

Shuttle Bus Systems

Did You Know?

About half of all the military installations nationwide are using some type of shuttle system to transport their soldiers, civilians, contractors, family members, or guests to locations within or off the installation. The trend in transit ridership is increasing. Between 1995 and 2012, ridership increased by 34%, a rate higher than the 17% U.S. population increase over the same time period.¹

Recently, the annual National Defense Transportation Day and National Transportation Week were celebrated during the week of May 12, 2013. President Obama encouraged greater awareness and appreciation of the Nation’s transportation infrastructure. In addition, the U.S. Department of Transportation has taken on the challenges of fuel efficiency, safety, and alternative transportation techniques. One critical solution to these challenges is transit, including shuttle bus systems.

While other forms of alternative transportation exist (bicycle facilities, light-rail transit, pedestrian trails, electric trolleys, waterborne vessels, and on-post taxi services), shuttle buses are the most common on federal lands. The Department of Defense (DOD) authority for shuttle systems is provided in 10 USC 2632 “Passenger Carrier Use.” These provisions allow each Secretary of the military departments to provide motor vehicle transportation to and from places of employment for Department employees

and other persons attached to the Department. In addition, authority for transportation to off-installation mass transit locations is provided in 31 USC 1344 “Transportation to and from certain places of employment and on military installations.” These provisions allow passenger carriers to transport employees of a Federal agency to and from their workplaces and mass transit facilities.

What is a Shuttle Bus System?

A shuttle bus system is a type of transit system using buses or vans to transport passengers over short distances on a regular basis. The service is generally confined to a small geographic area and operates either on a demand response or a fixed-route basis. In this bulletin, the terms “shuttle bus system” and “transit system” are used interchangeably.

Transit Service

Demand Response service (also called paratransit or dial-a-ride) is in response to calls from passengers to a dispatcher who arranges the passenger pick-up and drop-off. The routes and schedule times are usually not fixed. Typically, the vehicle may pick up and drop off several passengers at different locations en route.

Fixed-Route Shuttle service provides transportation on a repeated, fixed-schedule basis along specific routes with specific stopping points.

1. The American Public Transportation Association Public Transportation Benefits, Quick Facts, www.apta.com

In This Issue...

Did You Know?	1	Service Delivery Mechanisms	10
What is a Shuttle Bus System?	1	Capital and Operating Costs	10
Why Have a Shuttle Bus System?.	6	Funding	10
Planning a Shuttle Bus System	6	Technical Assistance	11
Transit Facilities	10	Shuttle Systems on DOD Installations and Other Federal Lands	11
Advertising.	10		

