JOINT BASE REAL PROPERTY MASTER PLAN

Joint Base Myer • Henderson Hall

Long Range Component

June 2013

ATKINS

Final

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June 2013

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Continental Color Guard 3rd U.S. Infantry

1.1 PURPOSE

This Long Range Component (LRC) of the Joint Base Real Property Master Plan (RPMP) contains detailed planning strategies to guide the long-range use of land and facilities on the installations. Development options are determined from the Installation's mission, as well as its Real Property Vision, Goals, and Objectives. In addition to the LRC, there are four other components of this RPMP that will provide short-term and long-term direction for Installation development:

- Capital Investment Strategy (CIS)
- Short Range Component (SRC)
- Installation Design Guide (IDG)
- Real Property Master Plan Digest

Additional documentation – in the form of the Facility Utilization Survey (FUS) and the Environmental Assessment (EA) – supplement the RPMP. Joint Base Myer-Henderson Hall (JBM-HH) has experienced changes in response to the 2005 Base Realignment and Closure (BRAC). This Master Plan will provide a guide for the joint basing process and ensure that JBM-HH continues its role as a first-class installation representing the National Capital Region and the Nation.

1.2 SCOPE

This master plan addresses approximately 380 acres over three sites: Fort Myer (243 acres), Fort McNair (107 acres), and Henderson Hall (29 acres).

The following assumptions (developed by the master planning team and Fort Myer, Fort McNair, and Henderson Hall) provide the point of departure for development of this master plan.

- The Base Realignment and Closure 2005 recommendations generate no major impacts at Fort Myer or Fort McNair. However, to gain efficiencies through joint basing, Fort Myer will assume installation management responsibilities for the Marine Corps installation at Henderson Hall and become Joint Base Myer-Henderson Hall, in accordance with the Joint Basing Memorandum of Agreement dated 18 September 2008.
- With the projected future growth of Arlington National Cemetery (ANC), the master plan should be developed in accordance with ANC's master plan.
- Due to land availability constraints, the master plan must be flexible and recycle land, space, and facilities to achieve its strategic goals.
- JBM-HH is expected to continue its current three-fold mission: respond to crises, disasters or security requirements in the National Capital Region (NCR) through implementation of various contingency plans; provide both base operations and a variety of specialized support to Army and other Defense Department organizations throughout the NCR; and conduct official ceremonies, locally and worldwide, on behalf of the nation's civilian and military leaders.
- Henderson Hall is expected to continue its current mission of providing support to Marine Corps personnel stationed within the NCR. As such, all Henderson Hall planning will be aimed at supporting this mission.

These current planning assumptions, along with the mission and vision of JBM-HH, set the direction of JBM-HH's growth to the year 2030, providing a long-range flexible plan that can accommodate the existing, currently planned, and future needs and requirements of JBM-HH. Installation mapping data has been provided by the Directorate of Public Works (DPW), unless otherwise noted.

View of the North Mall, Fort McNair

U.S. Army Drill Team performs at Nationals Park.

1.3 MISSION

JBM-HH is home to the 3rd U.S. Infantry Regiment (The Old Guard). Fort McNair is the location of the National Defense University, the preeminent joint institution for education, research, and outreach in national and international security. The Garrison's mission states:

- Joint Base Myer-Henderson Hall provides installation services and support to Military Members, Civilians, Retirees and their Families with a quality of life commensurate with the quality of their service. On order, provide Base Support to MDW/JFHQ-NCR facilitating deployment of forces for Homeland Defense and Defense Support to Civil Authorities in the NCR.

The U.S. Marine Corps (USMC) Headquarters Battalion, based at JBM-HH, is structured within the Marine Corps National Capital Region Command (MCNCRC) and provides a broad level of mission-related functions, as well as services to Marines, retirees, and their families located throughout the National Capital Region.

The Battalion's mission is to:

- Provide administrative support for chargeable and non-chargeable Marine Corps personnel assigned to Headquarters Marine Corps or other Federal agencies within the NCR. In addition, the Headquarters Battalion provides administrative motor vehicle support and traffic management support (freight and household goods) to Headquarters Marine Corps.

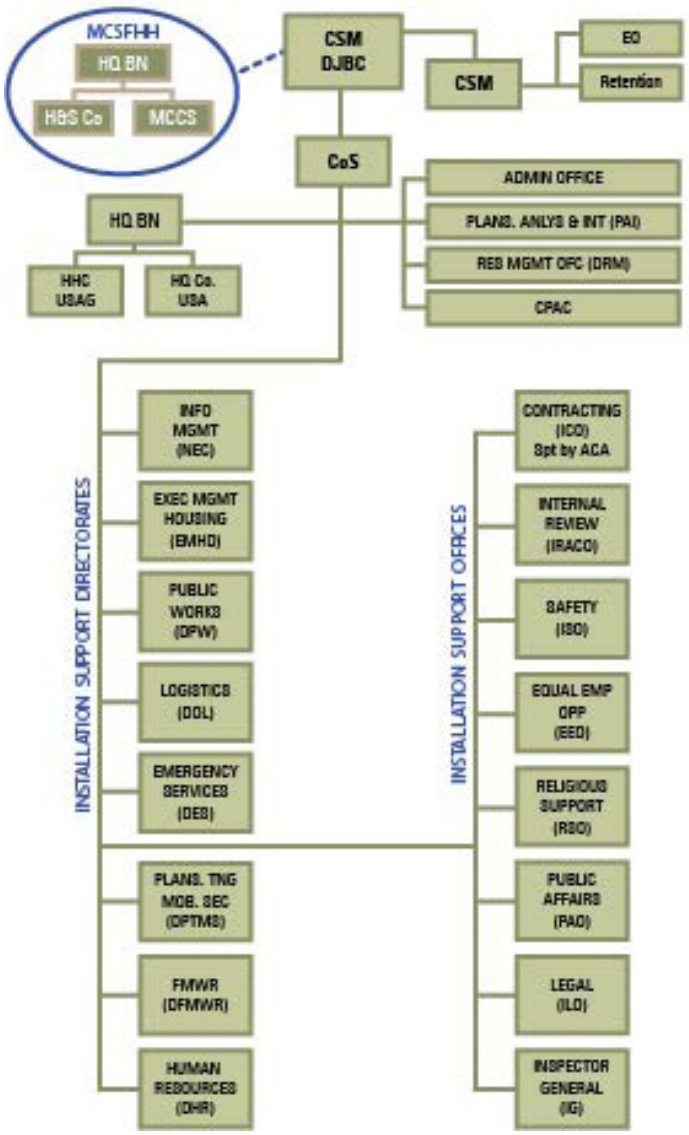
(Please note: A new mission statement for the Battalion is currently under development.)

1.4 VISION

The future JBM-HH aspires to:

- Operate the joint-based model installation and provide consistent installation services and support in a safe and secure environment, enabling successful joint mission accomplishment and enhancing the well-being of our nation's service members, their families, and Department of Defense (DoD) civilians in the NCR.

Figure 1.1 Joint Base Myer-Henderson Hall Organizational Chart



1.5 VALUES

JBM-HH values are linked to and incorporate the core values of the U.S. Army, but are here restated to emphasize areas of particular community importance:

- Compassion – for customers and coworkers
- Courage – to do the hard right, rather than the easy wrong
- Candor – an environment of open, honest communication
- Competence – we continuously improve ourselves and our organization
- Commitment – to the mission and vision and team success

The values of the Marine Corps govern Henderson Hall:

- Honor – Each Marine must cling to an uncompromising code of personal integrity to exemplify the ultimate standard in ethical and moral conduct.
- Courage – Honor in action, moral strength, and the will to heed the inner voice of conscience.
- Commitment – Total dedication to Corps and Country; a combination of selfless determination and a relentless dedication to excellence.

1.6 MASTER PLAN VISION

The Real Property Vision for this Master Plan was developed in accordance with the Garrison's vision and tenants during a two-day visioning session held on the 22nd and 23rd of July, 2008.

- The Master Plan will support a unified military installation, which partners with the surrounding community, to protect and enhance the mission and traditions of JBM-HH through efficient and sustainable use of operational and historical resources. This plan will ensure continuation of military and family life that honors the past while embracing the future in a safe and secure environment.

Funeral Caisson, Arlington National Cemetery

1.7 MASTER PLAN GUIDING PRINCIPLES

Guiding principles were developed according to the Master Plan Vision. They provide a planning road map that will shape the future development of JBM-HH. These principles are:

Continue to enhance the quality of life for service members, their families, and civilian workers.

- Consider the capabilities of utilities and infrastructure beyond current or immediate future demands, as well as technologies that improve efficiency and capability.
- Provide adequate open space facilities to meet the needs of recreational functions and physical training requirements.
- Increase opportunities for access by integrating pedestrian, bicycle, and transit circulation into the overall movement system.
- Create new places of work that reinforce the spirit of community and collaboration.
- Integrate potential shuttle connections or a "circulator" between JBM-HH, parking facilities, and regional transit to encourage use of public transportation.
- Cluster troop housing and community support facilities to create activity nodes that minimize dependence on automobiles.
- Improve the circulation system to provide easy navigation, minimize traffic conflicts, and emphasize safety.
- Ensure that operational facilities meet the space requirements and needs for a departmental mission.
- Explore parking options to accommodate actual and perceived shortfalls.
- Ensure that all buildings on the installation are Americans with Disabilities Act (ADA) compliant.
- Provide facility space for retail/dining services for Installation and community use.
- Integrate aesthetics and site amenities in outdoor common areas.

Maintain the traditions and standards of the ceremonial mission.

- Preserve sacred areas that honor the history of the Installation and provide for its continuing traditions.
- Integrate small plazas and pocket parks into the master plan; punctuate these with monuments and markers that enrich the open space while acknowledging significant historic events at JBM-HH.
- Maintain space and circulation to accommodate special events.
- Integrate areas for mission training operations.
- Consolidate facilities and programs needed for ceremonial missions.
- Integrate redundant facilities while maintaining military identity.

Continue to enforce and enhance security measures to provide a safe and secure environment.

- Support and incorporate anti-terrorism/force protection standards to provide a safe and secure environment for our residents and customers.
- Incorporate secondary mission associated with the Pentagon's and Capitol Building's security emergency plans during the planning process.

Protect and maintain environmental and cultural resources.

- Use a systems approach to analyze the impact of future development on the environmental community.
- Implement sustainable practices to ensure an increased level of environmental stewardship.
- When applicable, incorporate LEED-ND principles.
- Use green technologies and materials that reduce environmental impacts and life-cycle costs.
- Emphasize design standards respectful of JBM-HH's historic nature and its contributions to local, regional, and national history.
- Explore alternative modes of transportation and renewable sources of energy.
- Develop interpretive programs for the historic and cultural resources.
- Explore adaptive reuse/recycling of space in existing facilities.
- Institute a landscape management program that incorporates environmentally friendly practices and supports visual unity.
- Identify and then survey all historic properties inside and outside the JBM-HH National Historic Landmark (NHL) District and at Fort McNair.

Involve the customer base and a diverse group of experts in the planning process.

- Provide information necessary for the Installation Commander to make valid operational and programming decisions.
- From the start of the proposed projects, involve all key stakeholders and personnel in the programming and planning process.
- Develop consistent guidelines for the planning process in order to achieve clarity about overall project goals.

Coordinate Master Planning with the surrounding communities and agencies.

- Provide planning for maximum utility, efficiency, and flexibility of Post resources.
- Use standards and agency requirements to plan for future development and proposed projects.
- Involve not only the JBM-HH community in the planning process, but also surrounding and regional communities and organizations within the NCR including Arlington County, Ward 6 – District of Columbia, ANC, residential neighborhoods, Virginia Department of Transportation (VDOT), U.S. Coast Guard, Retirees.

Changing of the Guard

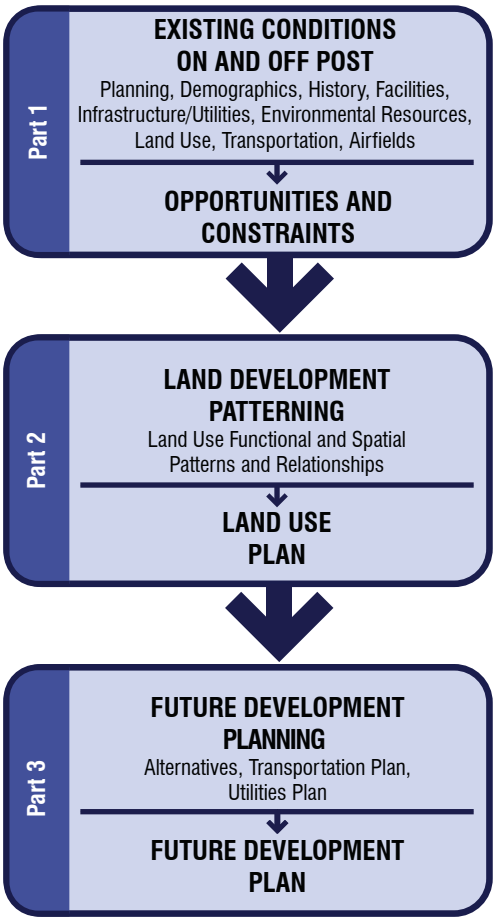
Senior Officer Housing at Fort McNair

Senior Officer and NCO Housing at JBM-HH

1.8 PROCESS

Creating the LRC is a three-part process (Figure 1.2). Part I, the Existing Conditions Assessment, involves extensive mapping of the Installation and corresponding background research. Part II, Land Development Patterning, entails the examination of functional, spatial, and relationship patterns. Part III, Future Development Planning, comprises in-depth analysis that results in long-term plans.

Figure 1.2 Three Primary Components of the LRC



1.8.1 Existing Conditions Assessment

The Existing Conditions Assessment is an evaluation of existing baseline information that provides a basis of understanding of areas most appropriate for future development. The assessment provides an analysis of both on- and off-post information including: regional planning and demographics, history, facilities, land use, transportation, infrastructure/utilities, and environmental resources. The assessment culminates with a summary of opportunities and constraints affecting the Installation.

1.8.2 Land Development Patterning

Land development patterning is the examination of functional, spatial, and relationship patterns on the Installation. This then provides a basis for understanding how proposed future land uses may be accommodated to meet the highest and best use. In addition, it helps the Installation use fewer resources to satisfy greater demand. It results in the Installation's Land Use Plan.

1.8.3 Future Development Planning

Determined from the Land Use Plan, Future Development Planning integrates both known and unknown factors to establish a consensus on the direction and location of future Installation development. Additional products include individual plans for Transportation and Utilities.

1.9 APPROVAL

As specified in AR 210-20, the senior mission commander endorses the RPMP and sends it to the Installation Management Command (IMCOM) Region Office for review and approval by the region director.

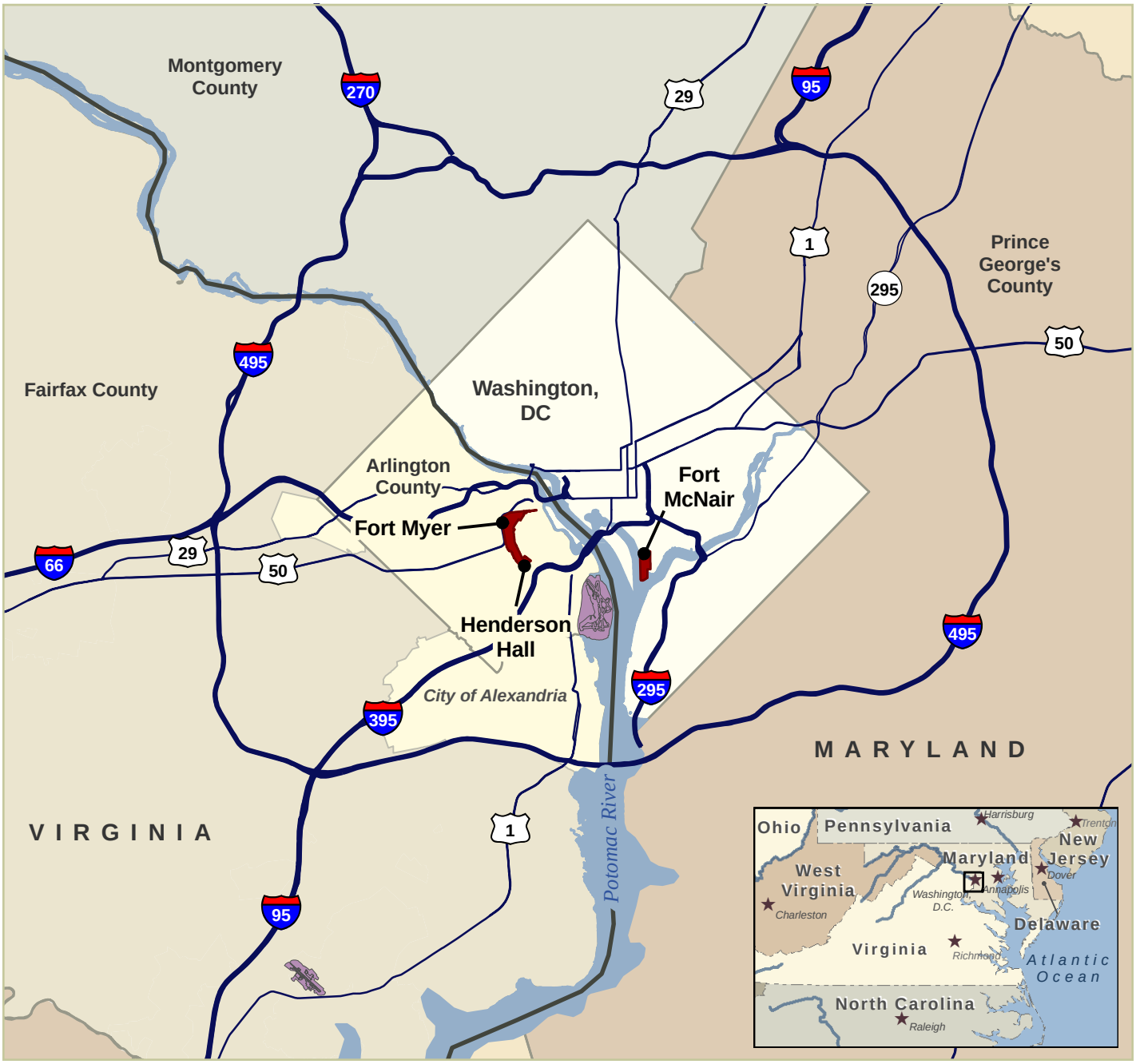
2.1 OVERVIEW

This section identifies and addresses site specific and regional conditions. These factors are then analyzed in order to determine the various opportunities and constraints affecting installation development.

2.2 GEOGRAPHIC LOCATION

Joint Base Myer-Henderson Hall and Fort McNair are located in the Washington, D.C. Metropolitan Area (Figure 2.1). JBM-HH is located in Arlington, Virginia, directly across the Potomac River from Washington, D.C.; Fort McNair is located in Southwest Washington, D.C. where the Potomac and Anacostia Rivers meet.

Figure 2.1 Regional Location Map



2.3 HISTORY

Fort Myer History

Fort Myer is located on land that was owned by George Washington's stepson, George Washington Park Custis. Upon his death in 1857 the land transferred to his daughter, Mary Anna Randolph who had married Robert E. Lee in 1831. At the start of the Civil War in April of 1861 Lee left for Richmond and Mrs. Lee left the following month. Following a Federal decree in 1864 Mrs. Lee, by now crippled from arthritis, was unable to travel from Richmond to Washington to personally pay her new tax bill thereby forfeiting title to the Federal Government (his decree was later found unconstitutional by the Supreme Court in 1881 and in 1883 the Federal Government paid the Lee heirs $150,000 for the estate of 1,100 acres). Starting in 1861 three forts were built on the estate grounds to protect the city of Washington. Beginning in 1864, part of the estate was used as a Soldier's cemetery.

Fort Whipple was established in 1863 - one of many installations whose original mission was to form a protective barrier around the city of Washington. Fort Whipple was the home of artillery Soldiers from 1863 until 1869. In 1869 the Post became the garrison for the signal corps, and the Signal Schools of Instruction for Army and Navy officers were established. In 1872 the first permanent buildings were erected to house the Signal Corps School. On February 4, 1881 the Post was renamed Fort Myer, in honor of Brigadier General Albert A. Myer, the first chief signal officer of the Army, who had been in command of the Signal Corps School at Fort Myer from 1869 until his death in 1880. Under General Myer, telegraphic communication among all the posts of the Army was established along with an international system of meteorological studies. This work later led to the formation of the U.S. Weather Bureau in 1891.

Fort Myer has housed many famous Army units, but is best known for its long history as a cavalry post, after the official discontinuation of the Signal Corps School in July 1887. Construction of barracks and stables immediately began, and Fort Myer earned the reputation as the “cavalry showplace of the Army” until 1942. From 1887 to 1948 all US Cavalry Regiments had elements stationed at Fort Myer in recognition of their outstanding duty in the field. Among these units were the Machine Gun Troop of the 10th Cavalry (Buffalo Soldiers) and the famous 3d Cavalry Regiment from 1919/1941.
By 1908, most of the present-day historic district of Fort Myer had been built. Spacious senior officer quarters were constructed along Jackson, Grant, and Lee Avenues. Quarters One on Generals’ Row, built in 1899, is currently home to the Chief of Staff of the Army. General's Douglas MacArthur, George C. Marshall, Dwight D. Eisenhower, William C. Westmoreland, and Omar Bradley are among the famous former occupants of these quarters.

Fort Myer has been the setting for many important technological and historical firsts. In 1908 and 1909 Orville Wright tested his Wright Flyer for the Army at Fort Myer which constituted the world's first military flight. It was from Fort Myer that the first round-the-world radio message was sent in 1913. The famous riderless horse, Black Jack, who escorted the funeral caisson of many great Americans including Presidents Hoover, Kennedy, and Johnson, is buried on the Summerall Parade Ground at Fort Myer. The Post is also widely known as the “Home of the Generals” because many high-ranking officers of the Department of Defense reside here.
In the twenty years between the World Wars, Fort Myer, under such distinguished commanders as Generals George S. Patton and Jonathan M. Wainwright, continued its mission as a cavalry post. At the beginning of the U.S. involvement in World War II, the cavalry was discontinued and the Post served as a processing station and housing for defense troops stationed to protect the nation’s capital. The U.S. Army Band moved from Fort McNair to Fort Myer in 1942. In 1948 the 3rd Infantry Regiment, better known as The Old Guard, was reactivated and assigned to Forts Myer and McNair.
Since 1972, the northern portion of the Post has been designated as a National Historic Landmark District and is

View of Henry Place towards Summerall Field

listed in the National Register of Historic Places. Quarters One, currently occupied by the Amy Chief of Staff, is a National Historic Landmark. An extensive survey of the buildings in the Historic District has been completed and is on file at the North Atlantic Division of the Corps of Engineers. Information documents on the historic preservation plans for Fort Myer are on file at JBM-HH.

The closure of Cameron Station in October 1995 under the BRAC initiative resulted in the construction of major facilities at Fort Myer. Since 1990, the following projects have been constructed: the Logistics Administration Warehouse Complex, the Logistics Vehicle Maintenance and Storage Facility, a Commissary, a Shoppette Class VI Store, an expansion of the Post Exchange, a Physical Fitness Center, and additions to the Officers' and Community (NCO) Clubs. More recently, the new Public Safety Building was constructed to consolidate Provost Marshal, Safety, and Fire Protection activities and the Tri-Service facility was renovated to provide an up-to-date dining facility and learning center.

The most recently completed projects include a Child Development Center (CDC) to help meet child care demand, which has been considerable since the closing of the Pentagon's CDC. A new barracks and consolidated operations facility opened in August 2008. The picnic area has been turned over to Arlington National Cemetery to accommodate their expansion plans.

Henderson Hall History

Henderson Hall is built on land acquired through deeds and other actions between 1943 and 1952. The site officially became U.S. government property on February 15, 1954, when the Governor of the Commonwealth of Virginia executed a Deed of Cession of Political Jurisdiction to the United States of America.

Multi-purpose Building, Henderson Hall

With the move of Headquarters Marine Corps to the Navy Annex in November 1941, and the Marine Corps expansion following the outbreak of World War II, a Headquarters and Service Company was organized at Henderson Hall on March 1, 1942.

Subsequently, the unit was designated Headquarters Battalion on April 1, 1943. A second Headquarters Battalion of Women Marine Reserves was organized in September 1943 to provide barracks for a portion of the 2,658 women assigned to the D.C. area. During August 1946, a substantial number of women Marines were released from active duty, making Henderson Hall barracks available for billeting of male Marines.

Fort McNair History

The prominent point of land at the southern most tip of the District of Columbia where the Anacostia and Potomac Rivers meet was first called Turkey Buzzard Point in 1673. By the time of the founding of Washington in 1791 it was known as Greenleaf Point. This area was designated as Military District #5 by Major Pierre Charles L'Enfant when he designed the Federal City. By 1794 there was a single cannon posted here as an alert gun to signal the city of Washington if the British fleet was seen sailing up the Potomac River. By 1804 the Washington Arsenal was established at this area. When the British seized the city of Washington in August of 1814, Americans destroyed most of the Post before its capture. However, a British soldier dropped a torch down a dry well causing a massive explosion of black powder hidden in the well. Approximately a dozen British personnel were killed and approximately three dozen more severely injured.

Following the end of the War of 1812 in January of 1815 the Washington Arsenal was rebuilt. Then in 1826 the first Federal penitentiary in America was built at the northern end of the Post. Today this area serves as the central portion of the Post and only an addition to the penitentiary built in 1836 survives as Building 20. It was on the third floor of Building 20 that the Lincoln conspirators were tried and sentenced to death by hanging. One of the accused was Mary Surratt, the first woman to be executed by the Federal Government.

The arsenal was closed in 1881, and the Post was transferred to the Quartermaster Department and renamed Washington Barracks. The Post had expanded from its original 28.5 acres in 1791, to approximately 69 acres.

Penitentiary that held the Lincoln assassination conspirators

At the turn of the century, from 1898 to 1909, a general hospital, the precursor of Walter Reed Army Hospital, was located at Fort McNair. Major Walter Reed was assigned to this hospital and it was here that he conducted his research on the cause of yellow fever before his death following emergency surgery in 1902.

In 1901, the Army Engineer School of Application moved to the site, and in 1902 plans for an Army War College were approved. The Army War College (Building 61) and the master plan for the Post were designed by the renowned architecture firm of McKim, Mead and White. The designers established a strong pattern of buildings, which is still very visible today.

Army War College (Roosevelt Hall)

From 1903 to 1908, the Post underwent many changes. Captain John S. Sewell of the Army Corps of Engineers initiated major remodeling and renovation of the entire Post, as per the plans of McKim, Mead and White. The Post was developed into its present quadrangular shape by rearranging roads and completing a land fill. With the addition of an 1857 land purchase, the size of the Post increased to 89.5 acres. Stone seawalls along the waterfront were constructed as well as the thick brick walls that separate the Post from the city.

From 1904, when most of the present buildings were completed, to the late 1980s the Post changed very little physically except for additional landscaping and the introduction of some recreational facilities.

Engineer activity on Post was considerable during the First World War; however, after the war the Engineering School was moved to present-day Fort Belvoir. During WWII the Army War College was used as the headquarters of Army Ground Forces, commanded by Lieutenant General Lesley J. McNair. The Post was later named after McNair who was killed in action in Normandy on July 17, 1944. In 1946, the National War College was established in the Army War College building (National Historic Landmark), and the Industrial College of the Armed Forces was also moved to the Post. In 1962, the Inter-American Defense College was opened at Fort McNair, expanding its already extensive academic atmosphere. In 1976, the National Defense University (NDU) was established combining the National War College and the Industrial College of the Armed Forces.

Walter Reed historic building, Fort McNair

The Headquarters for the Military District of Washington (MDW) moved to Fort McNair in 1971. In addition to performing ceremonial functions, the Post's mission included providing a campus for military academic activities, housing for senior personnel along with security and support services for the Military Community of Washington.

In 2005 eight acres of land adjacent to Fort McNair was re-acquired for the construction of Lincoln Hall, a 240,000 square foot academic and conference center, and a new physical fitness center for the National Defense University (NDU). In addition, a new access control point (ACP) has recently been constructed along 2nd Street in order to meet security requirements, facilitate efficient access and alleviate traffic congestion.

New physical fitness center

View of recreation and parade field

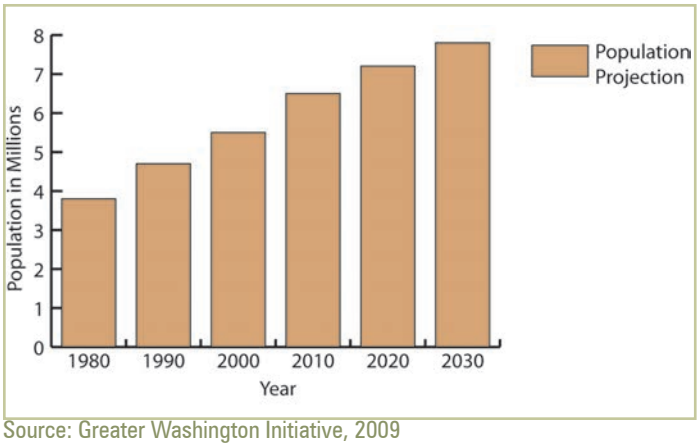
2.4 REGIONAL COMMUNITY

2.4.1 The Greater Washington, D.C. Region

The three sites that comprise Joint Base Myer-Henderson Hall (JBM-HH) are located in the Washington – Arlington – Alexandria Metropolitan Statistical Area. As the fourth largest metro area in the United States, the Greater Washington Region is one of the most important institutional, educational, commercial, and financial centers in the world. Today, it has an estimated population of 5,306,565, reflecting a 10% increase since 2000 (Figure 2.2). Population growth for the region is expected to continue with a projected population of 7,856,942 by 2030.

A robust economy has helped fuel growth in the region with a significant number of highly skilled workers attracted to the National Capital Region. The Federal government and tourism are the principal economic drivers for the region, stimulating a healthy metro area economy with an annual job growth of 1.4% and a gross regional product of $313 billion. Each year approximately fifteen million people visit Washington, D.C. stimulating the hospitality and entertainment businesses, and generating an estimated $5.3 billion in spending.

Figure 2.2 Greater Washington Region Population Projection



Source: Greater Washington Initiative, 2009

In addition to the Federal government and tourism, greater Washington, D.C. has a diverse economy including professional services, information technology firms, biotech industries, national and international non-profit groups, and assorted associations (Table 2.1). Additional key indicators include a 19.6% growth rate over the last five years, significantly higher than the national growth rate of 14.6%.

Table 2.1 Greater Washington Employment by Industry, 2005	
Professional and Business Services	21.5 %
Trade, Transportation, and Utilities	15.1 %
Federal Government	10.6 %
Education and Health Services	10.5 %
State and Local Government	10.1 %
Leisure and Hospitality	8.7 %
Construction and Mining	6.5 %
Other Services	5.6 %
Financial Activities	5.5 %
Information	3.2 %
Manufacturing	2.6 %

The Greater Washington Region exhibits cultural and civic amenities including world-class museums, historic monuments, fine dining, vibrant neighborhoods, major sports venues, and an abundance of parks. A diverse population, comprised of many ethnic backgrounds and a significant number of immigrants, creates a cosmopolitan atmosphere.
Source | http://www.greaterwashington.org/regional/population/index.htm

2.4.2 Military District of Washington

JBM-HH is a key member of the Military District Washington (MDW), which serves in defense of the National Capital Region and carries out ceremonial activities including funeral services, musical events, and parades. MDW consists of mission command at JBM-HH, ANC, and Forts Hamilton, Meade, Belvoir, and A.P. Hill (Figure 2.3). MDW also has the distinction of being the Joint Force Headquarters-National Capital Region, and serves as a Joint Task Force Headquarters in times of national emergency. Soldiers from MDW were crucial members in the rescue and recovery efforts after the September 11, 2001 attack on the Pentagon.

Figure 2.3 MDW installations

2.4.3 JBM-HH Vicinity

Population

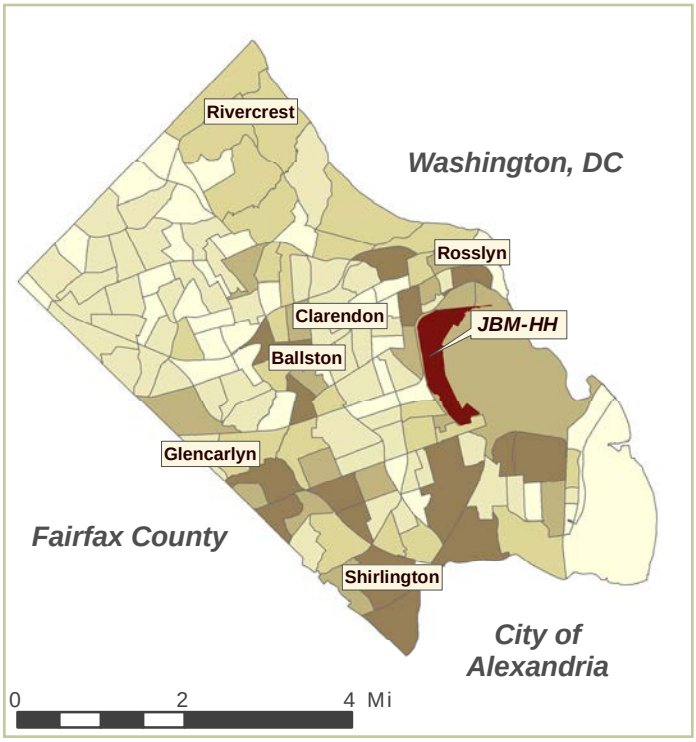
Two of the three sites that comprise Joint Base Myer – Henderson Hall are located in Arlington, Virginia. These contiguous sites, Fort Myer and Henderson Hall, will be referred to as JBM-HH to differentiate from the site located in the District of Columbia, Fort McNair.

JBM-HH is located in Arlington County Virginia, a densely settled suburb of Washington, D.C. Comprising an area of 26 square miles, Arlington is one of the smallest counties in Virginia; however with a current population density of 8,000 persons per square mile, it is among the densest populations in the nation (Figure 2.4). Arlington residents are among the most educated in the country: 67% of those over 25 years of age have obtained a Bachelor's degree and 34% a graduate or professional degree.

Attracted by employment opportunities, convenient access by car and public transportation, and its proximity to the nation's capital, Arlington's population has increased 9.2% since 2000, with a total estimated population of 206,800. High density residential and commercial growth is being directed in the Rosslyn-Ballston and Jefferson Davis Metrorail Corridors, as well as the Columbia Pike Corridor. Population growth is expected to continue with a projected 2030 population of 242,500 (Figure 2.5).

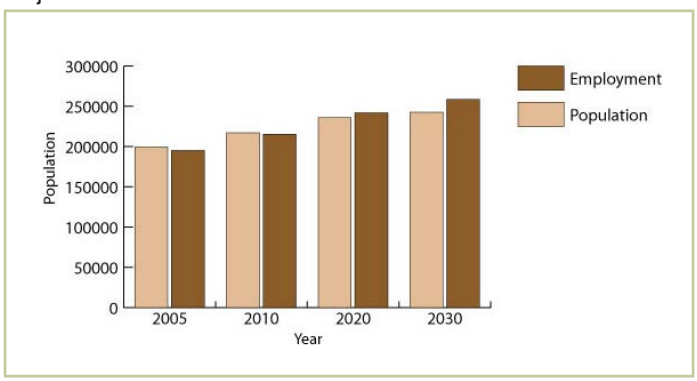
Source | Arlington County Profile 2008
http://www.arlingtonva.us/Departments/CPHD/planning/data_maps/profile/Profile%202008%20-%20Full%20Profile.pdf

Figure 2.4 Arlington County Population Map



Population data obtained from 2000 Census Block Group Boundaries, Arlington County, VA Department of Environmental Services (2008).

Figure 2.5 Arlington County Population and Employment Projections



Source: Arlington County Profile 2008

Economy

A strong economy is illustrated by the nearly one-to-one employment to population ratio, with 205,300 jobs in a total population of 206, 800 (Figure 2.5). In addition, the unemployment rate in 2007 was 1.8%, well below the national average of 4.6%.

Source | Arlington County Profile 2008
http://www.arlingtonva.us/Departments/CPHD/planning/data_maps/profile/Profile%202008%20-%20Full%20Profile.pdf
Source | Bureau of Labor Statistics
http://www.BLS.gov

The Federal government is the largest single employer in Arlington County, which includes the Department of Defense, the U.S. State Department, the U.S. Drug Enforcement Agency, the National Science Foundation, among many others. A significant federal presence has supported the development of various federal contractors, non-profit groups, law firms, and consulting firms. The large Government presence has also attracted defense contractors such as General Dynamics, Lockheed Martin, Boeing, and Computer Sciences Corporation. Other high profile companies such as Verizon, Nordstrom, Marriott International, and US Airways have added diversity to Arlington's robust economy. Tables 2.2 and 2.3 list the largest public and private employers in Arlington County.

Source | http://www.arlingtonvirginiausa.com/index.cfm/7044
Source | Arlington County Profile 2008
http://www.arlingtonva.us/Departments/CPHD/planning/data_maps/profile/Profile%202008%20-%20Full%20Profile.pdf

Table 2.2 Largest Public Employers Arlington, VA 2004

Department of Defense	40,947
Arlington County Government and Schools	7,280
State Department	4,138
Drug Enforcement Administration	2,090
National Science Foundation	1,996

Table 2.3 Largest Private Employers Arlington, VA 2005

Virginia Hospital Center	1,991
Verizon	1,850
SAIC	1,689
Marriott International, Inc.	1,680
US Airways	1,466

Parks and Recreation Areas

There is a wide variety of options for parks, open space, and recreation in the vicinity of JBM-HH (Figure 2.6). Parks and recreation centers are federal, state, and county managed, and tend to be of high quality with a high level of service.

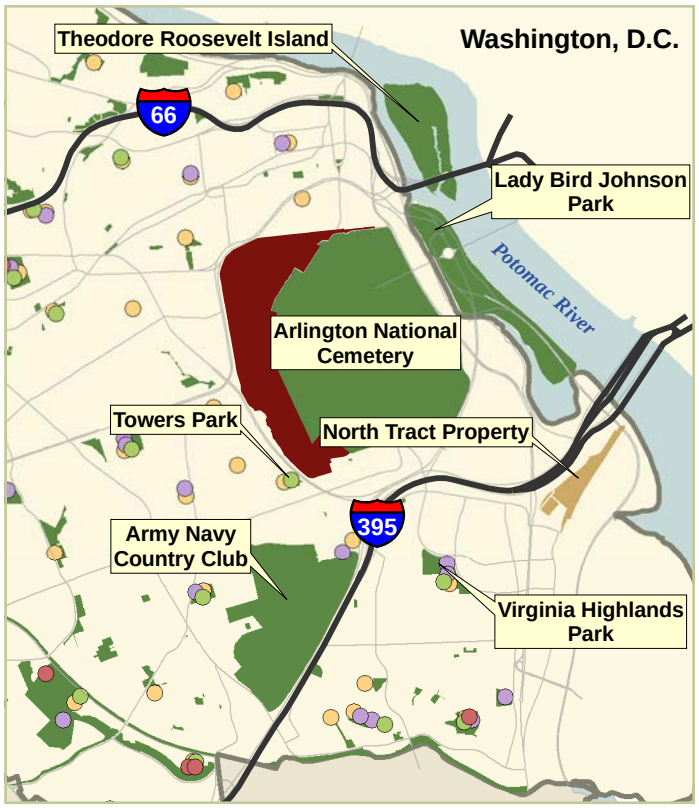
Examples of large parks and open spaces in the vicinity include Theodore Roosevelt Island, Lady Bird Johnson Park, Arlington National Cemetery, and the Army Navy Country Club. For active duty and retired commissioned officers of the U.S. military, the Army Navy Country Club provides golf, tennis, swimming, and fitness activities.

There is a variety of smaller parks and active recreation centers in the area. Examples include Towers Park, Fort Myer Heights Park, and Virginia Highlands Park. These provide passive and active recreation such as tennis, basketball, swimming, and baseball.

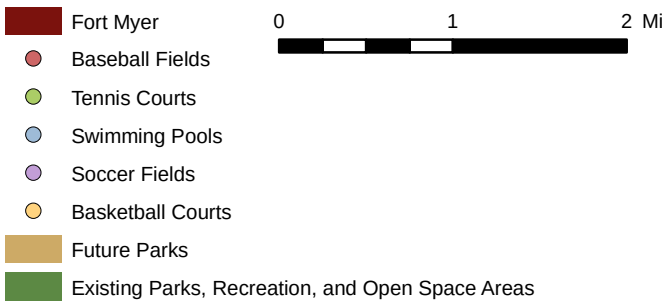
Opportunities for public space and recreation development are becoming limited as property becomes increasingly expensive and scarce. The North Tract Park, located between Route 395 and the Potomac River, is perceived as the last opportunity to develop a large community park in Arlington County. At 30 acres, it is the largest park and recreation project the County has ever undertaken.

View of Rocky Run Playfield, Courthouse

Figure 2.6 Arlington County Parks and Recreation Map



Recreation data obtained from Arlington County, VA Department of Environmental Services (2008).



Local Real Estate Market

Recently, a strong economy has created demand for commercial and residential spaces. In 2007 Arlington added 755,000 square feet of office space out of a total gross floor area of 43,000,000 square feet. At present, there are approved plans for 5,749 residential units with 1,982 housing units currently under construction. Table 2.4 identifies total square footage and number of units approved or under construction in Arlington County.

Table 2.4 Arlington County Approved and Under Construction Projects as of March 31, 2008

	Office (S.F.)	Retail (S.F.)	Other (S.F.)	Residential Units	Hotel Rooms
Approved	3,669,776	759,125	1,297,925	5,749	943
Under Construction	254,618	78,038	460,890	1,982	0

* Other consists of schools, health care facilities, recreation, fire stations etc.

There are some notable developments, either approved or under construction, in the vicinity of Joint Base Myer-Henderson Hall (Figure 2.7).

Approved Projects in Vicinity of JBM-HH are:

1. Residence Inn (Courthouse Plaza Hotel) at 2300 Clarendon Boulevard - This mixed-use project consists of 9,455 sf Gross Floor Area (GFA) of retail space and 176 hotel rooms in a 10-story building.
2. Garfield Park at Clarendon Village 2900 10th Street N - This mixed-use project consists of 20,757 sf GFA of retail space, 4,085 sf GFA of office space, and 149 residential units in a five-story building.
3. Lee Gardens Shopping Center at 2201 North Pershing Drive - This shopping center consists of 33,495 sf GFA of retail space and 188 residential units in a five-story building.
4. Arlington VOA Assisted Living Residence at 2000 S. 5th Street S - This assisted living residence consists of 52 residential units in a two-story building.
5. Two Metropolitan Park at 1221 S Fern Street - This mixed-use project consists of 8,119 sf GFA of retail space and 300 residential units in an 18-story building.

