system or smartphone applications to announce shuttle bus arrival/departure information, indicate available parking spaces and announce known travel delays posted by travel authorities at a given time. The TPC can also work with the GSA to increase the amount of alternative fuel vehicles available in the fleet, and greater use of alternative fuel maintenance equipment for reducing greenhouse gases (however this is beyond the scope of the TMP).

5.0 PLANNING CRITERIA AND COMPLIANCE

5.1 Compliance Considerations

A summary of the suggested transportation management strategies, and their anticipated rate of success, over time are presented in Table 8 below. While no single strategy will cause a significant mode shift away from SOV use, combining a number of strategies should offer a continued mode shift at the installation. Other measures suggested, such as enhanced parking management or use of alternate fuel vehicles may not have a direct affect on the number of SOVs commuting to work but should have a positive impact on air emissions, pedestrian and handicapped movements and facility access.

Overall it is anticipated that the percentage of SOV use will decline, the employee / parking ratio will continue to decrease and that air emissions will lessen as a result of the ongoing transportation management measures being employed by NSA Bethesda.

<u>Parking Criteria</u>
Parking space and design needs at military facilities (including NSA Bethesda) are determined by the DoD primarily by using formulas found in the various design manuals of the Unified Facilities Criteria (UFC) series. These documents identify the space allowance for most facilities at military installations (but do not cover every conceivable facility type). Using these criteria ensures a uniformity of facility requirements and amenities. The UFCs are the primary sources of guidance used by the military in preparing construction and renovation plans and have been used on design projects at NSA Bethesda. The criteria determine many design features including the provision of parking. Parking is determined by a number of UFC factors including building square footage; number of beds; number of volunteers, patients and visitors; etc. but do not usually focus on the anticipated number of staff. NCPC requirements on the

[15] www.zipcar.com

Table 8 – Summary of Transportation Management Strategies

Transportation Category	Suggested Actions	Anticipated Rate of Success
Parking Management	Add smart parking technology to all parking facilities and link all parking to a central control to limit access delays, vehicle circulation and idling	No change in SOV utilization rate, but lessens the length of time motor vehicles operate at the installation and reduces air emissions
Roadway Improvements	Several projects proposed for the campus could potentially be completed to improve roadways (e.g. lane widening, add turning lane), sidewalks, ADA accessibility and other measures.	No change in SOV utilization rate, operations improve, as do pedestrian movement/safety and access for mobility impaired individuals.
Transit Subsidies	Continue the existing program of workshops and commuter education to inform existing and new employees of the transit subsidies available to them.	Will reach additional employees and all new employees and could cause a shift of 1 – 2% from SOV to mass transit or vanpools.
Telecommuting	TPC to work with tenant management to determine if more telecommuting can be achieved given their respective missions.	It is anticipated that this would cause a decrease in SOV use of approximately 1 -2%.
Shuttle Service	TPC will track use of the various shuttles and suggest improvements as needed and as possible.	Augmented or improved service may lead to a reduction in SOV use of approximately 1 -2%.
Rideshare	Continue informing commuters of options, increase understanding of GRH and rideshare parking	It is anticipated that approximately 3 – 4% of SOV users may switch to rideshare options.
Bicycle	Continue educating workers on installation bike facilities and explore redistributing some rack locations. Improve facilities.	It is anticipated that up to 1% of SOV users may switch to bicycles as a travel mode choice.
Alternate Work Schedule	Continue to work with management to increase AWS.	It is anticipated that there could be 2 – 3% mode shift and a diversion of trips out of the peak travel hours.
Guaranteed Ride Home	Continue to inform commuters of the GRH program and how to register.	Perhaps 1 – 2% of SOV users may switch to rideshare or mass transit.
Other Measures	Explore opportunities for carshare or bikeshare, kiss & ride facility, increase alternate fuel vehicles.	Could cause a slight (< 1%) mode shift and may lessen air emissions.

other hand focus on the ratio of parking spaces made available per employee. Given its suburban location and proximity to the Metro, NCPC would require NSA Bethesda to provide no more than one parking space for three employees, with non-employee spaces (patients, visitors, government vehicles, etc.) accounted for separately by the Navy.