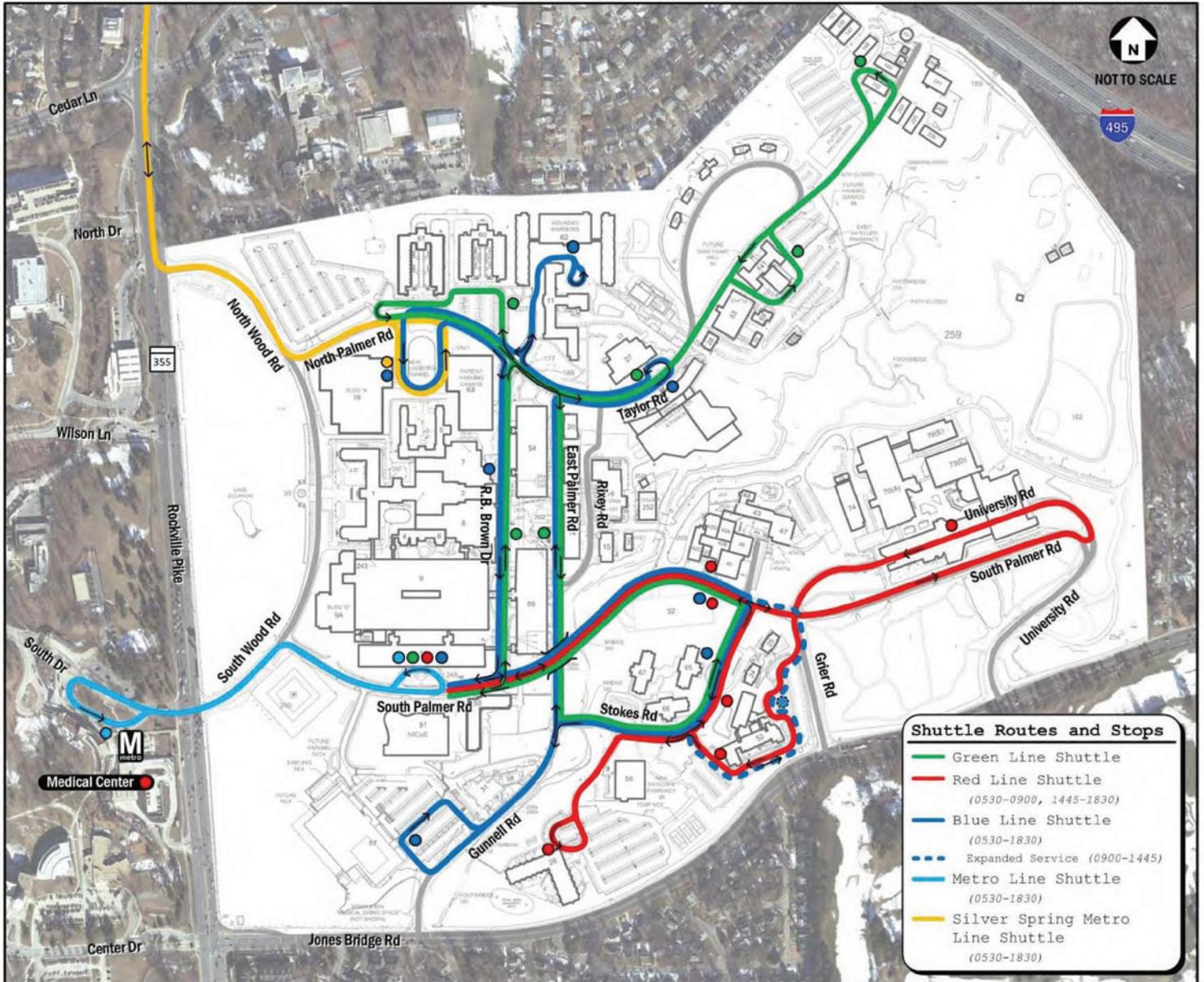
Transit Arrangements

There are four different arrangements for transit systems that installations generally implement:

1. External service on the installation—Commercial transit service is provided off the installation by a local transit agency. Service continues on to the installation by the same transit agency. This is the most efficient arrangement, however security may become an issue since all bus passengers have access onto the installation. Guards often ride on

the buses during higher force protection conditions. In many cases, non-DOD ID holders are not allowed to ride the bus onto the installation. Fort Huachuca, AZ; Fort Campbell, KY; and Scott AFB, IL are examples of installations with this type of operation. At Scott AFB, the public transit provider operates an installation-only shuttle service internal to the base. The public transit provider pays for this service with fare revenue and other public funds at no cost to the installation. Exhibit 1 is an example of this arrangement used at NSA Bethesda.

Exhibit 1: NSA Bethesda External/Internal Shuttle Map



2. Internal service—Transit service is provided on the installation by the government. There may or may not be a connection to external transit service off the installation (see bullet 4 on page 5). If there is, the connection is made at a bus stop and transfer location outside the gate. Despite the high cost, this government-provided internal shuttle service does provide transportation for employees who usually walk to work or get dropped off from an outside carpool. This arrangement can be beneficial for installations with high residential populations or those with good connections to external public transportation. Fort Hood, TX; Naval Station Mayport, FL; and Fort Leonard Wood, MO have this type of operation. At Fort Hood, the Soldier's Shuttle Service is available to soldiers, family members, DOD employees, retirees, and visitors to the installation. Stops are located in close vicinity to gyms, dining facilities, and Chapels in the billet area. Exhibit 2 is an example of this arrangement at Fort Bragg, NC.

3. External service off the installation—Commercial transit service is provided off the installation to a location usually outside the gate. There is no on-installation shuttle service so riders may have to walk to their destinations on the installation. Unfortunately, this arrangement only works for small installations or for those people who work in buildings near the drop-off location. Some examples of installations with this arrangement are Fort Irwin, CA; Edwards AFB, CA; and Naval Base San Diego, CA. At Edwards AFB public transportation is available (buses and taxis) to the entry control point, but riders must coordinate further transportation to their destinations once dropped off at the gate. Exhibit 3 on page 4 is an example of this arrangement at Joint Base, Anacostia-Bolling, D.C.