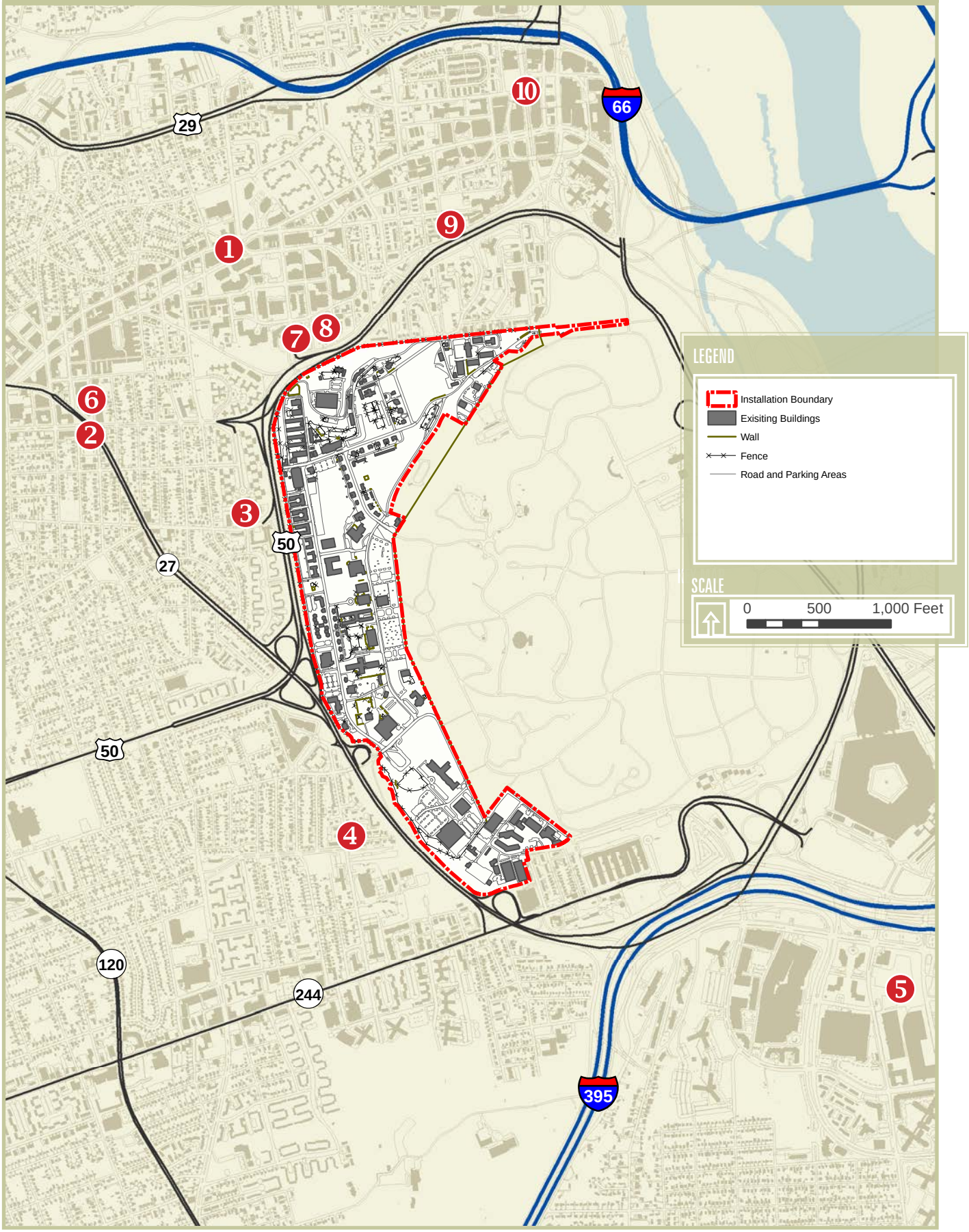
Current Construction Projects in Vicinity of JBM-HH are:

6. Zoso Condominium at 1021 N Fillmore Street - This mixed-use project consists of 6,846 sf GFA of retail space, 16,573 sf GFA of office space, and 114 residential units in a five-story building.
7. Vista on Court House at 1190 N Courthouse Road - This project consists of 252 residential units in an 11-story building.
8. The Palatine at 1301 N Troy Street - This residential project consists of 327 units in an 11-story building.
9. Parc Rosslyn at 1531 N Pierce Street - This residential project consists of 238 units in a 15-story building.
10. Turnberry Tower at 1850 Fort Myer Drive - This mixed-use project consists of 4,400 sf GFA of retail space and 337 residential units in a 27-story building.

These projects are indicative of the goals and objectives set out in Arlington County's General Land Use Plan to establish high-medium density residential and commercial developments in the Metro Corridors and lower density developments in other neighborhoods.

Source | http://magellan.co.arlington.va.us/acmap/Webpages/map/MapViewer.aspx
Source | http://www.arlingtonva.us/Departments/CPHD/planning/data_maps/pdf/1Q08Dev.pdf.pdf

Figure 2.7 Arlington County Projects Approved and Under Construction

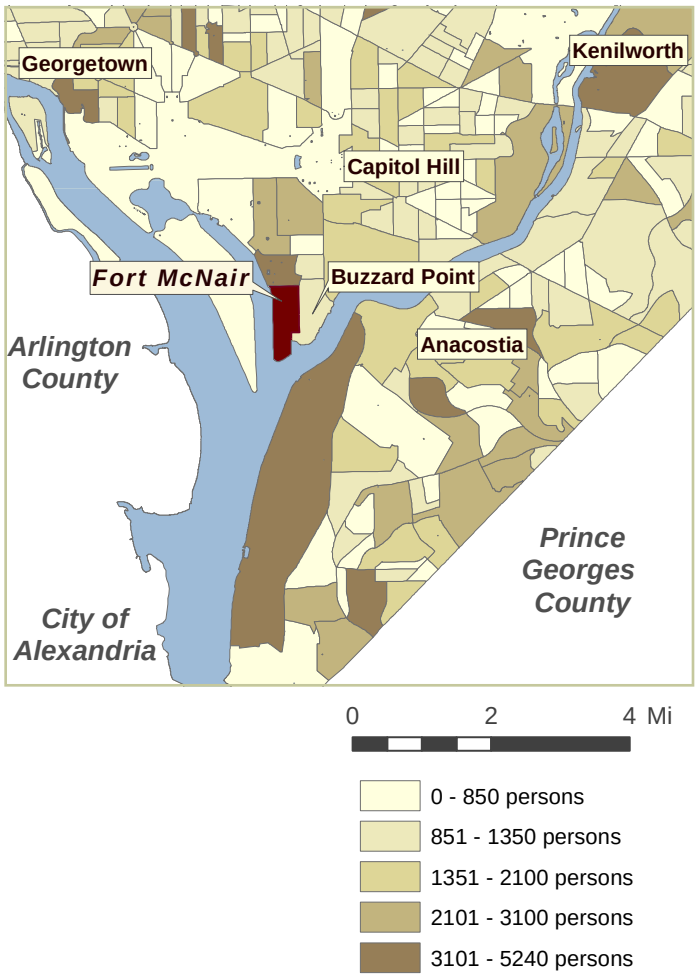


2.4.4 Fort McNair Vicinity

Population

Fort McNair is located in the Southwest Waterfront and Buzzard Point sections of Washington, D.C. The area consists of nearly three square miles characterized by industry, large open spaces and wetlands, housing, and commercial centers. Facilitated by the demolition of the Arthur-Capper Carrollsburg public housing complex, the population declined to approximately 14,700 in 2005 (Figure 2.8). Due to aggressive redevelopment plans and construction projects in the area, the population estimate for 2025 is 33,100.

Figure 2.8 Washington, D.C. Population Map



Population data obtained from 2000 Census Block Group Boundaries, Washington D.C. Office of Planning (2003). Populations are persons per square mile.

Until recently the Southwest Waterfront has been overlooked in terms of planning and infrastructure development. Roads and parking lots cover 40% of the area and 12 lanes of traffic block access to the waterfront along Maine Avenue and Water Street. While the National Mall and L'Enfant Square are near by, there is poor accessibility and no clear pedestrian flow. Community organizations have undertaken a pivotal role in renewing the area by insisting on planning policies that include: neighborhood preservation, improving access to green spaces, developing inter modal transportation systems, and providing mixed-use spaces. The Southwest Waterfront is part of a multi-million dollar planning effort initiated through the Anacostia Waterfront Initiative. Current development based on this plan is in the approval process and phase 1 should be breaking ground in 2012.

Source | Washington, D.C. 2006 Revised Plan Chapter 19

Economy

The Southwest Waterfront is economically diverse, yet it is shifting from a market guided by industry and government to one defined by office, retail, and commercial spaces. Currently there are approximately 32,500 jobs in the waterfront area primarily filled by commuters. Commuting is a major characteristic of this area, as only 22% of Anacostia Waterfront jobs are filled by District residents, and only 7% by neighborhood residents. Due to redevelopment plans and current construction projects, it is estimated that by 2025 there will be a total of 57,900 jobs, reflecting 20% of the total job growth citywide.

Source | Washington, D.C. 2006 Revised Plan Chapter 19

The federal government is one of the largest employers in the Southwest/Near Southeast section of Washington, D.C. The Washington Navy Yard is headquarters for the Naval District of Washington, which includes naval support activities, the Navy Historical Center, and a naval museum. The U.S. Department of Transportation employs 7,000 workers at its new headquarters next to the Navy Yard Metro stop. Other Southwest government tenants include the Federal Communications Commission, National Aeronautics and Space Administration, and Federal Emergency Management Agency.

The mammoth Pepco Generating Station at Buzzard Point is the most prominent industrial use in the area. Other industrial uses include a gravel supply yard, an asphalt batching facility, scrap yards, building supply warehouses, and marine services.

Parks and Recreation Areas

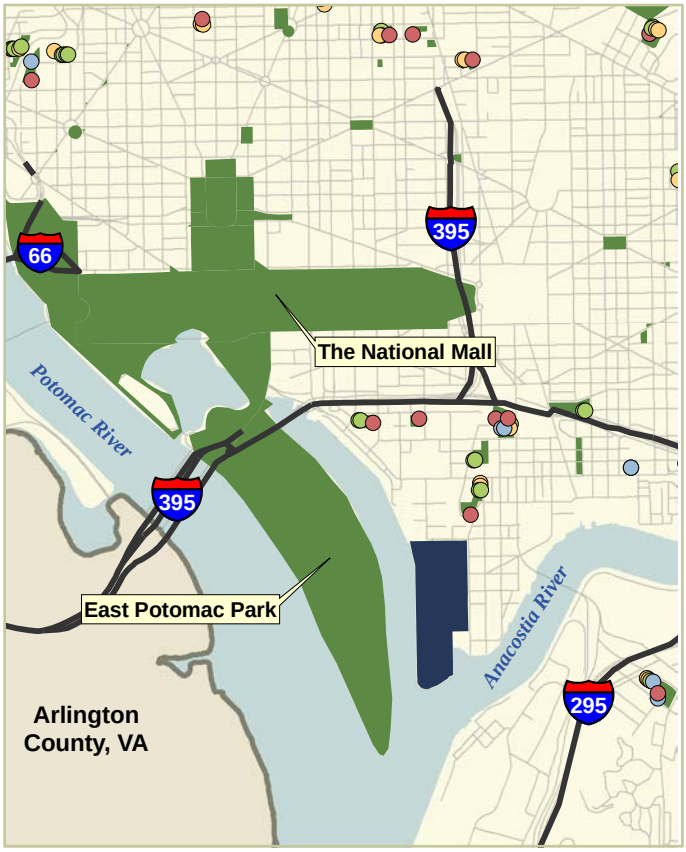
Parks in the vicinity of Fort McNair tend to be small, typically one to five acres, with a select few between five to fifteen acres (Figure 2.9). The general emphasis is on active recreation, with a handful of passive recreation open spaces. Unfortunately the level of service, which considers capacity, quantity, location, and condition, is lower than in other sections of D.C.

King Greenleaf Recreation Center, Southwest D.C.

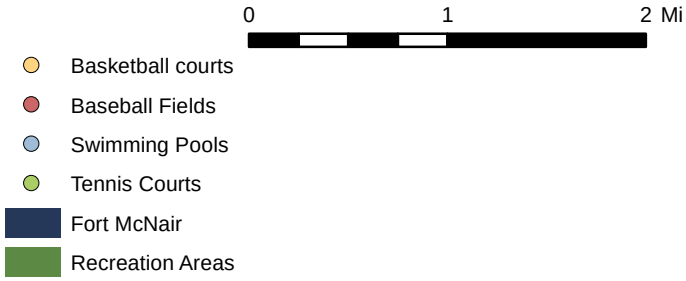
The largest park in the area is the National Mall, located approximately a half mile north of the Southwest Waterfront neighborhood. Routes 295 and 395 separate the two communities, creating poor pedestrian and bike connectivity. East Potomac Park, located across the Washington Channel from Fort McNair, provides over 300 acres of recreation space including a golf course, a playground, an outdoor pool, tennis courts, and a recreation center. Access to parks and recreation is an important element for plans and development projects for the Southwest Waterfront.

Empty lots, available waterfront properties, and a recent surge of development in the area are providing a unique opportunity for park and recreation space development in the Southwest Waterfront, Buzzard Point, and Near Southeast communities. Diamond Teague Park, the Yards Park, Washington Canal Park, and the Riverwalk Trail are all examples of current passive and active recreation projects planned or under development for the area.

Figure 2.9 Washington, D.C. Parks and Recreation Map



Recreation data obtained from Washington, D.C. Department of Parks and Recreation (2007) and U.S. GDT Park Landmarks ESRI (2002)



Local Real Estate Market

Since 2000, the Near Southeast, Southwest, and Buzzard Point neighborhoods have added millions of square feet of office space and hundreds of new residential units. New mixed-income housing has replaced housing projects with a one-for-one replacement of public housing demolished. Approximately 56% of the housing in this area is multi-unit with 50 or more units in a building, significantly higher than the D.C. average of 23%. Single unit detached homes consist of 1.6% of the housing stock, well below the D.C. average of 13%.

The Near Southeast, Southwest, and Buzzard Point areas have undergone a substantial amount of redevelopment and planning in recent years. The following is an account of planned, current, and completed projects (Figure 2.10).

Source | Washington, D.C. 2006 Revised Plan Chapter 19

Planned/Approved Projects

1. Southwest Waterfront, Hoffman-Streuver LLC - A $1.1 billion Southwest Waterfront redevelopment that includes 767 housing units (231 affordable), 400,000 sf office space, 280,000 sf of retail, 476,000 sf hotel space, and 150,000 sf of cultural space including the National Maritime Heritage Museum and a new Fish Market. The $200 million in public financing provides funds for parks, piers, infrastructure, and bike paths. This project is expected to bring 2,880 new jobs and 100 new businesses to the area.

   Source | http://www.bizjournals.com/washington/stories/2008/01/14/daily21.html?f=et87&ana=e_du

2. Waterfront - A project that includes 1.2 million sf of office space, 1.2 millions sf of residential, and a minimum of 110,000 sf of retail space on the former site of the Waterside Mall. South Street SW will be re-opened.

3. 100 V Street - A project of Akridge, a local real estate services company, which purchased a 9-acre site next to Fort McNair consisting of two parking lots from the Potomac Electric Power Company. This site has potential for a 2.7 million sf of development and is available on a build to suit opportunity.

4. Marina Place - A planned residential and retail property including 4,800 sf of retail space and 89 residential units located at 95 V Street in Buzzard Point.

5. Florida Rock - A proposed mixed-use retail, office, and hotel project located south of Nationals Ball Park and adjacent to the Frederick Douglass Memorial Bridge. This project is planned for 85,000 sf. of retail, 470,000 sf of office space, and 1,027,000 sf of mixed-use space.

Current and Completed Construction Projects

6. Nationals Stadium - The Washington Nationals 41,000 seat stadium which opened in the spring of 2008. It now acts a catalyst for development in the area, attracting people from the entire region to the southeast waterfront.

7. Half Street - A project of Monument Realty, which is developing a 1.9 million sf mixed-use neighborhood called Half Street next to the Washington Nationals new stadium. The first phase includes 250,000 sf of office space, 50,000 sf of retail space, 300 residential units, and a 200 room boutique hotel.

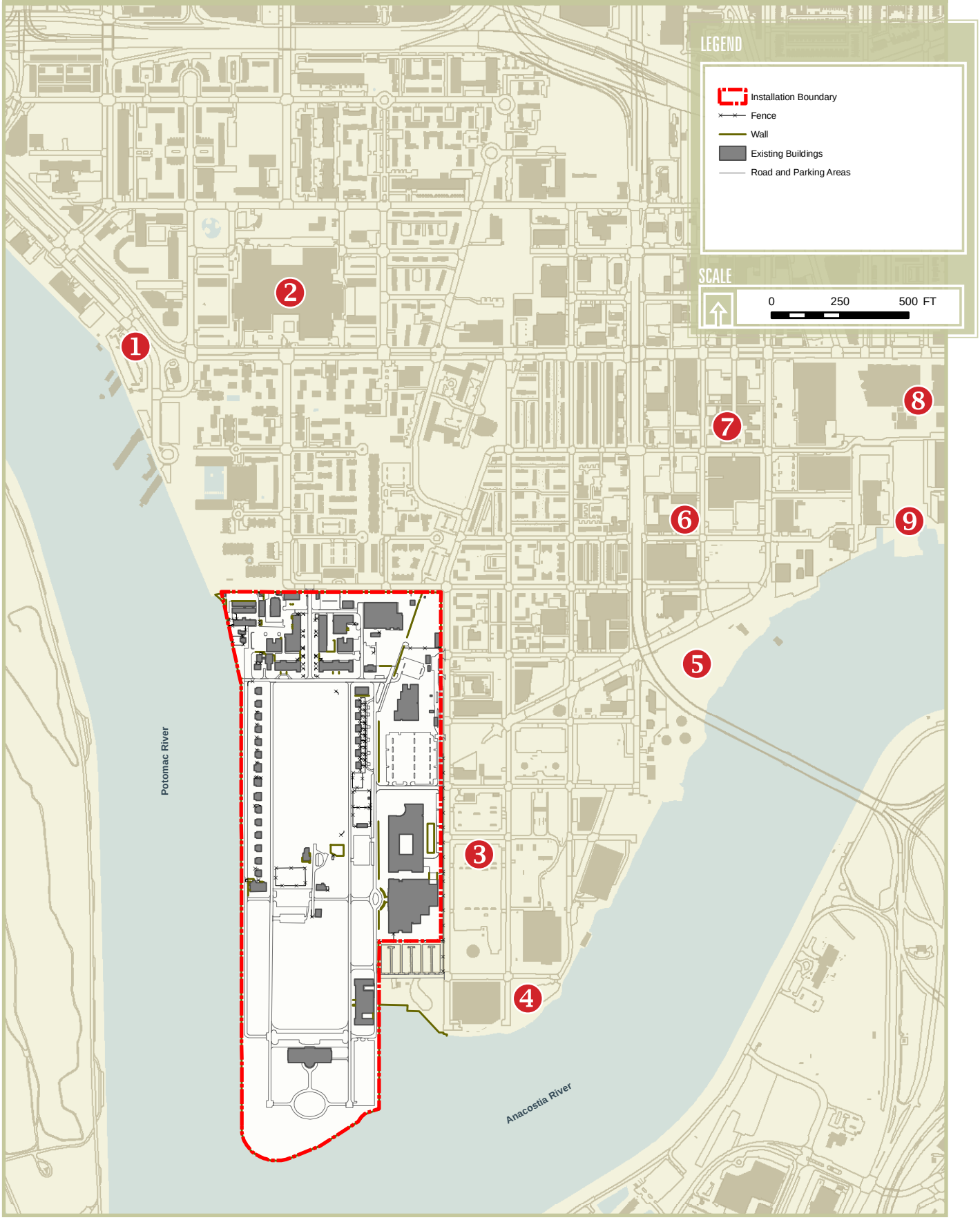
   Source | http://www.halfstreet.com/news/detail/1

8. U.S. DOT Headquarters - The new 11 acre 1.35 million sf headquarters for the U.S. Department of Transportation, that houses 7,000 workers and is directly adjacent to the Southeast Federal Center.

9. Southeast Federal Center - A 42-acre mixed-use project that broke ground in late 2007 and will consist of 1.8 million sf of office space, 2,800 residential units, 160,000 to 350,000 sf of retail space, and a 5.87-acre waterfront park, all to be phased in over the next 10 to 20 years.

   Source | http://www.jdland.com/dc/dot.cfm

Figure 2.10 Washington, D.C. Projects Approved and Under Construction



2.5 REGIONAL COMPREHENSIVE PLANS

2.5.1 Arlington County Regional Plans

Arlington County General Land Use Plan

Nine separate plans form the Arlington County Comprehensive Plan. Of these plans the General Land Use Plan is the primary guide for development in Arlington County. The General Land Use Plan promotes high density commercial and residential development along the Metro subway corridors, mixed-use development along the Columbia Pike Corridor, and lower density residential development throughout the County. The following summarizes the General Land Use Plan goals and objectives:

- Concentrate high-density residential, commercial, and office development in the Rosslyn-Ballston and Jefferson Davis Metrorail Transit Corridors.
- Promote mixed-use development in Metro Station Areas to provide a balance of residential, shopping and employment opportunities.
- Increase the supply of housing by encouraging construction of a variety of housing types and prices at a range of heights and densities in and near Metro Station Areas.
- Preserve and enhance existing single-family and apartment neighborhoods.
- Preserve and enhance neighborhood retail areas. The County encourages the preservation and revitalization of neighborhood retail areas that serve everyday shopping and service needs and are consistent with adopted County plans.

Source | http://www.arlingtonva.us/Departments/CPHD/planning/docs/CPHDPlanningDocsGLUP.aspx

Rosslyn Sector Plan

Rosslyn is a high density residential and commercial neighborhood located on the Rosslyn-Ballston Metrorail Corridor (Figure 2.11). Located directly across the Potomac River from Washington, D.C., Rosslyn provides a "downtown" feel and serves as a gateway into Arlington. Its location on the Rosslyn-Ballston Metrorail Corridor has led to high density, compact urban developments.

The Rosslyn Sector Plan seeks to build upon its position as an office and residential center for the region. The following objectives are the principal actions required to achieve this vision:

- Create a "central place" that serves as the physical and social heart of Rosslyn.
- Restructure and enhance retail, restaurant and entertainment facilities.
- Integrate the sidewalks and skywalks into a comprehensive pedestrian circulation system that links the major components of Rosslyn (residential, office and retail) into a unified whole.
- Greatly improve access to the Potomac River and to nearby National Parks and Monuments, both physically and visually.
- Create a more urban form where buildings relate well to one another and to the street, and exemplify good architectural and urban design practice.
- Enhance entries from both within and outside Arlington.
- Increase opportunities for housing within the core of Rosslyn.
- Unify and improve parks, open spaces and cultural facilities.
- Provide an integrated system of transportation that emphasizes a multi-modal approach.
- Expand and enhance Rosslyn's hotel resources.
- Finally, but certainly not least, develop an office inventory that is both more cosmopolitan and more competitive in the marketplace.

Courthouse Sector Plan

The Courthouse neighborhood is located on the Rosslyn-Ballston Metrorail Corridor and consists of a large government contingency surrounded by a mix of high density residential and commercial uses (Figure 2.11). Outside of the urban center the area is defined by low and medium density residential neighborhoods. The Court House Sector Plan adheres to the basic planning goals for Arlington County Metro corridors, which are:

- Concentrate high density mixed-use development around Metro stations.
- Taper density from high-density mixed-use areas to lower density residential areas.
- Preserve well-established neighborhoods.

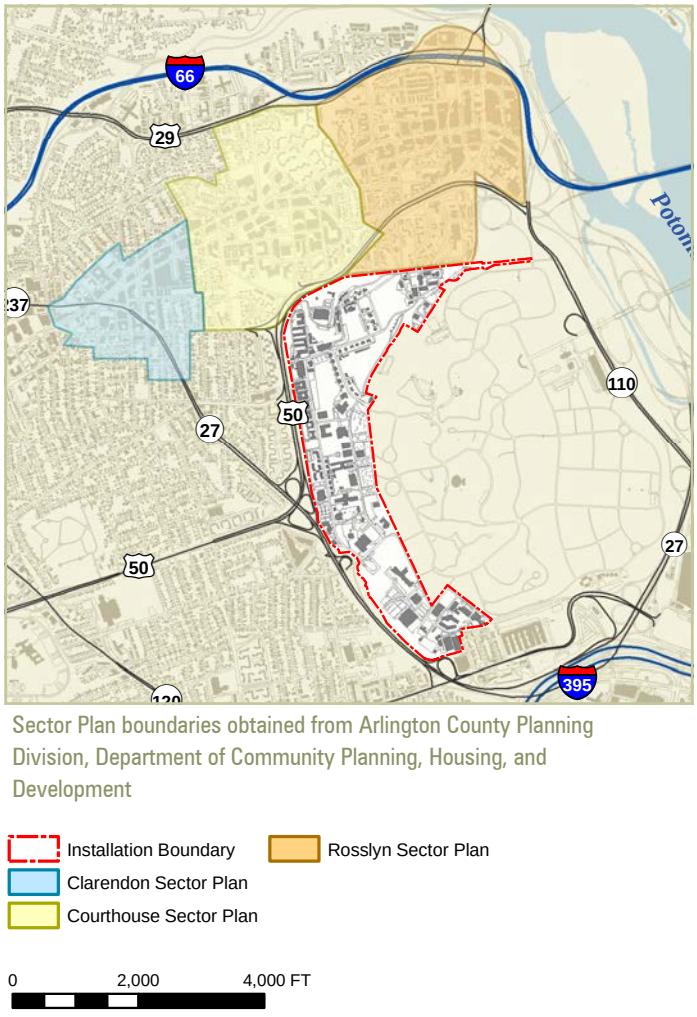
The vision for a model urban government center with a mix of high density commercial and residential uses took form in the 1980s and 1990s with a building boom consisting of office space, retail, residential units, and government buildings such as the Justice Center.

Clarendon Sector Plan

Clarendon is best described as an "urban village" with a mix of high density uses including retail, office space, restaurants, and housing. It is a part of the Rosslyn-Ballston Metrorail Corridor where high density residential, commercial, and office development is concentrated (Figure 2.11). The following summarizes the three primary goals defined by the plan:

- Create a quality public realm with a focus on walkable streets, attractive streetscapes, safety, and accessible public spaces.
- Create accessible and connected places by encouraging a mix of uses and a balanced transportation system. This includes improvements for pedestrians, bicyclists, and those with visual and mobility impairments.
- Maintain a rich mix of uses including a variety of housing, retail, restaurant, office, and employment options.

Figure 2.11 Map of Arlington County Sector Plan Areas



Sector Plan boundaries obtained from Arlington County Planning Division, Department of Community Planning, Housing, and Development

Arlington Historic Preservation Master Plan

This plan was created to protect Arlington's distinctive older neighborhoods while simultaneously attracting new development to its strong real estate market. Property values and pressure to increase density are high; therefore older, primarily residential neighborhoods are at risk. The Historic Preservation Master Plan establishes three goals to sustain Arlington as a successful urban village and preserve the existing character of its neighborhoods.

- Enhance understanding of Arlington's history and historic character.
- Better integrate preservation values into County planning, land use, and other policies and practices.
- Protect historic neighborhoods, corridors, commercial centers, and civic buildings.

2.5.2 Arlington National Cemetery Master Plan 1998

Arlington National Cemetery's (ANC) primary purpose according to its 1998 Master Plan "is to function as the nation's premier military cemetery and shrine honoring those men and women who served in the Armed Forces". In order to carry out this mission, the Master Plan establishes guidelines in meeting the ANC's long term and immediate challenges including:

- Managing interment capacity.
- Accommodating a large volume of visitors while preserving the dignity of the Cemetery.
- Operating and maintaining an aging infrastructure.
- Identification and prioritization of future capital needs.
- Preservation of special features including environmental, historic, cultural, and aesthetic.

Source | Arlington National Cemetery Master Plan 1998, prepared by Rhodeside and Harwell, Inc.

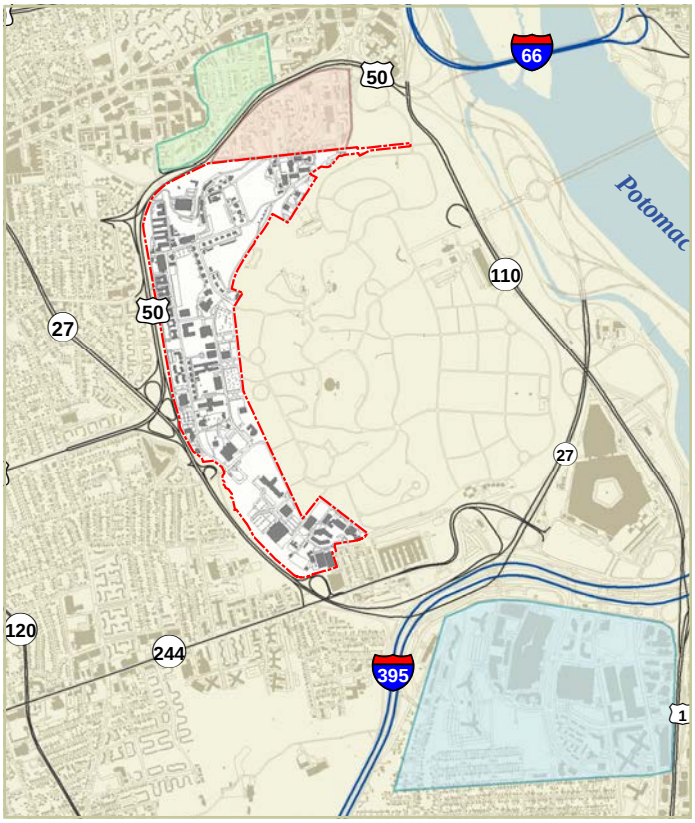
2.5.3 Arlington County Planning Studies

Radnor Heights East Special District Study

This special district was established to provide special planning and development policies for this distinct neighborhood (Figure 2.12). The proximity of Radnor Heights East's proximity to Federal monuments (including ANC and the Iwo Jima Memorial) and its location along the main axis of the National Mall, justifies the need for special planning measures. The goals for this district are:

- Develop the area with a variety of housing types with high quality architecture.
- Site new buildings to minimize, to the extent possible, the obstruction of views.
- Limit building heights to 60 feet, exclusive of penthouses.
- Preserve, to the extent possible, existing trees and/or plant new trees and additional landscaping to minimize the potential impact of new development on existing parkland;
- Improve pedestrian access through the neighborhood by providing adequate sidewalks and walkways that connect the neighborhood with the Federal monumental areas.

Figure 2.12 Map of Arlington County Study Areas



Sector Plan boundaries obtained from Arlington County Planning Division, Department of Community Planning, Housing, and Development

Installation Boundary
Pentagon City Study Area
Fort Myer Heights North Study Area
Radnor Heights East Study Area

0 2,000 4,000 FT

Pentagon City Task Force Study

The Pentagon City Metro area is comprised of a high density mixed-use community of offices, retail, hotels, and residential units (Figure 2.12). Major retail centers consist of Fashion Centre at Pentagon City and Pentagon Row. This study updated its objectives to meet the original planning goals established in the Pentagon City Phased Development Site Plan (1976). These new objectives are:

Development should be compatible with the surrounding existing uses and projected future growth and uses.

- Provide additional neighborhood-oriented stores and services.
- Proceed with residential construction.
- Improve pedestrian access.
- Put additional parking underground.

A desirable mix of land uses should be provided. This mix should include office, retail, hotel, residential and commercial uses to create a convenient live-work-shop experience, and to ensure 24 hour vitality in the new community.

- Construction of residential units should proceed.
- More neighborhood and community service retail should be provided.
- Projects should promote vitality and foster a sense of place.

A balanced circulation should be provided, based on a variety of transportation modes that serve the needs of residents, employees, and shoppers.

- Open more entrances to the Metro.
- Provide safe, direct pedestrian and bicycle routes between the Metro and all nearby areas.
- Install more directional signs at major intersections to help visitors find parking, freeway ramps, etc.

Fort Myer Heights North Plan Study

This study is for a medium density residential community north of Fort Myer and Arlington Boulevard (Figure 2.12). The study focuses on five primary goals, involving the preservation of:

- Affordable Housing
- Historic Buildings
- Open Space
- Significant Trees
- Neighborhood Scale

The neighborhood is currently composed of market rate affordable garden apartments and single family homes. Large scale by-right development is significantly altering the nature of the neighborhood by removing open spaces, mature trees, and replacing affordable market rate housing with higher priced apartments and condominiums.

Concept plans in the study seek to guide land use and meet plan goals and objectives by establishing:

- Medium density residential development with varying housing types, styles, and ownership arrangements.
- Up to 72 units per acre if consistent with the plan, or additional density with historic preservation.
- Small scale retail at appropriate primary intersections.
- Open spaces, including parks and plazas.

Goals for neighborhood form include:

- Mix of new and old buildings.
- New development maintaining existing character and design.
- Varying building heights and appropriate set backs.
- Maximum building height of 100 feet.

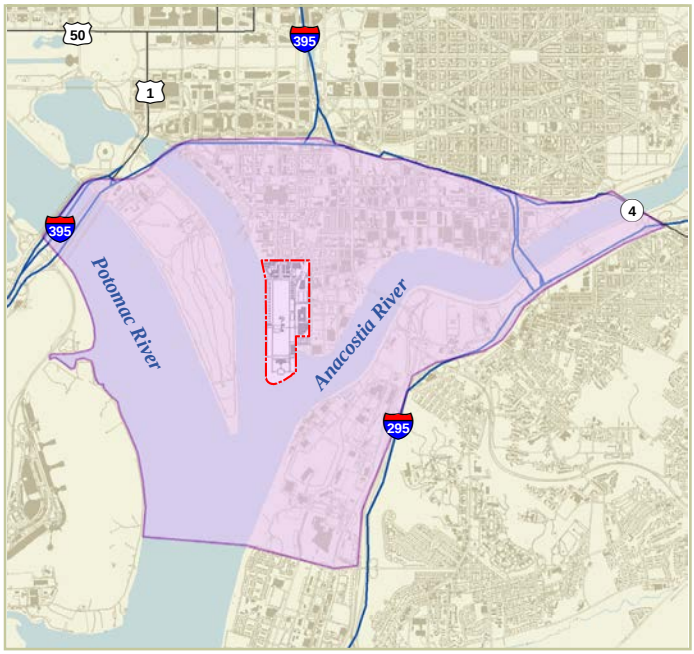
2.5.4 Washington, D.C. Regional Plans

Washington, D.C. 2006 Revised Comprehensive Plan

Fort McNair is located in the Lower Anacostia/Near Southwest Waterfront of Washington, D.C. (Figure 2.13). This area is on the brink of large-scale redevelopment. The following summarizes the general policies and actions enacted by the Washington, D.C. 2006 Revised Comprehensive Plan to guide the development and preservation of these neighborhoods:

- Preserve and redevelop existing neighborhoods in the area.
- Develop new mixed-use neighborhoods for varying incomes, housing sizes, and design.
- Commercial development should consist of government and private office space, retail, hotels, and marine activities.
- Amenities for new and existing residents should consist of parks, transportation and infrastructure improvements, and educational opportunities.
- Preservation of the natural environment along the shoreline should be considered when developing new neighborhoods.
- Pedestrian access and amenities should be provided on the shoreline.
- Streets along the waterfront should be multi-modal, providing access to pedestrians, bicycles, automobiles, and other vehicles.
- Impacts of railroad, highway, parking, and industrial infrastructure on accessibility to the waterfront and general aesthetics should be minimized.
- Maine Avenue and M Street should be developed into vibrant, multi-use boulevards.
- Bridges across the Anacostia River should be improved to facilitate pedestrian, bicycle, and automobile crossing.

Figure 2.13 Map of Southwest/Southeast DC Planning Area

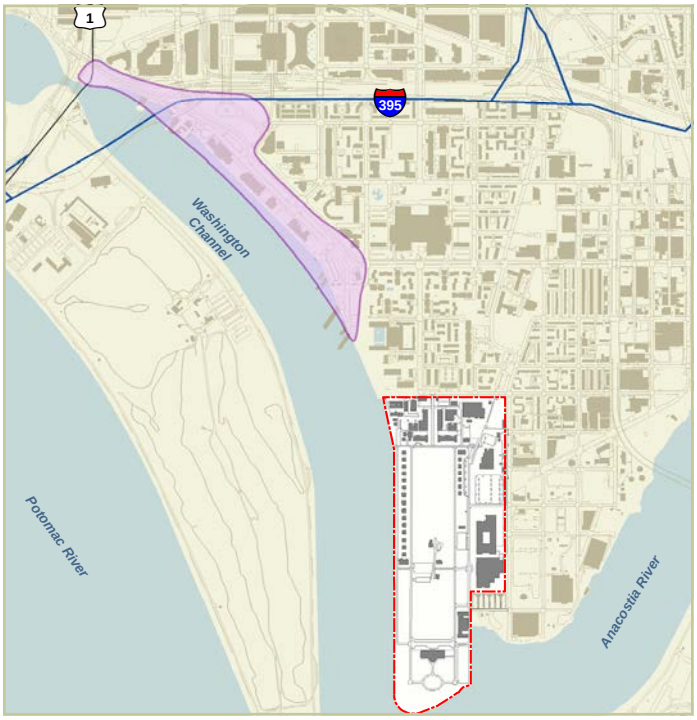


Planning Area boundaries obtained from Washington, D.C. Office of Planning

Installation Boundary
Lower Anacostia Waterfront and Near Southwest Planning Area

0 0.5 1 Mi

Figure 2.14 Map of Southwest Waterfront Planning Area



Planning Area boundaries obtained from Washington, D.C. Office of Planning

Installation Boundary
Southwest Waterfront Planning Area

0 1,000 2,000 FT

Southwest Waterfront Plan

The Southwest Waterfront Plan encompasses the redevelopment of 50 acres of waterfront property along the Washington Channel in the Southwest Waterfront neighborhood (Figure 2.14). Improvements include replacing parking lots and under utilized streets with retail, restaurants, residences, public spaces, and cultural venues. Fourteen acres of designated park space triples the amount of existing open space and improves access to the waterfront. Further improvements include: creating a bike trail, removing Water Street, and reshaping Maine Avenue into an urban, pedestrian -friendly boulevard. The following principles were established to guide development on the waterfront:

- Build on existing neighborhood strengths.
- Consolidate land resources.
- Coordinate with other on-going planning efforts.
- Support efforts to improve environmental quality.
- Ensure a range of access options.
- Enhance connections from neighborhood to waterfront.
- Improve public access to the water itself.
- Extend continuous, well-defined trail links along the Channel.
- Provide generous, public promenade at the water's edge.
- Create new public places along the waterfront.
- Create neighborhood setting with appropriate scale and density.
- Relate to the larger urban context.
- Integrate parking in urban form.
- Create varied and appealing architecture

2.5.5 Washington, D.C. Regional Planning Studies

Anacostia Waterfront Initiative

The Anacostia Waterfront Initiative (AWI) was created to redevelop the communities along the Anacostia River. The AWI was formed in 2000 when over a dozen federal agencies signed a Memorandum of Understanding in order to create a vision and partnership for the redevelopment of waterfront communities. A series of goals provides a framework for developing a plan for this region. The goals include:

- Create a riverfront that serves a world-class capital city for the new millennium.
- Create a coordinated plan for the waterfront that can be implemented over time.
- Improve the river's water quality and enhance its natural beauty.
- Promote sustainable development and smart growth strategies.
- Stimulate economic revitalization through commercial activity and job creation.
- Link the neighborhoods along the river and create direct access to the water from surrounding communities.
- Address the concerns of all segments of the community, including residents, business and property owners, and visitors.
- Create open green spaces and maritime activities.
- Maximize educational and training opportunities for residents of the District.
- Minimize adverse effects on waterfront communities and the environment.
- Promote excellence in design.

With over 90% of the riverfront owned by public entities (including the National Park Service, the Department of Defense, and the District of Columbia) there is great potential for developing communities with a unified mixture of commercial, residential, recreational, and open space uses.

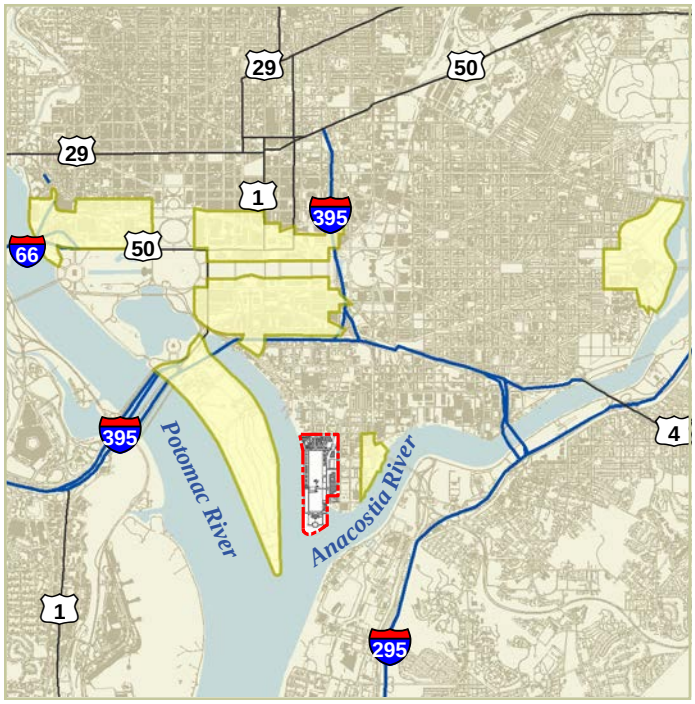
National Capital Framework Plan

The National Capital Framework Plan focuses on six areas surrounding the National Mall and sites with important locations on the axis to the U.S. Capitol Building (Figure 2.15). Of these, the most relevant to Fort McNair are East Potomac Park, Southwest Triangle, and the South Capitol Street Waterfront. The principal goals of the National Capital Framework Plan are:

- Plan for the future needs of the Federal government, including space for new memorials, museums, public gathering spaces, and federal offices in a way that contributes to sustainable city life.
- Preserve the historic open space of the National Mall and protect it from overbuilding.
- Extend the special civic qualities of the National Mall and the vitality and vibrancy of the city into the adjacent federal precincts.

The Framework Plan contains strategies to preserve the historical integrity and character of the National Capital while at the same time planning for new development including monuments, memorials, museums, government offices, and mixed-use spaces.