There are 7,686 total parking spaces on the installation, of which 3,525 spaces are for employees. Providing adequate parking for patients and their visitors is paramount, and if found inadequate, employee parking would be lost. There are no dedicated employee parking spaces except for a very limited number associated with emergency services (e.g., fire department) and leadership that would be involved in the emergencies. NSA Bethesda currently has 11,686 employees and an employee parking ratio of 1:3.32 which is within NCPC's standard. In the future NSA Bethesda will have 12,611 workers

and approximately 1.2 million patient visits annually as well as students, deliveries, lodgers, residents, retail users and other people requiring parking at the installation. There would between 8,840 and 9,012 total parking spaces (and between 3,712 and 3,884 employee parking spaces) depending on the alternatives selected for the USU/AFRRI and Medical Center projects. Thus, the parking ratio for the alternative with lowest amount of parking will be 1:3.40, and 1:3.25 for the alternative with the highest amount employee parking. In either case the parking space to employee ratio would be greater than the NCPC suggested guidance ratio of 1:3.

In contrast, using the UFC (and other relevant) procedures for each of the facilities at NSA Bethesda would require much more parking than will actually be provided. An analysis of the majority of the land uses (not every land use or facility was estimated) indicates that the parking requirements on the installation would be 14,446 spaces. The 9,012 spaces provided for the entire installation in the USU/AFRRI and Medical Center alternative with the greatest parking allowance is only 65 percent or less of the total that the UFC would yield.

Air Quality

One of the key issues behind reducing the number and/or distance of vehicle trips in the region is the need to reduce the amount of greenhouse gas (GHG) emissions from vehicles. The percentage of SOV trips commuting to NSA Bethesda on a daily basis is expected to be reduced through the implementation of this TMP. As described above, it is estimated that mass transit ridership is expected to increase and the telecommuting option will be more highly utilized. Additionally, bike utilization should increase by a small amount. These actions will help curtail mobile source air emissions caused by additional installation user growth.

5.2 Progress Monitoring and Annual Report

Progress in achieving TMP goals and objectives will be continually monitored. As discussed above the TPC should prepare an annual report (e.g. State of the Union) to management and staff, and should update the TMP after two years. The most effective benchmarks for measuring the success of the TMP are:

- responses to the annual commuter survey,
- gate counts of vehicles and pedestrians,
- vehicle classifications and vehicle occupancy counts,
- carpool/vanpool parking,
- transit subsidies, and
- number of parking permits issued.

These data will need to be reviewed annually and progress in these areas will be included in the annual report that the TPC will prepare discussing progress and compliance with goals. It is expected that the gate counts and classifications will be done for the TMP updates and not annually.

5.3 Amending the TMP

It is recommended that the TMP be formally revised every two years until 2018 when the full employee population of 12,611 is expected to be reached. This amendment should include consideration of the items in the bullets listed above. From there progress can be gauged and adjustments made by using the steps and measures identified above in Section 5.2 as necessary. There is sufficient existing data in the existing vehicle counts/classifications and vehicle occupancy survey to serve as a baseline for existing conditions, and completing future vehicle counts/classifications and vehicle occupancy surveys at the installation gates. Number of staff parking spaces, review of responses to the annual commuter survey,

the number of carpools/vanpools and transit subsidy mode shift and parking permits will also serve as solid supporting data in determining whether adjustments need to be made over time.