Exhibit 2: Fort Bragg Internal Transit Map

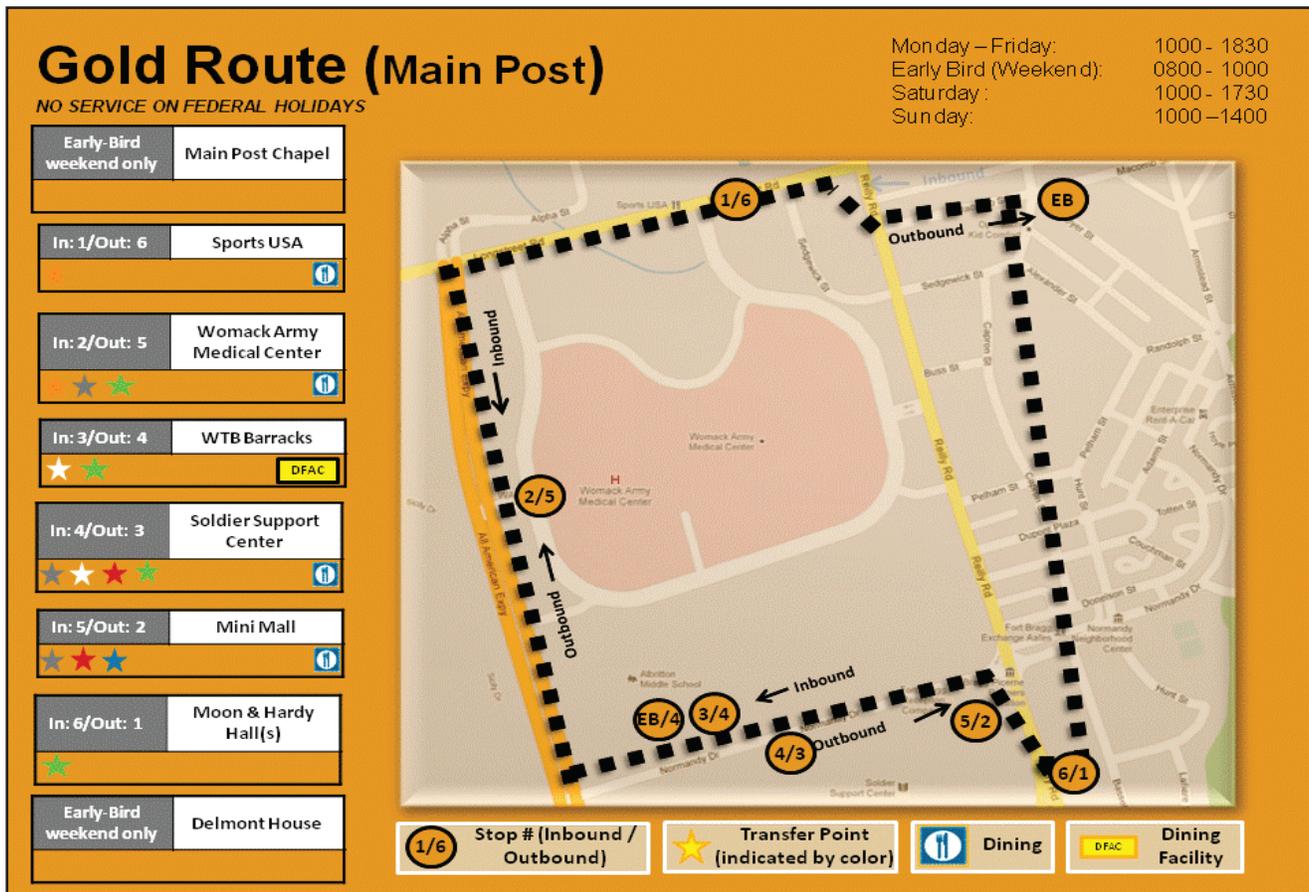
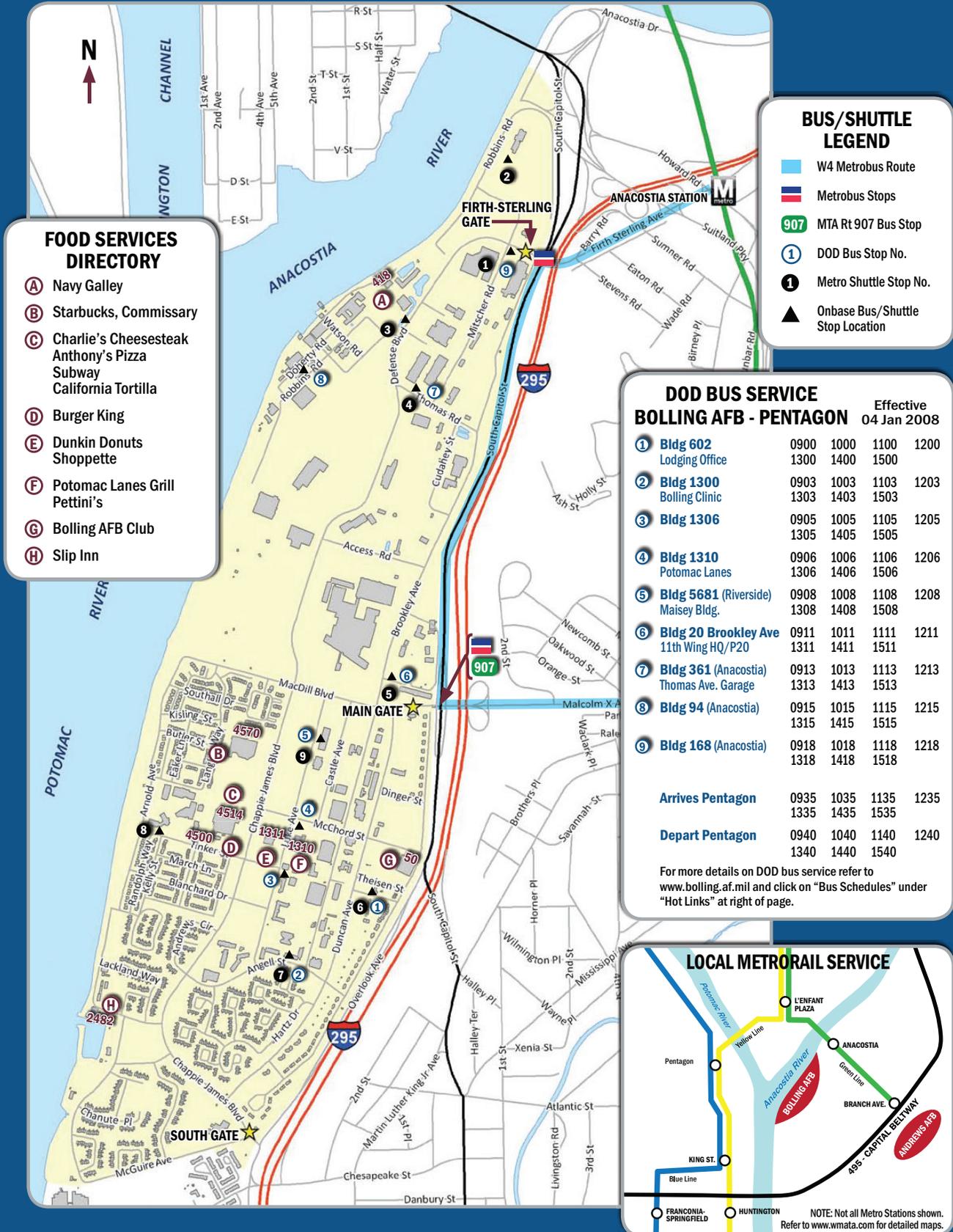