Figure 2.15 Map of National Capitol Framework Plan Area



Planning Area boundaries obtained from National Capitol Planning Commission

National Capital Framework Plan Area
Installation Boundary

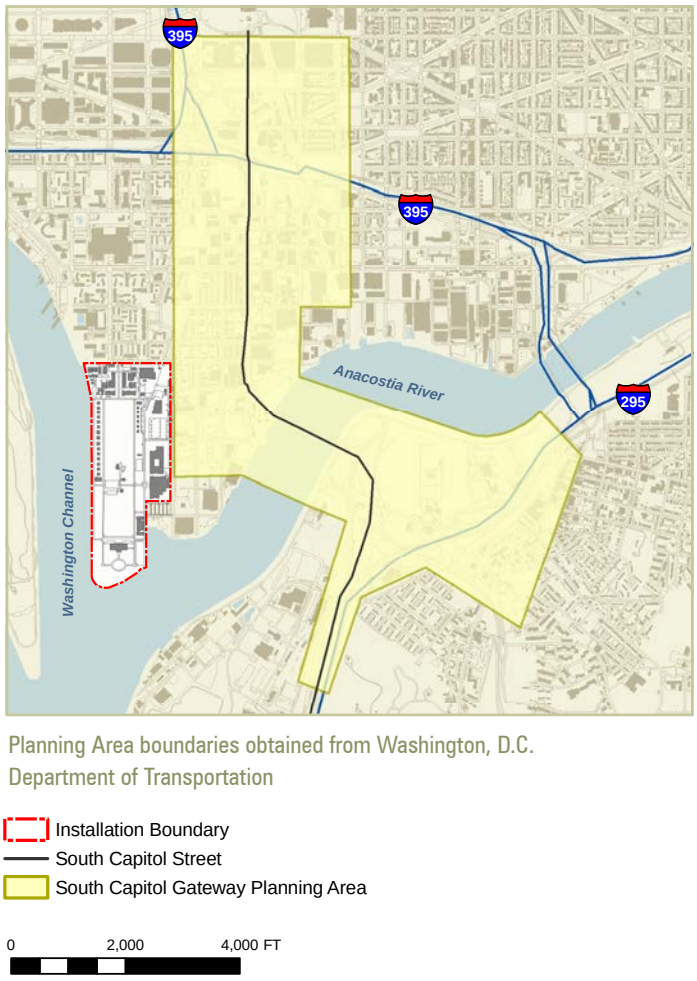
0 0.5 1 Mi

South Capitol Gateway and Improvement Study

South Capitol Street is a major thoroughfare extending from the U.S. Capitol Building to the Frederick Douglass Memorial Bridge (Figure 2.16). Unfortunately the street is in a state of disrepair and currently lined with vacant lots, fast food restaurants, and a lack of green space. The street functions primarily as a highway or arterial and the view toward the Capitol dome is obscured by highway overpasses. This study established a series of goals to address the bleak appearance of the street and create a grand urban boulevard. These goals are:

- Replace the deteriorated Frederick Douglass Memorial Bridge with a world-class structure.
- Transform South Capitol Street from a neglected corridor and high-speed thoroughfare into a gracious urban gateway with the spatial, aesthetic, and symbolic qualities worthy of a world-class capital city.
- Provide an efficient, convenient, and visually pleasing transportation system that connects surrounding neighborhoods and handles commuter trips with minimal disruption to local residents. Constructing this network will require a fundamental reconfiguration of the current jumble of expressways and streets.
- Accommodate transit, cyclists, and pedestrians by removing median barriers and building at-grade intersections with crosswalks, traffic signals, and roundabouts.
- Link South Capitol Street physically and aesthetically to Washington's Monumental Core by creating a grand and ceremonial street that will also provide the appropriate setting for future memorials, museums, and other public buildings.
- Create transportation infrastructure that will encourage new housing, retail, and other amenities, making South Capitol and its surroundings a wonderful place to live, work, and shop.
- Provide better access from South Capitol Street to both banks of the Anacostia River, including Buzzard Point, Poplar Point to the north, and historic Anacostia to the south.
- Ensure that South Capitol Street enhances both homeland and national security by serving as a central, multi modal evacuation route in case of emergency and by connecting Washington to nearby military installations.
- Achieve all goals through extensive and thoughtful public involvement by engaging citizens and building consensus in the implementation of the study's recommendations.

Figure 2.16 Map of South Capitol Gateway Planning Area



Planning Area boundaries obtained from Washington, D.C. Department of Transportation

2.6 THE SITE/POPULATION

Joint Base Myer-Henderson Hall and Fort McNair encompass approximately 380 acres of land.

JBM-HH

JBM-HH is comprised of two contiguous sites - the Army installation Fort Myer, and the Marine base Henderson Hall.

Fort Myer comprises 243 acres between Arlington Boulevard / Route 50, Washington Boulevard / SR 27 and ANC in Arlington, VA (Figure 2.17). The installation can be accessed by several gates. The main gate is Hatfield Gate which is open 24 hours a day and is located on Carpenter Street.

Fort Myer's development is a mixture of functional uses that support not only JBM-HH's mission, but also the members and retirees of the Army in the National Capital Region (NCR). Fort Myer contains clusters of development devoted to Post administration and support, medical services, education, officers housing, community/recreational, troop housing, and ceremonial support.

Henderson Hall is a 29 acre site located adjacent to Fort Myer, east of Washington Boulevard / SR 27 and north of Columbia Pike / SR 244 in Arlington, VA. Primary vehicular access is through Henderson Hall Main Gate (Gate 1), located at the western terminus of Southgate Road at its intersection with South Orme Street.

Henderson Hall's diverse development pattern sustains its mission of supporting Marines stationed in the NCR. This area includes installation administration and support facilities, troop housing, community/recreational facilities, Marine Corps Exchange (MCX), and open green space.

Table 2.5 lists installation strength at JBM-HH projected for FY2012 based on known operational requirements. It represents major organizations and tenants grouped with supporting organizations. Table 2.6 lists area populations that are supported by the facilities and services on JBM-HH.

Table 2.5 **Joint Base Myer-Henderson Hall - Projected 2012 Major Unit Population**

	Officer	Warrant Officer	Enlisted	Total Military	US Civilians	Other Civilians	Total Civilians	Total Population
Army Band	5	1	246	252	6	0	6	258
CID	2	6	8	16	7	0	7	23
Garrison/Community Space	11	0	216	227	588	864	1,452	1,679
Marine Corps Battalion	15	0	150	165	45	0	45	210
Marine Corps Exchange	0	0	0	0	0	105	105	105
Medical	16	0	43	59	85	0	85	144
Old Guard	90	4	1,397	1,491	6	0	6	1,497
Tenants	0	0	0	0	28	0	28	28
	139	**11**	**2060**	**2210**	**765**	**969**	**1734**	**3944**

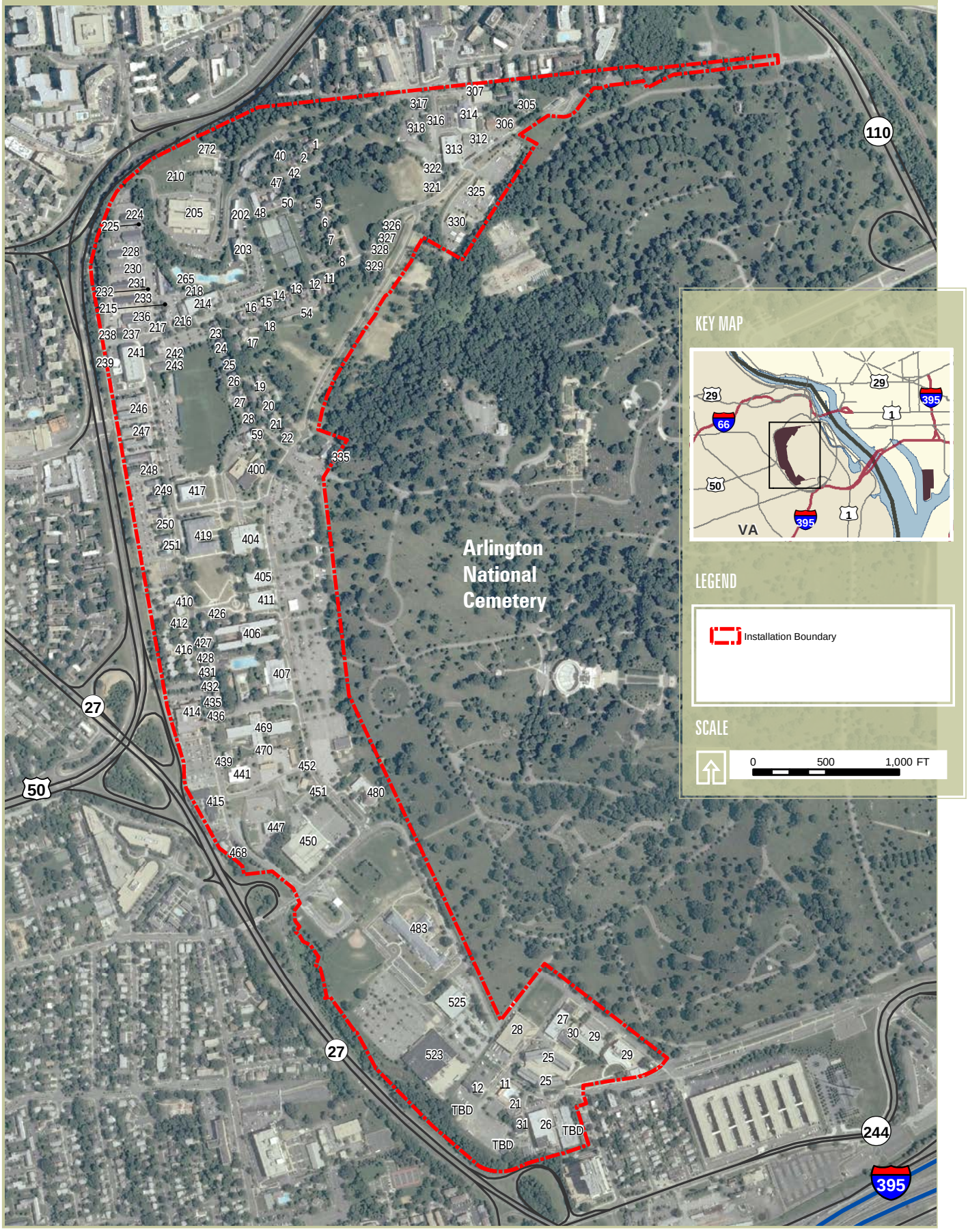
Source: Army Stationing and Installation Plan (SAMAS as of 21 July 2006, ASIP Data Date: 22-SEP-06)

Table 2.6 **Joint Base Myer-Henderson Hall - Other Military Dependent and Retiree Populations (All Services) within 40 miles**

Active (not on Post)	6,782
Dependents of Active	7,373
Dependents of DoD Civilian	138
Dependents of Reserve Component	1,513
Dependents of Retiree	17,999
DoD Civilian	296
Reserve Component	1,613
Retiree	9,603

Source: FY2005 DEERS data from the Defense Medical Information System (DMIS)

Figure 2.17 JBM-HH Aerial Site Map



Imagery obtained from USDA's National Agricultural Imagery Program (NAIP) (2007).

Fort McNair

Fort McNair is an approximately 107 acre peninsula located south of P Street SW in Washington, D.C. (Figure 2.18). It is accessed by two gates - the main ceremonial gate on 3rd Avenue and the new Access Control Point (ACP) on 2nd Street SW. There is also a pedestrian gate with limited hours of operation adjacent to the main ceremonial gate.

The major tenant organizations are the National Defense University (NDU), Center for Military History, and the Joint Force Headquarters - National Capital Region/Military District of Washington (JFHQ-NCR/MDW). Fort McNair also houses installation support facilities, community/recreational facilities, officers housing, parade grounds, a bank, a shoppette, and medical services.

Table 2.7 lists installation strength at Fort McNair projected for FY2012 based on known operational requirements. It represents major organizations and tenants grouped with supporting organizations. Table 2.8 lists other military, dependent and retiree populations that may be supported by the facilities and services on Fort McNair.

Table 2.7 **Fort McNair - Projected 2012 Major Unit Population**

	Officer	Warrant Officer	Enlisted	Total Military	US Civilians	Other Civilians	Total Civilians	Total Population
MDW	33	1	44	78	138	0	138	216
NAT DEF UNIV	605	0	33	638	360	0	360	998
Garrison/Community	4	28	48	80	144	95	239	319
IADC	29	0	9	38	0	0	0	38
Tenants	10	1	9	20	77	0	77	97
Old Guard	5	0	127	132	0	0	0	132
	686	**30**	**270**	**986**	**719**	**95**	**814**	**1,800**

Source: SAMAS as of 21 DEC 2006, ASIP Data Date: 28-MAR-07

Table 2.8 **Fort McNair - Other Military, Dependent and Retiree** Populations (All Services) within 40 miles

Active (not on Post)	157
Dependents of Active	107
Dependents of Reserve Component	20
Dependents of Retiree	247
DoD Civilian	2
Reserve Component	20
Retiree	170

Source: FY2005 DEERS data from the Defense Medical Information System (DMIS)

Figure 2.18 Fort McNair Aerial Site Map

Imagery obtained from USDA's National Agricultural Imagery Program (NAIP) (2007).

2.7 ENVIRONMENTAL

Environmental resources and constraints on Fort Myer, Henderson Hall, and Fort McNair are addressed through established programs and guidelines, such as: the installation's Integrated Natural Resources Management Plans (INRMP), Cultural Resources Management Plans (CRMP), and the Stormwater and Pollution Discharge Program. Addressing these constraints and resources also involves coordination with the applicable Directorate of Public Works and Environmental and Natural Resources Divisions, at the Installation, local, state, and federal levels.

This section includes a discussion of the contributions from Fort Myer, Henderson Hall and Fort McNair to regional natural resources, an overview of the environmental resources and potential operational constraints at each site, and a summary of the associated regulatory compliance. Environmental resources include: natural resources such as water, vegetation, habitat, topography/soils, air quality and viewsheds; cultural resources such as archeological sites and historic properties; and operational constraints that include: solid waste, hazardous waste, and AT/FP measures. Each installation is discussed separately in this section in order to identify any data limitations.

2.7.1 Regional Natural Resources

The region consists of highly urbanized areas encompassing primarily commercial, governmental, and residential land uses. Generally, land uses consist of clusters of federal, governmental, and mixed use complexes with small parks and open spaces. As previously stated, Fort Myer, Henderson Hall, and Fort McNair are located in Arlington County, Virginia and Washington, D.C. Most of Arlington County and Washington, D.C. are covered by impervious surfaces (for example, streets, buildings, and parking lots). The area has few natural resources; however, it is rich in cultural resources and encompasses many of the nation's most well-known landmarks, museums, and government buildings.

Certain federal legislation and regulations are given special consideration by Fort Myer, Henderson Hall, and Fort McNair when managing natural and cultural resources. Furthermore, coordination with several organizations and agencies is often required. A summary of the regulatory compliance is presented in Table 2.9.

Table 2.9 Relevant Regulatory Compliance		
Environmental Programs and Regulations	Description	Status on Fort Myer, Henderson Hall, and Fort McNair
Clean Water Act	Acts to prohibit discharges of pollutants into US navigable waters, except in compliance with a permit, and to achieve an interim goal of protecting water quality for biological and recreational reasons.	These installations implement Stormwater and Pollution Discharge Programs. Arlington County, Virginia storm water management regulations apply to Ft. Myer during construction.
Executive Order 11988, Floodplain Management.	Aims to reduce the risk of flood loss, minimize impacts of floods, and restore and preserve benefits of 100-year floodplains	These installations should avoid any action occurring in a floodplain.
Endangered Species Act of 1973	Established the federal government's responsibility to take affirmative action for the protection and recovery of species considered to be in danger of extinction.	No federal or state-listed threatened or endangered species are found on the installations; nor are there habitats currently designated or proposed as critical habitat on the installations.
Clean Air Act of 1970	Established National Ambient Air Quality Standards for 6 contaminants and requires steps to achieve and maintain attainment of standards. The six criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO2), ozone (O3), particulate matter (PM10 and PM2.5), lead (Pb), and sulfur dioxide (SO2). Areas where a criteria pollutant level equals or exceeds the NAAQS are designated as being in "nonattainment" and steps must be taken to expeditiously achieve and maintain attainment of the NAAQS in those regions.	The installations are located in the National Capital Interstate Air Quality Control Region (AQCR) which is in a nonattainment area for the National Ambient Air Quality Standards.
National Historic Preservation Act (NHPA) and Archaeological Resources Protection Act (ARPA)	The NHPA and ARPA are federal regulations for managing cultural resources and they are enforced by state historic preservation offices (SHPO). The NHPA includes Section 106 requiring Federal agencies to consider the effects of all undertakings on historic properties and Section 110 states Federal agencies are responsible for identifying and protecting historic properties.	The northern portion of the Fort Myer is eligible for designation as a National Register Historic Landmark District. Two potential archaeological sites were identified at Fort Myer. There are 27 eligible buildings located on Fort Myer. Much of Fort McNair is a part of a historic district and Roosevelt Hall is a National Historic Landmark listed on the National Register of Historic Places. Two prehistoric sites are located in the vicinity of Henderson Hall. There are few undisturbed areas at any of these installations; however there may remain the potential for the presence of prehistoric archeological resources.
The Resource Conservation and Recovery Act of 1976 (RCRA)	Permits EPA and state departments of Environmental Quality to manage toxic or hazardous substances and waste streams.	Each installation has programs in place to comply with RCRA.
Toxic Substances Control Act (TSCA)	Allows EPA to track the 7,500 industrial chemicals currently produced and imported into the US.	Each installation has programs in place to comply with TSCA.
Comprehensive Environmental Response Compensation, and Liability Act of 1980 (CERCLA)	Permits USEPA to manage toxic or hazardous substances and waste streams.	These installations have Solid Waste Programs to manage solid waste on-post.
Military Munitions Response Program (MMRP)	Addresses defense sites – closed, transferring, and transferred military ranges- with munitions and explosives of concern.	A MMRP Historical Records Review has not been conducted.
National Environmental Policy Act (NEPA) of 1969	Requires the analysis and documentation of potential environmental consequences associated with all major federal actions.	NEPA requires the analysis and documentation of potential environmental consequences associated with all major federal actions. NEPA requires that the analysis address those areas and the components of the environment with the potential to be affected. A NEPA document will be prepared to assess the Master Plan.
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations	Provides that each federal agency shall make achieving environmental justice part of its mission.	Analysis is being conducted as part of the various NEPA processes that are ongoing on these installations.
Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management	Aimed to ensure that federal agencies conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner.	These installations work with relevant agencies to coordinate compliance with executive orders.
Acts & Orders*	Public Laws, DoD Instructions, Executive Orders, and Statues aimed at protecting or enhancing the applicable environmental resource.	These installations strive to comply with numerous federal, DoD laws, regulations, instruction and programs to protect the environment and manage natural resources.

*Acts & Orders include: Sikes Act (16 USC 670a-670o, 74 Stat. 1052), as amended, Public Law 86-797 American Indian Religious Freedom Act (42 United States Code (USC) Archaeological Resources Protection Act of 1979 (PL 96-95:16 USC 470aa-11) DoD Instruction 5000.13 Natural Resources Executive Order 11991 Protection and Enhancement of Environmental Quality: Amends Executive Order 11514 Executive Order 12608 Protection of Wetlands: Amends Executive Order 11990 Federal Insecticide, Fungicide and Rodenticide Act (7 USC 136 et seq.) Federal Noxious Weed Act of 1973 (PL 93-629) Federal Water Pollution Control Act Amendments of 1972 (PL 92-522) Native American Graves Protection and Repatriation Act (25 USC, Section 3001 et seq.) Non-game Act (PL 93-366) Noxious Plant Control Act (PL 90-583)Watershed Protection and Flood Prevention Act (PL 92419;68 Stat 666, as amended & 86 Stat 667; 16 USC 1001)

2.7.2 Natural Resources

The natural environment in the vicinity of these installations is limited and primarily located along water bodies, resulting in a diversity of environmental conditions, habitats, and climate. Approximately 75 percent of each installation has impervious surfaces, with limited natural resources remaining on all posts. This section reviews existing water resources, vegetation, habitat, topography and soils, air quality, and potential associated development constraints.

Water Resources

Fort Myer

Fort Myer lies outside the 100-year floodplain and is situated approximately two miles west of the Potomac River. One unnamed tributary is located along the southwestern boundary of Fort Myer. This tributary drains into the Potomac River via Long Branch and Four Mile Run, both located south of Fort Myer. The stream is approximately 15 to 20 feet wide with average water depths ranging between 1 to 1.5 feet during base flow conditions.

The Fort Myer storm drainage system conveys runoff to the Potomac River. The southern portion of Fort Myer conveys runoff off-post through storm drainage along Arlington Boulevard, ultimately draining into the Potomac River. The storm sewer receives a considerable quantity of surface water drainage from Fort Myer during storm events.

Storm water management regulations of Arlington County, Virginia govern on-post construction at Fort Myer. Current County regulations require storm water detention at all redevelopment sites, and specify that storm water may be released from the sites only at pre-development rates. These regulations require a 10 percent decrease in nonpoint source pollutants as indicated by phosphorous concentrations, measured in pounds per year.

The principal water-bearing aquifers in the vicinity of Fort Myer are the Patuxent, Patapsco, and Magothy Rivers, which generally store groundwater at depths of 20 to 30 feet at locations on the Post. The predominant direction of groundwater flow is toward the southeast. Recharge occurs from precipitation in the outcrop areas and, in some areas, from downward leakage through confining beds.

Groundwater is not used as a drinking water supply in the area because of the readily available supply of municipally treated surface water. The potable water source for Fort Myer is the Washington Aqueduct Division of the U.S. Army Corps of Engineers. Specifically, water is routed from Dalecarlia Reservoir (located in northwest Washington, D.C. and Montgomery County, Maryland) through a 16-inch transmission main and a 10-inch main to the pumping station in Building 301.

Fort Myer also has an emergency use connection to the Arlington County water distribution system, in addition to the water supplied by Dalecarlia Reservoir.

Henderson Hall

Henderson Hall is situated inside the Potomac River drainage basin. The site drains into Long Branch Creek (a tributary of Four Mile Run, that serves as a natural boundary between Arlington and Alexandria, VA) and flows into the Potomac River south of Ronald Reagan Washington National Airport. Surface storm drainage from the eastern portion of the property flows toward an 18-inch drain system located near Southgate Road. The remainder of the property drains toward the southwest, into a 72-inch culvert running through the visitor parking lot which is part of Arlington County's Four Mile Run system. The culvert is fed by a concrete stilling basin located in the lot. Additionally, a relief riser at the base of a retaining wall, at the edge of the parking lot, helps handle overflow within the basin. The line flows into an outfall system beneath Washington Boulevard and Columbia Pike that empties into Four Mile Run.

An informal cooperative agreement between Henderson Hall and Arlington County has designated the area around the culvert for storm water detainment. The southwest portion of Henderson Hall has experienced recurrences of flooding that have been documented since 1953. The Henderson Hall Development Plan 2006 indicates that this area is within the 100-year floodplain (as depicted on Figure 2.23); however, this plan does not reflect current wetlands mapping data. The USACE Baltimore district, in regards to the wetlands at Fort Myer, indicated that they were unable to find documentation of the 1995 study referenced in the 2004 Fort Myer Vision EA. Given the development that has occurred on post, coupled with changes in the delineation/regulation of wetlands, a new study is warranted.

Resource Protection Areas (RPAs) are buffered areas designated by Arlington County along streams and water bodies. There is a minimum buffer established along streams, and a 100 foot

minimum buffer surrounding bodies of water. There are RPAs that straddle the southern installation boundary of Henderson Hall as well as along the eastern border of the installation. In total, there are 7 acres of RPAs on Henderson Hall.

Source | Henderson Hall Development Plan 2006

Fort McNair

Ground water generally occurs at a depth of 6 to 10 feet. Excavations deeper than 10 feet generally require continuous dewatering due to infiltration of ground water. Ground water is not used in the area as a water supply. The tidal floodplain is set at 11.2 feet above sea level and follows the contours along the Fort McNair seawall (see Figure 2.24).

Source | Fort McNair Small Area Plan 2004

Vegetation

Vegetation covers very little area of each of these urban installations. The following text summarizes the vegetation and wetland areas.

Fort Myer

The majority of the native vegetation has been removed from Fort Myer as a result of past development and training activities and has been replaced by built or impervious surfaces or landscaped trees and grasses. Common grasses on Fort Myer include Kentucky bluegrass, red fescue (Festuca rubra), perennial ryegrass (Lolium perenne), zoysia grass, and Bermuda grass (Cynodon dactylon) maintained as turf. The predominant tree plantings along streets and around buildings include red maple (Acer rubrum), willow oak (Quercus phellos), red cedar (Juniperus virginiana), and flowering crabapple (Malus floribunda).

Some small, scattered wooded areas, which contain native vegetation, are found on portions of the Post (Figure 2.19). Native trees include: white and Northern red oaks (Quercus alba and Quercus borealis), silver maple (Acer dasycarpum), American sycamore (Platanus occidentalis), tulip poplar (Liriodendron tulipifera), and black cherry (Prunus serotina).

Henderson Hall

Existing vegetation on Henderson Hall is similar to what is found on Fort Myer and is composed of shade and ornamental trees with several varieties of evergreen and deciduous species. Shrubs and lawn areas constitute the remainder of landscaping on the Post.

Fort McNair

Terrestrial vegetation on Fort McNair consists almost exclusively of landscaped trees and grasses (Figure 2.20). Common grasses are the same as those found on Fort Myer. The predominant tree plantings along streets and around buildings include Norway maple (Acer platanoides), sugar maple, (Acer saccharum), pin and Northern red oaks (Quercus palustris and Quercus borealis), littleleaf linden (Tilia cordata), Yoshino cherry (Prunus yedoensis), Japanese pagoda tree (Sophora japonica), and American elm (Ulmus Americana). Common weeds, which are considered pests, include wild garlic (Allium vineale), wild onion (Allium canadense), common chickweed (Stellaria media), crabgrass (Digitaria sp.), buttercups (Ranunculus sp.) and ground ivy (Glecoma hederacea). Herbicides are applied to control weeds.

Wetlands

Fort Myer

Approximately 1.15 acres of wetlands were identified in three separate areas on installation property. The largest wetland area is a palustrine-forested wetland of approximately 1.05 acres located within the floodplain of an intermittent stream in the southeast corner of the Post. The two remaining areas are east of McNair Road and total approximately 0.1 acres.

Source | Fort Myer Vision Plan EA 2004

Henderson Hall

There are no known wetlands on Henderson Hall.

Fort McNair

There are no known wetlands on Fort McNair according to the National Wetlands Inventory Maps.

Source | Fort McNair Programmatic EA 2003

Mitigation

On Fort Myer, there are a number of ways to minimize impacts from development on wetlands. A mitigation plan should be prepared if any development is planned. Construction in wetlands is possible but requires permits and mitigation such as wetland creation or banking, in which wetlands are created elsewhere on post or wetland credits are purchased from wetland banks. Wetland credit approval takes several months and must be coordinated with the state and EPA. (Also, the maintenance and protection of wetlands can be achieved through active management techniques.)

Figure 2.19 JBM-HH Tree Cover Map

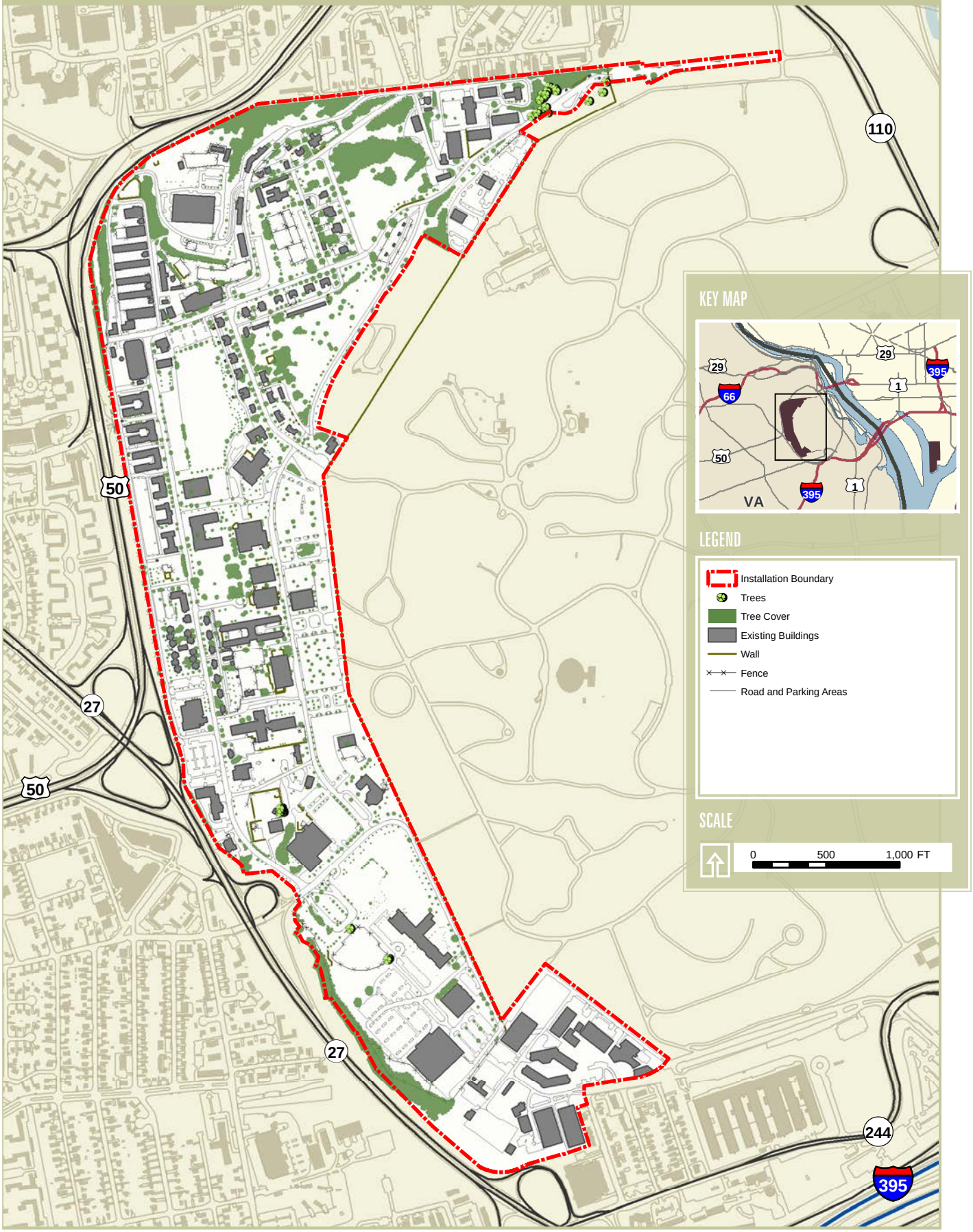
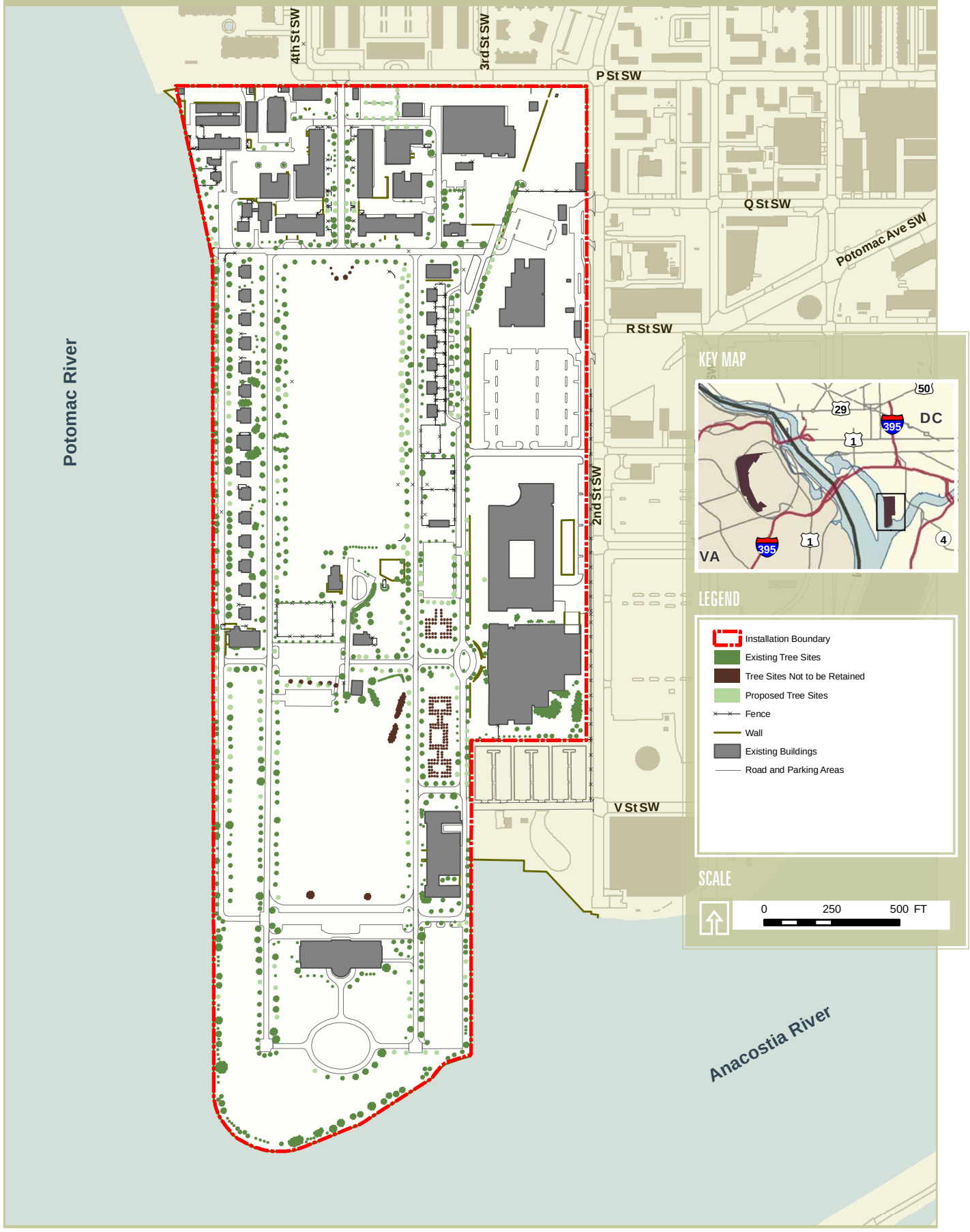


Figure 2.20 Fort McNair Tree Cover Map



Habitat

These installations do not provide much natural environment or habitat for wildlife. Instead their settings are more like urban parks, with many areas lacking natural habitat.

Wildlife

Fort Myer

Fauna commonly found on Fort Myer are those adapted to an urban environment, including squirrels (*Sciurus carolinensis)*, chipmunks (*Tamias striatus*), rabbits (*cuniculus*), raccoons (*Procyon lotor*), garter snakes (*Thamnophis sirtalis sirtalis*), and songbirds. Red foxes (*Vulpes vulpes*) have occasionally been observed in the area. During migration, warblers may use the small wooded area near the boundary with ANC, but the small size of this area precludes most from nesting. Common pests present on the base include numerous insects, rodents, and birds such as starlings (*Sturnus vulgaris)* and pigeons (*Columba livia)*. The overall Integrated Pest Management Program uses inspections, sanitation, and various mechanical control procedures, such as trapping and elimination of shelter weeds.

Henderson Hall

The vegetation on the installation limits the habitat beneficial to urban wildlife species. Species found at Henderson Hall consist of small mammals, including squirrels, mice, and other small rodents. Songbirds are also present and include English sparrows, starlings (Sturnus vulgaris), song sparrows (Melospiza melodia), and robins (Erithacus rubecula).

Fort McNair

Due to the limited amount of vegetation on Fort McNair, wildlife is limited. Its proximity to the Washington Channel of the Potomac River and the Anacostia River, however, encourages birds to use the Installation as a resting area. Species include starlings (*Sturnus vulgaris*), sparrows (*Melospiza melodia*), pigeons (*Columba livia*), Canada Geese (*Branta canadensis*), sea gulls (*Larus argentatus*), red-tailed hawks (*Buteo jamaicensis*), and great blue herons (*Ardea herodias*). Rodents (such as chipmunks and mice) and various songbirds are likely to occur on Post.

Threatened and Endangered Species

The Endangered Species Act (ESA) affords legal protection to species listed as endangered or threatened, including their habitats. However, no state or federally listed endangered/ threatened species or habitat are known to exist on Fort Myer, Henderson Hall, or Fort McNair.

Mitigation

No mitigation measures are necessary for wildlife or threatened/endangered species on these installations at this time.

Topography and Soil Conditions

Fort Myer

Soil characteristics within Fort Myer are described as Coastal Plain sediments consisting of unconsolidated clays, silts, and sands that are underlain by depositional sand and gravel (Figure 2.21). Soils are moderately well drained, but it is not unusual to find seasonal wet areas in low-lying sections. Elevations range from 55 feet at Wright Gate on Arlington Ridge Road to 235 feet on the parade grounds. No detailed soil surveys have been completed for Arlington County or Fort Myer. Moderate slopes which can pose an erosion risk if not properly managed characterize the northern and northeastern portions of the installation.

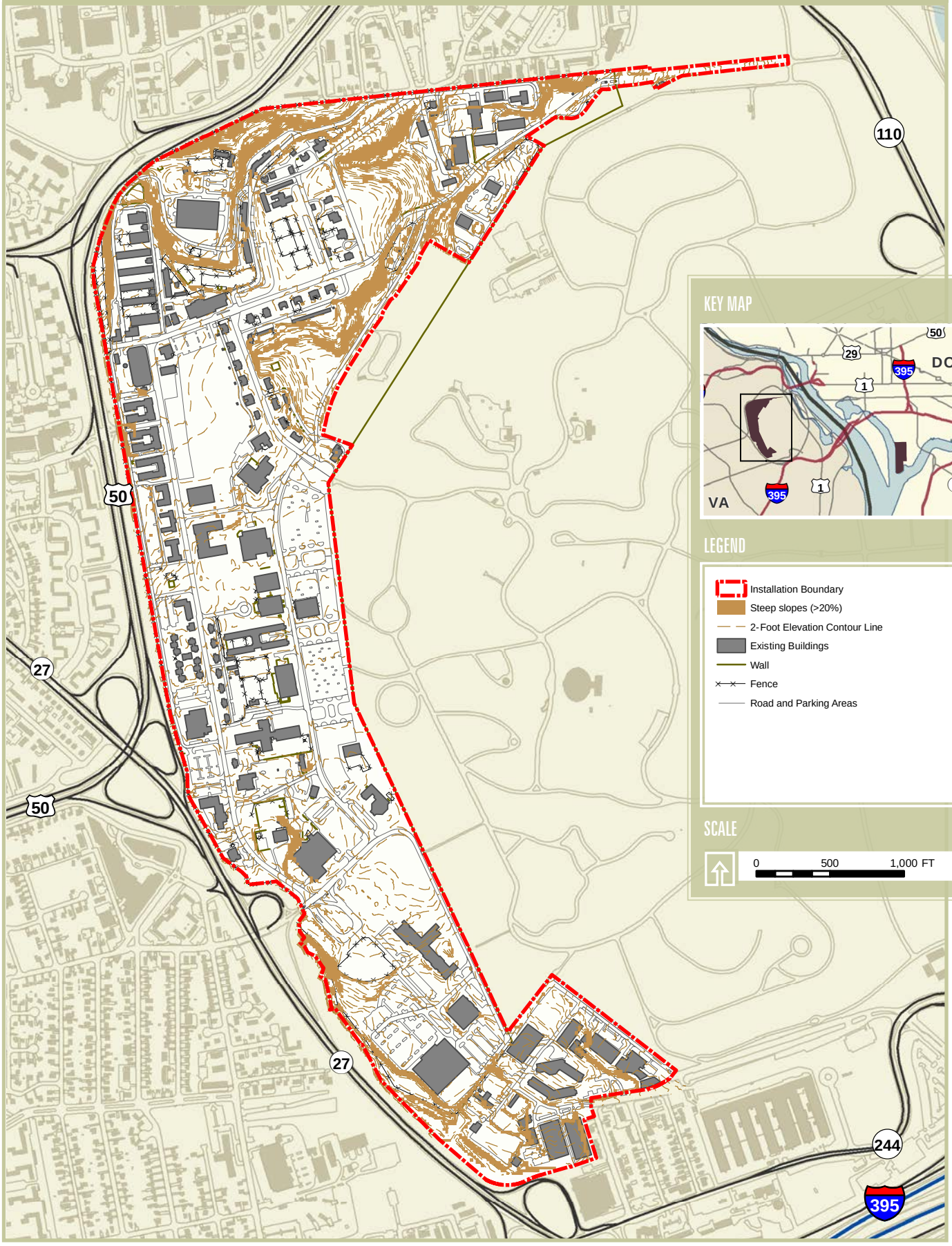
Henderson Hall

The topography of Henderson Hall ranges from 134 to 170 feet above sea level. The lowest area on the Installation is in the flood basin parking lot in its southwest section. Its highest point is at the northern corner of Henderson Hall adjacent to ANC and Fort Myer.

Henderson Hall's geology is composed of three types of comparable sediments from the Cretaceous era including Patapsco, Arundel, and Patuxent. These are part of the Potomac Group and are designated by upper beds of pink, red, and gray clay. The fundamental part of these formations is made up of sand, gravel, and occasionally arkose, resulting in some of the most valuable water-bearing formations in the region. The northeastern portion of Henderson Hall also includes river terrace deposits in addition to the Potomac Group formations. These deposits consist of gravel, sand, silt, and loam, with overlying boulders, pebbles, and sand. Soil test borings indicate that the soils at Henderson Hall are of poor load-bearing capacity.

Source | Henderson Hall Development Plan 2006

Figure 2.21 JBM-HH Topography Map



Fort McNair

Nearly 80 percent of Fort McNair is covered by impervious surfaces (such as asphalt and concrete - Figure 2.22). The seawall elevation is 4.2 feet. Fort McNair lies within the physiographic Atlantic Coastal Plain province. The soils on Fort McNair are generally well drained and include Beltsville-Chillum association silt loam. Soils are artificial fill from the dredging of the Potomac River, and therefore consist mostly of sandy silts with mixtures of clay. Some areas (particularly those similar to the old James Creek Canal, that underlies the eastern part of Fort McNair, including Marshall Hall) are known to be unconsolidated, possibly contaminated, and with a high water table. Previous construction has required structural piers or pilings for foundations. Other soils and site geology investigations were complicated due to dredging, filling, and demolition.