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Attachments

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Attachment 1

Gate Counts and Vehicle Classifications

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Direction/ Occupancy	*AM* Gate Peak Gate 1	Gate 2	Gate 3	Gate 4	Gate 5	All Gates
Inbound 1	753	358	362	48	333	1854
Inbound 2	94	84	23	2	41	244
Inbound 3+	5	6	0	0	4	15
					Total	**2113**
Outbound 1	60	40	75	1	2	178
Outbound 2	0	1	0	0	0	1
Outbound 3+	0	0	0	0	0	0
					Total	**179**

Direction/ Occupancy	*PM* Gate Peak Gate 1	Gate 2	Gate 3	Gate 4	Gate 5	All Gates
Inbound 1	97	65	106	0	9	277
Inbound 2	20	11	2	0	1	34
Inbound 3+	3	0	0	0	1	4
					Total	**315**
Outbound 1	690	168	350	374	11	1593
Outbound 2	106	55	37	57	2	257
Outbound 3+	5	4	5	9	0	23
					Total	**1873**

Gate	Movement	Gate Peak		System	
		AM	PM	AM	PM
		6:00 - 7:00	*3:45 - 4:45*	*7:45 - 8:45*	*4:45 - 5:45*
1. North Wood Road	SB Left	792	88	371	59
	WB Right	75	738	113	451
	NB Right	72	11	45	12
2. South Wood Road	SB Left	240	57	99	44
	WB Right	34	127	45	118
	WB Through	18	12	14	9
	WB Left	11	75	28	71
	NB Right	219	51	76	38
	EB Through	23	19	15	20
3. Palmer Gate (Gunnell Rd)	SB Right	23	141	45	112
	SB Through	---	---	---	---
	SB Left	51	253	71	201
	WB Right	384	90	209	57
	EB Left	29	36	31	39
4. Grier Road	SB Right	---	95	---	73
	SB Left	---	383	---	262
	WB Right	46	---	21	---
	EB Left	11	---	12	---
5. University Road	SB Right	1	1	---	---
	SB Left	1	9	2	---
	WB Right	287	4	111	---
	EB Left	22	4	24	---
Overall Traffic Volume	Inbound	2,125	360	1,014	269
	Outbound	214	1,834	318	1,297
	Total	**2,339**	**2,194**	**1,332**	**1,566**

Gate	Movement	Gate Peak		System	
		AM	PM	AM	PM
		6:00 - 7:00	*3:45 - 4:45*	*7:45 - 8:45*	*4:45 - 5:45*
1. North Wood Road	Inbound	864	99	416	71
	Outbound	75	738	113	451
2. South Wood Road	Inbound	482	127	190	102
	Outbound	63	214	87	198
3. Palmer Gate (Gunnell Rd)	Inbound	413	126	240	96
	Outbound	74	394	116	313
4. Grier Road	Inbound	57	---	33	---
	Outbound	---	478	---	335
University Road	Inbound	309	8	135	---
	Outbound	2	10	2	---
Overall Traffic Volume	Inbound	2,125	360	1,014	269
	Outbound	214	1,834	318	1,297
	Total	**2,339**	**2,194**	**1,332**	**1,566**

Gate	Movement	Traffic Volumes		
		AM 5:30-9:00	PM 3:00-6:30	Total
1. North Wood Road	SB Left	1,902	267	2,169
	WB Right	295	1,906	2,201
	NB Right	202	36	238
2. Southwood Road	SB Left	533	177	710
	WB Right	148	465	613
	WB Throug	52	42	94
	WB Left	84	248	332
	NB Right	470	165	635
	EB Through	55	72	127
3. Palmer Gate (Gunnell Rd)	SB Right	105	395	500
	SB Through	6	1	7
	SB Left	199	776	975
	WB Right	1,009	267	1,276
	EB Left	116	107	223
4. Grier Road	SB Right	---	231	231
	SB Left	---	924	924
	WB Right	113	---	113
	EB Left	43	---	43
5. University Road	SB Right	2	3	5
	SB Left	2	17	19
	WB Right	663	16	679
	EB Left	144	9	153
Overall Traffic Volume	Inbound	5,250	1,116	6,366
	Outbound	893	5,008	5,901
	Total	**6,143**	**6,124**	**12,267**