Exhibit 3: Bolling AFB External Transit Map



FOOD SERVICES DIRECTORY

- (A) Navy Galley
- (B) Starbucks, Commissary
- (C) Charlie's Cheesesteak
Anthony's Pizza
Subway
California Tortilla
- (D) Burger King
- (E) Dunkin Donuts
Shoppette
- (F) Potomac Lanes Grill
Pettini's
- (G) Bolling AFB Club
- (H) Slip Inn

BUS/SHUTTLE LEGEND

- W4 Metrobus Route
- Metrobus Stops
- MTA Rt 907 Bus Stop
- DOD Bus Stop No.
- Metro Shuttle Stop No.
- Onbase Bus/Shuttle Stop Location

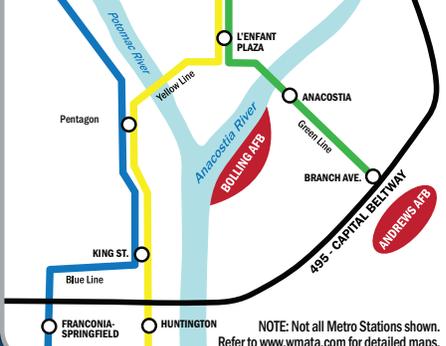
DOD BUS SERVICE BOLLING AFB - PENTAGON

Effective 04 Jan 2008

1 Bldg 602 Lodging Office	0900	1000	1100	1200
	1300	1400	1500	
2 Bldg 1300 Bolling Clinic	0903	1003	1103	1203
	1303	1403	1503	
3 Bldg 1306	0905	1005	1105	1205
	1305	1405	1505	
4 Bldg 1310 Potomac Lanes	0906	1006	1106	1206
	1306	1406	1506	
5 Bldg 5681 (Riverside) Maisey Bldg.	0908	1008	1108	1208
	1308	1408	1508	
6 Bldg 20 Brookley Ave 11th Wing HQ/P20	0911	1011	1111	1211
	1311	1411	1511	
7 Bldg 361 (Anacostia) Thomas Ave. Garage	0913	1013	1113	1213
	1313	1413	1513	
8 Bldg 94 (Anacostia)	0915	1015	1115	1215
	1315	1415	1515	
9 Bldg 168 (Anacostia)	0918	1018	1118	1218
	1318	1418	1518	
Arrives Pentagon	0935	1035	1135	1235
	1335	1435	1535	
Depart Pentagon	0940	1040	1140	1240
	1340	1440	1540	

For more details on DOD bus service refer to www.bolling.af.mil and click on "Bus Schedules" under "Hot Links" at right of page.