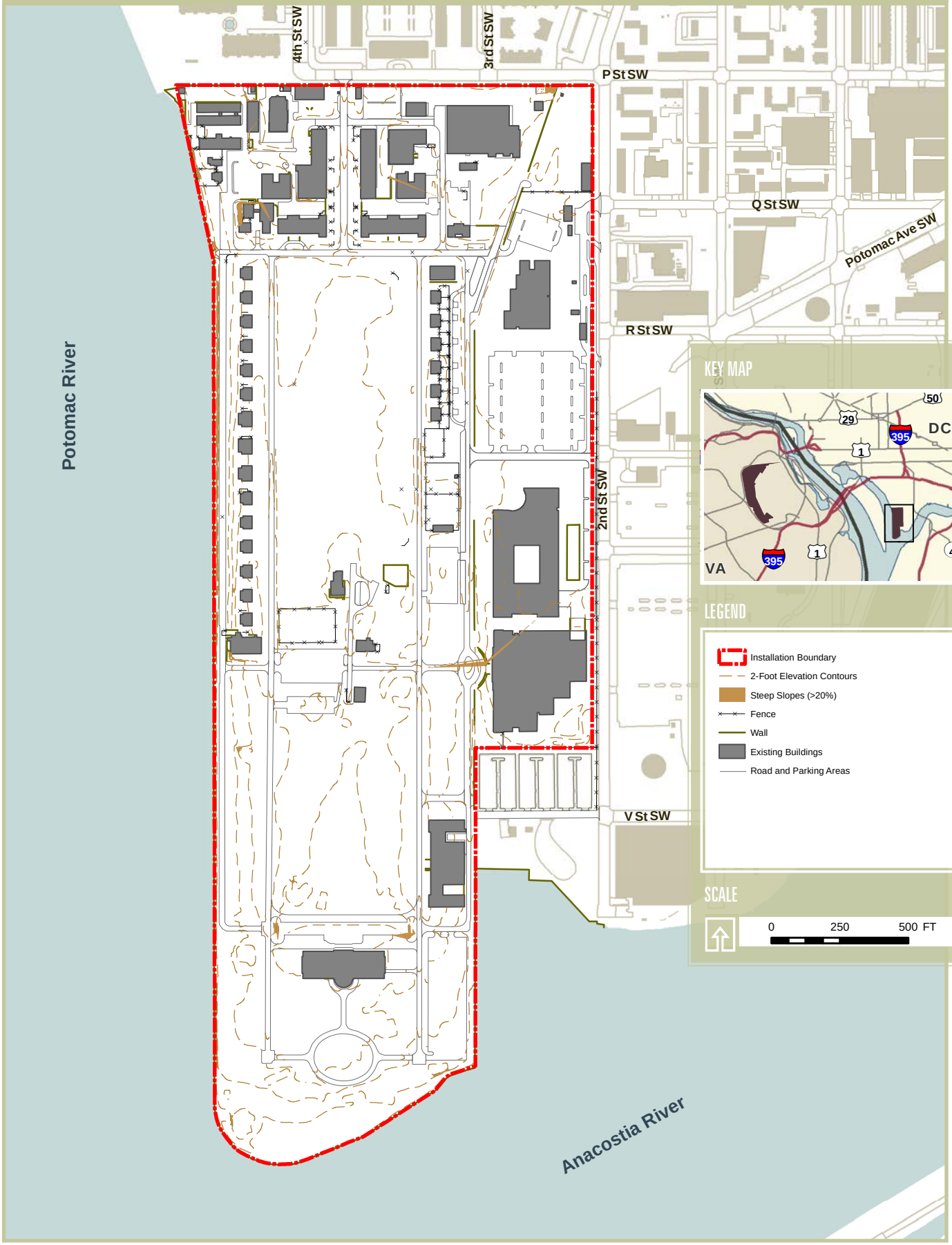
Source | Fort McNair Programmatic EA 2003 & NDU Small Area Plan 2004

Mitigation

Construction on steeply sloped terrain is reviewed on a case-by-case basis by analyzing individual building sites and appropriate engineering practices. For example, in areas of highly erodible soils, the Commonwealth of Virginia mandates erosion/stormwater control techniques during and after construction. These techniques apply even if erodible soils are not present. This expense would be incorporated into design and construction costs.

Fort McNair would be required to prepare a detailed Erosion and Sediment Control Plan that incorporates some or all of these measures for submission, review, and concurrence by the District of Columbia, Department of Health. Furthermore, a National Pollutant Discharge Elimination System (NPDES) permit for construction activities would be required prior to any earth moving activities. Because Fort McNair is located on the Potomac River, stormwater quality control will be required. Quality control typically consists of providing treatment through the use of water quality BMPs (Best Management Practices). Typical stormwater management BMPs include bioretention, sand filters, or certain proprietary devices.

Figure 2.22 Fort McNair Topography Map



Air Quality

Fort Myer, Henderson Hall, and Fort McNair are located within the National Capital Interstate Air Quality Control Region (AQCR).

Monitoring of air quality around the installations is under the jurisdiction of the Arlington County Environmental Health Department, Region VII of the Virginia Air Pollution Control Board (APCB), the District of Columbia's Division of Housing and Environmental Regulation Administration, and the Maryland Department of the Environment for the area across the Anacostia River.

The entire Washington, D.C. metropolitan area is a nonattainment area for the National Ambient Air Quality Standards. Fort Myer is located within a nonattainment area for both ozone and very fine particles. The area across the Anacostia River is in nonattainment for ozone. Fort McNair is in a zone designated for nonattainment for ozone and carbon dioxide. Fort McNair has a Title V Air Permit that restricts engine idling.

The climate factors that occasionally cause increased air pollution in the Washington area are usually light winds, and a high-level temperature inversion. These inversion conditions are closely monitored in the winter months for carbon monoxide (CO) levels. Levels of ozone are also monitored during the months of April through October. Pollutants are usually well mixed throughout a fairly deep layer of air and are seldom measured at hazardous concentrations.

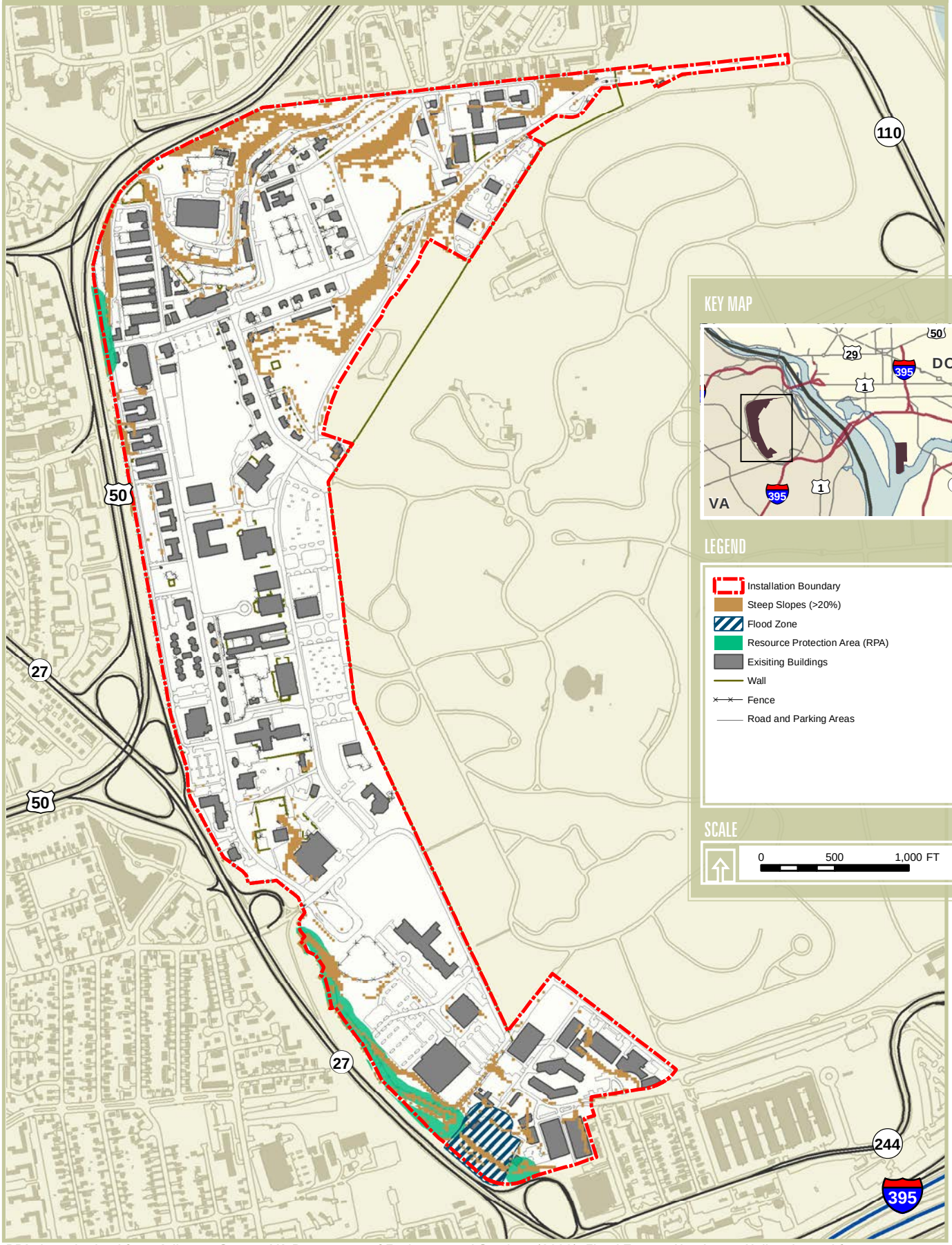
Projects with potential emissions exceeding applicability thresholds for nonattainment pollutants and their precursors may trigger nonattainment New Source Review (NSR). The purpose of the NSR is to ensure that ambient air quality does not deteriorate further in nonattainment areas. This review process includes obtaining emission offsets at a ratio of greater than 1 to 1 of all new emissions of applicable pollutants created during the project period. (There is a 1.15 to 1 ratio that only applies to moderate ozone nonattainment, not other ozone classifications or other nonattainment pollutants). Offsets can be obtained internally, by reducing other emission sources at one of the installations. They can also be reduced externally, but only if emission sources originate from the same nonattainment area, or in the case of ozone precursors, from another nonattainment area if (i) the other area has an equal or higher nonattainment classification than the area in which the source is located and (ii) emissions from such other area contributes to a violation of the ambient air quality standard in the nonattainment area in which the source is located. When successful, the NSR process takes 18 to 24 months. However, available sources of emission offsets are very limited within the applicable nonattainment area. Nonattainment NSR permits are issued by the Virginia Department of Environmental Quality (DEQ). These permits are required for either new or existing emissions sources that make a major modification within a nonattainment area. NSR permits are legal documents that specify what construction is allowed, what emission limits must be met, and how the source must operate. To ensure compliance, permits also require monitoring, record keeping, and reporting.

Mitigation

All new air emissions contribute to an already existing regional air quality problem. New stationary source emissions that exceed nonattainment NSR thresholds will trigger stringent regulatory requirements. Nonattainment NSR requires employing state-of-the-art emission controls on all new stationary sources, using low-emission construction techniques, and/or obtaining emission offsets within the region. The nonattainment NSR process could take up to two years. In addition, all future actions would be required to comply with the general conformity rule with a formal conformity determination. Because the State Implementation Plans (SIPs) are currently under development for the region, strict emission controls and contemporaneous emission offsets may be required to ensure these guidelines are met.

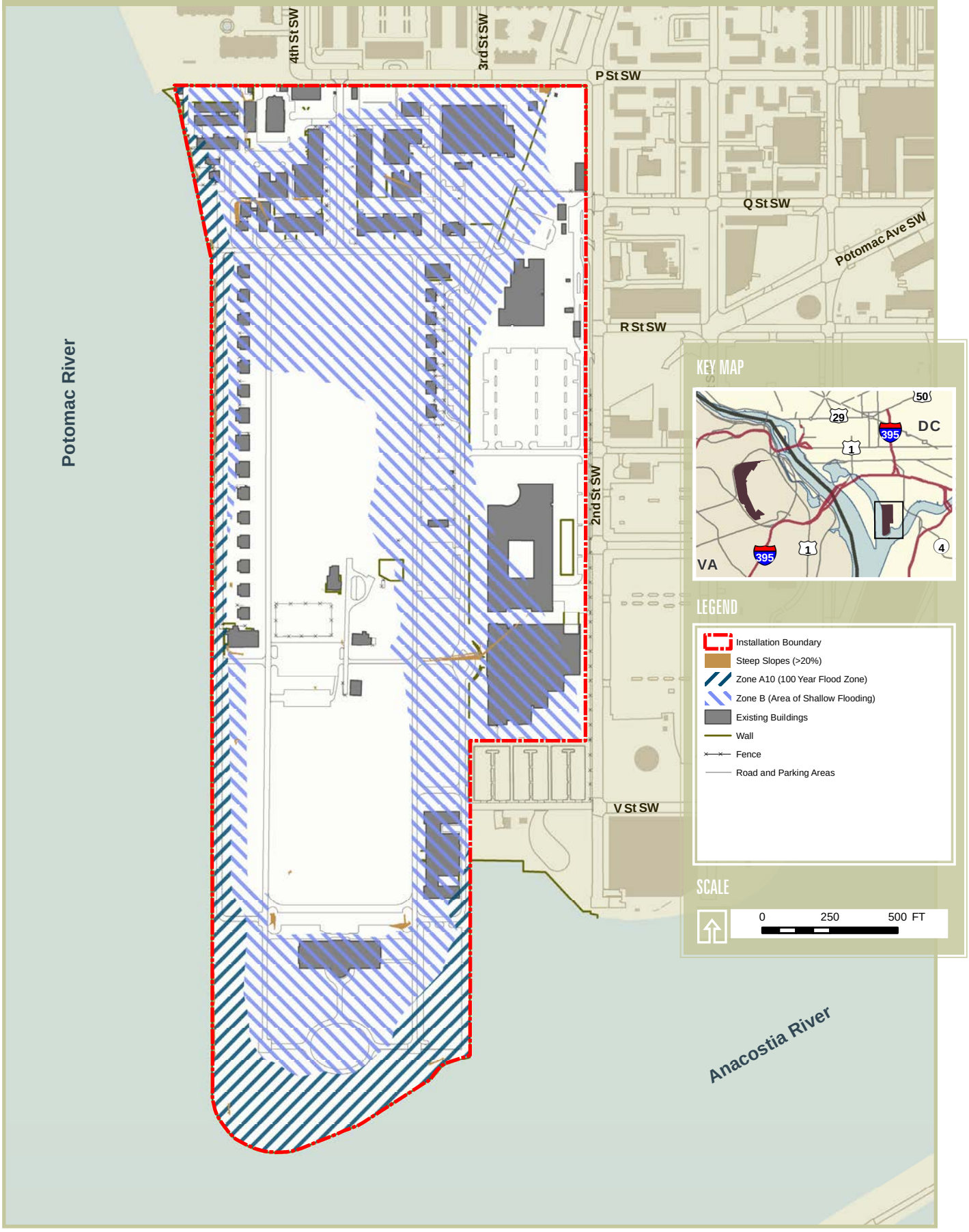
Figure 2.23 and 2.24 show all the relevant constraints associated with natural resources at JBM-HH and Fort McNair.

Figure 2.23 JBM-HH Natural Constraints Map



RPA data obtained from Arlington County, VA Department of Environmental Services (2008). Flood Zone at Henderson Hall estimated from interviews with Facilities Department Staff (2008).

Figure 2.24 Fort McNair Natural Constraints Map



Summary of Natural Resources and Mitigations

The majority of land on these installations is already developed and very few natural resources remain. Table 2.10 summarizes the natural resources that exist and what they encompass. Mitigations are included if avoidance by design is not an option.

Table 2.10 Summary of Natural Resources on Fort Myer, Henderson Hall, and Fort McNair

Resource	Description	Mitigation
Water Quality	Water quality conditions in the Potomac River are acceptable. The Anacostia River has significant non-point source contamination.	Implement erosion control and best management construction practices.
Resource Protection Areas	RPAs occur along streams and water bodies. One is located along the eastern border of Fort Myer; seven acres of RPA exist at Henderson Hall.	Avoid where possible.
Floodplains	Portions of Fort McNair lie within the 100-year floodplain. Henderson Hall is within the 100-year floodplain.	Avoid where possible. If avoidance is not possible, field review should be performed to determine type of encroachment permitted (habitable structures not permitted).
Wetlands	Approximately 1.15 acres of wetlands were identified in three separate areas on Fort Myer.	Avoid where possible. If unavoidable, wetland banking or other mitigation measures are possible.
Habitat, Vegetation, and Wildlife	Very limited natural habitat, natural vegetation or wildlife occurs at any of the installations.	Development may be permitted; however, if unavoidable, similar areas elsewhere on the installation should be set aside for habitat.
Topography and Soil Conditions	Soils are mostly moderately well drained with exception of some low-lying areas. The elevations of each installation range from 4 feet above sea level to over 200 feet.	Construction activities on severe or unstable slopes are generally prohibited. If unavoidable, appropriate engineering practices would be incorporated into site design.
Air Quality	The installations are in a nonattainment area for ozone and fine particles.	All new air emissions contribute to an already existing regional air quality problem. New emissions from proposed actions may exceed air quality thresholds that trigger applicability of stringent regulatory programs, such as Nonattainment New Source Review.

2.7.3 Cultural Resources

Fort Myer, Henderson Hall, and Fort McNair are located in the central Potomac River drainage basin, that is replete with both prehistoric and historic archaeological and cultural resources. Cultural Resources include, but are not limited to: buildings, structures, and prehistoric and historic archeological sites. Figures 2.25 and 2.26 illustrate the distribution of cultural resources at JBM-HH and Fort McNair.

Fort Myer

Fort Myer traces its ownership to George Washington's family and its origins to the Civil War. Fort Myer became a post for the cavalry in 1887. Most of the buildings at the north end of the Post were built during the ensuing 22 years. Many of those still standing have been designated historic landmarks. "Quarters One" was completed in 1899 as the Post commander's house and has been the home of the Army Chief of Staff since 1908; it is also a National Historic Landmark, the National Park Service's highest recognition. (For more information, see section 2.3 Fort Myer History).

The northern portion of the Post was eligible for designation as a National Register Historic Landmark District in 1972. The architectural resources of Fort Myer consist of buildings, sites, and objects included in the 1972 National Historic Landmark (NHL) District (for example, Quarters 1), as well as those now potentially eligible for such listing (27 historic buildings). The last survey was conducted as part of the 2001 Cultural Resources Management Plan (CRMP).

The aesthetic qualities at Fort Myer are primarily associated with the vistas of: Arlington National Cemetery, the Potomac River, and Washington, D.C. The many historic structures located along tree-lined streets in the northern section of the Post enhance its aesthetic value.

Fort Myer possesses a restricted development zone consisting of woods, open fields, and parking lots. This zone was created to protect the visual integrity of Arlington National Cemetery from any development within Fort Myer that could extend above the existing tree line and affect views of the cemetery from the east.

Two archaeological sites were identified during fieldwork conducted in the preparation of the CRMP.
Source | Fort Myer 2001 CRMP

The first site is located in the playing fields between Buildings 501 and 525. Archival data suggests that various items from the 1950 renovation of the White House may be buried there. A Phase 1 archeological investigation of the site recovered no artifacts and revealed that the area had a large amount of fill material deposited.

The second site is located on the grounds of Arlington National Cemetery, close to the Lee Mansion. Prehistoric artifacts, including hammerstones and waste flakes associated with the manufacture of stone tools were found on the eroded ground surface. Artifacts from the nineteenth century were also discovered, notably fragments of porcelain and other ceramics. The proximity of this site to the eastern boundary of Fort Myer suggests the potential of additional resources located near this boundary of Fort Myer and ANC.
Source | Fort Myer 2004 ARMP

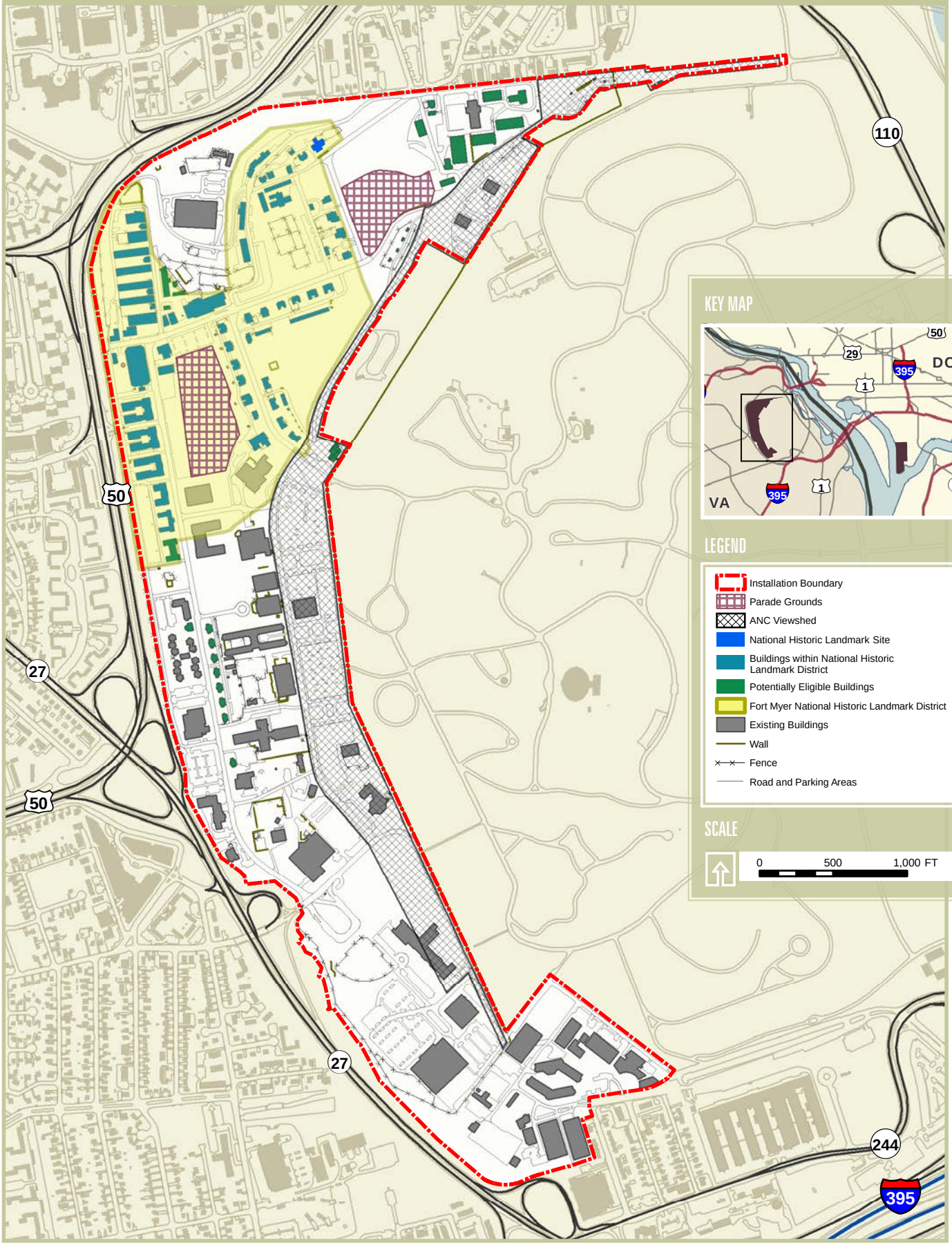
Henderson Hall

Henderson Hall is located on a slight hill between Washington Boulevard, Columbia Pike, ANC, Fort Myer, and the Navy Annex. Its northeastern and southeastern portions provide vistas of ANC, the Washington Monument, and the Pentagon. Residential housing and high rise structures can be seen from the southern view. The southeastern view is dominated by vegetative screening and fencing to buffer traffic noise from Washington Boulevard. To the northwest, the view is limited by the loading dock at the back of the Commissary, the Rader Clinic, and parking lots.
Source | Henderson Hall Development Plan 2006

Records with the NRHP and the Virginia Department of Historic Resources indicate that there are no known significant historic or prehistoric artifacts at Henderson Hall. According to the NRHP, a freedman's village existed from 1865 to 1890 on a portion of what are now Henderson Hall, ANC, and the Navy Annex. This village served as temporary housing for African American slaves transitioning to independence and peace at the conclusion of the Civil War. This was the first government housing project in Arlington County history.

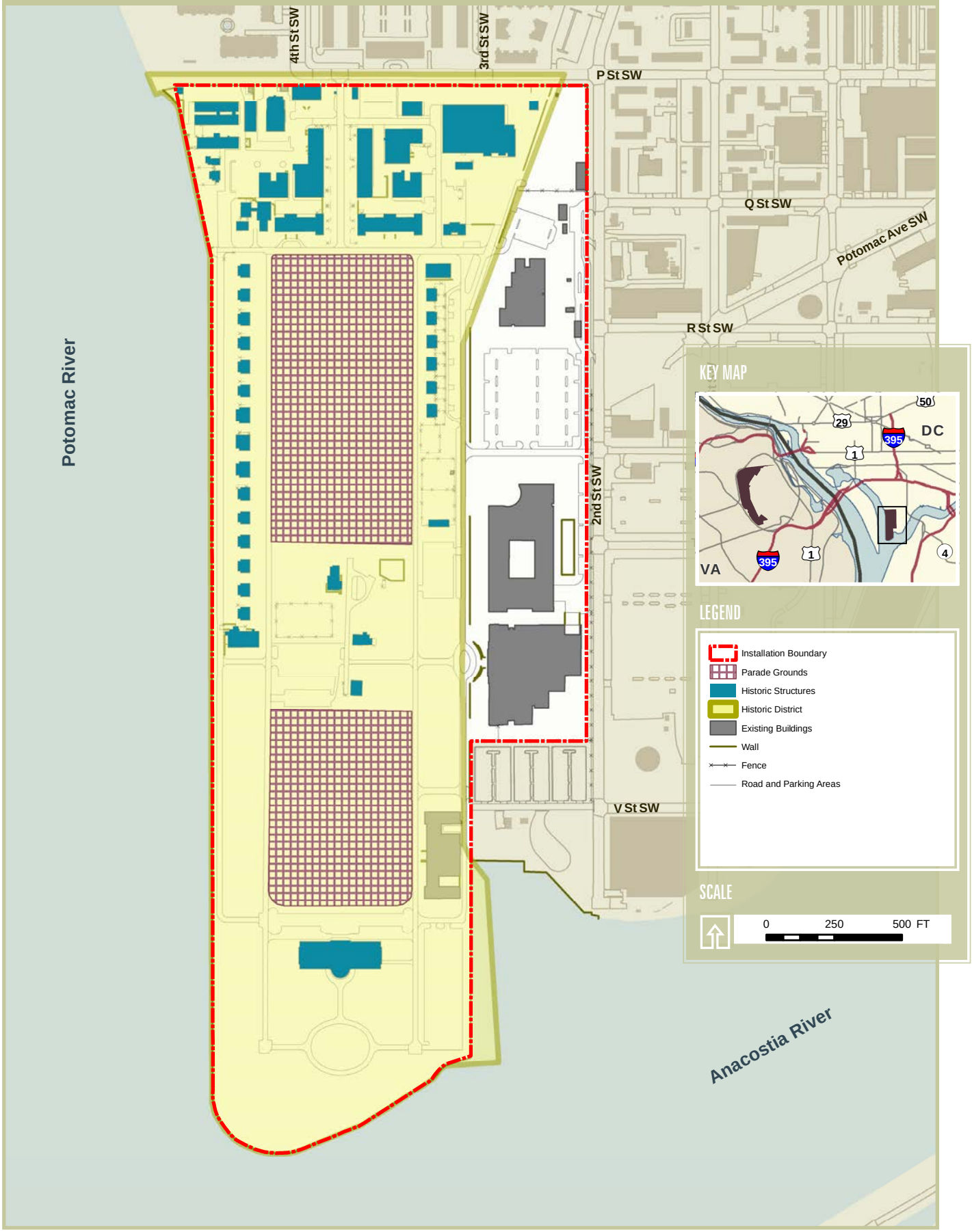
Two prehistoric sites are located in the vicinity of Henderson Hall. One is located approximately one mile to the south on the Army-Navy Country Club grounds, and the other is located on the old Potomac Canal site, which runs north-south along the site of the Pentagon.

Figure 2.25 JBM-HH Cultural Constraints Map



NHL District obtained from Virginia Department of Historic Resources (2008).

Figure 2.26 Fort McNair Cultural Constraints Map



Fort McNair Historic District obtained from Washington, D.C. Office of Planning (2003).

Fort McNair

Much of Fort McNair is comprised of a historic district that follows the boundary of the Post since the early 20th Century. Roosevelt Hall is designated as a National Historic Landmark and is listed on the National Register of Historic Places. It was completed in 1907 as the U.S. Army War College.

No archaeological sites have been recorded at Fort McNair; however, due to the installation's location at the junction of the Anacostia and Potomac Rivers, there is a probability that prehistoric archaeological sites could be present. There is a greater potential for historic archaeological resources relating to the first fort on the site, to the penitentiary, and the arsenal.

Mitigation

Viewsheds should be protected although development is generally permitted. Fort Myer has a restricted development zone to protect the visual integrity of Arlington National Cemetery. Protective measures include tree buffers, building height restrictions that conceal view of structure from resources, and development/design themes that match the historic or natural resource. Consultation with applicable representatives of agencies and groups must occur as required by Section 106 of the NHPA; this can take several months.

Development should avoid all NRHP that are listed as eligible archaeological sites, buildings, and historic districts. Historic buildings should generally be avoided. Should any proposed development encroach upon archaeological sites, they must be evaluated for eligibility. These surveys will need to be coordinated with the state and may take several months to complete. For projects such as new construction, additions, interior renovations, and minor alterations, there is an established process for resolving adverse effects that balances both functional and preservation interests.

Summary of Cultural Resources and Mitigation

At these installations, there are few undisturbed areas; however, the potential for the presence of archeological resources remains. Prehistoric archeological resources may have survived years of ground disturbing activities and development in small surface contexts or in deeper deposits. Any projects involving ground disturbance may require archaeological survey.

Table 2.11 summarizes the cultural resources on the installations and what they encompass. Mitigations are included if avoidance by design is not an option.

Table 2.11 Summary of Cultural Resources on Fort Myer, Henderson Hall, and Fort McNair

Resource	Description	Mitigation
Viewsheds	Henderson Hall and Fort Myer have outstanding views of Arlington National Cemetery.	Fort Myer has a restricted development zone to protect the visual integrity of Arlington National Cemetery.
Historic Properties	Two potential archaeological sites were identified at Fort Myer. There are 27 eligible buildings on Fort Myer, and its northern portion is eligible for designation as a National Historic Landmark District. Much of Fort McNair is a part of a historic district; its Roosevelt Hall is a National Historic Landmark listed on the National Register of Historic Places.	Development should avoid all NRHP that are listed as eligible archaeological sites, buildings, and historic districts. Historic buildings should generally be avoided. Should any proposed development encroach upon archaeological sites, they must be evaluated for eligibility. Coordination with the State Historic Preservation Office (SHPO) is necessary.
Prehistoric Sites	Two prehistoric sites are located in the vicinity of Henderson Hall. There are few undisturbed areas at any of these installations; however, there may remain the potential for the presence of prehistoric archeological resources.	Development should generally avoid prehistoric sites. Should any proposed development encroach upon sites, they must be evaluated for eligibility. Coordination with the State Historic Preservation Office (SHPO) is necessary.

2.7.4 Operational Constraints

Fort Myer, Henderson Hall, and Fort McNair's potential environmental issues associated with operational activities are a result of over a century of military history. These activities include former military training, solid wastes, hazardous wastes, Petroleum Strategy Areas (PSAs), Petroleum Release Sites (PRSs), and other operational constraints including noise zones.

A primary difference between these operational issues and natural/cultural resources is the desire to remove or avoid environmental constraints resulting from activities versus the desire to preserve resources. Therefore, the primary concern associated with environmental constraints resulting from operational activities is cost and time related to mitigation. Some corrective measures might take several years to achieve clean up or closure. Regulatory agency involvement in investigative or corrective actions can be high and must be factored into the time it takes to achieve site closure. Coordination with regulatory agencies occurs while developing work plans, conducting site investigations, and preparing closure reports. The regulatory compliance requirements for each program and the amount of available information for individual sites are highly variable. A brief description of each specific operational constraint follows including various mitigation requirements.

Fort Myer

Solid Wastes

Domestic refuse is placed in designated dumpsters on-post and is collected daily by a private contractor. Solid wastes are deposited at approved sanitary landfills. Horse manure accumulated at the stables on-post is collected and transported to a certified landfill or burn center by a private contractor. The DPW Recycling Program handles non-hazardous and non-precious materials such as paper and aluminum. Newspaper, cardboard, steel cans, glass and plastic beverage containers, motor oils, and yard waste will be included in later phases of the recycling program.

Mitigation

Specific remediation measures will be determined following detailed site investigations.

Asbestos and Lead-Based Paint

Asbestos surveys have been conducted at Fort Myer to determine the extent of asbestos contamination. Many of the buildings at Fort Myer have asbestos-containing materials that may be related to heating and cooling equipment. The database containing sample analyses of these buildings will be consulted on a site-by-site basis to determine if the removal of asbestos-containing material is required as part of the master plan projects.

A comprehensive survey for lead-based paint (LBP) has not been conducted for Fort Myer. Since most of the buildings at Fort Myer were built prior to 1978, it can be assumed that painted surfaces contain LBP.

Polychlorinated Biphenyl Transformers

A survey of electrical transformers was conducted at Fort Myer. Only one transformer, TV-7B building 406 basement, contained PCBs. DVP replaced and disposed of this transformer 21 December 2009 and 15 June 2010 respectively. TV-7A did not contain PCBs according to stickers indicating less than 50 PPM.

Source | Marty Travis, Dominion Virgina Power 2011

Radon

Radon monitoring of Fort Myer was conducted in 1989. The Radon Monitoring Report Phase II found radon concentrations ranging from 0.3 pCi/L to 2.5 pCi/L. These concentrations were well within the U.S. Environmental Protection Agency's (USEPA) acceptable levels and required no action. Radon is not expected to be a problem at Fort Myer.

Pesticides/Herbicides/Fertilizers

The Environmental Hygiene Division of DPW currently administers the pest control program at Fort Myer. The pesticide storage and mixing facility is located behind Building 314.

Hazardous Materials and Waste

The Oil and Hazardous Substance Spill Prevention, Control, and Countermeasures (SPCC) Plan for Fort Myer identified 13 spill control areas. Ten of the 13 spill control areas contain petroleum products and are considered hazardous materials. Five of the 13 areas also contain hazardous substances. The primary locations for hazardous material/waste storage are associated with DPW shops (Buildings 306, 307, 309, and 325) and Chemical Storage (Building 448). The total oil storage on Fort Myer is approximately 192,900 gallons. The primary locations for oil storage are associated with the boiler plant (Building 447) and the Army Air Force Exchange Service service station (Building 452).

Environmental investigative activities have been ongoing at the former site of the Fort Myer PX gas station for several years. The PX gas station (Building 424) was located on Sheridan Avenue and began operating in 1945. The gas station was equipped with gasoline dispensing islands and five 10,000-gallon Underground Storage Tanks (USTs).

Excavation and disposal of contaminated soil at the former PX gas station site was undertaken during 1997. Activities consisted of:

- Excavation of a 10-foot diameter pit,
- Continuous monitoring of breathing zone for volatile organic compounds (VOCs),
- On-site staging of contaminated soil,
- Laboratory analysis of excavated soils,
- Treatment and disposal of soils at an approved facility,
- Backfill and compaction of the excavation with clean fill material.

A semi-consolidated black layer was encountered with each excavation at approximately 2 feet below ground surface. This black layer appeared to consist of ash, cinders, or a primitive paving material. Laboratory analyses of the black layer indicated high concentrations of naphthalene, 2-methylnaphthalene, and xylene as well as lower concentrations of many other polyaromatic hydrocarbons (PAHs) and VOCs, including trichloroethene. Further characterization of the black layer using the Toxicity Characteristics Leaching Procedure (TCLP) indicated that the black layer is not hazardous, but suggested that it should be considered a special solid waste.

Excavation of additional contaminated soil at the former PX gas station site was conducted during 2001 as part of construction activities for the new Public Safety Center. The soil was visually inspected for the presence of black residue. This contaminated soil was segregated and disposed as special solid waste in accordance with Virginia regulations.

In 2007, Fort Myer was cited by the EPA for primarily failing to test for fuel leaks from USTs (USEPA 2008).
Source | U.S. Environmental Protection Agency 2008

Mitigation

Petroleum Storage Areas/Tanks located within any proposed development could be aggressively addressed as part of the site preparations.

Any disturbance to the subsurface soil at these sites could require reopening the case, developing a work plan, sampling, monitoring, and reporting of site conditions and waste generation. Petroleum release located within a proposed building envelope could also be aggressively addressed as part of the site preparations. In all cases, mitigation measures could be integrated into the construction phase of the project in concert with the site preparation and earthwork features for minimal impact to the overall construction schedule. Excavation and sampling of petroleum impacted soils areas will likely be the most timely and cost-effective manner to mitigate.

Ammunition

Ammunition is stored in Buildings 326, 327, 328, and 329. Storage is in four partially in-ground structures with concrete walls and floors and earth-covered roofs. These facilities, located near the intersection of Marshall Drive and McNair Road, store only ready-issue and ceremonial rounds.

Explosives kits, used in the training of explosive-detecting dogs, are stored at the Military Working Dogs Training Facility in an explosive storage bunker. Explosive Safety Quantity Distance (ESQD) Arcs encircle the buildings that house ammunition and explosives, and are based on the quantity of explosive material. Restrictions on uses within these arcs exist.

Mitigation

Mitigations may exist for QD Arcs. Examples include: removal, quantity reduction, or relocation of the explosive material or providing additional blast protection, such as berming to reduce the size of the arc required. If development plans warrant a Military Munitions Response Program (MMRP), Historical Records Review may be necessary.

Noise

The major source of noise at Fort Myer includes aircraft overflights arriving/departing Ronald Reagan Washington National Airport and automobile/bus traffic, from both on-post and on adjacent streets/highways. Impulse noise is also generated by occasional ceremonial firings of rifle and artillery. This consists of cannon blasts and recorded bugle calls during ceremonies. In general, noise generated on-post is short-term in nature.

Mitigation

No mitigation measures are necessary for noise at this time.

Airfields

The helipad at Fort Myer is used for emergencies only and is not considered an Interim Landing Facility. Therefore no constraints are shown.

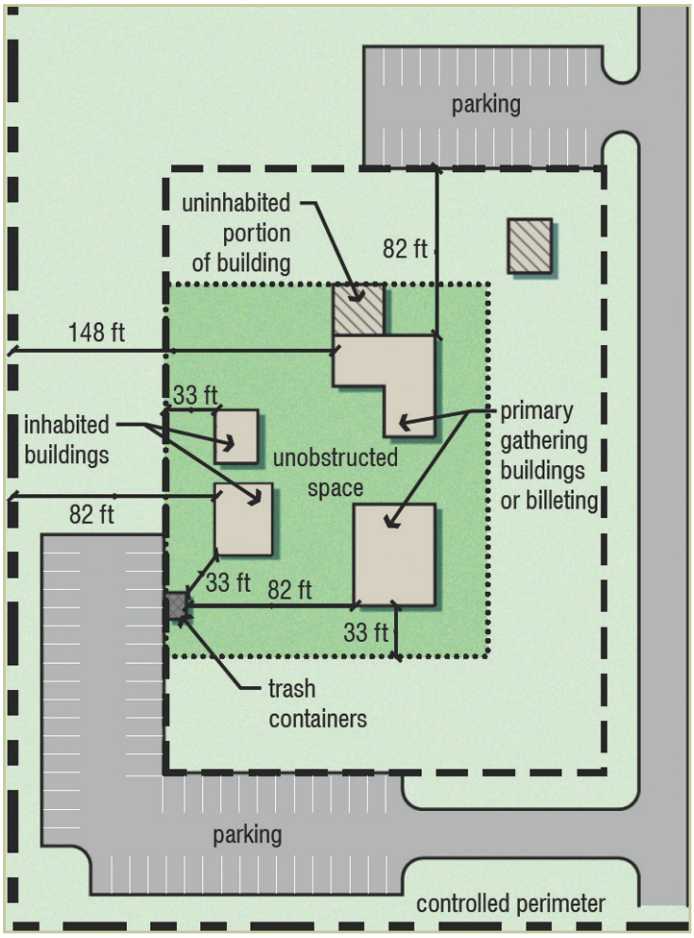
Force Protection

JBM-HH infrastructure and facilities must incorporate anti-terrorism and force protection considerations and techniques during planning/programming, design, and construction with consideration for sustainability and the environment. Figure 2.27 illustrates force protection design standards.

To respond to the potential threats posed by terrorists, the DoD has developed minimum construction standards for anti-terrorism/force protection (AT/FP) at military installations. The following discussion summarizes key points found within DoD Minimum Antiterrorism Standards for Buildings UFC 4-010-01. The first bullet is identified on the operational constraints map. The remaining bullets will be considered during subsequent phases of master planning.

- The distance from inhabited structures to the installation perimeter should be a minimum of 25 meters.
- A minimum distance of 45 meters is required between troop billeting and primary gathering structures and the installation perimeter.
- Trash containers must be at least 10 meters from inhabited structures.
- Trash containers must be at least 25 meters from troop billeting and primary gathering structures.
- Troop billeting and a distance of 10 meters should separate primary gathering structures from other facilities.
- Roadways and parking should not be closer than 10 meters to any inhabited structure.
- Parking lots and roadways should be at least 25 meters from troop billeting and primary gathering structures. The standoff distance is measured from the nearest edge of pavement. Structures with lesser occupancies could be located within the stated standoff distance.
- Do not locate activities with large non-DoD visitor populations within or around assets where possible.
- Position exterior doors on inhabited structures so they cannot be easily targeted from the installation perimeter or uncontrolled vantage points.
- Mitigate head-on vehicular approach to inhabited structures.

Figure 2.27 Force Protection Design Standards



Henderson Hall

Solid Waste

Data not available.

Asbestos and Lead-Based Paint

Data not available.

Polychlorinated Biphenyl Transformers

Currently at Henderson Hall there are no electromagnetic hazards or hazardous materials.

Radon

Data not available.

Pesticides/Herbicides/Fertilizers

Data not available.

Hazardous Materials and Waste

Data not available.

Ammunition

Data not available.

Noise

The major source of noise at Henderson Hall includes aircraft overflights arriving/departing Ronald Reagan Washington National Airport, and automobile/bus traffic from both on-post and on adjacent streets/highways. Impulse noise is also generated by occasional ceremonial firings of rifle and artillery. This consists of cannon blasts and recorded bugle calls during ceremonies. In general, noise generated on-post is short-term in nature.

Airfields

There are no airfields located at Henderson Hall.