Gate	Movement	Traffic Volumes		
		AM 5:30-9:00	PM 3:00-6:30	Total
1. North Wood Road	Inbound	2,104	303	2,407
	Outbound	295	1,906	2,201
2. South Wood Road	Inbound	1,058	414	1,472
	Outbound	284	755	1,039
3. Palmer Gate (Gunnell Rd)	Inbound	1,125	374	1,499
	Outbound	310	1,172	1,482
4. Grier Road	Inbound	156	---	156
	Outbound	---	1,155	1,155
5. University Road	Inbound	807	25	832
	Outbound	4	20	24
Overall Traffic Volume	Inbound	5,250	1,116	6,366
	Outbound	893	5,008	5,901
	Total	**6,143**	**6,124**	**12,267**

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Attachment 2

Commuter Survey

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Naval Support Activity Bethesda

Commuter Solutions

Respond to this Survey

Finish Cancel

1.) I am a _____ employee

- (•) Military
- ( ) Civilian
- ( ) Contractor
- ( ) Consultant
- ( ) Volunteer

2.) I work...

- (•) Full-time
- ( ) Part-time

3.) My organization is _____.

4.) Time I usually arrive to work:

5.) Time I usually depart from work:

6.) My current work schedule is (do not include overtime):

- (•) 5/40- Work 40 hours in 5 days (standard work week)
- ( ) 4/40- Work 40 hours in 4 days
- ( ) 9/80- Work 80 hours in 9 days
- ( ) Part-time
- ( ) Other

7.) What is the main mode of travel you use to commute to NNMC (your primary mode of commuting)?

- (•) Drive alone in car, SUV, or motorcycle
- ( ) Drive myself and others (carpool or vanpool)
- ( ) Take Metrobus, Ride-On, or another city, county, or commuter bus
- ( ) Take Metrorail
- ( ) Take MARC, Amtrak, or VRE train
- ( ) Walk (entire trip from home to work)
- ( ) Bike (entire trip from home to work)

8.) On days that you drive to work, even if you only drive occasionally, where do you park?

- (•) I never drive to work
- ( ) In a lot or garage at my work location
- ( ) In a public lot or garage off-site

9.) How much do you pay to park at this location?

10.) Although I usually drive alone, the following service is one that may encourage me to explore other options,

- (•) I do not drive alone

- Extended installation day care hours
- Extended installation day care capacity (increasing the number of enrollees)
- Flexible work schedule
- Express bus or vanpool service from my where I live
- Ridematching services for carpool/vanpool
- Guaranteed Ride Home Program
- Improved shuttle service to Metro
- Subsidized transit subsidies

11.) Do you receive a free/discounted mass transit pass? (Transit Subsidy Benefits distribution.)

- No. I've chosen not to
- No. I am not eligible
- I was not aware this program existed
- Yes. $1-$50/month
- Yes. $51-$100/month
- Yes. $101-$150/month
- Yes. $151-$200/month
- Yes. $201-230/month

12.) My monthly "out of pocket" cost for public transportation to NNMC is?

13.) Are you aware of preferential parking options for carpoolers OR vanpoolers?

- Yes
- No

14.) If you carpool/vanpool how many people, including yourself, are usually in the vehicle?

15.) What would be the main reason you are currently not utilizing carpool/vanpool options?

- I do carpool/vanpool (with someone on the installation)
- I do carpool/vanpool (with someone off the installation)
- I prefer mass transit, walking, or biking
- I am concerned about how I would leave early in the event of an emergency (or how I would ge a ride home if my driver had an emergency)
- I do not like where the reserved carpool/vanpool spaces are located
- I only want to commute by myself
- I work inconsistent hours, limited possibilities to carpool/vanpool
- I would carpool/vanpool if one were available in my area
- I do not know where/how to apply
- I have before or after work obligations (daycare, job, school)
- I need my car for meetings during the day
- Other

16.) Days per month I telecommute/telework?

17.) If it were an option, I _____ consider telecommuting/telework.

- Would
- Would Not

18.) If additional amenities existed for bicyclists (more bicycle racks, lockers, showers), I _____ consider bicycling to work.

- Would
- Would Not

19.) Are you aware of the regional Guaranteed Ride Home program (free rides home 4 times per year in cases of emergency for commuters who use mass transit, carpool,

vanpool, walk, or bike)?