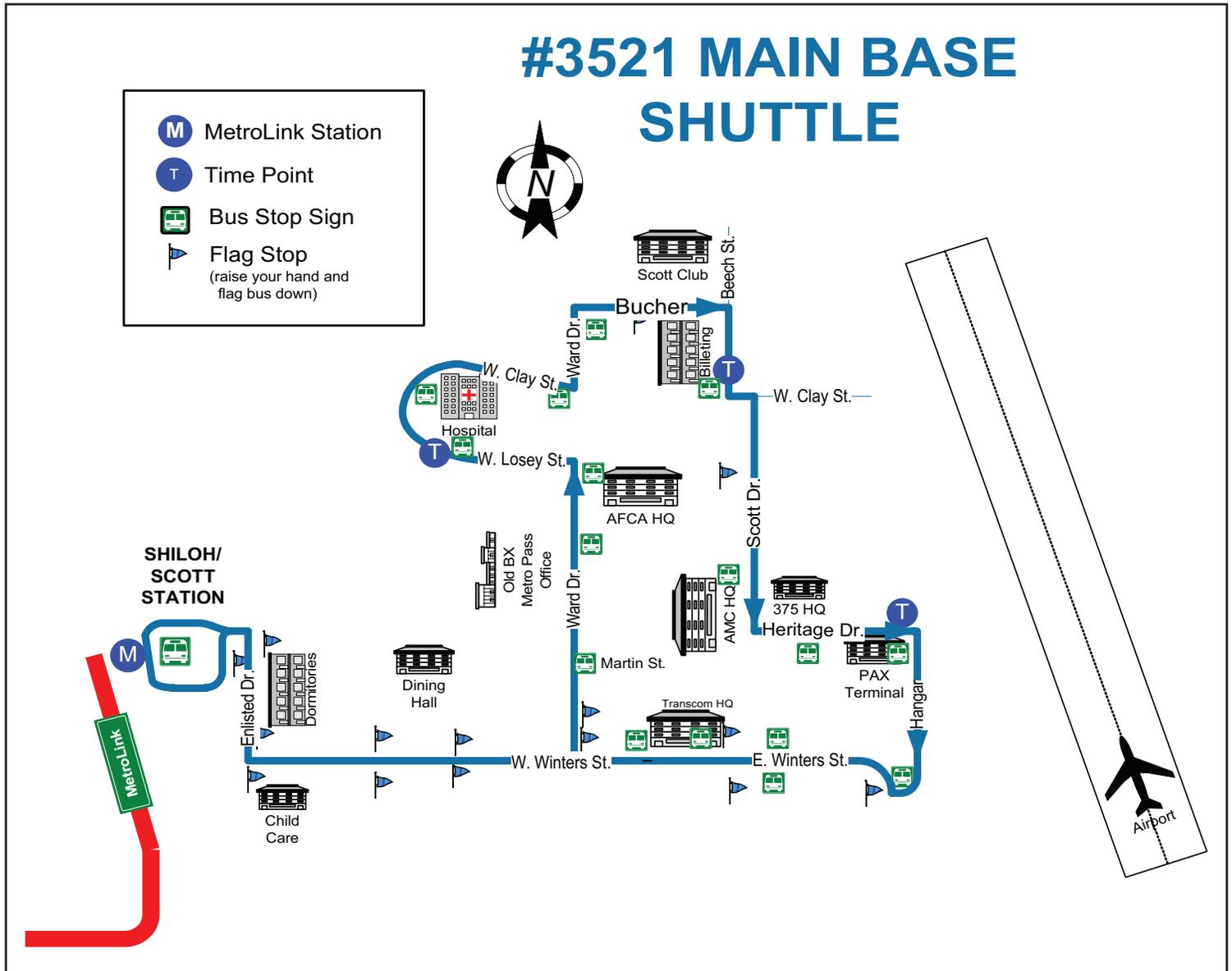
LOCAL METRO RAIL SERVICE



NOTE: Not all Metro Stations shown. Refer to www.wmata.com for detailed maps.

4. Internal and external service—This is a combination of arrangements 2 and 3 above. With commercial service provided off the installation and internal government-provided service on base, passengers may be required to walk through the entry control facility. This arrangement helps to eliminate security concerns that might occur with external service, coming onto on the installation. Fort Bragg, NC and Naval Station Norfolk, VA operate with this combination arrangement. At Naval Station Norfolk, shuttle buses are free to military and civilian personnel. The buses drive in a continuous loop around the base at approximately 30-minute intervals and have connections to local transit services. Exhibit 4 is an example of this arrangement used at Scott AFB, IL.

Exhibit 4: Scott AFB External and Internal Transit Map



DOD Regulation places government-provided bus transportation services into the following categories²:

- ✓ Modified shuttle bus service—Provides a means for the military, DOD civilians, and contractors to travel between their offices and mass transit centers,
- ✓ Shuttle bus service—Provides free transportation between installation offices or between nearby installations for personnel on official business,
- ✓ Group transportation service—for domicile-to-duty transportation for personnel off the installation,
- ✓ Mass transit—bus transportation within an installation or between sub-installations for non-duty purposes, and
- ✓ Military community activities support—transportation for activities such as concerts, special outdoor events, and airshows.

These services are funded by appropriated funds and generally free to users. The vehicles can be DOD-owned or contracted.

Why Have a Shuttle Bus System?

One primary reason to implement an installation shuttle bus system is to address vehicle transportation issues such as traffic congestion, insufficient parking, and poor air quality. Shuttle systems can save fuel and reduce carbon emissions, and also save money in the purchase, maintenance, and operation of privately-owned vehicles. Shuttle bus systems can provide a significant secondary savings by reducing the need for infrastructure improvements required to accommodate an increased roadway or gate capacity.

Another primary reason for a shuttle bus system is personal mobility. Shuttle buses provide transportation access to and within the installation for soldiers and their families, DOD civilians, contractors, and visitors. Often at military installations, the general population tends to be younger and more dependent on public transportation than at most other employment centers. During basic training, for example, recruits usually cannot have privately-owned vehicles on the installation and therefore must rely on public transportation or other means.

Shuttle buses are the least expensive mode of transit as they do not generally require significant infrastructure investments. Also, shuttle bus systems offer more flexibility in response to ridership changes. Adjustments to routes, boarding locations, and bus sizes are easier to make with a shuttle bus system than compared to changes associated with light rail or other transit types.

Planning a Shuttle Bus System

A formal step-by-step process is necessary to assess and verify the need for a shuttle system, as well as, all other modes of transit. Also, transit is not always the best or appropriate response to transportation related issues. The planning process will determine if a shuttle system is indeed appropriate, or if other options are more suited. When shuttle bus service is determined to be the preferred alternative for an installation, it should be integrated in the overall installation transportation plan. Without a thorough transportation planning process, the risk of implementing an inadequate system increases.