Force Protection

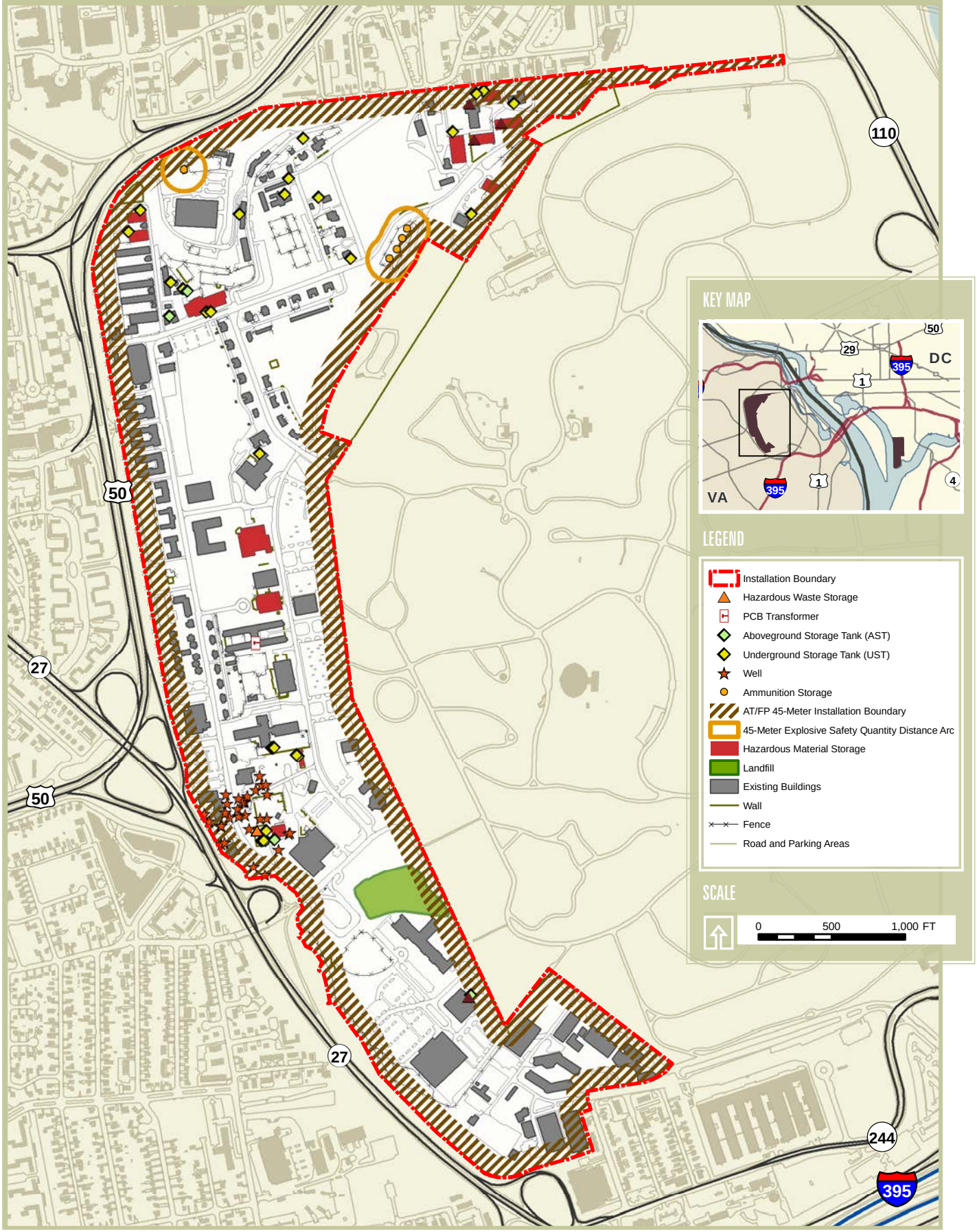
See Fort Myer Force Protection.

Mitigation

No mitigation measures are necessary for noise at this time.

Figure 2.28 presents the operational constraints on JBM-HH.

Figure 2.28 JBM-HH Operational Constraints Map



Fort McNair

Solid Waste

Solid wastes are collected biweekly by a contractor and taken offsite to an approved landfill. Fort McNair also participates in the Recycling Program for nonhazardous and nonprecious materials.

Mitigation

Specific remediation measures will be determined following detailed site investigations.

Asbestos and Lead-Based Paint

Asbestos and lead-based paint is a major concern for historical buildings, specifically in basements. Building 47 on Fort McNair has significant lead-based paint problems with major flaking occurring in the basement.

Polychlorinated Biphenyl Transformers

No known regulated PCB transformers remain at Fort McNair.

Radon

The radon monitoring conducted at Fort Myer was also conducted at Fort McNair and the same results were found. Radon is not expected to be a problem at Fort McNair.

Pesticides/Herbicides/Fertilizers

Fort McNair employs a number of ground crews to maintain the general grounds. They treat the facility with insecticides, herbicides, pesticides, and fertilizers which are stored at the Pesticide Storage Facility.

Hazardous Materials and Waste

Data not available by May 1, 2009.

Ammunition

Fort McNair has no designated ammunition storage on-site. Ammunition storage is located on Fort Myer.

Noise

The major source of noise at Fort McNair includes aircraft overflights arriving/departing Ronald Reagan Washington National Airport, and automobile/bus traffic from both on-post and on adjacent streets/highways. Impulse noise is also generated by occasional ceremonial firings of rifle and artillery. This consists of cannon blasts and recorded bugle calls during ceremonies. In general, noise generated on-post is short-term in nature.

Mitigation

No mitigation measures are necessary for noise at this time.

Airfield

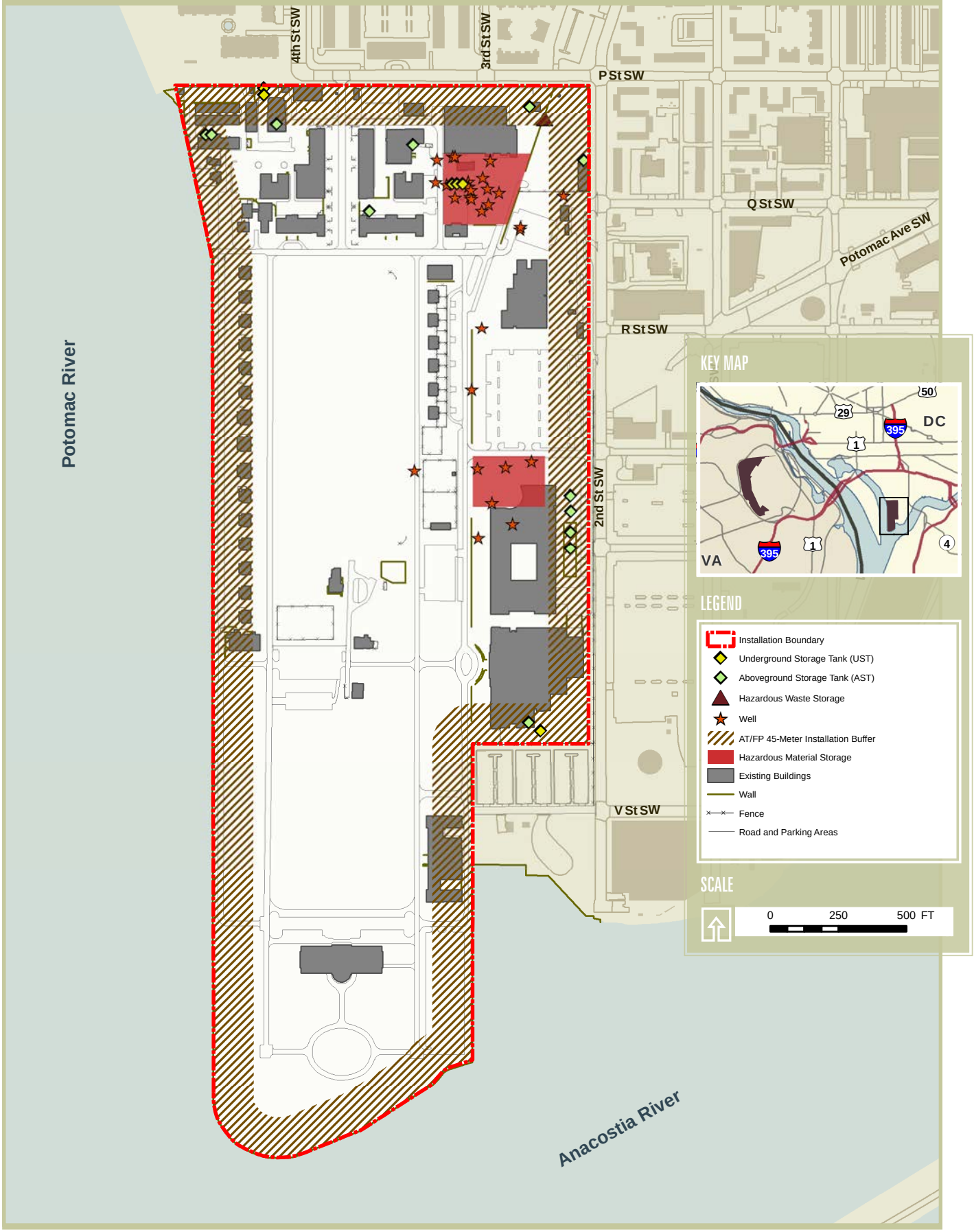
The helipad at Fort McNair is used for emergencies only and is not considered an Interim Landing Facility. Therefore no constraints are shown.

Force Protection

See the Fort Myer Force Protection Section.

Figure 2.29 presents the operational constraints on Fort McNair.

Figure 2.29 Fort McNair Operational Constraints Map



Summary of Operational Constraints and Mitigation

The operational areas on these installations represent both constraints and opportunities. Activities in these areas are often desirable as they may lead to the removal of hazardous materials. In some cases, improvement to the environment may involve costly and lengthy corrective mitigation efforts. Operational factors, constraints, and mitigations are described in Table 2.12.

Figures 2.30 and 2.31 show all of the combined constraints associated with Natural and Cultural Resources and Operational Constraints.

Table 2.12 Summary of Operational Constraints on Fort Myer, Henderson Hall, and Fort McNair

Resource	Description	Mitigation
Solid Waste	Domestic refuse is collected by a private contractor and disposed at approved sanitary landfills.	Specific remediation measures will be determined following detailed site investigations.
Asbestos and Lead-Based Paint (LBP)	Many of the buildings at Fort Myer have asbestos-containing materials that may be related to heating and cooling equipment. Since most of the buildings at Fort Myer were built prior to 1978, it can be assumed that painted surfaces contain LBP. Lead-based paint in historic buildings on Fort McNair is a major concern.	The database containing sample analyses will be consulted on a site-by-site basis to determine if the removal of asbestos-containing material is required as part of the master plan projects. Conduct a comprehensive survey for lead-based paint at Fort Myer.
Radon	Radon levels are well within USEPA acceptable levels and require no action at Fort Myer and Fort McNair.	N/A
Pesticides/Herbicides/ Fertilizers	The Environmental Hygiene Division of DPW currently administers the pest control program at Fort Myer.	The installations follow their Pest Management Plans as well as applicable federal, state and local laws regulating the application and storage of these chemicals.
Hazardous Materials/ Hazardous Waste	The Oil and Hazardous Substance Spill Prevention, Control, and Countermeasures (SPCC) Plan for Fort Myer identified 13 spill control areas, ten of which contain petroleum products, 5 of which contain hazardous substances. The total oil storage on Fort Myer is approximately 192,900 gallons.	Petroleum Storage Areas/Tanks located within any proposed development could be aggressively addressed as part of the site preparations. Mitigation measures could be integrated into the construction phase of the project, in concert with the site preparation and earthwork features for minimal impact to the overall construction schedule.
Ammunition	Ammunition for Fort Myer and McNair is stored in Buildings 326, 327, 328, and 329. Storage is in four partially in-ground structures with concrete walls and floors, and earth-covered roofs. Explosives kits, used for the training of the explosive-detecting dogs, are stored at the Military Working Dogs Training Facility in an explosive storage bunker.	Mitigations include removal, quantity reduction, or relocation of the explosive material, or providing additional blast protection, such as berming to reduce the size of the arc required.
Noise	The major source of noise includes aircraft overflights arriving and departing Ronald Reagan Washington National Airport. Impulse noise is also generated by occasional ceremonial firings of rifle and artillery, as well as traffic on and off Post.	N/A

Figure 2.30 JBM-HH Combined Constraints Map

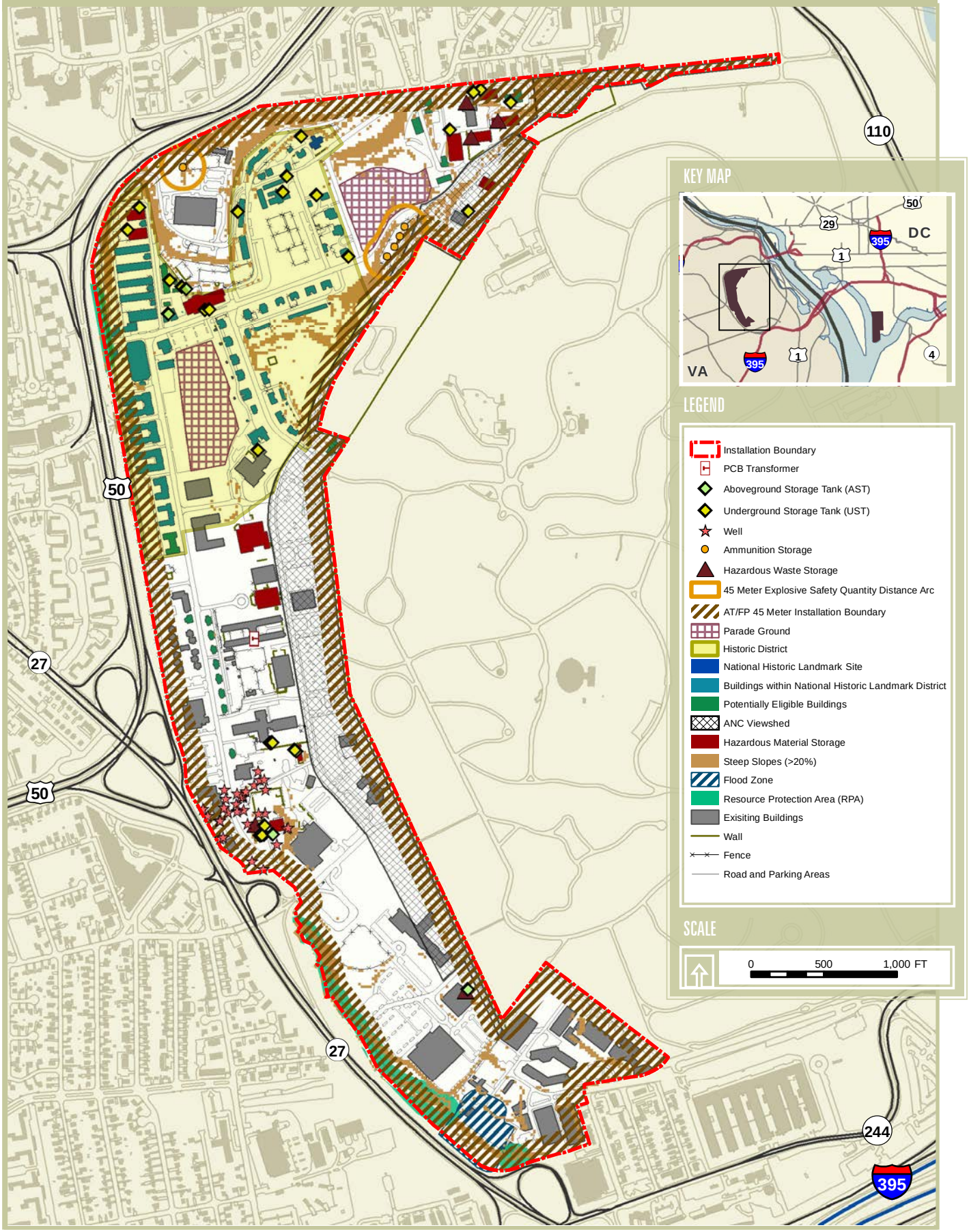
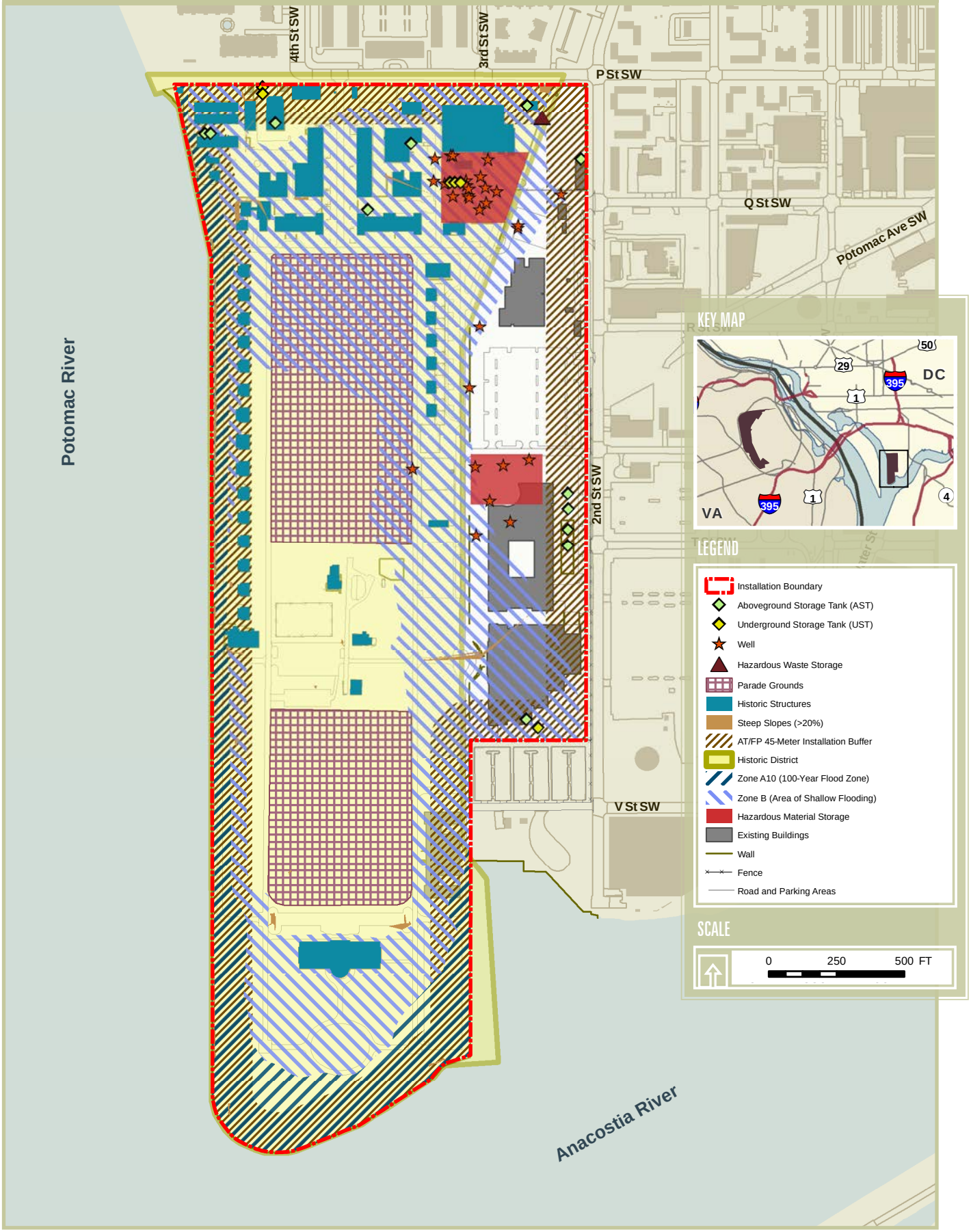


Figure 2.31 Fort McNair Combined Constraints Map



2.7.5 Environmental Constraints Composite

Constraints differ in criteria and requirements regarding encroachment. Therefore, not all resources are equally impacted by development or require the same level of mitigation. Some constraints are federally mandated and require significant mitigation. Others are simply Installation management practices, requiring minimal or no mitigation. Identifying environmental constraints makes the developable areas on Fort Myer, Henderson Hall, and Fort McNair apparent.

Figures 2.32 and 2.33 illustrate each installation according to three levels of constraints. The “Restricted Development” areas have some constraints associated with them that require mitigation before development can occur. The “Limited Development” areas have constraints that may require significant mitigation measures (for example, a sensitive natural area). “Unrestricted Development" areas are those areas with no apparent constraints; these are most ideal for future development.

Developing sites within the “Restricted Development” areas is possible but would require mitigation prior to development. Sites within the “Limited Development” areas should only be developed as a last resort such as when the need for contiguous land or roadway access is paramount. Before proposing development within these areas, the value of the environmental resource and the potential to mitigate its disruption should be considered carefully.

Limited Development

Natural Resources
- 100-year Floodplain
- Resource Protection Areas

Cultural Resources
- Viewsheds
- Archaeological Sites

Operational Resources
- Quantity Distance Arcs

Restricted Development

Natural Resources
- Steep Slopes

Cultural Resources
- Historic Districts
- Historic Structures

Operational Resources
- Hazardous Waste Storage
- Hazardous Materials Storage
- Anti-Terrorism/Force Protection 45-meter Installation Buffer

Tables 2.13 and 2.14 show developable acreage on each site by land use. Non-developable acreage includes those areas in the Limited Development Category. Developable acreage includes all remaining areas.

Table 2.13 Joint Base Myer-Henderson Hall Developable Areas by Land Use

Existing Land Use	Total Acreage	Developable Acreage*	Non-Developable Acreage**
Troop	71.1	62.9	8.2
Ranges &Training	0.00	0.00	0.00
Residential	29.3	27.9	1.4
Professional/Institutional	14.3	13.8	0.5
Industrial	15.5	9.0	6.5
Community	142.2	99.2	43
Airfield	0.00	0.00	0.00
Total of each column	272.5	213.0	59.5
Percent of whole		78.1	21.9

Table 2.14 Fort McNair Developable Areas by Land Use

Existing Land Use	Total Acreage	Developable Acreage*	Non-Developable Acreage**
Troop	2.7	2.7	0.00
Ranges & Training	0.00	0.00	0.00
Residential	11.6	8.7	2.9
Professional/Institutional	34.8	32.6	2.2
Industrial	3.9	3.7	0.2
Community	54.7	47.2	7.5
Airfield	0.00	0.00	0.00
Total of each column	107.7	95	12.7
Percent of whole		88.2	11.8

*Includes all areas considered Unconstrained or Restricted Development

** Includes all areas considered Limited Development

Figure 2.32 JBM-HH Composite Constraints Map

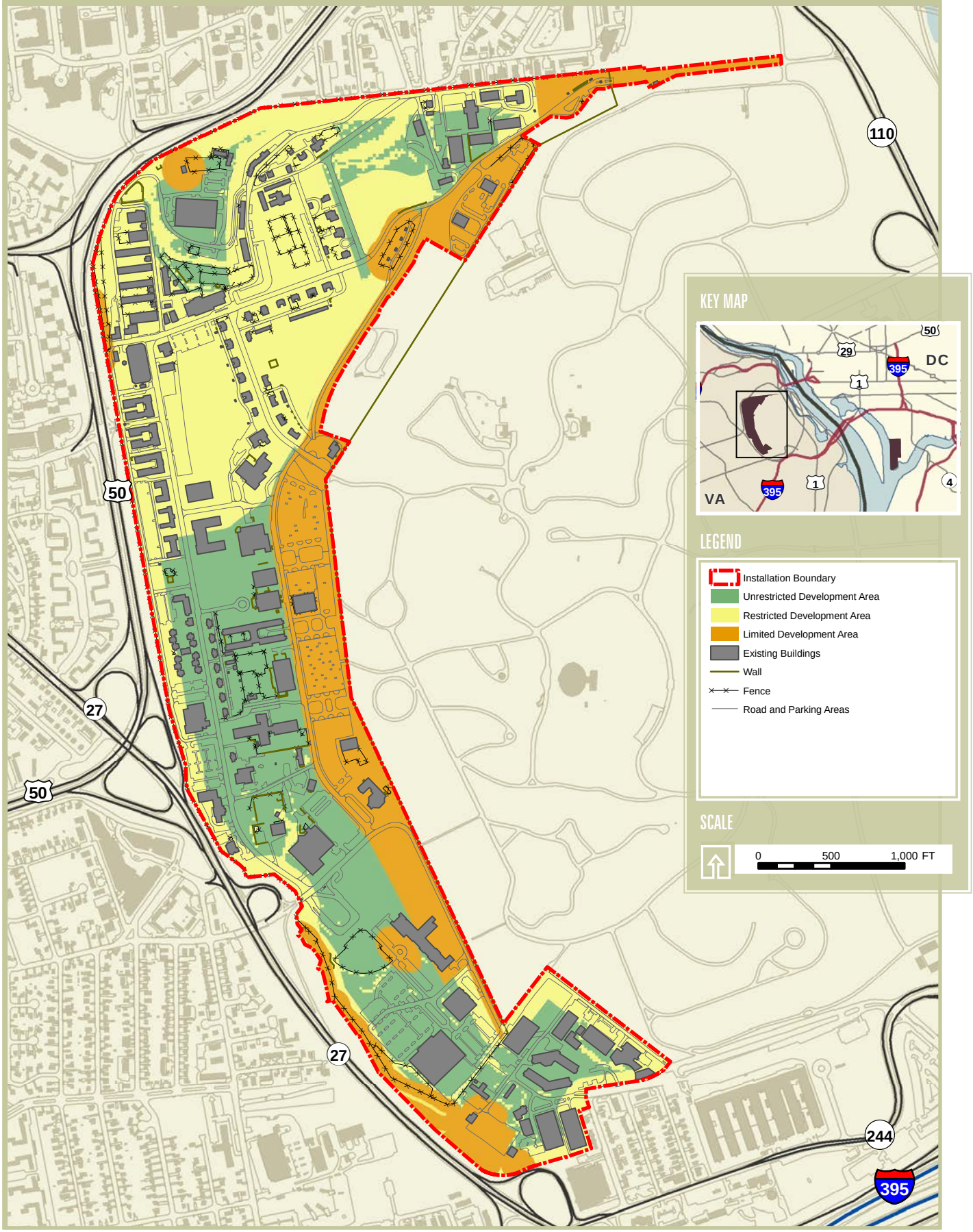
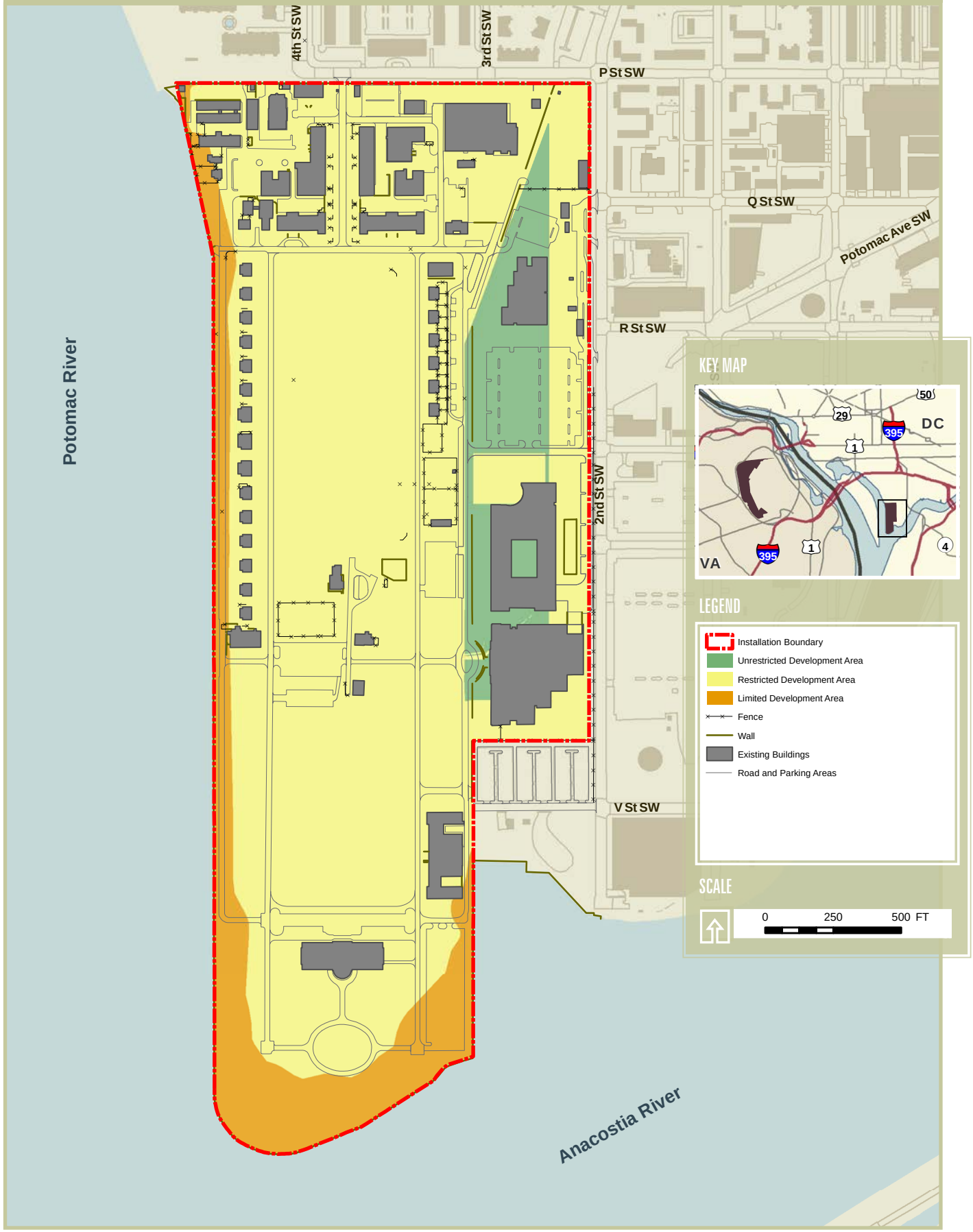


Figure 2.33 Fort McNair Composite Constraints Map



2.8 LAND USE

This section first provides an introduction to land use classifications as presented in the Army Master Planning Technical Manual. This is followed by a narrative summary of existing land use conditions (on and off the Installation), along with the Existing Land Use Map.

2.8.1 Land Use Classifications

The Land Use Map illustrates a generalized view of the Installation, not a precise reflection of what is on the ground. The map is meant to reflect the dominant use of the area.

The seven categories of land use are: Professional/Institutional, Residential, Community, Troop, Industrial, Ranges and Training, and Airfield. This system is intended to provide more flexibility in siting facilities and to encourage mixed-use development. The "Open Space" category, which was used to categorize protected land, environmentally sensitive areas, or otherwise undevelopable land, has been eliminated. Constrained land is depicted on land use maps and plans with a hatched overlay.

The Army Master Planning Technical Manual includes a land use matrix that indicates specifically which facility types are allowed, conditionally allowed, or not allowed in each land use category.

The lack of land use designation for these constrained lands does not reduce environmental areas or increase developable areas. All of the constraints and use restrictions associated with these areas are still in effect. For example, if a part of the Community land use has environmental "hatches", the area still has all the limitations associated with the specific environmental feature concerned.

A brief description of each land use category is included below.

- Professional/Institutional – This land use provides for non-tactical organizations including military schools, headquarters, major commands, and non-industrial Research Development Testing & Evaluation (RDT&E).
- Residential – This land use provides space for family housing and senior unaccompanied personnel housing. It also includes family services and may have other neighborhood services associated with the community land use cluster included in the area.
- Community – This land use encourages a mix of uses. Facilities allowed include: religious, family support, personnel services, professional services, medical, community, housing, commercial and recreational services. Users live both on-and off-post, and may include: soldiers, dependents, retirees, and other civilian personnel.
- Troop – This land use is designated for operational facilities for Table of Organization and Equipment units (TOE units), Basic Combat Training (BCT) and One Station Unit Training (OSUT) complexes and for selected Initial Entry Training (IET) complexes. The goal is to provide contiguous facilities to related organizations in order to facilitate operational readiness, support operations security for deployable units, and improve circulation and movement of trainees between sleeping, eating and training facilities.
- Industrial – This land use is designated for production, maintenance, depot and other storage; activities that generate significant amounts of: heavy vehicle traffic, loud outdoor equipment operations, noise, smoke, large amounts of steam or pollutants that must be processed on the site.
- Ranges and Training – This land use includes live-fire ranges, non-live-fire ranges, and special training areas (such as confidence courses, drivers training or land navigation).
- Airfield – This land use is designated for flight operations, including: runways, taxiways, airfield support facilities (such as airfield operations, aviation refueling, aviation maintenance, and related test facilities).

2.8.2 Existing Land Use

JBM-HH's existing land use is fairly well-organized. A summary of existing land use conditions and an analysis of inconsistencies and incompatibilities follow here. Numbers listed next to descriptions are keyed to locations on the existing land use map (Figures 2.34 and 2.35).

Fort Myer

1 **Professional / Institutional**
Fort Myer's current administrative land uses are located across the northern section of the installation. There are currently three facilities: Building 59 – Garrison Command Headquarters, Building 305 – Offices of Department of Public Works (DPW), and Building 205 – NCR DOIM Offices. Building 205 also serves as a storage facility for various other tenant organizations on Fort Myer.

Community
Except for the Commissary, most of the commercial based activities – shopping, dining, services – are located along the main north-south axis of Fort McNair Road. There are currently four main areas set aside for outdoor recreation: two tennis court areas, a baseball field, and the officer's club pool facilities.

2 The first area is located north of Jackson Avenue and west of Johnson Lane. Currently, this area offers several community service facilities such as the Officers Club and pools, post office, thrift stores, Army lodging facilities, Army Community Services (ACS), and the Morale, Welfare, and Recreation offices. Nearly all the facilities located here are within the historic district and are housed currently in buildings older than 50 years.

3 The second area is along Fort McNair Road in the central core of the Installation. It includes the Dining Facility (DFAC), Spates Hall, Bowling Center, Recreation Center, Fitness Center, and Library. This area is used mainly by the public and officers after ceremonial funerals and special events. Currently, there is also a tennis court, but it is used for either storage or construction staging areas.

4 The third area is accessed directly from the main gate on Carpenter Road. It includes community support facilities such as the PX, the bank, gas station, shoppette, Department of Emergency Services (DES), Child Development Center (CDC) and chapels. In general, these community facilities are considerably larger in scale than those of the historic district because they serve a more regional purpose and therefore attract a larger volume of users and traffic.

5 The fourth area is located adjacent to Henderson Hall in the southern section of Fort Myer. The area includes the Commissary, Rader Medical Clinic, Child Development Center (CDC), and baseball field. The CDC is the largest in the Army and serves Fort Myer as well as the Pentagon to the southwest.

6 **Residential**
Family Housing consists of General Officer (GO) and Senior Non-Commissioned Officer (NCO) housing within the historic district of the Installation. These homes are historic colonial in nature and are maintained by the Executive Management Housing Directorate (EMHD). Additionally, access to the GO housing is restricted by its own security gate and access drive.

7 **Troop**
The primary troop land use area on the Installation is located between Arlington Boulevard / Route 50 and Fort McNair Road. This area encompasses a majority of the historic facilities on the Installation. These facilities include the horse stables, Commy Hall, Town Hall, The Old Guard (TOG) Headquarters and barracks, Summerall Parade Field, The U.S. Army Band (TUSAB) Building, and Consolidated Operation Facility (COF). This area supports the main ceremonial mission of the Installation and ANC.

8 The second troop area is located south of the installation boundary, on the north section between Marshall Drive and Fort McNair Road. Facilities in this area support local training operations, and include the canine kennel and training facility for the Military Police (MP), Whipple Field, and storage bunkers.

9 **Industrial**
The only industrial area on the Installation is located between ANC and Marshall Drive in the northern section of Fort Myer. This area houses the DPW and storage facilities. It also includes a motor pool for TOG, a fuel station, and a vehicle maintenance shop.

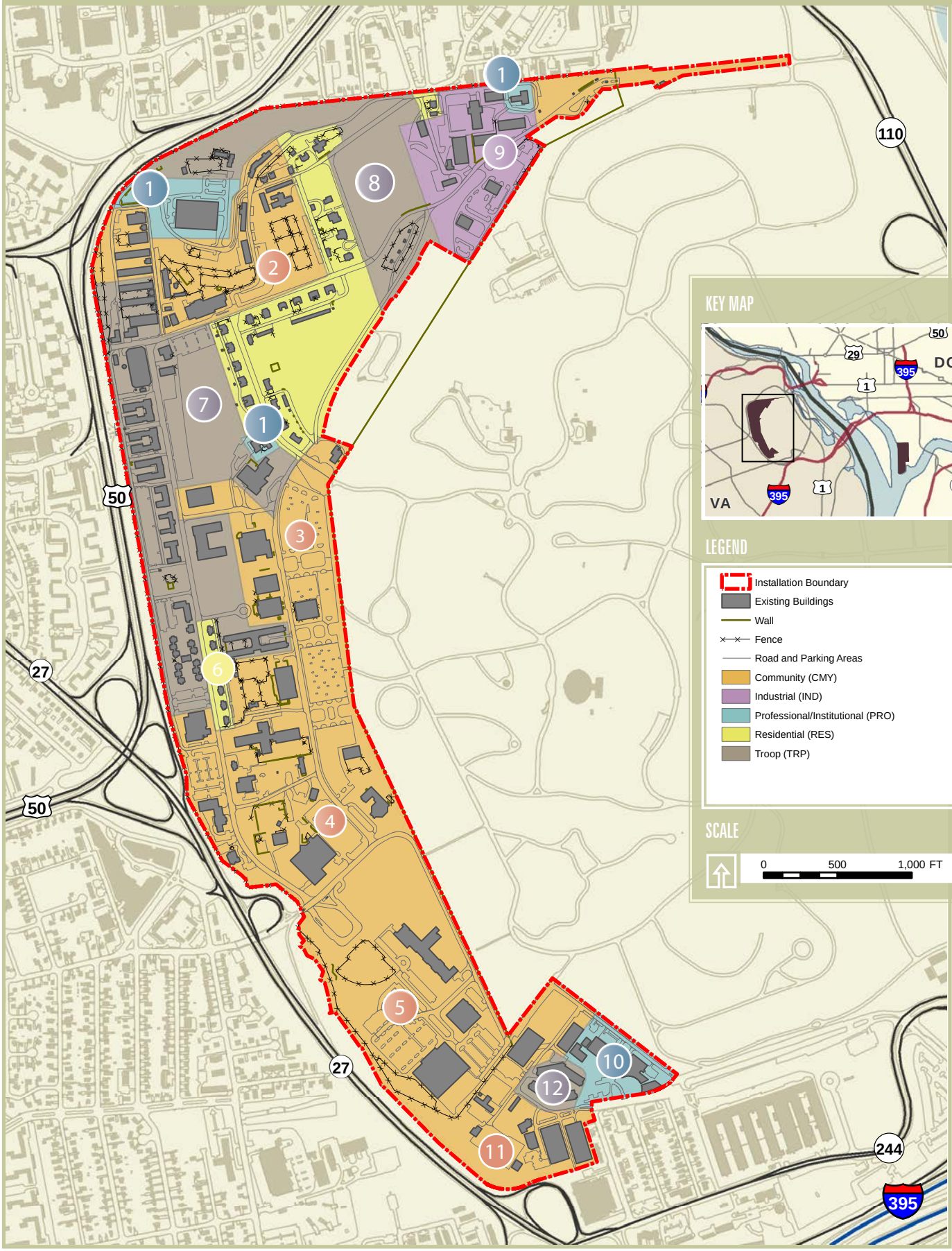
Henderson Hall

10 **Professional / Institutional**
Because land is limited at Henderson Hall, there are currently only two buildings designated for administrative uses; Building 01 has been demolished in order to build another administrative facility. Building 29 houses many functions, but the most significant is the commanding officers headquarters.

11 **Community**
The majority of the land at Henderson Hall is used for support geared to the Marines stationed in the NCR. These facilities include the Marine Corps Exchange (MCX), Marine Club, Fitness Center, car wash, basketball court, and swimming pool. Currently, there is an open section of land adjacent to Hobson Road and ANC.

12 **Troop**
The Unaccompanied Enlisted Personnel Housing (UEPH) encompasses the troop area of Henderson Hall located in the central core. The barracks are currently in poor condition, but plans for renovation in the near future are in process. In addition, the parking garage under Building 25 (BEQ) is in poor condition and is currently being evaluated / inspected by engineers at Naval Facilities Engineering Command (NAVFAC), Washington.

Figure 2.34 JBM-HH Existing Land Use Map



Fort McNair

Professional / Institutional

A large percentage of Fort McNair's land is designated as professional / institutional. Of this land, the National Defense University (NDU) accounts for a significant portion. There are currently four main areas set aside for professional / institutional use.

1. The first area is comprised of two large facilities at the southern section of the peninsula, which are included in the NDU. These facilities are the historic Army War College and the Industrial College of the Armed Forces. The War College was one of the original facilities built in 1901 when Fort McNair was originally established. Its purpose was to be an outlook point and first point of defense for the newly established capital city.
2. The second area is located in the eastern section of Fort McNair along 2nd Street SW. This area includes the National Defense University and the newly constructed Lincoln Hall which are connected by a covered walkway. This area was originally outside the plan for Fort McNair, but was purchased to accommodate expansion of NDU.
3. The third area is the central core of the Installation. This area includes the old Civil War penitentiary, which is currently the Africa Center (Grant Hall, Building 20), and the Washington Arsenal (Davis Hall, Building 21), which is now part of NDU. It also includes Building 17, which is an administrative facility for NDU. All of these facilities date back to the Civil War era and are considered historic assets.
4. The fourth area lies in the north section of Fort McNair between A Street and B Street. These facilities include tenants such as the Inter-American Defense College (IADC), JFHQ-NCR/MDW, Garrison, and the Center for Military History. These facilities are also located in historic buildings; however due to program and mission requirements, the buildings are not meeting the needs of the tenants and their use should be reviewed.

Community

The community land use category is divided into four main areas. Withinn these areas are outdoor recreational facilities that include: tennis courts, baseball fields, a pool, playgrounds, and open green space.

5. The largest area of community space is located between 2nd Avenue and 5th Avenue. It encompasses the central core of the Installation and includes facilities such as the main parade field, closed golf course, old physical fitness center, and baseball fields. A majority of this area is open green space, originally planned in the historic McKim, Mead, and White plan of 1903.
6. The second area is located east of 5th street in the northeast corner of the Installation. This area includes the newly constructed physical fitness center, the new ACP, storage facilities, and PX shoppette.
7. The small community area west of 3rd Avenue and north of B Street encompasses a diverse mix of uses. These include the dining facility, dental clinic, army lodging, and medical clinic. The medical clinic is a historic landmark because Walter Reed did his research on yellow fever in this facility.
8. The fourth area is just inside the main ceremonial gate along 3rd Avenue. These facilities are mainly for installation support such as the post office and military police station.

Residential

9. General Officer's housing and Senior NCO housing comprises the residential sections of Fort McNair. These officers command and support operations at the U.S. Capitol, the Pentagon, and the White House, and do not work on the Installation. However, the Installation provides security and support to them. The housing units are maintained by the Installation.