- (•) Yes
- ( ) No

20.) My home zipcode is -----

21.) My top three (3) commuter comments, questions, or concerns are...

22.) Would you recommend any changes for this survey?

*All questions need to be filled out.

Finish Cancel

Naval Support Activity - Bethesda MD

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Attachment 3

Parking Calculations by Land Use

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Attachment 3 - Parking for All Others Users

Other Facilities or Users	Square Feet	Staff	Daily Visitor	Lodge Rooms	Patient	UFC Factor	Parking (UFC/other)	Parking (Montg. Co.)	Parking (NCPC Ratio)
Support Mission									
[1] Visitor			1,261			0.750	946	N/A	946
[2] ICHP			20			0.400	8	N/A	8
[3] BEQ		483		806			792	806	792
[4] NEX	150,000	385				0.006	900	750	1028
[5] McDonalds/Qwik Mart	10,495	part of 385				0.006	63	part of 750	63
[6] CDC	58,689	112	612				126	N/A	88
[7] Fitness Center		5	50				106	419	106
[8] Bowling Center	24 Lanes	5					24	N/A	26
[9] Volunteers	0	6					6	N/A	2
[10] Fisher House		7		78			78	78	80
[11] Navy Lodge	61,425	10		166			166	116	169
[12] Government Vehicle	0	0					181	N/A	181
[13] Santuary Hall	139,285	14			200		470	0	205
[14] USO	36,000	6					6	N/A	2
[15] Mission Support Other		518						N/A	173
Medical Mission									
[16] Medical Center	812,588	7,539		325	3,800		8,080	812	4,758
[17] NiCoE		inc. above			30		30	N/A	30
Education Mission									
[18] USU / AFRRI		3,521				0.700	2,465	3,311	1,174
Totals		**12,611**					**14,446**		**9,830**

Support Mission

[1] Per 2008 TMP, visitors were estimated at 10% (1,261) of of the estimated future 2022 population (12,611). Provides 0.75 spaces per visitor per UFC 4-510-01

[2] Per UFC 4-510-01 0.4 spaces need to be provided per visitor.

[3] UFC 4-721-10 31 July 2002 - parking shall be provided for 70% of the personnel in the barracks plus an additional 2% for visitors.
Visitors and patients should have one space per bed as this is not their duty station. Montgomery County requires one space per room.

[4] Per NAVFAC P80 6 spaces per 1,000 square feet of retail space. Also includes staff parking at a 1:3 ratio per NCPC guidelines.

[5] Per NAVFAC P80 6 spaces per 1,000 square feet of retail space.

[6] Square Footage and Staff per NAVFAC

[7] Per 2008 TMP following UFC2-000-05N (4 basketball courts, 2 squash courts, 6 lane pool). In addition, 5 staff were assumed.

[8] Per 2008 TMP (1 parking space per bowling Lane and UFC 4-740-01NF 2-2 for a commercial facility). In addition, 5 employees were assumed at a 1:3 parking ratio.

[9] Per NAVFAC

[10] Per the 2008 TMP Attachment B and Montgomery County requirements of one parking space per unit. Staff provided by NAVFAC.

[11] Square Footage and Staff per NAVFAC. Montgomery County requirement is 0.7 space for each room

[12] Per the 2008 TMP Attachment B.

[13] Per 2010 Environmental Assessment for the Wounded Warrior Transition Lodge and Navy Lodge Expansion.

[14] Square Footage and Staff per NAVFAC

[15] Includes support missions for which the UFC does not identify a specific/unique parking requirements. Parking calculated at 1:3 per NCPC guidelines

Medical Mission

[16] Staff/Patient parking calculated per UFC 4-510-10. Montgomery County requirement for 1 space per 1,000 sq ft of hospital used. Staff parking calculated at 1:3.

[17] Per 2008 TMP Appendix B - 1 space per patient per day.

Education Mission

[18] Uses the 3,521 Education Mission employees per the 2012 Installation Master Plan