Transportation Planning Process

The basic steps in the transportation planning process include the following:

- ✓ Identify motivations for the proposed transportation improvement (such as providing mobility, addressing transportation related issues, and legislative mandates).
- ✓ Define the need using goals, objectives, performance measures, data collection, and data analysis.
- ✓ Formulate and evaluate alternatives using weighting and cost-benefit methods.
- ✓ Select the preferred alternative based on advantages or trade-off analysis. A National Environmental Policy Act (NEPA) analysis may need to be conducted before implementation.
- ✓ Finally, continually monitor and conduct follow-up studies to ensure that the solution adequately addresses the problem.

Encourage and solicit participation from stakeholders (installation personnel, soldiers, community members, and visitors). They usually can provide valuable insight to the transportation problem. Also, transit ridership information from the surrounding localities may help in the planning process.

2. DOD 4500.36-R Management, Acquisition, and Use of Motor Vehicles, Chapter 5, March 16, 2007

Exhibit 5 lists the various factors that need to be considered when evaluating alternatives.

Exhibit 5: Alternative Analysis Considerations³

Type of Shuttle System Arrangement	<ul style="list-style-type: none"> ✓ External service on the installation ✓ Internal shuttle service with or without connection to external service at the gate ✓ External service to the gate <p>Installation planners need to contact transit operators within the surrounding communities to determine the best way to integrate with new or existing systems.</p>
Trip Length	Typically, longer trips attract more transit users than shorter trips because of the convenience to the user.
Travel Pattern	“In and back” travel patterns, where users need to arrive and depart at the same location, are more conducive to a transit program than a one-way or “through” pattern.
Service Frequency	Hourly service is typically a minimum needed to attract low-volume ridership. More frequent service (e.g., every 10 minutes) will substantially increase ridership levels. If service is less frequent than every 10 minutes, riders can benefit when transit routes are at set times during the hour.
Fares	Free transit encourages 50 percent more ridership than if fares are imposed.
Daily Span of Service	Service must be provided late enough to ensure that visitors are not abandoned.
Annual Span of Service	The seasonal variations in travel and parking demands impact the timeframes of transit service.
Bus Stop Amenities	In general, benches should be provided at stops with five or more boardings per day and shelters at stops with 20 or more boardings per day.
Security	Adequate lighting, clear sight-lines, call boxes at transit stops, and vehicle security cameras provide a feeling of security and can generate ridership.
Service Liability	It is critical that scheduled service does not operate ahead of schedule. Vehicles should never depart from a stop early.
Public Information	Public awareness of operating hours, frequency, routes, fares, etc. is important for a transit system to be effective.
Transit Travel Time Relative to Auto Travel Time	If the ratio of total transit travel time to POV travel time exceeds 1.5, the level of ridership diminishes.
Parking Availability and Cost at the Destination	Limited parking or costly parking fees at destinations can increase ridership levels.
Vehicle Characteristics and Amenities	Some characteristics that can affect ridership include low floor vehicles, wheelchair tie-down positions, lifts or ramps (these are requirements of the Americans with Disabilities Act), and advanced fare technologies (like magnetic strip card readers).

³ Transportation Planning Process for Transit in Federal Land Management Areas” Volume 2, United States Department of Transportation Federal Transit Administration, April 2008

Projecting and Encouraging Ridership

Forecasting the number of users of a transit service is fundamental in planning, but it can be very difficult. Several forecasting methodologies are available. Here are some significant points to consider in forecasting and encouraging ridership:

- ✓ Trip purpose should be considered in evaluating ridership. For example, visitors, residents, and commuters often have different time constraints. So levels of ridership can vary depending on the timing of the shuttle bus pickups and what type of passengers will be riding.
- ✓ Timely and accurate information is an important factor to encourage ridership.
- ✓ Usage data from local transit agencies or similar installations may help provide valuable ridership information.

Types of Vehicles

A key factor in selecting the types of vehicles for a transit system is capacity. Transit service vehicles can range from 12-passenger vans to 70-plus passenger articulated buses (Exhibit 6 on page 9). The vehicles selected should be capable of addressing peak demands. Different levels of passenger demand can be accommodated with the wide variety of buses available.

Route and Bus Stop Planning

Several factors are important in route planning. Transit service should be designed to provide accessibility to high population and high employment areas. The geographic spacing between routes depends on geographical conditions, population concentrations, and trip generators and attractors. Service should not be duplicated along the same corridors. Alternate shuttle routes should be identified in the event traffic incidences occur.

Origin-Destination studies can help determine travel patterns and ideal routes for a fixed-route transit system. When planning the routes, consideration must be given to the roadway infrastructure. Bridges must be capable of handling heavy vehicles on a daily basis. Also, turning radii of roadways must be appropriate for the transit vehicles.

Shuttle bus stops should be located in the safest positions with regard to traffic, roadway conditions, and visibility for the passengers and bus drivers. Bus stops should facilitate easy and safe bus access, provide a

Contact Us

We can help your installation plan a shuttle bus system.

Darren J. Guttman, P.E.

Phone: 618-220-5218

David G. Kirkpatrick

Phone: 618-220-5252

Thomas J. Mannino, P.E., PTOE

Phone: 618-220-5249

Brenda K. Roth, P.E., PTOE

Phone: 618-220-5290

Mickeal D. Carda, P.E.