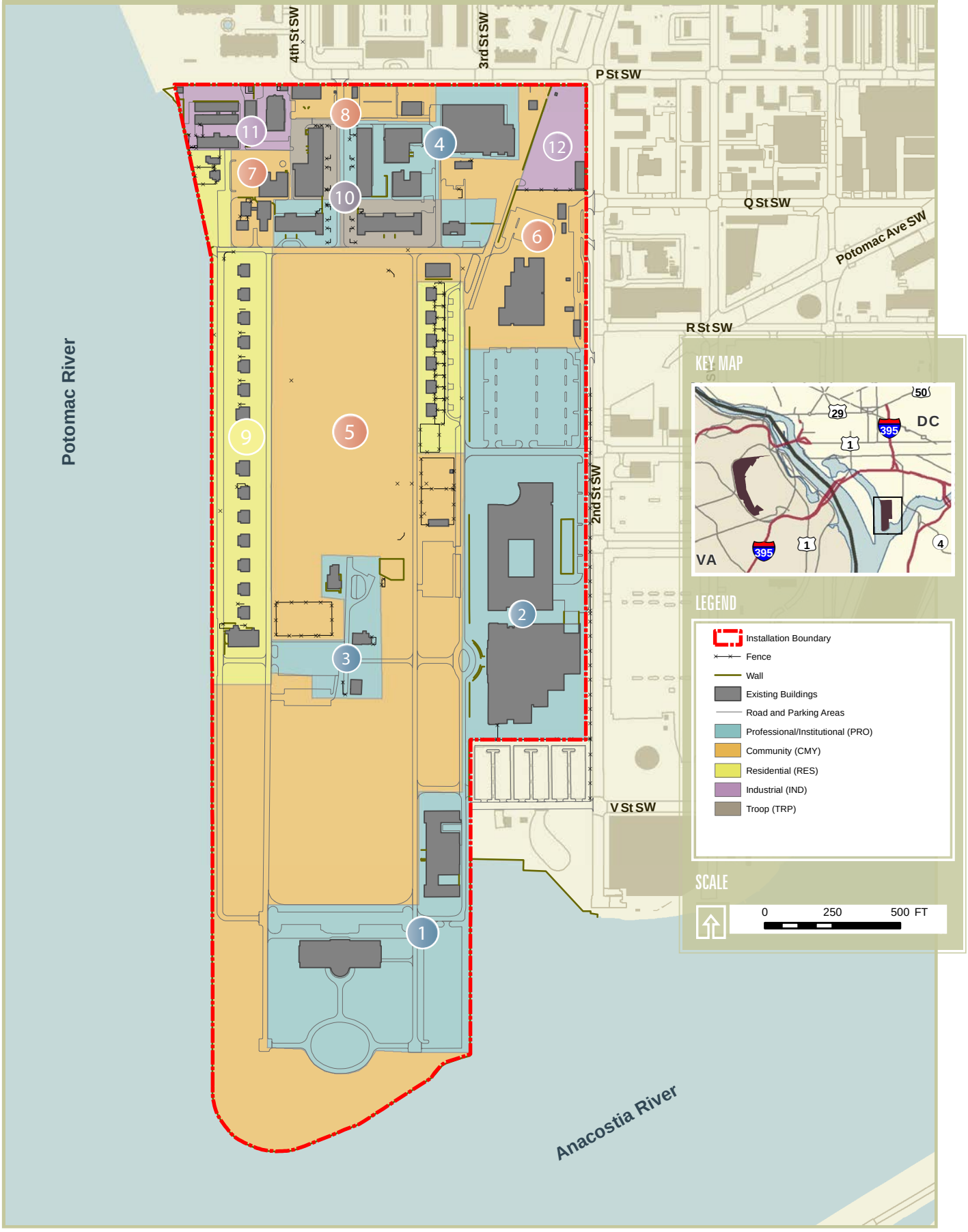
Troop

10. Currently, there are only two facilities on Fort McNair designated as troop land use. These are the TOG barracks and administrative facilities in Buildings 47 and 48.

Industrial

11. The first section of the industrial land use is located in the northwest corner of the installation south of P Street SW and west of 3rd Avenue. Most of the facilities included in this area are the DPW facilities, storage, maintenance, and emergency operations center. The utilities facilities such as the steam plant and electrical substation are also located within this area.
12. The second section is south of P Street SW and west of 2nd Street SW. Facilities within the area include operational storage and a temporary guard shack.

Figure 2.35 Fort McNair Existing Land Use Map



2.8.3 Adjacent Off-Post Land Uses

Joint Base Myer-Henderson Hall

Residential
Areas zoned for residential use comprise the primary land use in the vicinity of JBM-HH. These zones are located north, west, and south of the Installation.

While a range of residential zoning densities is present, the principal residential zones are characterized by multi-unit apartment dwelling districts (RA 6-15 and RA 8-18). These zoning districts are located to the north and west of Fort Myer along the Arlington and Washington Boulevards.

Other residential areas in the vicinity of Fort Myer include single-unit and limited two-unit dwellings (R-5 and R-6). These areas are located west of Arlington and Washington Boulevards, with apartment dwelling districts nestled between them and Fort Myer. These neighborhoods tend to be homogeneous, typically with lower building heights and densities than the apartment dwelling zones.

Industrial
There are three types of industrial zones in the vicinity of JBM-HH; all are located southeast of the Installation near the Pentagon, Pentagon City, and Crystal City. These include limited industrial (CM), light industrial (M1), and service industrial (M2). These industrial zones are quite small and number approximately a dozen in total. Industrial zones are therefore not a significant adjacent land use.

East of the Pentagon, along Old Jefferson Davis Highway, is an assortment of small zones of CM, M1, and M2. There is a sizable light industrial zone next to the Pentagon City Metro stop, and several small parcels zoned limited industrial and service zones next to the Crystal City Metro stop.

Commercial
There is a substantial number of commercial zones located in the vicinity of Joint Base Myer-Henderson Hall. The high number and variety of commercial zones in this area indicate that commercial activity, especially office buildings and retail, is a significant land use in this area.

Rosslyn/Courthouse/Clarendon Commercial Zones

Rosslyn and Courthouse have a wide variety of commercial zones. Primarily they consist of medium-to high-density, mixed-use developments along the Rosslyn-Ballston Metrorail Corridor.

Columbia Pike Commercial Zones

Commercial zones along the Columbia Pike are blended with residential zones, aiding in the development of a main street atmosphere.

Pentagon City Commercial Zones

Commercial zones in Pentagon city are generally high-density, mixed commercial and residential zones along the Jefferson Davis Metrorail Corridor.

Courthouse as seen from JBM-HH

Single unit housing west of Arlington Boulevard

Fort McNair

Residential

Residential zones in the vicinity of Fort McNair are primarily located north of the Installation in the Southwest Waterfront area. These neighborhoods include: Row Dwellings and Flats (R3&R4), Moderate Density Apartment Houses (R5B), and Medium-High Density Apartments (R5D). Medium and high density apartments (R5B & R5D) are located along 4th Street between Fort McNair and the Waterfront-SEU Metro station. Medium density row houses (R3 & R4) are located northeast of Fort McNair and east of the high density areas.

Industrial

The following industrial zones are located east of Fort McNair: General Industry (M), Low bulk Commercial and Light Manufacturing (CM1), and Medium Bulk Commercial and Light Manufacturing (CM2). The General Industry and Medium Bulk Commercial and Light Manufacturing zones are located directly adjacent to Fort McNair, in the Buzzard Point and Near Southeast neighborhoods. These areas are characterized by parking lots, car lots, empty lots, a power plant, and warehouses. Industrial zones are a significant land use in this area and are subsequently targeted for redevelopment, typically for medium-high density mixed-use purposes.

Commercial

Commercial districts near Fort McNair are generally along M Street, and consist of: Medium Bulk Major Business and Employment (C3A and C3B), High Bulk Major Business and Employment (C3C), and Medium Bulk Commercial and Light Manufacturing (CM2). Many of the medium and high bulk businesses consist of new office and retail development, especially along M Street near the new Washington Nationals stadium.

Adjacent to Fort McNair are two small zones along 5th Ave zoned Low Density Mixed Residential-Commercial (W1), and High Density Mixed Residential-Commercial (W3) zones. There is government zoning (G) in the form of the Washington Navy Yard.

Empty lot, Buzzard's Point

Scrap yard, Buzzard's Point

Washington Nationals Park near Southeast

2.9 TRANSPORTATION

2.9.1 Greater Washington Region Transportation

The Greater Washington Region features an extensive transportation system, featuring three airports, two major ports, Amtrak, commuter rail lines, Metrorail, bus systems, and the regional Interstates I-95, I-66, and I-70 connecting the region to other major cities (Figure 2.36).

While the Greater Washington Region has a broad comprehensive transportation system, the road network is congested and strained in part from rapid development, especially in terms of employment (19.6% economic growth rate in the last five years) and residential land uses (10% overall population growth since 2000). In fact, the regions roadways are among the most congested in the nation, with drivers spending an average of 69 hours a year in traffic jams. In 2005, the Greater Washington area was ranked third in the U.S., behind Los Angeles and San Francisco, for worst traffic congestion in the nation.

Source | http://www.washingtonpost.com/wp-dyn/content/article/2005/05/09/AR2005050900408.html

2.9.2 Joint Base Myer-Henderson Hall Transportation

Installation Access

Currently, there are nine access control points (ACPs) on JBM-HH (see Figure 2.37).

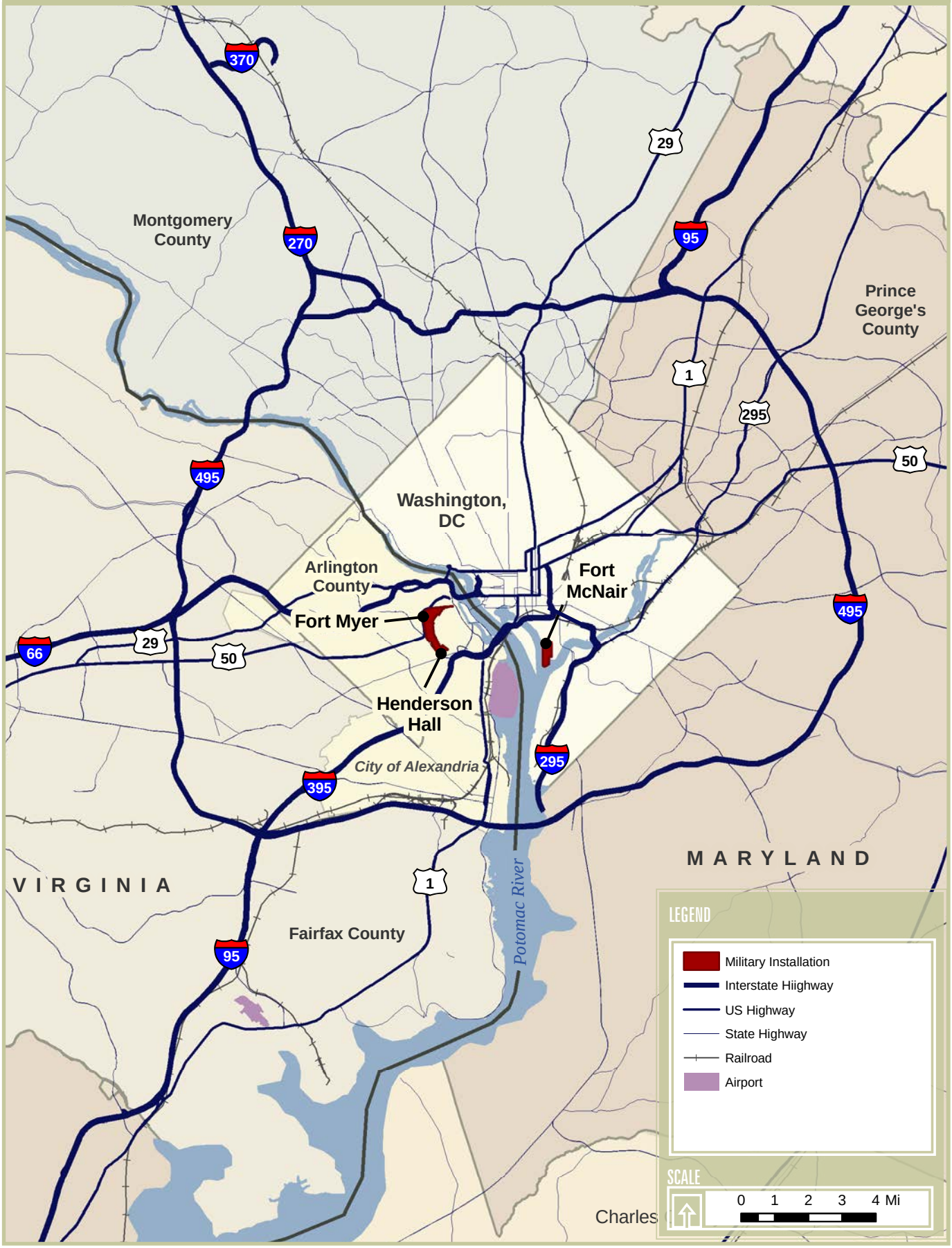
- Hatfield Gate: This is the main entrance to Fort Myer, and is located at Second Street and Washington Boulevard (State Route 27). Hatfield Gate is open 24 hours a day.
- Henry Gate: Located at Arlington Boulevard, this gate provides access for outgoing vehicle traffic, pedestrians, and emergencies. This gate is open from 6 am to 6 pm.
- Wright Gate: Located at the north end of the Installation at Marshall Drive and Meade Street. This gate is a secondary entrance open from 5 am to 9 pm.
- Chapel Gate: This is the primary gate for funeral procession access to ANC. Processions originate from the Old Post Chapel, adjacent to Chapel Gate. This gate is open from 7 am to 7 pm in the summer and 6 am to 6 pm in the winter.
- Henderson Hall Main Gate: Located on Southgate Road, this gate provides 24 hour access to Henderson Hall.
- Selfridge Gate: This gate is closed to the public and is used for special events.
- Memorial Chapel Gate: Serving as a secondary gate for funeral procession access to ANC, this gate is closed to the public and is used for special events.
- Hobson Gate: Located on Hobson Drive, this gate is not in use.
- Annex Gate: Located at Southgate Road this gate provides access from 6 am to 6 pm.

Installation Road Network

Primary circulation within JBM-HH is along four north-south transit corridors (Figure 2.37). Minor numbered streets run laterally in an east-west direction to create a staggered grid pattern of irregularly formed blocks. The road network is comprised of the following primary roads:

- Marshall Drive: This road connects Wright Gate to SR 110 and an extensive highway system for regional connections to northern Virginia and Washington, D.C. This road is two lanes with traffic flowing in opposite directions.
- Jackson Avenue: Forms the only primary east-west access road, and connects Wright Gate to the northern facilities of the Installation. This tree-lined road is two lanes with traffic flowing in opposite directions, and spans the majority of the historic district. It is the only access road to the DPW area.
- Sheridan Avenue: This two-lane road connects Jackson Avenue with Carpenter Avenue and Hatfield Gate. It links the historic district with the community services area of the Installation. Lining this road are the main troop support facilities.

Figure 2.36 Greater Washington Region Transportation Map



- McNair Road: This is one of two roads that runs in a north-south direction, and connects Jackson Avenue to Carpenter Road. This two-lane road provides direct access to community service facilities that include: the DFAC, library, Post Exchange (PX), bank, and Memorial Chapel. Troop facilities occasionally dot this road such as the TUSAB building and ANC chapel. This primary road is also the most traveled, as a majority of the parking on Fort Myer is located in the tri-service parking lot which parallels the east side of McNair Road.
- Carpenter Road: This two-lane road is the primary access from Hatfield Gate to the southern section of Fort Myer, and connects to Henderson Hall. It forms part of the east boundary of the Installation adjacent to ANC. This road provides access to heavily used, community service facilities like: the Child Development Center (CDC), Rader Health Clinic, and the Commissary.
- Southgate Road: This road provides the main circulatory spine for the Marine Corps within Henderson Hall. Most facilities supporting the soldiers lie along its edges. These facilities include: the Marine Corps Exchange (MCX), administration facility, barracks, and pool facility. It is a two-lane road that connects the main gate to the central core of the area.

Secondary Roads

Secondary roadways on JBM-HH include: Pershing Drive, Custer Road, Gorgas Street, Bloxon Street, and Wainwright Road. These roads are two-lane with traffic traveling in opposite directions. Additionally, the majority of these roads provide direct access to facilities, are narrower in nature, and run perpendicular to the primary roads.

Several secondary roads on Fort Myer are one-way roads and include: Forest Circle, Sherman Road, Stewart Road, and Fenton Circle. These roads are generally one or two-lanes and are narrow in nature. They are directly adjacent to facilities with little or no landscape treatment. Most traverse parking lots, or are incorporated into areas of large paving with paint designating the traffic flow.

Tertiary Roads

The majority of the tertiary roads on the Installation are one-way narrow roads that either traverse parking lots or lead to small parking areas or private garages. These roads include: School Lane, Abrams Lane, Pitcher Place, Macomb Place, Henry Place, Reba Place, Johnson Avenue, Grant Avenue and Washington Avenue. These roads also act as cross avenues that connect primary roads to secondary roads on Post.

Pedestrian Access

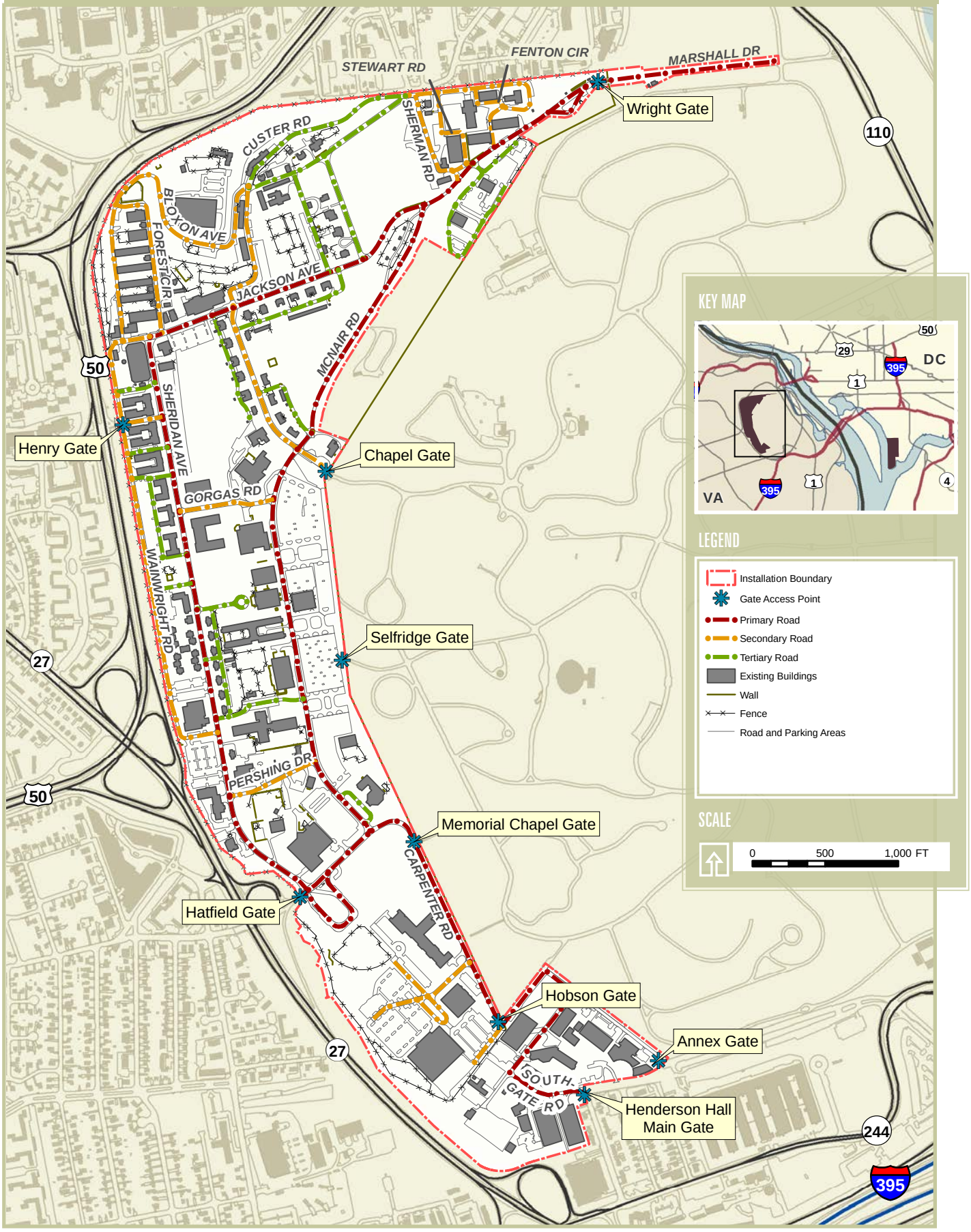
Joint Base Myer - Henderson Hall has an extensive network of pedestrian walkways that connect most areas of the Installation. This network even includes pedestrian access at Henry Gate. However, there are three areas within the Installation that lack sidewalks and cause vehicular/pedestrian conflicts. The first area is at Forest Circle which encircles the stables, storage warehouses, and thrift shop. Pedestrians are often forced to walk in the street or parking lots causing safety and traffic congestion issues. The second area is adjacent to Forest Circle at Building 205. This administrative and operational storage facility lacks walkways leading from Bloxon Street (the only access road) to its parking lot. Access is difficult for those who are disabled or require assistance, as there is no ramp along Bloxon's steep topography, only stairways. The third area is within the complex of DPW facilities. The majority of this area is paved and used for parking. Pedestrians walking from Jackson Avenue can access the area by walkway, but are then forced to walk along parking stalls and into blind intersections, which can cause conflicts and safety issues.

Besides the areas of concern above, the tri-parking lot along McNair Road presents several points of pedestrian - vehicular conflicts where pedestrians need to cross the primary roadway. Crosswalks are currently in place, but there is no signal to inform drivers that pedestrians are crossing the road. Vehicles must slow down or stop, and this can also cause traffic congestion.

Parking

Parking at JBM-HH does not meet current needs. While an adequate number of parking spaces exist, the distribution of spaces is inconsistent with the locations of traffic generators and destinations. This is apparent in the troop housing and Officers Club areas. On-street parking contributes to parking distribution and increases total available spaces. See the JBM-HH Transportation Management Plan (TMP) for details on parking use and availability.

Figure 2.37 JBM-HH On-Site Transportation Map



Surrounding Road Network

JBM-HH is surrounded by a number of major arterial roads, regional roads, and freeway systems (Figure 2.38). These roadways serve as major commuter routes, providing access to the Rosslyn-Ballston Corridor, Pentagon City, and central Washington, D.C. Average Daily Traffic (ADT) Volumes are provided in Table 2.15.

- Arlington Boulevard (U.S. Route 50) is located on the northern and northwestern boundary of the Installation.
- Washington Boulevard (Virginia Route 27) runs along the southwestern portion of the Installation and acts as the primary connecting street between the Rosslyn-Ballston and U.S. Route 1 corridors.
- Interstate Route 66 runs east-west near the northern boundary of JBM-HH.
- The Henry G. Shirley Memorial Highway (I-395) passes by the southern section of the Installation and acts as a major highway in the region. It provides access to central D.C. and connects to other major routes, including: I-95, I-495, and I-295.
- The Columbia Pike (Virginia Route 244) connects Virginia Route 236 in Annandale to Washington Boulevard (Virginia Route 27) and acts both as a commuter route and as a "Main Street" for the Arlington Village area.
- Jefferson Davis Highway (Virginia Route 110) is located east of JBM-HH, and runs in a north-south direction parallel to the Arlington National Cemetery.

Source | http://www.virginiadot.org/info/resources/AADT_PrimaryInterstate_2007.pdf

Table 2.15 **Average Daily Traffic Volume Surrounding JBM-HH**

Road	One Direction	Both Directions
Arlington Blvd (U.S. Route 50)	55,000	-
Washington Blvd (VA Route 27)	33,000	74,000
U.S. Route 66	44,000	97,000
Interstate 395	52,000	172,000
Columbia Pike (VA Route 244)	27,000	-
Jefferson Davis Highway (VA Route 110)	68,000	-

Source | http://www.virginiadot.org/info/resources/AADT_PrimaryInterstate_2007.pdf

Figure 2.38 Arlington County Surrounding Road Network Map

Road network obtained from Arlington County, VA Department of Environmental Services (2008).

Bus Service

Metrobus

Public Metrobuses no longer circulate on the Installation. Security requirements for vehicle searches made their continued operation impractical after September 11, 2001. This requirement is not expected to change in the foreseeable future. The following Metrobus routes provide service in the vicinity of JBM-HH (Figure 2.39):

- 4 A, B, E, H, S, Pershing Drive-Arlington Boulevard Line: This route provides access along Arlington Boulevard connecting Rosslyn and Courthouse with western Arlington County and Fairfax County.
- 5A DC-Dulles Line: This route operates between L'Enfant Station in D.C. to Dulles International Airport stopping at Rosslyn and other metro stations along the way.
- 9A, 9E Huntington-Pentagon Line: This route follows U.S. Route 1 between the Pentagon and Huntington Metrorail Stations with stops at Crystal City and Potomac Yard Shopping Center.
- 13 A, B, F, G, Washington National Airport-Pentagon-D.C. Line: This route provides service between Washington National Airport, the Pentagon, locations on the National Mall, and the Southwest Waterfront.
- 16 A, B, D, E, F, J, Columbia Pike: This route operates along Columbia Pike between Annandale and the Pentagon Metrorail Station.
- 24 P Ballston-Pentagon Line: This line services Ballston and Pentagon Metrorail Stations with additional stops at Virginia Square, Clarendon, and Pentagon City.

Source | http://www.wmata.com/

ART Buses

Arlington Transit (ART) provides bus service in Arlington County and acts as a supplement to Metrobus routes. ART vehicles are typically smaller than Metrobuses and provide neighborhood service and access to other transit modes such as Metrorail, Metrobus, and the Virginia Railway Express (VRE). The following ART routes provide bus service in the vicinity of JBM-HH:

- 41 Columbia Pike-Ballston-Courthouse: This route provides access from the Columbia Pike West area to the Ballston, Clarendon, and Courthouse areas.
- 42 Ballston-Pentagon Saturday Shuttle: This route provides access between Ballston and the Pentagon on Saturdays, with various stops along the way, including the Virginia Square and Clarendon Metro stations. Metrobus 24P serves the same route on weekdays.
- 61 Rosslyn-Courthouse Metro Shuttle: This route provides service between the Rosslyn and Courthouse Metrorail stations and the immediate surrounding neighborhoods, including Fort Myer Heights and Radnor Heights.
- 74 Douglas Park-Pentagon City: This route provides access to Pentagon City from Douglas Park, Arlington Village, and Nauck.

Source | http://www.commuterpage.com/ART/index.htm

DoD Shuttle

Department of Defense buses provide JBM-HH with transit service to various other DoD facilities in the immediate area, with an end stop at the Pentagon. The frequency of operation is every 30 minutes from 8:30 am to 4:20 pm. These buses enter the installation at Hatfield Gate, drive to Rader Clinic, stop at Building 404 (Dining Hall), and then leave JBM-HH, ultimately returning to the Pentagon. The Walter Reed Army Medical Center also offers shuttle bus service to the Rader Clinic, twice daily on the weekdays. In addition, employees are eligible to participate in the government-wide van pool system, in which government employees are reimbursed for participating in authorized van pools.

Figure 2.39 Arlington County Bus Network Map

ART bus lines obtained from Arlington County, VA Department of Environmental Services (2008). WMATA bus lines obtained from Washington Metropolitan Area Transit Authority (2006).

Rail Transit

While there is no direct rail service to JBM-HH, there are multiple Metrorail Stations in the vicinity (Figure 2.40). Further afield are Amtrak and VRE stations.

Metrorail

As already noted, Metrobus has stops near but not on the Installation. This surface transportation links to Metrorail - the Washington, D.C. metropolitan area subway system. Transfer to another transit mode is required to reach the Installation from each station. Stations in the vicinity of JBM-HH are:

- The Orange Line stations of Clarendon and Courthouse.
- The Orange and Blue Line station of Rosslyn.
- The Blue Line station of Arlington National Cemetery.
- The Blue and Yellow Line stations of Pentagon and Pentagon City.

Source | http://www.wmata.com/

Amtrak and VRE

Amtrak service is available at Union Station in central Washington, D.C. and at Alexandria Station near Alexandria's Old Town. Amtrak trains provide regional train service along the northeast corridor and nationwide. Regional destinations include: Baltimore and Philadelphia to the north, as well as Fredericksburg, Richmond, and Quantico, VA to the south.

Two Virginia Railway Express (VRE) routes are available at Union Station and L'Enfant stations in Washington, D.C., Crystal City station in Arlington, and Alexandria station in Alexandria. VRE operates commuter trains, with no train service on the weekends.

Source | www.amtrak.com
Source | www.vre.org

Figure 2.40 Arlington County Metro Lines Map

WMATA Metro lines obtained from Washington Metropolitan Area Transit Authority (2007).

Bike Lanes

There are several bike lanes in the vicinity of Joint Base Myer-Henderson Hall (Figure 2.41). Off-street bicycle trails include: the Mount Vernon Trail, the Four Mile Run Trail, the Custis Trail, the W & OD Trail, and sections of the Arlington Boulevard Trail. Of these trails, the Mount Vernon and Arlington Boulevard Trails are the only off-road trails that provide access to the Installation. There are several on-street bike lanes and routes, as well as unofficial routes.

Transportation Plans and Projects

Arlington Master Transportation Plan Draft

In 2007 an updated Goals and Policies section of the Plan was adopted. During 2008 and 2009 modal elements for the plan were adopted. This plan seeks to improve transportation systems in Arlington County through 2030. The following goals express the intent of this plan:

- Provide high quality transportation services.
- Move more people without more traffic.
- Promote safety.
- Establish equity.
- Manage effectively and efficiently.
- Advance environmental sustainability.

Pentagon City Multi-Modal Transportation Improvements

Arlington County and the Washington Metropolitan Area Transit Authority (WMATA) are working together on transportation projects in Pentagon City, particularly at the intersection of 12th Street and the Pentagon City Metro Station.

The primary objective of the project is to provide safe, convenient, and attractive access to Pentagon City for pedestrians, cars, and mass transit. The Pentagon City Metro Station is a key transportation transfer facility. It provides a transfer point for Route 395 and acts as the primary transfer station when the Pentagon Metro Station cannot be accessed due to security reasons. In addition, many people work, shop, and live in Pentagon City, making it a busy, multi-modal transportation center.

I-95/395 HOT Lanes

The Virginia Department of Transportation is currently planning a project to expand and extend HOV lanes on I-95/395 from Arlington near the Pentagon to Spotsylvania. Motorcycles, buses, emergency vehicles, and other vehicles with three or more people will have access to HOT lanes free of charge. All other vehicles will be charged a toll to use the HOT lanes. The proposed benefits include:

- A minimum speed of 45 MPH at least 90% of the time.
- Greater use of transit, carpooling, and vanpooling.
- Reduced congestion.

Source | www.virginiadot.org

TransAction 2030

TransAction 2030 is a long-range transportation plan for the counties of Arlington, Fairfax, Loudoun, and Prince William and the cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park. This regional transportation plan considers a mix of highway, transit, bicycle, and pedestrian projects for the region and requires $16.6 billion in additional funding over the next 25 years. The TransAction 2030 Plan seeks to:

- Double the number of Metrorail stations in Northern Virginia, as a result of Metrorail extensions in the I-66, I-95 and Dulles corridors.
- Add light rail transit and/or bus rapid transit to the corridors of: Route 7, Route 28, Crystal City-Potomac Yards and Columbia Pike.
- Add 600 miles of on- and off-road bike trails.
- Increase highway capacity by eight percent above what is already planned in the region's Constrained Long-Range Plan.

Columbia Pike Initiative

The Columbia Pike Initiative supports the vision of a "Main Street" for South Arlington. The principles guiding this vision include public transportation improvements, prioritization of pedestrian/bicycle needs, and support for planned and future development. The street will be shared by pedestrians, bicyclists, transit riders, and automobiles. Some of the proposed transportation improvements include:

- Bus Rapid Transit and streetcar technology.
- Traffic light and traffic calming improvements.
- 24 new bus stops and shelters.
- Pedestrian and bicycle improvements including new sidewalks and bike lanes.

Figure 2.41 Arlington County Bike Routes Map

Bike Routes obtained from Arlington County, VA Department of Environmental Services (2008).

2.9.3 Fort McNair Transportation

Installation Access

Currently there are three access control points (ACPs) on Fort McNair.

- Second Street Gate: This gate serves as the main access point for the installation, and is located between Q Street and R Street. It is open 24 hours a day to authorized personnel, visitors, and government employees.
- The Main Gate (Ceremonial Gate): Located at the intersection of P Street and 3rd Avenue, this secondary access control point is open from 5 am to 5 pm and primarily provides pedestrian access. This was formerly the main gate leading onto 3rd Avenue, but was switched to a secondary gate due to the narrow streets and related traffic congestion at the northern section of the Post.
- ICAF Gate: Located at the intersection of V Street and 5th Avenue, this secondary access control point serves pedestrian use only from 6 am to 6 pm.
- P Street Gate: Located in the northwest corner of the instlallation, this gate served as the main access point for this installation until the completion of the Seond Street Gate. The P Street gate is now closed.

Installation Road Network

Streets on the Post are primarily two-lanes and approximately 18-20 feet in width. First, Second, and Fourth Avenues, along with D Street, operate as one-way streets south of B Street. Second Avenue is one-way going south, while 4th Avenue is one-way going north. Together they effectively form a traffic loop around the Post south of B Street, and are connected via E Street (the southern-most street on the installation). Overall traffic flow is dependent on this circulation (Figure 2.42).

Streets north of B Street are the most conducive to traffic congestion caused by narrow streets and dense clustering of buildings.

Primary Streets

- Fifth Avenue: Especially between P and B Streets, this avenue acts as the main road for the Installation. All vehicle access passes through the P Street Gate. South of B Street, this avenue provides access to the new fitness center and Lincoln Hall, as well as Eisenhower, Marshall, and Roosevelt Halls.

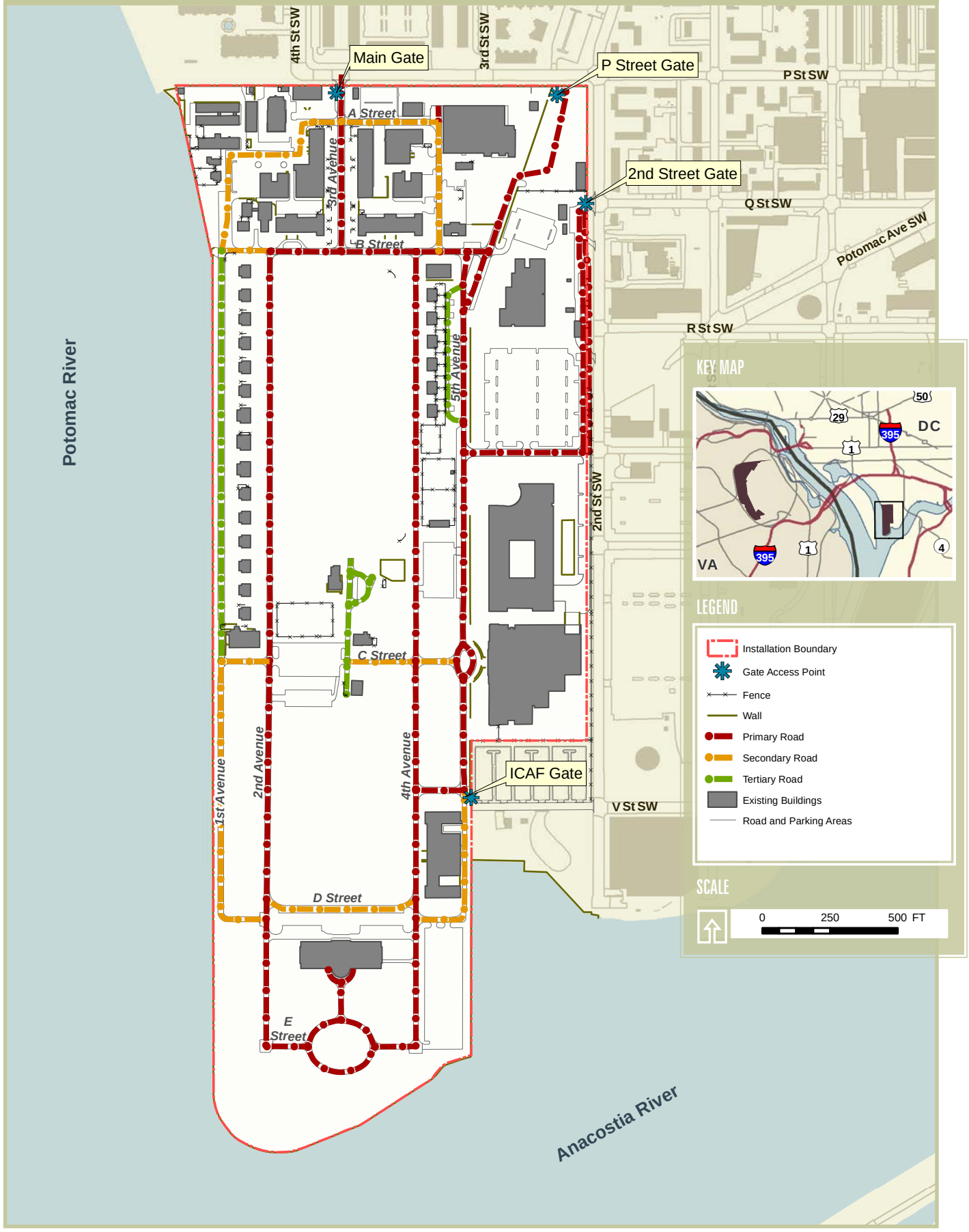
Secondary Streets

- A Street: This street provides access between 4th and 1st Avenues. Along A Street are parking lots and sharp blind corners that make access difficult for both vehicles and pedestrians.
- B Street: This street runs east-west across the Post and marks the line between the dense northern section and the rest of the Installation. It also acts as a connector street between 5th and 2nd Avenues. Traffic coming through the P Street gate uses B Street to connect to 2nd Avenue and the loop around the North and South Malls.
- C Street: This street runs from 5th to 1st Avenues. It provides east-west access across the Installation dividing the North and South Malls. C Street also provides access to the Africa Center for Strategic Studies, the Center for Technology & National Security Policy, tennis courts, and both North and South Malls.
- Second Avenue: This one-way street from B Street to E Street is a key road in the traffic circulation loop for the Installation. It provides access to Officers' Housing, the Officers' Club, both the North and South Malls, and Roosevelt Hall.
- Third Avenue: This avenue connects the Main Gate at P Street to B Street and the North Mall. It was the main entrance until recently, and still acts as the ceremonial entrance to the Installation.
- Fourth Avenue: This avenue runs from E Street to the intersection of A Street and 5th Avenue. This street is one-way heading north and completes the circulation loop around the North and South Malls. This street provides access to NCO housing, as well as Eisenhower and Roosevelt Halls.

Tertiary Street

- First Avenue: This avenue stretches from A Street to D Street with views of the Washington Channel. This street provides access to senior officers' housing and the Officers' Club.
- D Street: This street connects 1st, 2nd, 4th, and 5th Avenues between the South Mall and Roosevelt Hall.
- E Street: This street connects 2nd and 4th Avenues south of Roosevelt Hall. It is a one-way street with a roundabout, connecting the one-way streets of 2nd and 4th Avenues. This connection completes the circulation loop around the Malls and Roosevelt Hall.

Figure 2.42 Fort McNair On-Site Transportation Map



Pedestrian Access

There is an uneven distribution of sidewalks throughout the Post. Pedestrian access is adequate south of B Street; however, north of B Street is a challenge for pedestrians. While adequate sidewalks are maintained on 3rd Avenue between P and B Streets, pedestrian access on 1st Avenue, A Street, and 4th and 5th Avenues north of B Street is inadequate. These streets connect to and are often undifferentiated from parking lots. Blind intersections, a lack of sidewalks, and streets that become parking lots without warning make pedestrian access above B Street difficult.

Parking

Parking at Fort McNair meets a variety of demands. Parking is provided for employees and residents. Additional parking is needed to support short-term demands, such as NDU for conferences, recreational centers in the early morning hours, and visitors to Post buildings. Parking is currently provided either in paved surface lots or on-street along Post roadways.

Parking is currently available off the Installation in the form of on-street metered parking and parking lots. There are concerns about safety and security of parking off-post, especially during evening hours. See the JBM-HH TMP (2012) for details on parking use and availability.

Surrounding Road Network

The street system surrounding Fort McNair is the typical L'Enfant grid pattern (Figure 2.43). Fort McNair's northern and eastern boundaries are defined by P Street and 2nd Street respectively. South Capitol Street SW, M St SW, and Maine Avenue are the major traffic thoroughfares for the area. Routes I-295 and I-395 are located north of the Southwest Waterfront and Near Southeast neighborhoods. Average daily traffic volumes are provided in Table 2.17.
The major roadways in proximity to the 2nd Street Gate are: 2nd Street, P Street, M Street, 1st Street, Canal Street, and 4th Street. A description of each roadway follows:

- P Street: This street is a two to three-lane undivided collector street that runs in an east-west direction. This street runs along the eastern boundary of Fort McNair and ends at 4th Street. The roadways of 4th Street to Canal Street and 2nd Street to P Street consist of two eastbound lanes and one westbound lane, with on-street parking on the north side of the street. After 2nd Street, P Street becomes a two-lane undivided collector street with parking on both sides. During the AM peak hours the eastbound shared through and right-turn lane at the Main gate become a right-turn only lane from 4th Street to the Main Gate.
- 1st Street: This street is a two-lane undivided collector street that runs in a north-south direction. It runs from M Street to the Anacostia River. There is on-street parking permitted on both sides of the street.
- Canal Street: This street is a two-lane undivided collector street that runs in a north-south direction. It runs from 1st Street to P Street. There is on-street parking permitted on both sides of the street.
- 2nd Street: This street is a two-lane undivided collector street that runs in a north-south direction. It runs from P Street to the Anacostia River. There is on-street parking permitted on both sides of the street.
- 4th Street: This street is a four-lane undivided collector street that runs in a north-south direction. It runs from M Street to P Street. There is on-street parking permitted on both sides of the street.

Figure 2.43 Washington DC Surrounding Road Network Map

Road network data obtained from Washington, D.C. Department of Transportation (2008).

Major arterial roads and highway systems in the vicinity of Fort McNair include:

- M Street/Maine Avenue: This is a six-lane divided arterial highway that runs in an east-west direction and is maintained by the District of Columbia. Signalized intersections are fixed-timed and typically have exclusive/permissive left-turn phases.
- South Capitol Street SW: This street is a major arterial roadway that provides access to central D.C. and the Capitol Hill neighborhood, from neighborhoods on the eastern side of the Anacostia River and I-295.
- U.S. Interstate Route I-295: I-295 is a major highway in the region connecting to I-395 in central D.C. In addition, this route connects to I-95 at the Woodrow Wilson Memorial Bridge where it continues northeast to central Baltimore.
- U.S. Interstate Route I-395: I-395 is a major highway in the region providing access to central D.C. from Arlington County.