Phone: 618-220-5450

David F. Clark, Jr.

Phone: 618-220-7747

**Military Surface Deployment and
Distribution Command**

Transportation Engineering Agency

1 Soldier Way, Building 1900W

Scott Air Force Base, Illinois 62225-5006

DSN: 770-5252

Fax: 618-220-5125

E-mail: army.sddc.safb.traffic@mail.mil

Web Site: <http://www.tea.army.mil> for

pamphlets, bulletins, and studies

defined passenger waiting area, promote an orderly queue formation, and shield waiting passengers from adjacent vehicular and pedestrian traffic. In general, bus stops should be positioned at the far side of an intersection. This helps facilitate the bus and traffic operations. Stops should be located close to signalized intersections where possible. The impact to adjacent traffic operations and pedestrian movement should be minimized. In locations of high passenger or traffic volumes, transit pull-off areas (also called bus bays or turnouts) should be provided.

Exhibit 6: Bus Types

<p>Conventional Buses</p>		<ul style="list-style-type: none"> ✓ Standard transit buses ✓ Motor coaches ✓ School buses
<p>High-Capacity Buses</p>		<ul style="list-style-type: none"> ✓ Articulated buses ✓ Buses with trailers
<p>Low-Capacity Buses</p>		<ul style="list-style-type: none"> ✓ Small transit buses ✓ Vans ✓ Van conversions
<p>Novelty Buses</p>		<ul style="list-style-type: none"> ✓ Electric shuttle buses ✓ Tourist trams ✓ Historic trolley replicas ✓ Double-decker buses ✓ Electric trolleys

Transit Facilities

Other than adequate roadways, a successful shuttle bus system may require other supporting facilities and amenities such as bus stop shelters, garages, maintenance facilities, pedestrian and bicycle facilities, ticket windows/machines, benches, and trash receptacles. In larger systems, a transit center can serve as a hub for users to transfer between different routes including those on an external transit system. Not all facilities will be required for an effective system. Only facilities that will best advance the goals of the service should be considered.

Advertising

It is important to publicize the shuttle bus service for it to be effective. Hours of operation, service frequency, routes, fares, and who can ride should be clearly communicated through flyers, brochures, posters, signs, websites, or installation and local community publications.

Service Delivery Mechanisms

There are three service delivery mechanisms for installation shuttle bus systems.

Service Contracts

Under a contract, the commercial vendor provides the actual transportation service, while the installation retains responsibility for the quality of service, bus routes and stops, and frequency. The military department may choose to purchase vehicles and lease them to the vendor or require the vendor to supply its own. If the vendor supplies its own vehicles, it is likely that they will be responsible for storing and maintaining them as well. In many cases, contracting is the most cost-effective means of delivering transit service. However, the installation's flexibility to make necessary changes may be limited.

Local Transit Agencies

Installations may opt to have an existing external transit agency extend their service onto the installation. This option may allow the installation to have the transit service without the additional costs or responsibilities. The installation would not have direct responsibility for the service planning, but may have opportunities to provide input. Under this arrangement, it is likely that the installation transit service would be connected to a larger external public transit system. This option may be the most efficient since the transit agencies might already have vehicles, procedures, and trained staff in place. However, it is likely that the installation would not have the ability to control bus stops and service

characteristics. In addition, the installation could not rely on the transit agency to meet its service standards or its long-term travel demands.

Direct Operation

Installations may also choose to own and operate its own shuttle bus system. In this case, the installation could completely control the planning, service, policies, and procedures to meet its changing transportation needs. The installation may opt to lease or purchase the vehicles. The maintenance of the vehicles may also be contracted. Direct operation could be the most expensive option when considering costs of training, equipment, operations, maintenance, and liability.

Capital and Operating Costs

Some of the operating and maintenance costs pertain to: salaries and wages of drivers and other pertinent personnel, fringe benefits, materials and supplies, fuel and lubricants, tires, utilities, casualty and liability costs, leases, and rent. Capital cost items can include: vehicle purchase, equipment, bus shelters, service facilities (garage, wash and fuel facility), information kiosks, automated ticket purchase/retrieval machines, traffic signal enhancements (such as pedestrian accommodations at signals near bus stops), pedestrian gates (at entry control facilities), and parking and storage facilities.

Funding

DOD is typically responsible for covering the costs of their internal transit systems. Expenses for the operation of these services are paid from appropriated funds. If external transit systems are needed, and the State or local government cannot budget for these services, there are options to consider for potential funding.

The Federal Lands Access Program provides \$250M annually (for FY 2013 and 2014) in Highway Trust Funds for transportation projects on roads that access federal lands and that are owned or maintained by the State or local government. While this funding source is very limited, operation and maintenance of transit facilities on these State and local access roads are eligible. Simply put, this is a potential funding source for a State or local shuttle bus system that could help support military installations.

Installation planners are encouraged to partner with other federal agencies, State or local governments, local transit agencies, and the private sector. These partnerships can promote mutual benefits from transit systems and possibly help with transit funding opportunities.

Although not a source of funding, the government can pay ridership fares. The Mass Transportation Benefit Program⁴ allows the DOD to provide mass transportation benefits to military and civilians for offsetting commuting costs. The intent is to help reduce pollution and traffic congestion, preserve the environment, and expand transportation alternatives. This program provides vouchers for riders to purchase mass transit monthly passes.