Table 2.16 **Average Daily Traffic Volume Surrounding Fort McNair**

Roads	Average Daily Traffic Volume
P Street	11,900
1st Street	3,800
Canal Street	2,700
2nd Street	1,800
4th Street	9,100
M Street/Maine Avenue	27,100
South Capitol Street	54,600
U.S. Route 295	101,300
U.S. Route 395	155,100

Bus Service

The following Metrobus routes provide service in the vicinity of Fort McNair (Figure 2.44)

- Red Line 70 and 71: This line frequents the Buzzard Point and Southwest Waterfront areas.
- Red Line V7, V8, V9, and A9 and Blue Line P1 and P2: These routes service the Near Southeast and Southwest Waterfront areas.
- Green Line N22: This route services the Near Southeast neighborhood.
- Non-Metrobus Service: Non-Metrobus service to the Southwest Waterfront neighborhood consists of the DC Circulator and the Maryland Transit Administration (MTA). In addition, the Reston commuter bus makes a stop at the main gate on P Street.

Shuttle Buses

Currently, there is shuttle bus service for Federal employees that travels between Union Station and the Coast Guard Building on 2nd Street. This stop is adjacent to the existing pedestrian gate near Marshall and Eisenhower Halls. In addition, there is DoD shuttle service to NCR military installations. Currently, this service does not provide opportunities for commuting, but could be a significant commuting asset if operational policies are changed. Due to funding constraints, a shuttle bus between Fort McNair and the Waterfront-SEU Metro Station has not been implemented.

Source | Update to the Transportation Management Plan 2005

Figure 2.44 Washington DC Bus Route Map

WMATA bus lines obtained from Washington Metropolitan Area Transit Authority (2006).

Rail Service

Although there is no direct rail service to Fort McNair, there are two Metrorail stations within proximity (Figure 2.45). Further afield are: Amtrak, MARC (Maryland Area Regional Commuter) Train Service, and the Virginia Regional Express (VRE) rail services.

Metrorail Service

The Waterfront Metro Station is located at 4th and M Street SW and is within short walking distance of the installation. The National Capital Planning Commission (NCPC) has suggested that shuttle bus service from the Waterfront Metro Station to the Post be considered to increase the use of public transportation by residents and employees. Further away but still within walking distance is the Navy Yard Metro Station, which provides access to the Near Southeast neighborhood including the Washington Nationals Ballpark, Southeast Federal Center, U.S. DOT Headquarters, and the Half Street mixed-use development.

Source | http://www.wmata.com/

Amtrak/VRE/MARC

Amtrak service is available at Union Station in central Washington, D.C. Amtrak provides regional service northward along the northeast corridor and southward to Richmond, VA. In addition, the MARC (Maryland Area Regional Commuter) Train Service operates three commuter rail lines terminating at Union Station servicing Baltimore and the Maryland suburbs of D.C. The Virginia Regional Express (VRE) service operates from Union Station and L'Enfant Station, providing access to central D.C. from Northern Virginia and its outer suburbs. Both MARC and VRE trains provide commuter rail service weekdays and do not operate on the weekends.

Figure 2.45 Washington D.C. Metro Line Map

WMATA Metro lines obtained from Washington Metropolitan Area Transit Authority (2007).

Bike Lanes

The Southwest Waterfront neighborhood has limited choices for bike transit (Figure 2.46). Bike access primarily consists of on-street signed bike routes. There are short, disconnected sections of off-street bike trails, located along the waterfront north of Fort McNair and by the Frederick Douglass Memorial Bridge. Planned off-street trails include: the Riverwalk Trail, an off-street multi-use trail along the Anacostia River, and trails along the Southwest Waterfront parallel to Washington Channel and Maine Avenue.

Transportation Plans and Projects

Constrained Long Range Plan

The Constrained Long-Range Plan of the National Capital Region Transportation Planning Board (TPB) identifies studies, capital improvements, actions, and strategies for the National Capital Region (NCR) from 2008 to 2030. This plan is financially constrained; therefore, it only includes projects that the region can afford to build and operate. Over 750 projects are in the plan, including: highway improvements, new HOV lanes, new transit lines including Metrorail, new bicycle routes and trails, and pedestrian improvements.

Transportation Improvement Plan

Each year the National Capital Region Transportation Planning Board prepares a Transportation Improvement Plan (TIP). This plan selects priority projects from the Constrained Long Range Plan. The TIP seeks to serve the following purposes:

- Express the region-wide intent to implement specific facilities and projects during the upcoming six-year period.
- Provide a medium for local elected officials, agency staffs, and interested members of the public to review and comment on the priorities assigned to the selected projects.
- Satisfy one of the requirements of the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) for the continuing transportation planning process of this region (which is necessary for certification and ensuring continued federal financial assistance for Washington area transportation improvements).
- Establish eligibility for federal funding for those projects selected for implementation during the first program year, known as the Annual Element of the program.
- Address the cost of projects, establish implementation phases, identify sources of funds, and describe each of the projects.

Frederick Douglas Memorial Bridge

The Frederick Douglass Memorial Bridge has undergone recent structural improvements. It has been identified as a major barrier for pedestrian and bike access across the Anacostia River, therefore:

- Near term improvements include pedestrian improvements, lighting, railings, drainage, and resurfaced streets.
- A replacement bridge is planned in the next ten years; its world-class design will create a gateway feature and enhance the urban boulevard design for South Capitol Street.

Anacostia Waterfront Initiative

The District Department of Transportation (DDOT) in conjunction with the Anacostia Waterfront Initiative (AWI) has established a team within DDOT's Infrastructure Project Management Administration to focus on transportation projects exclusively in the AWI area. The vision of DDOT and AWI is to create a transportation system in the AWI area that:

- Is environmentally sustainable.
- Moves people via transit, light rail, bike/pedestrian trails and automobiles.
- Does not work as a barrier to the communities.
- Supports and enhances the economic and environmental health of the District.
- Enhances waterfront access and its usage.
- Strengthens neighborhood character and increases access between communities.
- Integrates the area with the Monumental Core and the rest of the District.
- Emphasizes the history and uniqueness of the Anacostia Waterfront Area.

Figure 2.46 Washington DC Bike Route Map

2.10 FACILITIES

Each item of real property is defined as a facility. The Army uses four facility types for analysis purposes:

- Land (L) – Land (in acres) comprises whole, or part, of a military installation owned in fee by the Federal Government and/or under custody and accountability of the Army.
- Building (B) – Buildings (in square feet) are constructed on a space of land that is completely enclosed by a roof, walls, and usually flooring. It normally serves the purpose of occupancy.
- Utility (U) – A utility (in capacity) is a distribution system, commodity source, or commodity collection point that provides a service or commodity to more than one building or structure.
- Structure (S) – A structure is any real property facility that is not classified as a building, utility system, or land by the previous definitions. Typical examples are airfield pavements, roads, firing ranges, and athletic fields.

2.10.1 Building Quantity

There are over 200 facilities located throughout Fort Myer, Fort McNair and Henderson Hall, comprising over 3.7 million Gross Square Feet (GSF). Table 2.17 shows the distribution of facilities by installation.

The number of facilities is sizable, with considerable effort invested in maintenance and upkeep. As funding decreases and maintenance budgets tighten, it is becoming increasingly more difficult to maintain buildings at minimum habitable standards. Often, older buildings require the most effort and cost, due to their advanced age and rate of deterioration.

Table 2.17 Distribution of Facilities by Functional Area

Functional Area	Buildings GSF (approximate)	No. of Facilities (approximate)
Fort Myer	1,969,159	159
Fort McNair	1,120,884	60
Henderson Hall	627,250	11

Source | Real Property Inventory accessed on February 6, 2008

2.10.2 Building Quality

The Army Installation Status Report (ISR) communicates installation conditions by using Q-ratings for facilities. The Q-ratings are based on a ratio of restoration cost estimates ("cost to fix") to facility plant replacement value (PRV). Restoration cost is based on facility conditions assessments conducted by facility occupants. The Q-ratings are used to derive an installation-wide Quality Rating at the Facility Class level. All military services report Q-ratings using the same Department of Defense (DoD) methodology. The four Q-ratings and Myer/McNair facility totals are listed in Table 2.18.

This rating system is used to model and justify funding levels for the Installation. It also indicates where facilities and infrastructure are inadequate and may negatively affect the Army's overall mission. The ISR rating provides a standard, Army-wide system to support decision-making processes as they relate to operations, sustainment, modernization, revitalization, and re-stationing.

Table 2.1 ISR Ratings, Army 2008				
Rating	Definition	Fort Myer (No. of Facilities)	Henderson Hall (No. of Facilities)	Fort McNair (No. of Facilities)
Q-1 (Green)	Minor facility condition deficiencies and no significant facility configuration deficiencies, with negligible impact on the capability to support the tenant organizations' required missions.	48	7	28
Q-2 (Yellow)	Some facility condition deficiencies and/or configuration deficiencies that have limited impact on the capability to support the tenant organizations' required missions.	24	3	14
Q-3 (Red)	Significant facility condition deficiencies and/or configuration deficiencies that impair the capability to support some of the tenant organizations' required missions.	51	1	30
Q-4 (Black)	Major facility condition deficiencies and/or configuration deficiencies that present significant obstacles to the tenant organizations' accomplishment of required missions.	12	1	3

Table Sources:
Source | Master Planning Technical Manual, July 2007
Source | U.S. Army Installation Management Agency. Public Works Digest Vol. XVIII No. 1 Jan/Feb 2006. downloaded from http://www.ima.army.mil/sites/pw/digest/pwd_janfeb06.pdf

Table 2.19 classifies Henderson Hall's facilities under three condition standards, in accordance with the Navy's Shore Facilities Planning System (SFPS):

- Adequate: A facility that is fully capable of supporting its current use without modifications or repairs.
- Substandard: A facility in need of modification or repair to make it adequate, and would normally require approval and funding beyond the authority of the commanding officer. A facility is considered substandard if deterioration or interior configuration will result in deficiencies within the next five years.
- Inadequate: A facility that cannot be made adequate for its present use through "economically justifiable" means.

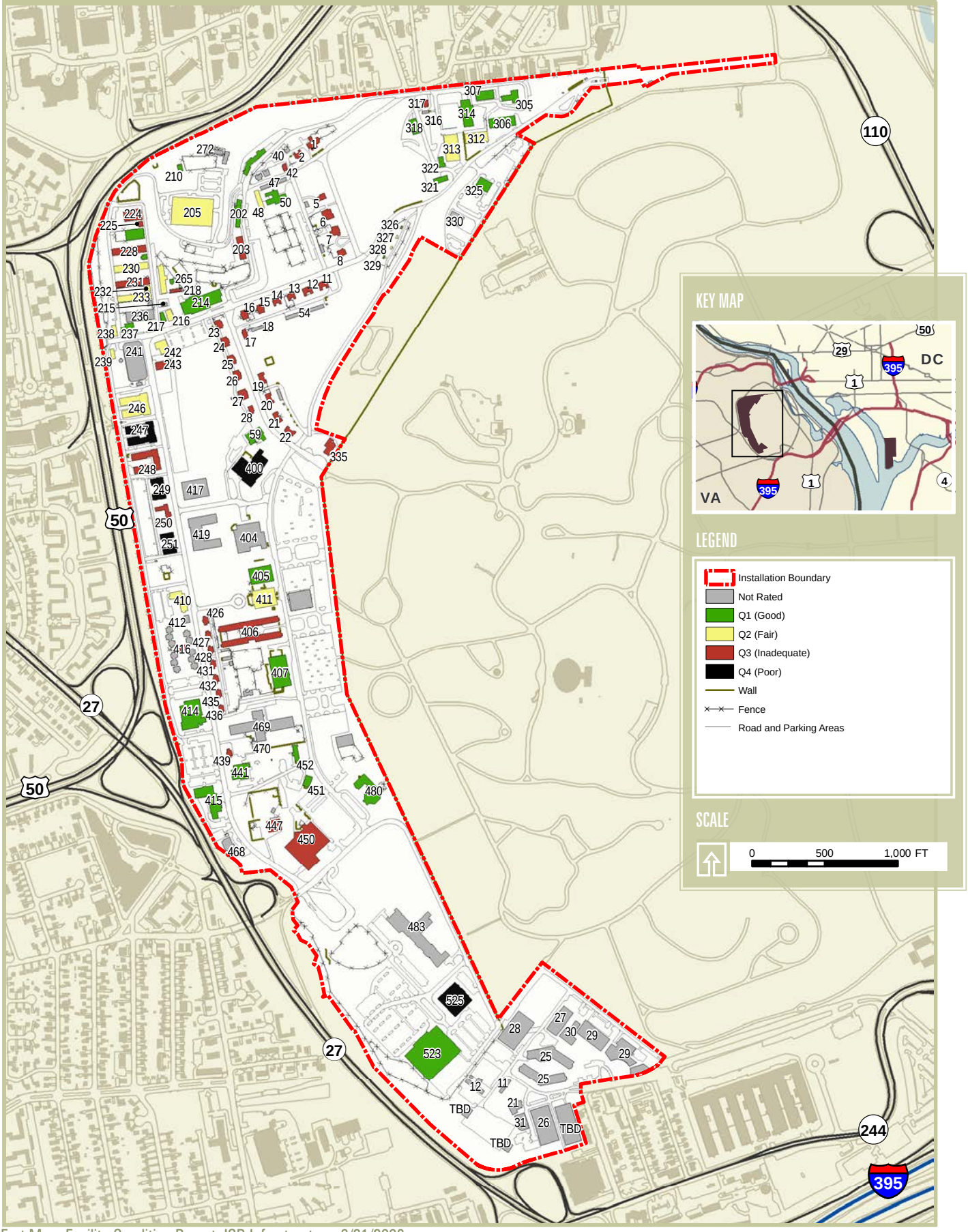
Table 2.19 **Henderson Hall** Facility Conditions by Total Square Footage			
Adequate	Substandard	Inadequate	
611,685 SF or 97%	6,557 SF or 1%	9,008 SF Or 2%*	Total: 627,250 SF

*Admin. Building and Grounds Equipment Shed

Based on the JBM-HH Real Property Inventory, approximately 32 percent of the buildings on the installations are 50-years old or older. Many qualify for historic designation, because of their symbolic importance or structural character; most have undergone renovation to meet current ISR standards for green designation. Many of the older facilities currently labeled with Q-3 and Q-4 ratings are planned for renovation in the near future.

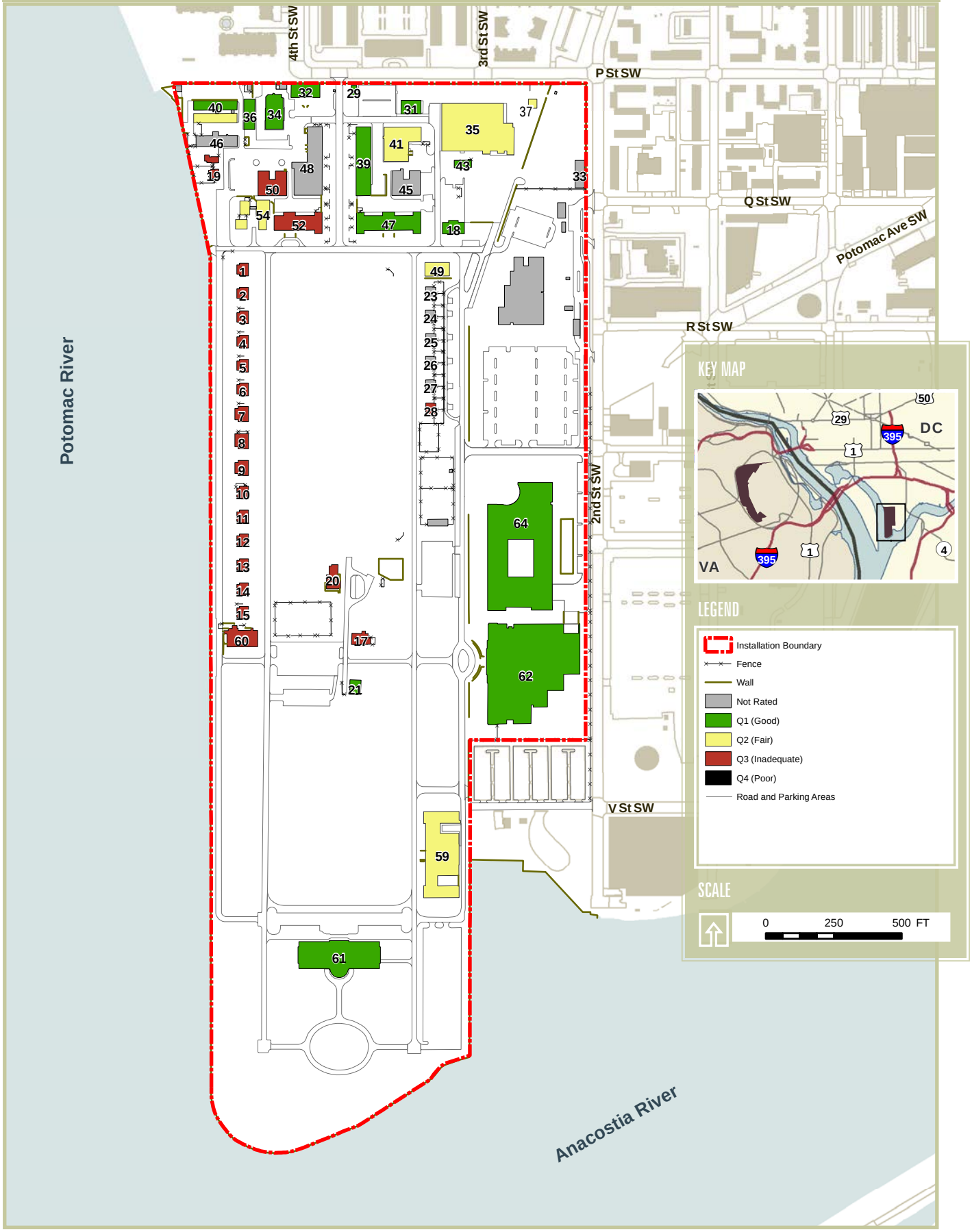
Figures 2.47 and 2.48 display facility conditions at Forts Myer and McNair, respectively, based on their ISR ratings as of February 21, 2009. Henderson Hall ISR ratings are also based on data from 2009.

Figure 2.47 JBM-HH Facilities Condition Map



Fort Myer Facility Condition Report; ISR-Infrastructure. 8/21/2009

Figure 2.48 Fort McNair Facilities Condition Map



Fort McNair Facility Condition Report; ISR-Infrastructure. 8/21/2009

2.11 INFRASTRUCTURE/UTILITIES

JBM-HH Department of Public Works (DPW) manages sanitary sewer, storm drainage, and steam lines used for heating and cooling on Fort Myer and Fort McNair. Private companies, Dominion Virginia Power (DVP) and PEPCO, supply electricity, while Washington Gas supplies natural gas. The Arlington County Water system supplies Fort Myer with water, while Fort McNair receives its water from the DC Water and Sewer Authority (DCWASA). Sanitary sewer treatment is provided off post for Fort Myer by Arlington County Sewer, and for Fort McNair by DCWASA. Distribution of the utilities within the boundaries of Fort Myer and Fort McNair is the responsibility of the Garrison.

The utility data included in this document was extracted from the existing GIS data, interviews of on-site personnel, and from other information provided by DPW.

Utility summary usage data for fiscal year 2007 and nine months of fiscal year 2008 was obtained from the Fort Myer Department of Public Works. This data has been used to approximate average daily usage and peak usage for the on-Post utilities. Based on the information available, the following represents the existing utility condition of both posts.

2.11.1 Electrical

JBM-HH

The existing electrical system is owned by Dominion Virginia Power, who also supplies electricity to the Installation. In August 2007, a contract with DVP to privatize the electrical system for Fort Myer was signed. DVP will upgrade the entire electrical systems to their standards.

There are three main circuits that feed the installation; two are load circuits and one is an alternate. The existing on-post electric system consists of 6,313 feet of primary overhead lines, 439 feet of secondary overhead lines, 31,779 feet of primary underground lines and 20,836 feet of secondary underground lines.

JBM-HH uses approximately 66,000 Kilowatt Hours (KWH)/Day throughout the year, with peak usage coming in June of 3,500,000 KWH/Month. DVP is in the process of installing 11 generators on the low voltage side of transformers on the Post to include loads fed from transformers at buildings 47, 54, 56, 57, 23, 416, 241, 59, 414, 272, and 214.

Plans under consideration follow:

- Negotiations are ongoing with DVP about its takeover of Henderson Hall electrical lines. There are plans to put the remaining above ground lines below ground.
- DVP is in the process of constructing a new substation on Fort Myer, (Radnor Heights Substation) that will eliminate the need for the 2 circuits currently feeding the post which run through Arlington County prior to their entrance into the fort. The Radnor Heights Substation will improve reliability of service to Fort Myer and eventually Henderson Hall and ANC.
- Arlington National Cemetery (ANC) and Henderson Hall (HH) propose tie-ins to existing lines and metering for improved redundancy.
- There is a proposal for onsite generators to supply electricity for the entire Post.

Fort McNair

Currently the electricity to Fort McNair is supplied by PEPCO, but the lines are owned by DVP. The current lines have a capacity of 13,730 watts and 7,940 phase to ground. Most are lead and paper lines placed in 1967.

The existing on-post electric system consists of 13,287 feet of primary underground lines and 7,354 feet of secondary underground lines. Street lights are fed by building lines and are costly to maintain. Buildings 59 & 61, at the southeast corner of the post at the intersection of D Street and 4th Avenue, are fed by electric lines from a separate substation. Building 62, at the intersection of C Street and 5th Avenue, is a spot network that has its own substation. DVP completed rewiring the primary cable 15 KV system and installation of the High Reliability Distribution System (HRDS) system on June 15, 2009. The HRDS system and rewiring included all buildings except buildings 59, 61 and 62. In addition, DVP completed rewiring the primary cable 15 KV System and replaced the transformer at building 61 and installed two 1000 KW generators and paralleling substation July 21, 2009 for buildings 59 & 61.

Fort McNair uses approximately 59,000 Kilowatt Hours (KWH)/ Day throughout the year, with peak usage in June of 2,300,000 KWH/Month.

Plans under consideration follow:

- Distribution lines and infrastructure will be changed to automated High Reliability Distribution System (HRDS).
- Updating Installation street lights will be completed by removing the connections to buildings and associated feeder lines for the remaining locations.
- The Installation has proposed five new generators on the low voltage side of the transformers feeding the general's housing and NCO housing, including loads served out of transformers located at buildings 60,47, 56, 69 and 41.

Figure 2.49 JBM-HH Electrical Utilities Map

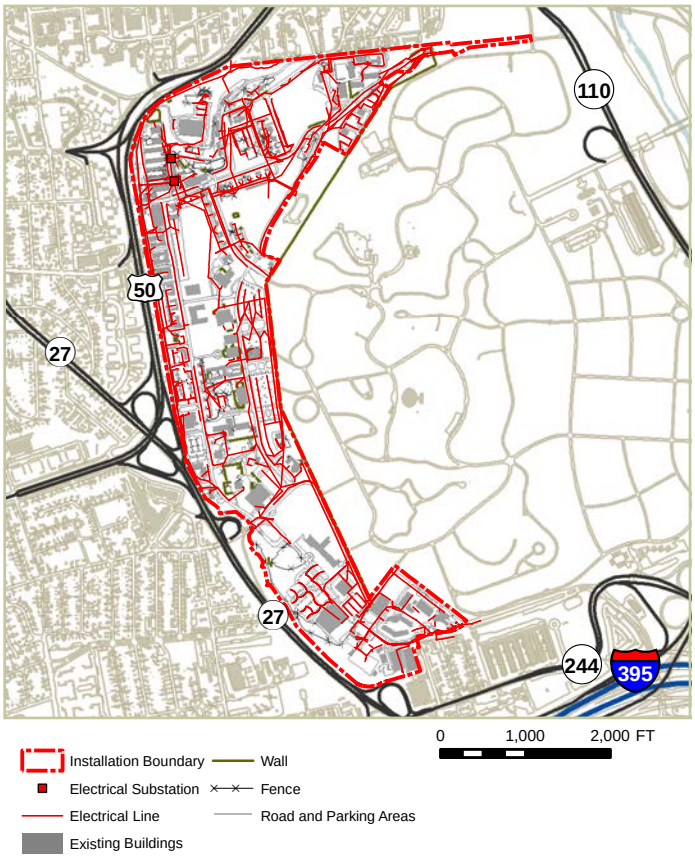
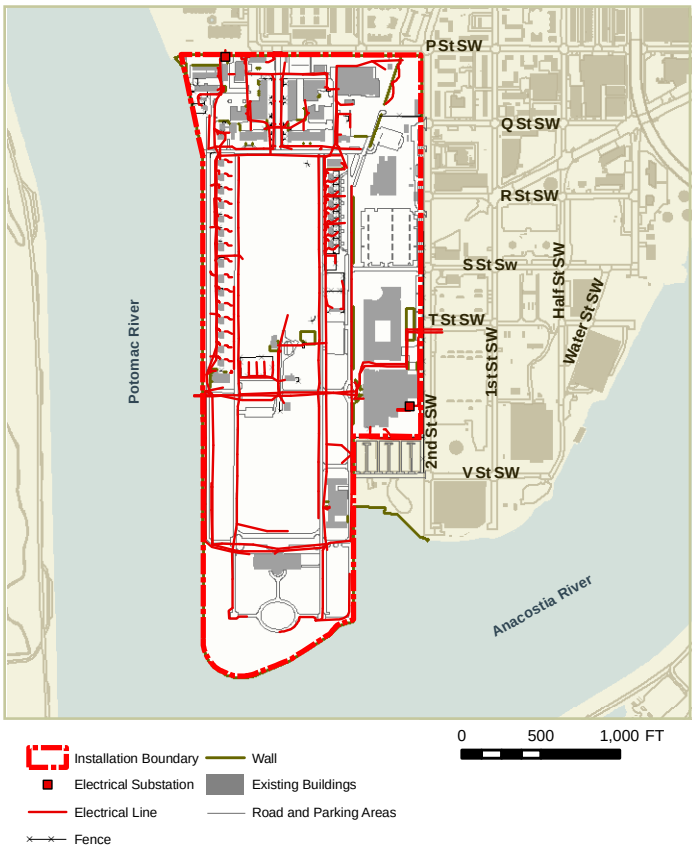


Figure 2.50 Fort McNair Electrical Utilities Map



2.11.2 Water

JBM-HH

Potable water is delivered to Fort Myer by the Arlington County water system, which ultimately obtains its water from the Potomac River. The water is treated at the Dalecarlia Water Treatment Plant by the Washington Aqueduct Division (WAD), an agency of the Army Corps of Engineers (USACE) Baltimore District. The Dalecarlia treatment facility serves 1.1 million customers in the D.C. metro area, and provides water for drinking and fire emergencies to Fort Myer.

Water is provided to the Installation via a 10-inch, cast iron, water main near the Hatfield Gate, which is located on the southern and western portion of the Post near the Route 50 and Route 27 interchange. There is an existing, unused, 500,000 gallon, above ground water storage tank located behind Building 241, off Sheridan Avenue in the north-west corner of the Post.

The existing on Post water system consists of over 76,000 feet of pipe and laterals ranging from 1/2 inch to 14-inch. There is approximately 1,849 feet of in-place abandoned pipe which previously serviced Henderson Hall. The primary pipe materials are cast iron pipe, ductile iron pipe, and PVC pipe. There are approximately 81 fire hydrants on Post.

DPW staff indicates that within the last five years a large number of water lines have ruptured throughout the system. The Installation fire department has expressed problems with existing water pressure. Currently, there is no separate water system for fire hydrants.

JBM-HH uses approximately 0.33 Million Gallon (MGAL)/Day throughout the year, with peak usage in June of 15 MGAL/ Month.

Fort McNair

Potable water is delivered to Fort McNair by the District of Columbia Water and Sewer Authority (DCWASA). Currently, the water system's capacity is sufficient for usage. Water is provided via a 12-inch ductile iron water main on the west side of 3rd Avenue, at the north side of the Post. No existing water storage tanks are located on-post. The Government owned distribution system is a combination of older cast iron pipes, and newer fiberglass pipes.

Figure 2.51 JBM-HH Water Utilities Map

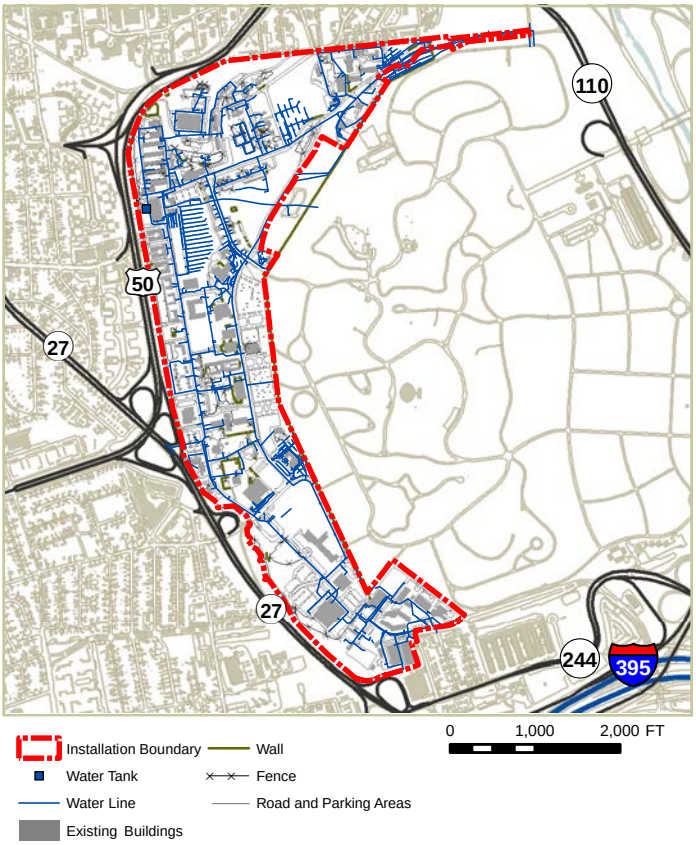
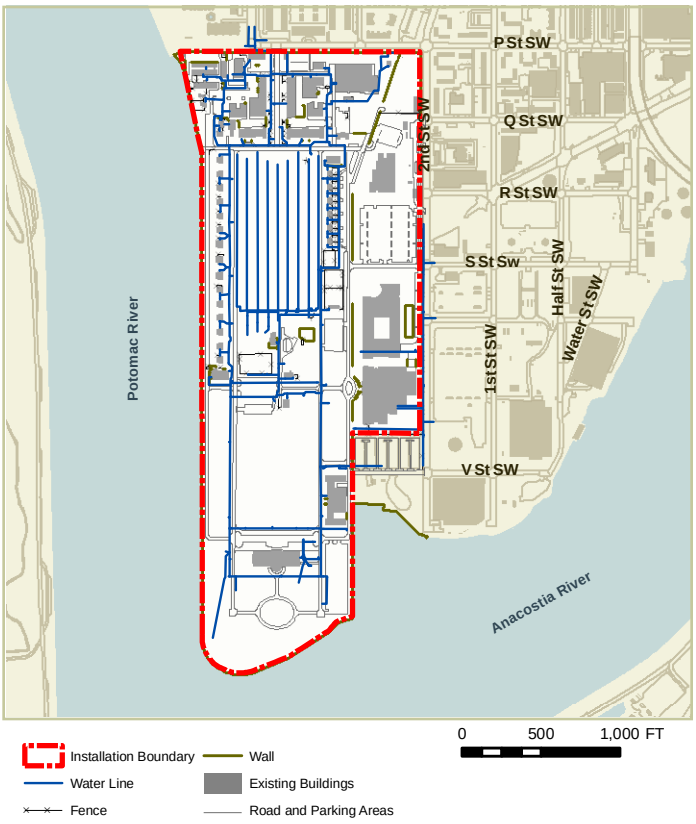


Figure 2.52 Fort McNair Water Utilities Map



The water system is made up of over 2.400 feet of pipe and laterals ranging from 1 to 12 inches in size. There are approximately 549 feet of abandoned pipe of various sizes. The primary pipe materials are cast iron pipe, ductile iron pipe, and PVC pipe. There are approximately 44 fire hydrants on the Installation.

Fort McNair uses approximately 0.10 Million Gallon (MGAL)/ Day throughout the year, with peak usage coming in October of 3.2 MGAL/Month.

2.11.3 Sanitary Sewer

JBM-HH

Fort Myer owns the sanitary system on the Post. The supplier of sanitary services is Arlington County Sewer. Sanitary waste is treated at the Four Mile Run facility Water Treatment Control Plant off-Post. New construction has replaced existing sewer pipes at multiple locations. The existing sanitary sewer pipes do not hold up well where couplings from the new pipes are installed.

The existing system includes 66,097 feet of sanitary pipe with sizes ranging from 2-inch to 30-inch cast iron, PVC, and concrete pipe.

The sanitary sewer flow is approximately 0.33 Million Gallon (MGAL)/Day throughout the year, with peak usage coming in June of 15 MGAL/Month.

Fort McNair

Fort McNair owns the sanitary sewer system on the Post. Wastewater is treated off-post at the DC WASA Blue Plains Advanced Wastewater Treatment Plant. This facility has a capacity of 370 Million Gallon (MGAL)/Day and has a peak capacity of 1.076 Billion Gallon (BGAL)/Day.

The existing system includes over 16,000 feet of pipe with sizes ranging from 2-inch to 15-inch, cast iron, PVC, and concrete pipe.

The Installation's sanitary sewer flow is approximately 0.15 Million Gallon (MGAL)/Day throughout the year, with peak usage coming in October of 3.3 MGAL/Month.

Figure 2.53 JBM-HH Sanitary Sewer Map

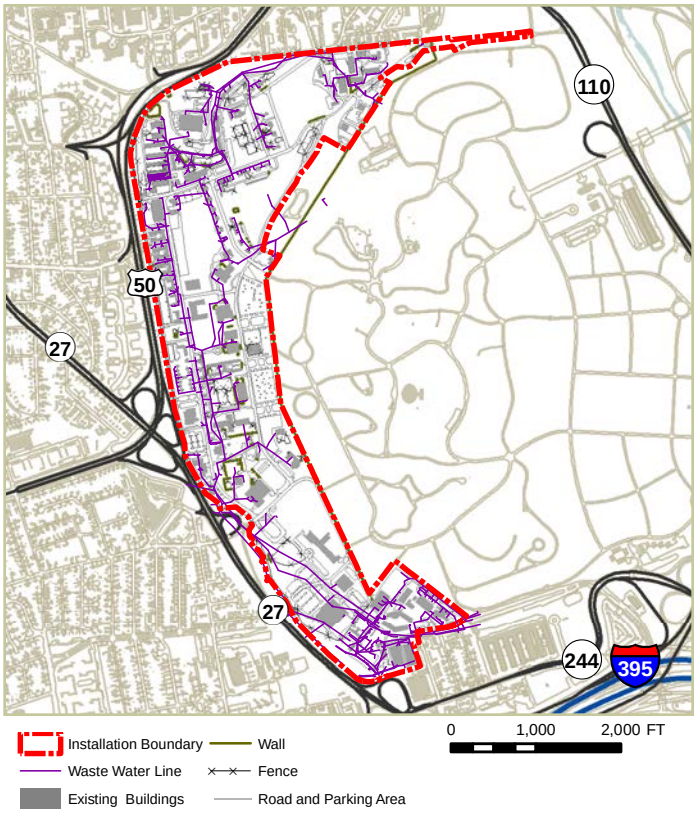
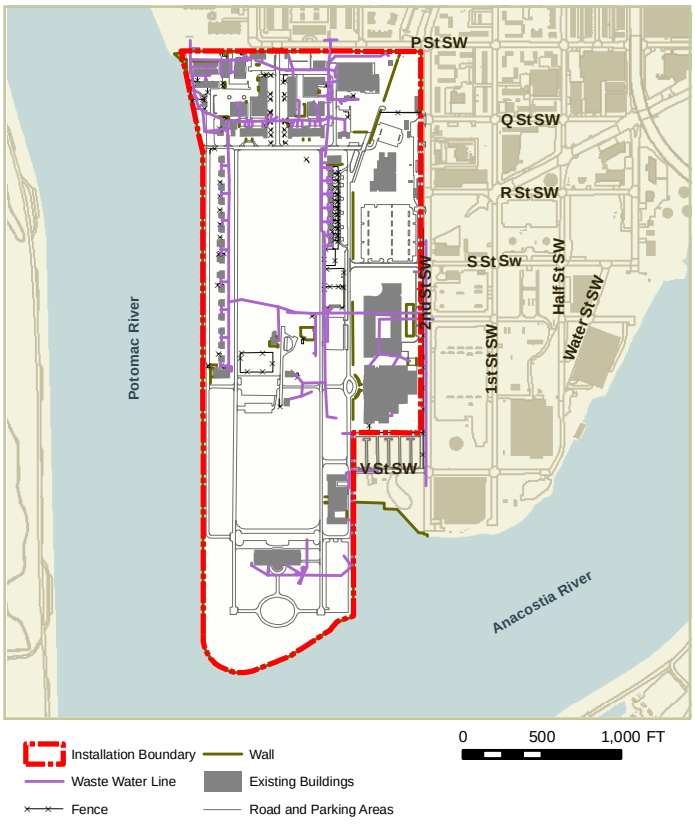


Figure 2.54 Fort McNair Sanitary Sewer Map



2.11.4 Natural Gas

JBM-HH

Washington Gas is the owner and supplier of natural gas to Fort Myer and the surrounding community. The gas company has an adequate system to supply natural gas to the Installation, although the entire Post does not have access to the supply. No connecting gas pipes exist between Fort Myer and Henderson Hall, so natural gas cannot be fed between them. The supply is distributed to the Installation through pipes ranging in size from ½ inch – 20 inches. The lines are typically PVC or fiberglass material. Approximately 32,000 linear feet of lines exist on the Post. Currently, slow response is the only problem experienced by the Installation's DPW. Existing steam lines are being replaced with natural gas lines. While there are no existing meters, these will be needed as new buildings are constructed.

JBM-HH uses approximately 4,900 Therms/Day throughout the year, with peak usage coming in February of 238,000 Therms/Month. A Therm is equal to 100,000 BTU.

Fort McNair

Washington Gas also adequately supplies natural gas to Fort McNair. The supply is distributed through pipes ranging in size from 1 ¼ inch to 10 inches. The lines are mostly fiberglass, with some PVC and cast iron. Approximately 15,700 linear feet of lines exist on the Post. Although slow response is also an issue at Fort McNair, all of the Installation has access to natural gas.

Fort McNair uses approximately 2,300 Therms/Day throughout the year, with peak usage coming in February of 110,000 Therms/Month.

Figure 2.55 JBM-HH Natural Gas Map

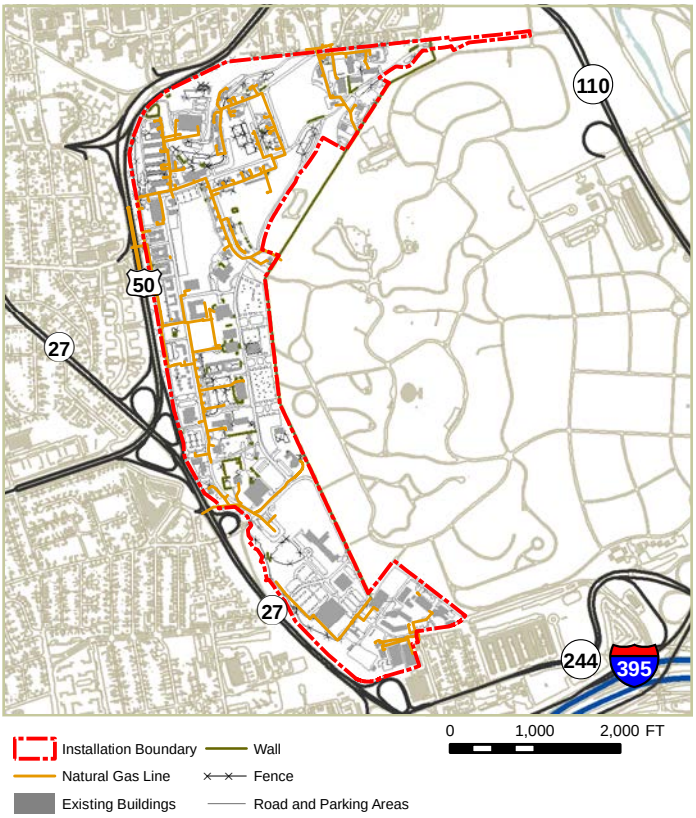
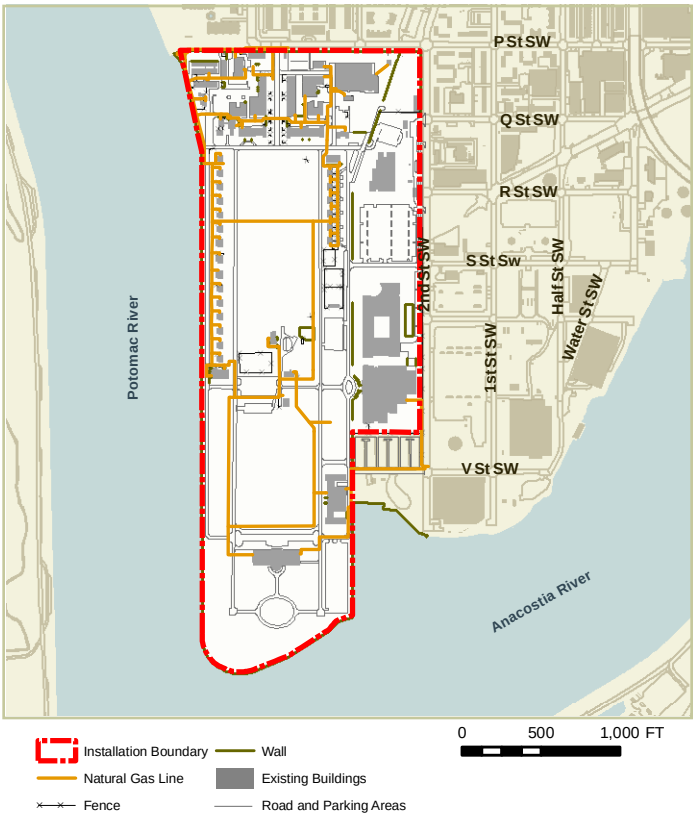


Figure 2.56 Fort McNair Natural Gas Map



2.11.5 Storm Sewer

JBM-HH

The existing storm sewer system includes over 87,600 feet of pipe made up of reinforced concrete pipe, corrugated metal pipe, cast iron pipe, PVC pipe, and ductile iron pipe.

The southwest portion of Henderson Hall has experienced recurrences of flooding in the past. The area is within the 100-year floodplain, which can cause flooding to Building 12 and the areas around the playing courts.

Storm water runoff from Building 321 drains onto Whipple Field; Arlington National Cemetery (ANC) has requested that JBM-HH construct a detention basin so water does not drain onto ANC property.

The storm system replacement at the Old Post Chapel parking lot and the recent construction has resulted in blocked lines.

Fort McNair

The storm sewer system includes over 30,000 feet of pipe made up of reinforced concrete pipe, corrugated metal pipe cast iron pipe, and PVC pipe.

Fort McNair has experienced localized flooding at the War College in the past. This flooding has required sandbagging at various times. The Post has also experienced drainage problems near the Officers Club.