Technical Assistance

The US Department of Transportation’s Federal Transit Administration sponsors the Paul S. Sarbane Transit in Parks Technical Assistance Center (TRIPTAC). TRIPTAC provides transportation-related technical assistance, information, training, and resources to all federal land management agencies, including military installations. The Center specializes in alternative transportation planning and implementation. TRIPTAC will provide these services through June 2014. Military installation planners considering shuttle bus systems or other modes of alternative transportation are encouraged to use TRIPTAC services.

Shuttle Systems on DOD Installations and Other Federal Lands

Exhibit 7 summarizes the use of shuttle systems on 184 military installations. About half of the installations (91) do not have shuttle services in place. For the

4. DODI 1000.27, Mass Transportation Benefit Program, October 2008

installations that do have shuttle services (93), over half of those have internal systems. Fixed-route transit services are used just a small percentage (about 12%) more than demand response services.

While this table represents a summary of a current snapshot of installation shuttle bus usage, it should not be used as a guide to determine the type of service or arrangement for a specific installation. Each installation has unique characteristics and circumstances that impact their specific transportation solution. Furthermore, as the installation’s transportation needs change over time, what once was an adequate solution may no longer be effective.

Changing transit needs is demonstrated at Fort Lee, VA. The installation had been operating a free shuttle bus system for the military and DOD civilians conducting official business. The internal shuttle system had fixed routes and stops and operated at an annual cost of \$300,000. Fort Lee conducted several ridership studies and determined that the service could no longer be justified.

Instead, Fort Lee is now implementing a demand-response service in which vehicles will be dispatched as needed. The new system is comprised of three or four 12-passenger vans or larger vehicles if necessary. It will reduce passenger wait times and save money on fuel, labor, and vehicle leasing costs. The projected savings is \$163,000 per year. In addition to the new system, government contract taxi service is available at Fort Lee at a low cost for non-duty travel within the installation.

Exhibit 7: Installation Shuttle System Summary

Service	# of Installations	No Shuttle Service	Type of Transit Arrangement			Type of Transit Service		
			External Service ON the Installation	Internal Service ON the installation	External Service OFF the Installation	Demand Response	Fixed Route	Unknown
AIR FORCE	60	26	4	27	4	20	13	1
ARMY	53	27	7	18	1	10	14	3
DLA	5	0	2	1	2	2	1	0
JOINT BASE	13	3	2	7	2	2	5	1
MARINE CORPS	14	9	0	4	1	2	3	0
NAVY	39	26	1	10	3	4	9	0
Totals	184	91	16	67	13	40	45	5

* The data in this table was extracted from information available on www.militaryinstallations.dod.mil as of May 20, 2013. If no information was reported, then “No Shuttle Service” is assumed.

MR. BRUCE A. BUSLER, SES
Director, Transportation Engineering Agency

DEPARTMENT OF THE ARMY

Military Surface Deployment
and Distribution Command
Transportation Engineering Agency
1 Soldier Way
Scott Air Force Base, Illinois 62225-5006

OFFICIAL BUSINESS

Reference List

- ✓ 10 USC 2632, "Transportation to and from Certain Places of Employment and on Military Installations"
- ✓ 31 USC 1344, "Passenger Carrier Use"
- ✓ www.triptac.org. The Paul S. Sarbanes Transit in Parks Technical Assistance Center (TRIPTAC) is designed specifically to provide information, training, and technical support to all Federal Land Management Agencies.
- ✓ www.cflhd.gov/TTOOLKIT/FLT "Transportation Toolkit for Federal Lands Managers"
- ✓ www.apta.com. The American Public Transportation Association is made up of public and private organizations in the bus and rail services industry who work to ensure that public transportation is available and accessible for all Americans.
- ✓ www.militaryinstallations.dod.mil
- ✓ www.fleettraveller.com Fort Lee authorized online newspaper Article: "Out with Shuttle Buses, in with New Taxi Service" by T. Anthony Bell, March 28, 2013
- ✓ SDDCTEA Better Military Traffic Engineering, SDDCTEA Pamphlet 55-17, 2011
- ✓ DOD 4500.36-R, Management, Acquisition, and Use of Motor Vehicles, March 16, 2007
- ✓ "Transportation Planning Process for Transit in Federal Land Management Areas" Volumes 1-4, United States Department of Transportation Federal Transit Administration, April 2008
- ✓ "Best Practices in Transit Service Planning, Project #BD549-38, FINAL REPORT," Center for Urban Transportation Research University of South Florida, March 2009

Continuing Education	Phone	Web Site
Pennsylvania State University; The Pennsylvania Transportation Institute	(814) 865-4700	www.pti.psu.edu
University of Maryland; MD Transportation Technology Transfer Center	(301) 403-4623	www.ence.umd.edu/ttcc
Georgia Institute of Technology	(404) 385-3501	www.gatech.edu
Northwestern University Center for Public Safety	(800) 323-4011	www.northwestern.edu/nucps/index.htm
Texas A&M University	(979) 845-3211	www.tamu.edu
University of Washington; College of Engineering	(206) 543-2100	www.engr.washington.edu/epp