Figure 2.57 JBM-HH Storm Sewer Map

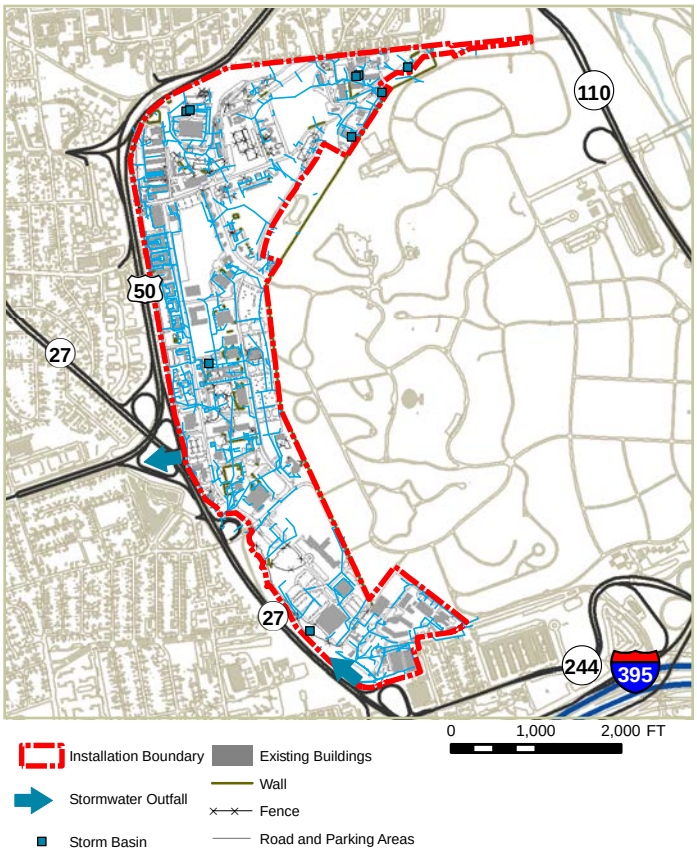
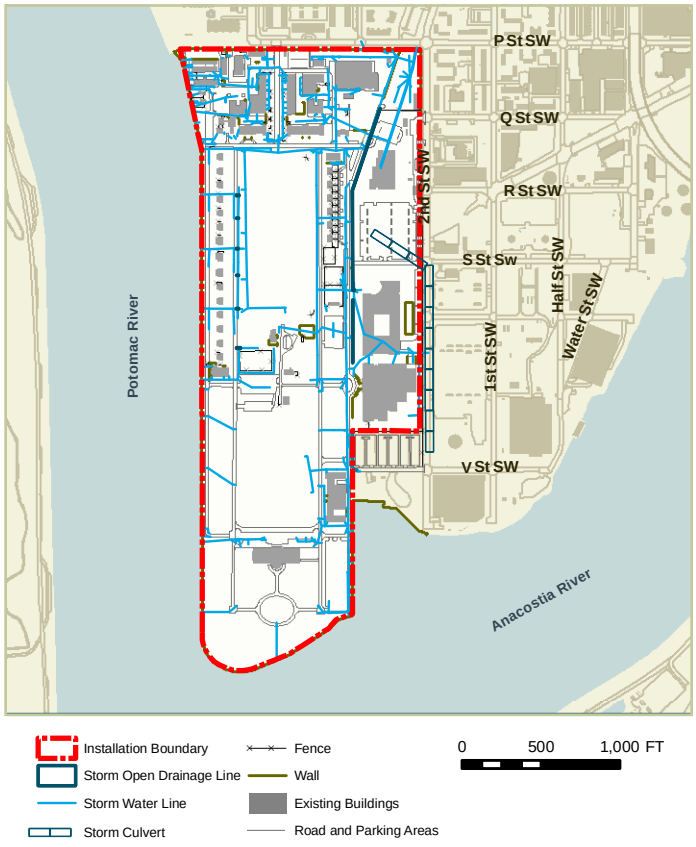


Figure 2.58 Fort McNair Storm Sewer Map



2.11.6 Central Heating and Cooling

JBM-HH

There is an existing central boiler plant at Fort Myer, located at the intersection of Sheridan Avenue and Abrams Lane. Although the capacity of the boiler appears adequate, there are dozens of leaks at the plant. The heating system has some newly installed fiberglass pipes that do not hold up well with the coupling that has been installed. While the heating system is usually gas powered, the plant switches to fuel oil from January to March, as requested by Washington Gas.

The steam lines on the Post were replaced in the 1980s. There are approximately 17,300 linear feet of heating and cooling lines, with over 1,100 linear feet of geothermal lines. DPW reports thousands of hours spent on the repairs of these lines. The Officers' Club, Lee Avenue, and Moore Lane have been removed from the system. The renovated barracks building at Henderson Hall will have its own chiller.

Fuel oil is generally used only from January to March, at a rate of approximately 1400 Gallons per Day(GPD) and a peak in February of 62,000 Gallons.

JBM-HH would like to remove the boiler plant, in order to eliminate the network of steam lines, in favor of independent natural gas-fired hot water boilers.

Fort McNair

There is an existing central boiler plant at Fort McNair located at the intersection of A Street and 3rd Avenue. The capacity of the boiler plant is adequate, but there are multiple leaks. Currently the steam lines are overloaded. There are 12,922 linear feet of steam lines on-post, separated into 6,461 linear feet of heat condensate return and 6,461 linear feet of heating steam supply.

Fuel oil is generally used only from January to March, at a rate of approximately 325 Gallons per Day (GPD) and a peak in January of 11,500 Gallons.

There is a desire to remove the boiler plant at Fort McNair in favor of independent natural gas-fired hot water boilers. The chiller on the roof of the boiler plant is still in use; therefore the building has not been removed.

Figures 2.61 and 2.62 illustrate all utilities for JBM-HH and Fort McNair.

Table 2.20 Fort Myer Approximate Current Usage

	Average Daily Usage	Peak Month Usage	
Electricity, (KWH)	66,000	June	3,500,000
Water, (MGAL)	0.33	June	15
Sanitary Sewer, (MGAL)	0.33	June	15
Natural Gas, (Therm)*	4,900	Feb	238,000
Fuel Oil, (GAL)	1,400	Feb	62,000

Table 2.21 Fort McNair Approximate Current Usage

	Average Daily Usage	Peak Month Usage	
Electricity, (KWH)	59,000	June	2,300,000
Water, (MGAL)**	0.10	Oct	3.2
Sanitary Sewer, (MGAL)**	0.15	Oct	3.3
Natural Gas, (Therm)*	2,300	Feb	110,000
Fuel Oil, (GAL)	325	Jan	11,500

*Therm = 100,000 BTU
**Data taken from FY07

Figure 2.59 JBM-HH Central Heating and Cooling Map

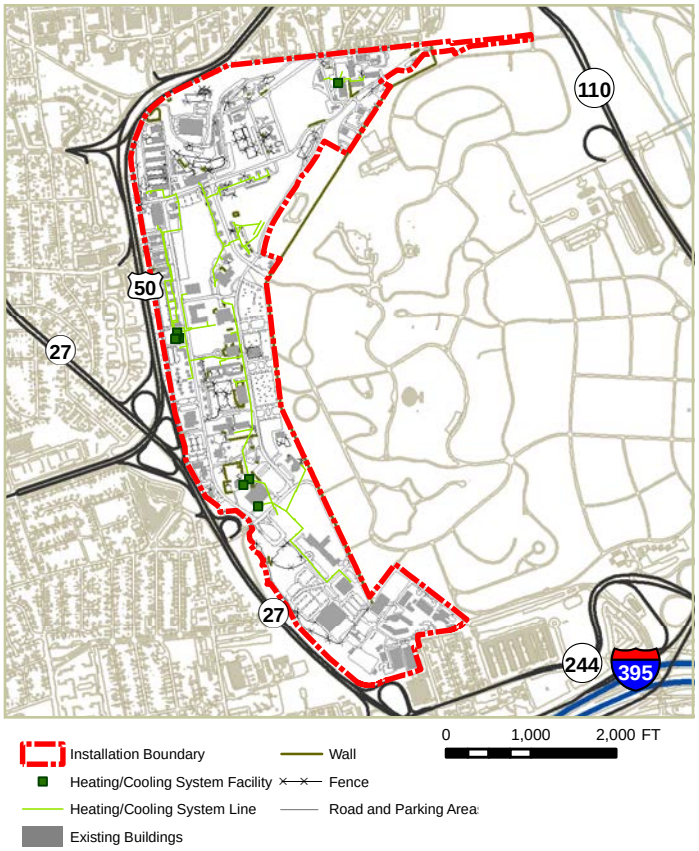


Figure 2.60 Fort McNair Central Heating and Cooling Map

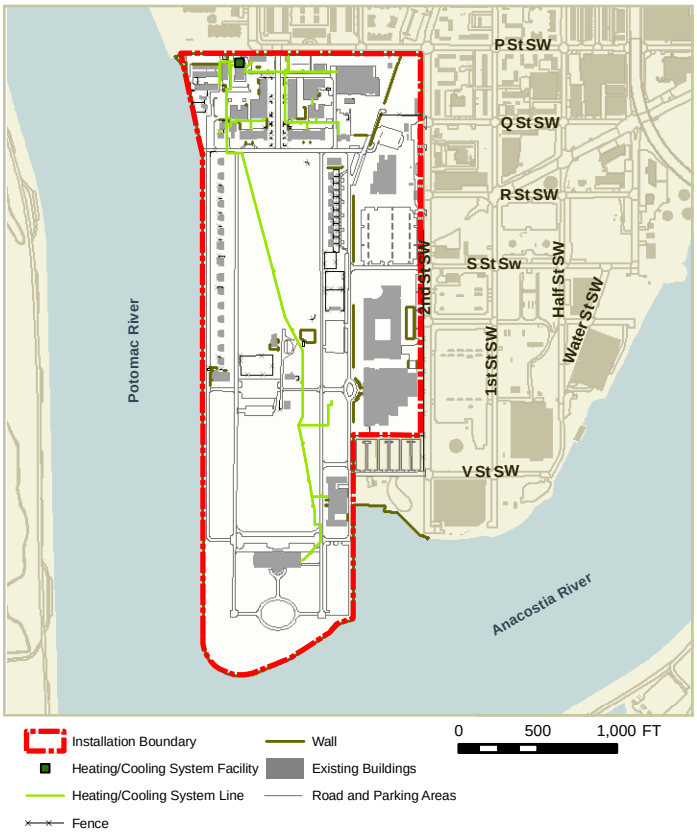


Figure 2.61 JBM-HH Combined Utilities Map

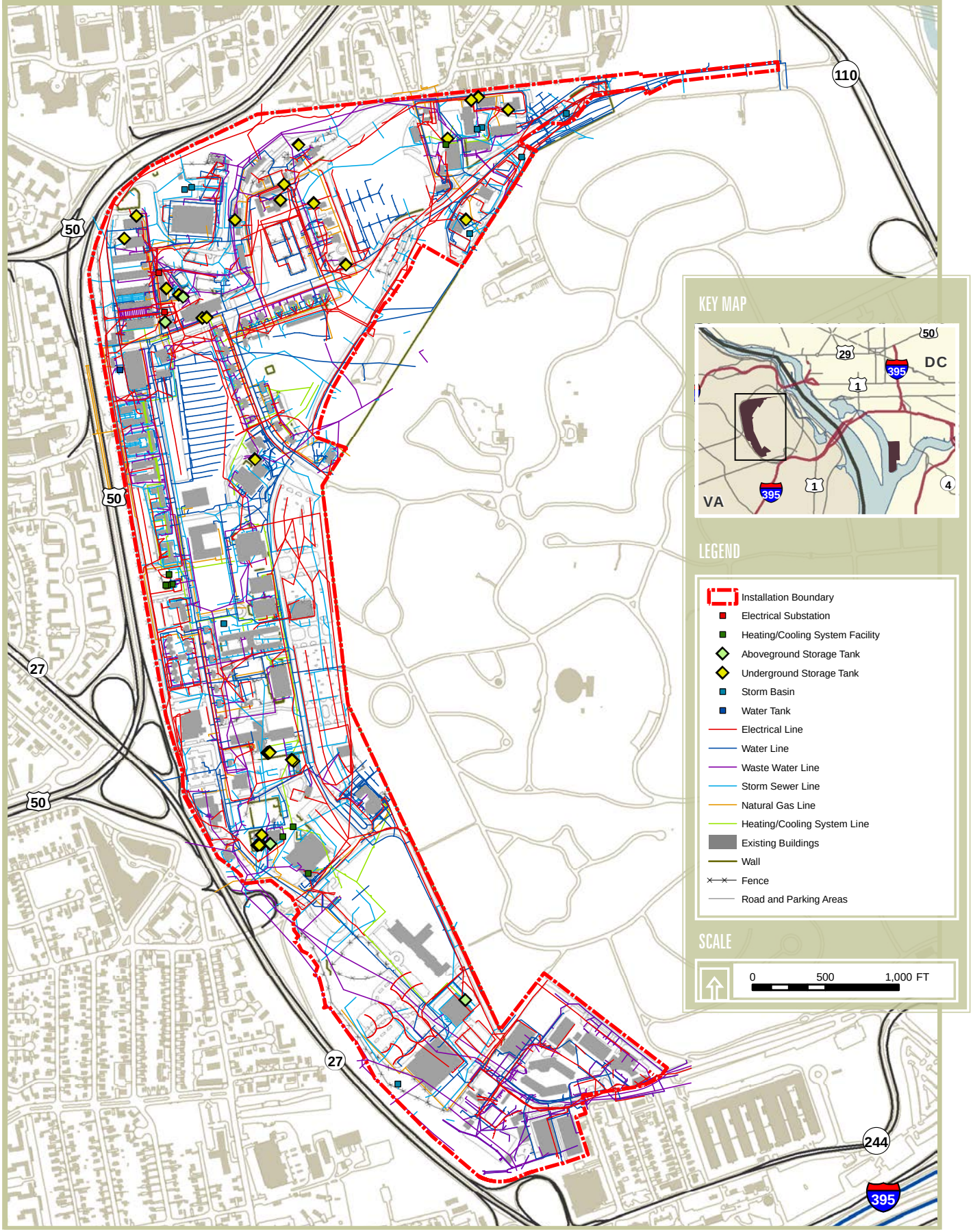
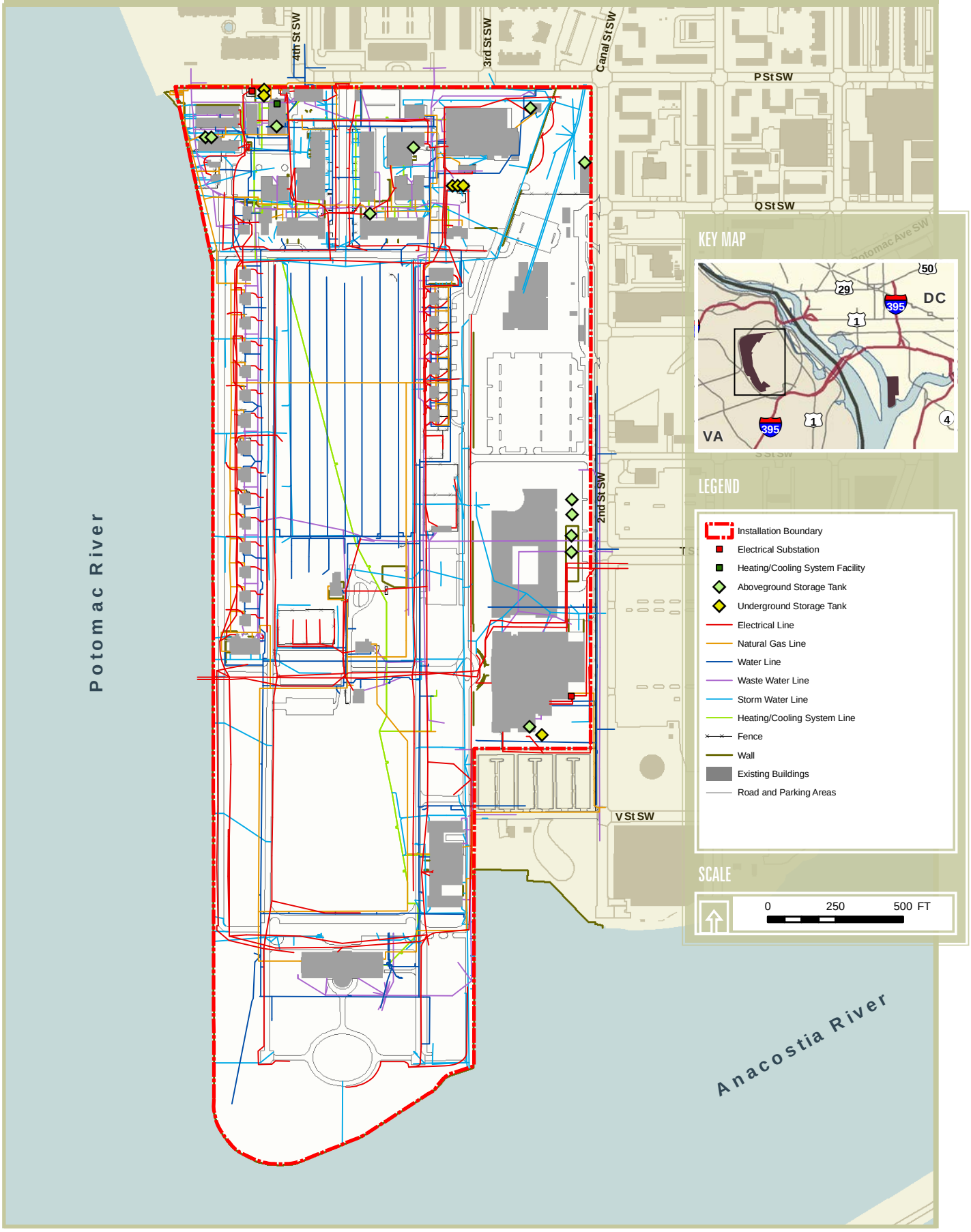


Figure 2.62 Fort McNair Combined Utilities Map



2.12 OPPORTUNITIES AND CONSTRAINTS

As outlined in previous sections, many planning issues will influence future growth at JBM-HH. While those planning issues are numerous, not all are equal in the hierarchy of importance. The opportunities and constraints presented here outline the major factors affecting the direction of the JBM-HH Real Property Master Plan. These issues fall into the following categories:

- Regional
- Environmental
- Land Use
- Infrastructure
- Force Protection

The following diagrams summarize the most significant issues that will affect the development potential and direction at each site.

2.12.1 Regional

JBM-HH Opportunities

1. Close proximity to Pentagon along a major transportation corridor / Pentagon shuttle.
2. Urban environment of Arlington County allows for use of area services, including: residential, recreation, hotel, retail, schools and library.
2. Arlington County revitalization efforts for areas adjacent to the installation will improve surrounding transportation and services.
3. There is an excellent regional road network.
4. There is a regional recreation network.
5. An extensive public transportation network exists.

JBM-HH Constraints

6. Development in Arlington County will increase area density.
7. Residential housing in the vicinity of JBM-HH is expensive.
3. Roads are congested due to traffic volumes related to Washington, D.C. commuter ingress and egress.
8. There is poor way finding to JBM-HH at Wright Gate.
9. No rail exists within walking distance of JBM-HH.
9. No public transportation exists between JBM-HH and Fort Belvoir/Belvoir Community Center .

Fort McNair Opportunities

1. Proximity to Washington, D.C. supports NDU, TOG, General Officer housing missions, and Center for Military History.
2. Access from Metrorail service to Fort McNair is three blocks to the north.
3. The road / transportation network in the immediate vicinity of Fort McNair is well developed.
4. New stadium and other associated D.C. plans to revitalize the surrounding area will increase retail, commercial, and residential opportunities for the Fort McNair population.
5. Access to Anacostia trail improves area recreation and connection to D.C. recreation network.
6. Adjacent land uses provide opportunities for expansion to Fort McNair who leases National Park Service property for parking and Coast Guard building for office space.

Fort McNair Constraints

7. Crime rates in Ward 6 / surrounding development are high.
8. Aircraft noise pollution from Washington National Airport may impact Fort McNair's residents.
3. Roads are congested due to traffic volumes related to Washington, D.C. commuter ingress and egress.
9. Development plans in surrounding area may reduce off-site parking availability.
10. Development plans may contribute to encroachment and reduce opportunities for future expansion.

Figure 2.63 JBM-HH Regional Opportunities and Constraints Map

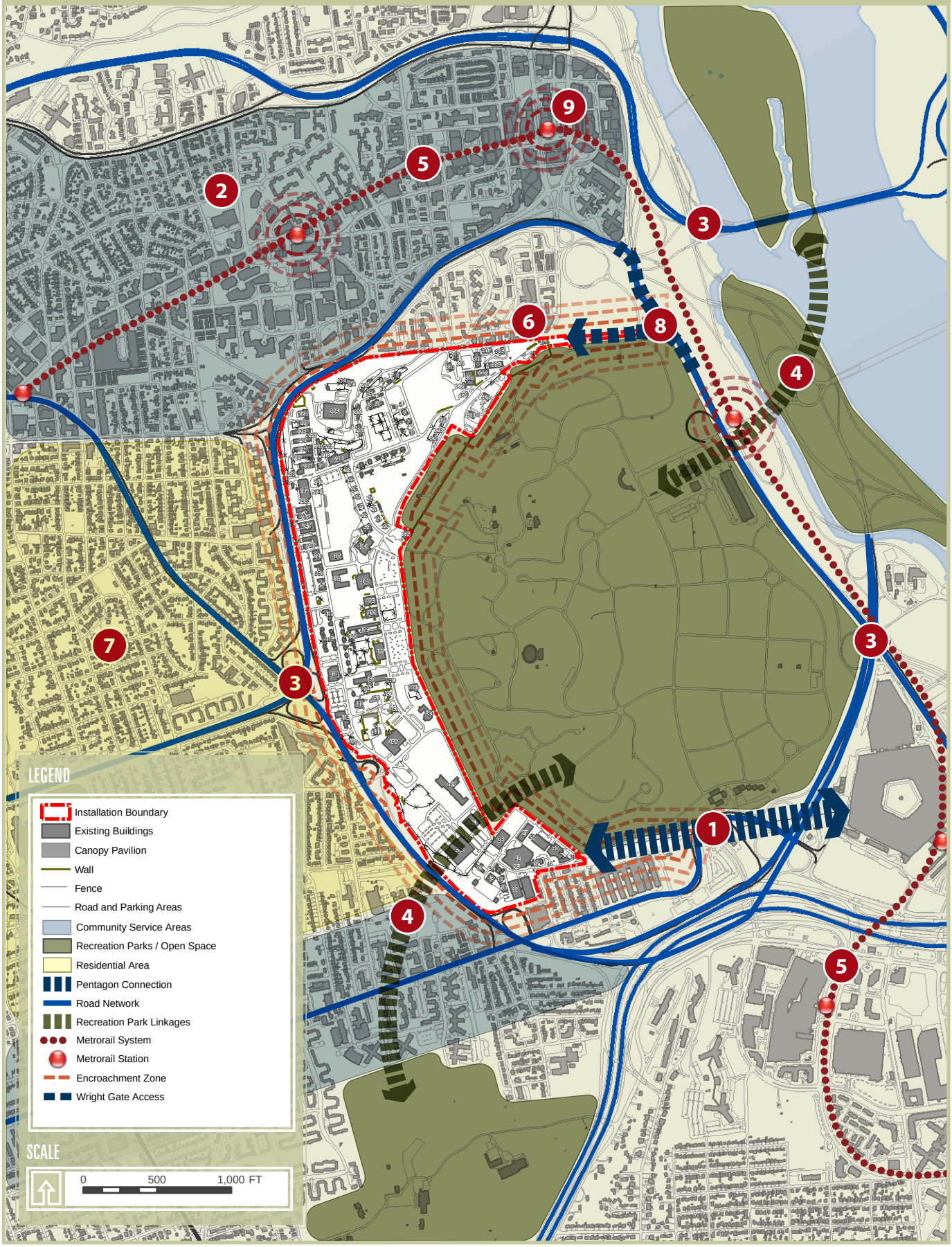


Figure 2.64 Fort McNair Regional Opportunities and Constraints Map

2.12.2 Environmental

JBM-HH Opportunities

1. Topography contributes to excellent views to surrounding region.
2. Visual unity of historic district maintains identity of Fort Myer.
3. Environmentally sensitive areas have potential for recreation, training uses, and an open space network.

JBM-HH Constraints

4. Topography limits buildable areas and access.
5. Flooding at Henderson Hall occurs within 100-year floodplain.
2. Historic district limits changes to facilities, infrastructure, and layout.

Fort McNair Opportunities

1. Location on the water is visually appealing.
2. Historic design of Fort McNair is highly valued by residents, users, and Washington, D.C.

Fort McNair Constraints

3. Flooding at seawalls occurs during excessive rainfall.

   High water table limits subsurface development.
4. Historic viewsheds limit building heights and locations.
2. Historic district limits changes to facilities, infrastructure, and layout.

Figures 2.65 and 2.66 illustrate the environmental opportunities and constraints at JBM-HH and Fort McNair.

Figure 2.65 JBM-HH Environmental Opportunities and Constraints Map

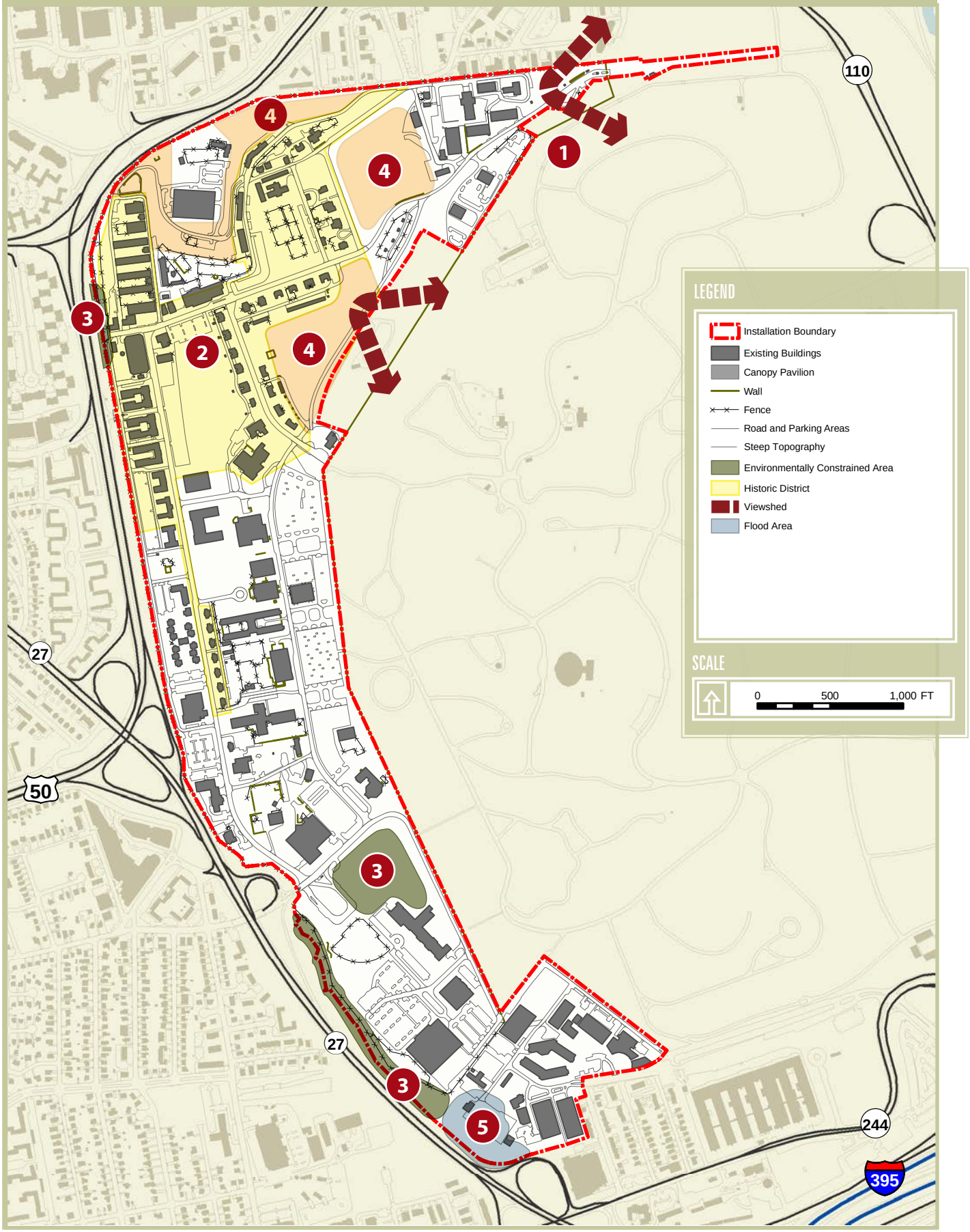
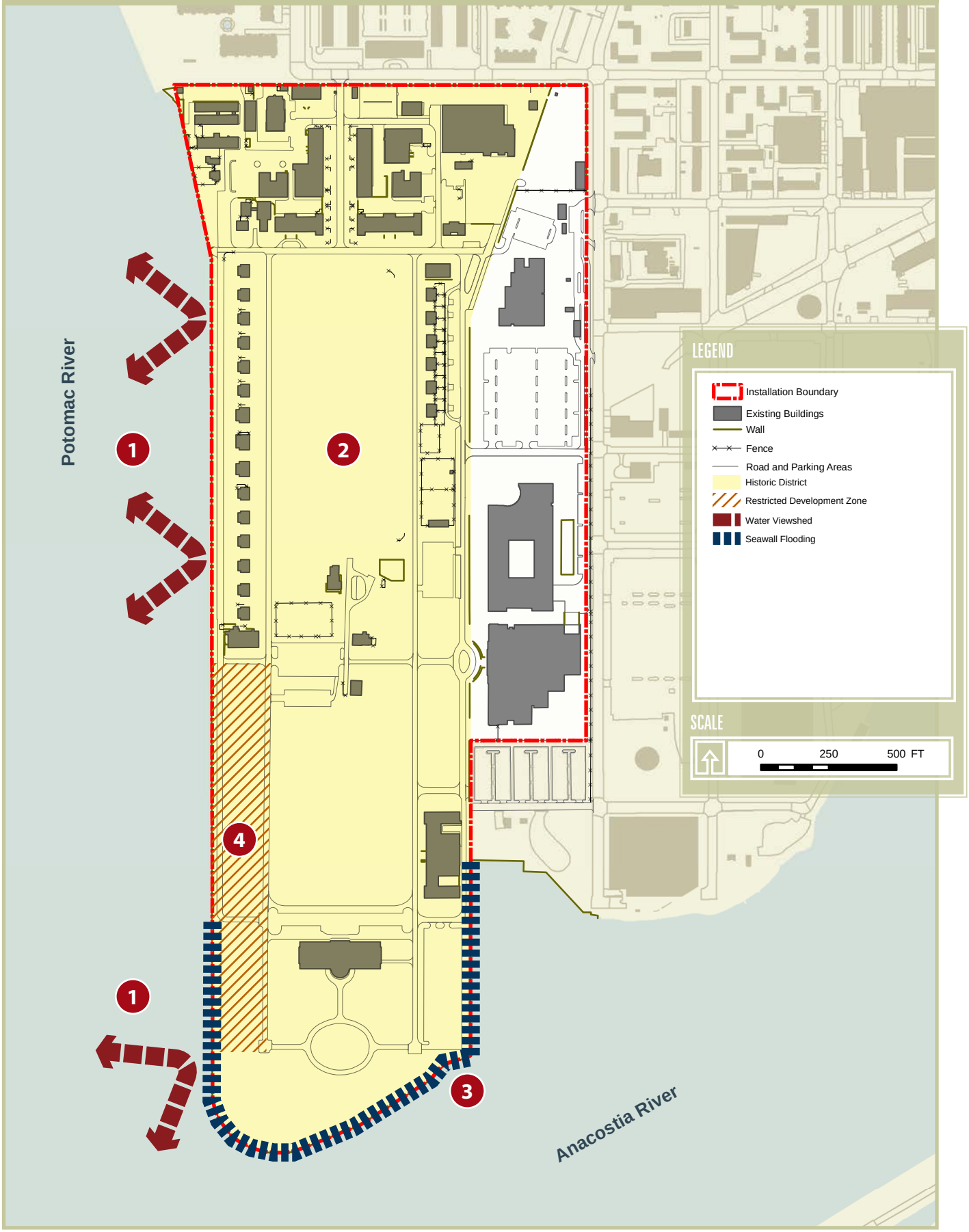


Figure 2.66 Fort McNair Environmental Opportunities and Constraints Map



2.12.3 Land Use / Open Space

JBM-HH Opportunities

1. Community support services are clustered near Hatfield gate with direct access for regional users.
2. Colocation with ANC is crucial for TOG and TUSAB missions.

JBM-HH Constraints

3. Poor circulation exists in the Industrial area.
4. ANC buffer for viewsheds imposes additional development restrictions.
5. Open space available for training areas and outdoor recreation is limited.
6. Some outdoor spaces are considered “sacred areas” and further limit their use.

Fort McNair Opportunities

1. Campus environment provides a community feel.

   Flat terrain facilitates multiple uses.
2. Potential exists to create more visually appealing entrance for dignitaries.
3. Good circulation exists on most of the site.
4. Flooding areas create ideal sites for recreational uses

Fort McNair Constraints

   Open space contains multiple operational and historic constraints.

5. Facilities in DPW area to the north are spread out and intermixed.
6. Wall creates a physical barrier between old and new Fort McNair.

Figures 2.67 and 2.68 illustrate the land use/open space opportunities and constraints at JBM-HH and Fort McNair.

Figure 2.67 JBM-HH Land Use Opportunities and Constraints Map

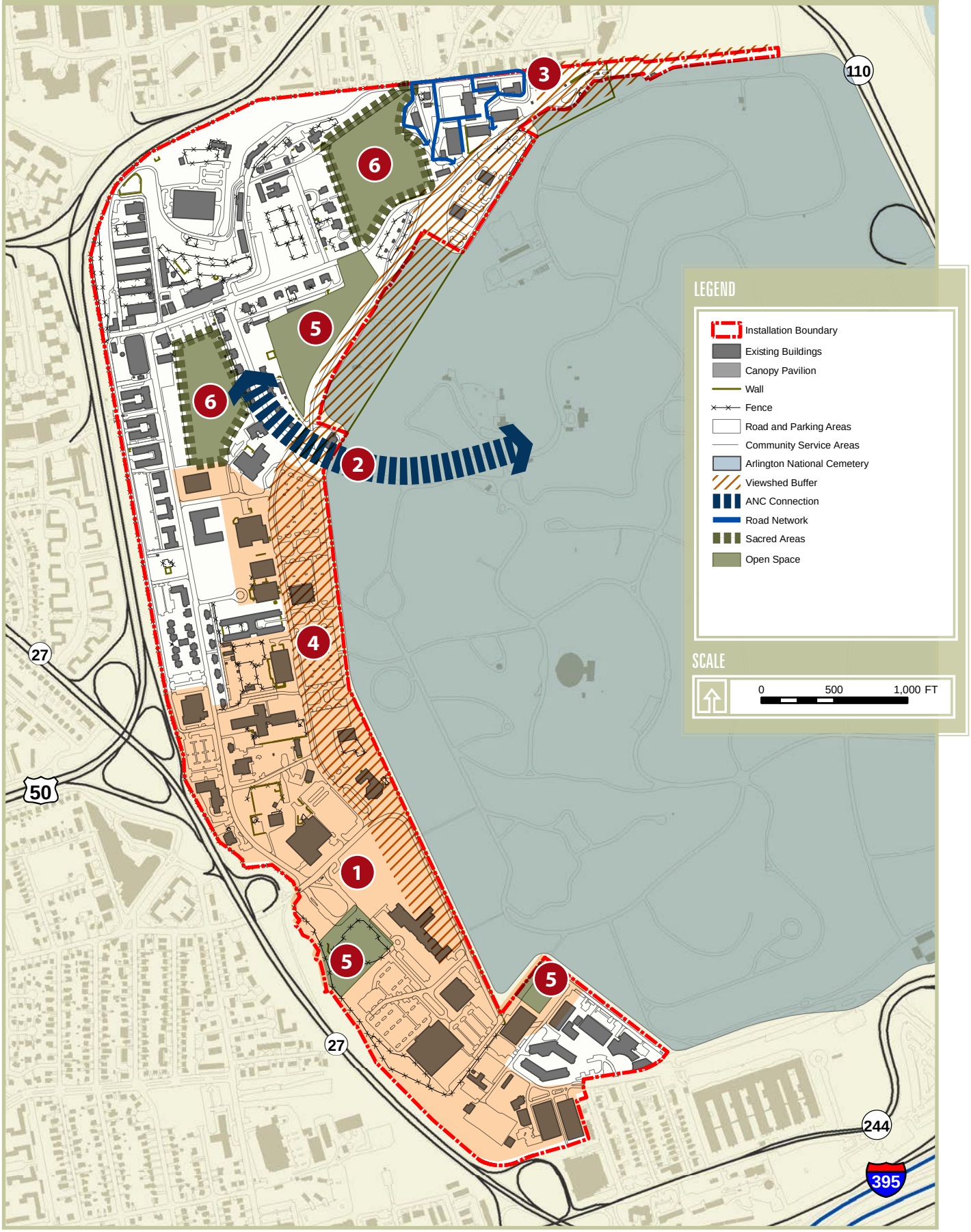
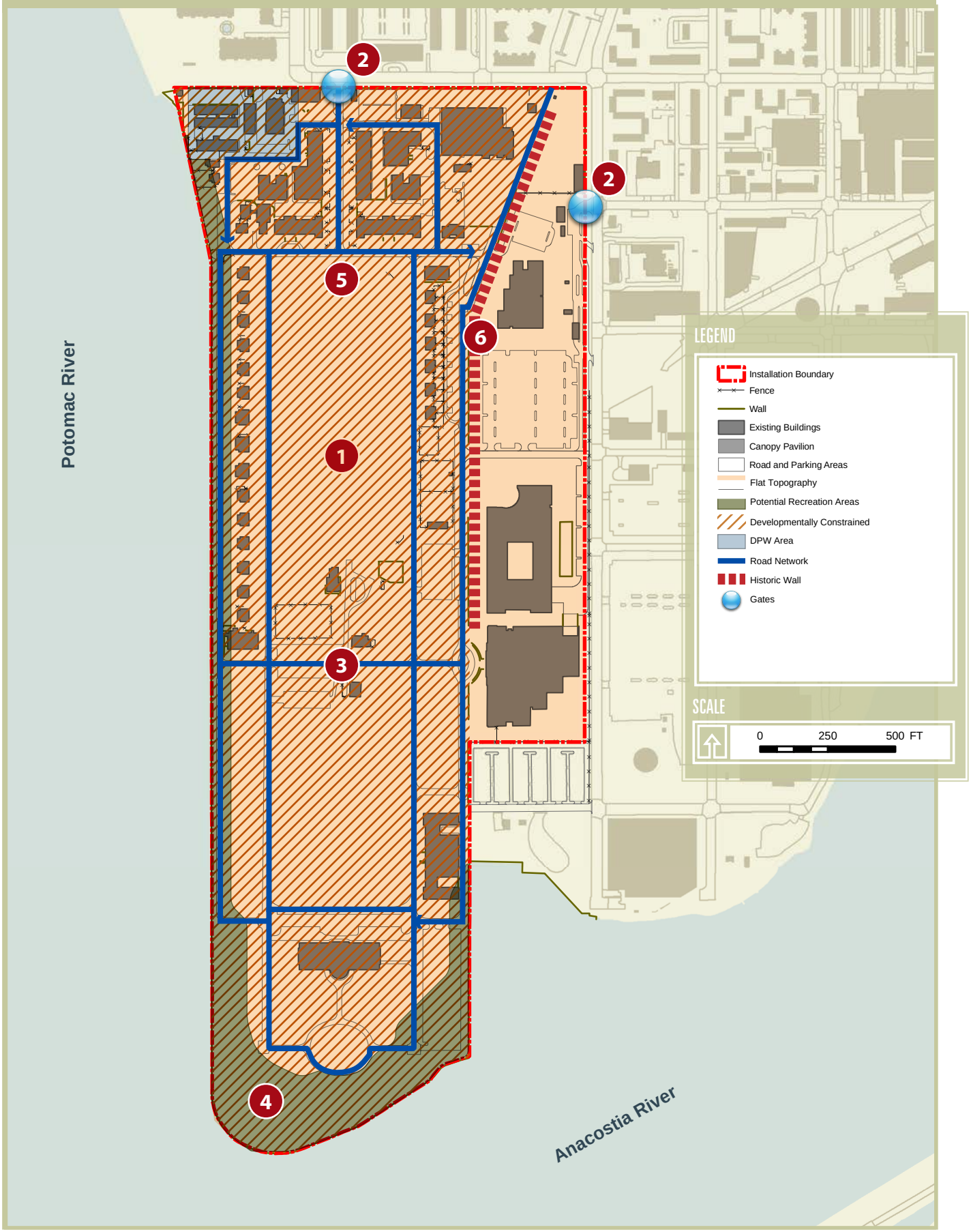


Figure 2.68 Fort McNair Land Use Opportunities and Constraints Map



2.12.4 Infrastructure (Utilities/Transportation/Facilities)

JBM-HH Opportunities

1. Regional access is good.
2. Aging facilities have good redevelopment potential.
3. Recent privatization has improved utilities and repair response times.

JBM-HH Constraints

4. Historic district limits changes to buildings, regarding construction /renovation and the transportation network.

   Some roads are not wide enough for two-way traffic.

4. Historic district building to newer code standards such as ADA and electrical lighting.

   Steam lines are aging and expensive to maintain; many buildings have unreliable heating / cooling.

5. Parking is insufficient and not located where needed. Areas for vehicle storage are lacking.
6. Limited hours at gate inhibit proper and safe access.
7. 8. 9. Facility space is lacking in storage, administrative, training, and conference (for example, the Band Building, Officers' Club, Army Community Services, and TOG barracks).

Fort McNair Opportunities

1. Facilities no longer in use are ideal for adaptive reuse, such as the steam plant.
2. Good overall circulation exists at NDU.

Fort McNair Constraints

3. Historic district limits changes to buildings, regarding construction / renovation and the transportation network.
3. Historic district prohibits ADA compliance in facilities.
4. Parking facilities are insufficient, especially during special events.
5. Road widths near NDU are insufficient to handle on-street parking in certain areas.
6. Poor traffic circulation exists in northern Fort McNair.

   No signage exists to direct visitors and dignitaries to specific parking areas.

7. Location on water creates issues with sanitary sewer, stormwater, and gas.
8. New ACP brings heaviest traffic onto narrow streets.
9. Supporting infrastructure is not in place for the helipad.

Figures 2.69 and 2.70 illustrate the infrastructure opportunities and constraints at JBM-HH and Fort McNair.

Figure 2.69 JBM-HH Infrastructure Opportunities and Constraints Map

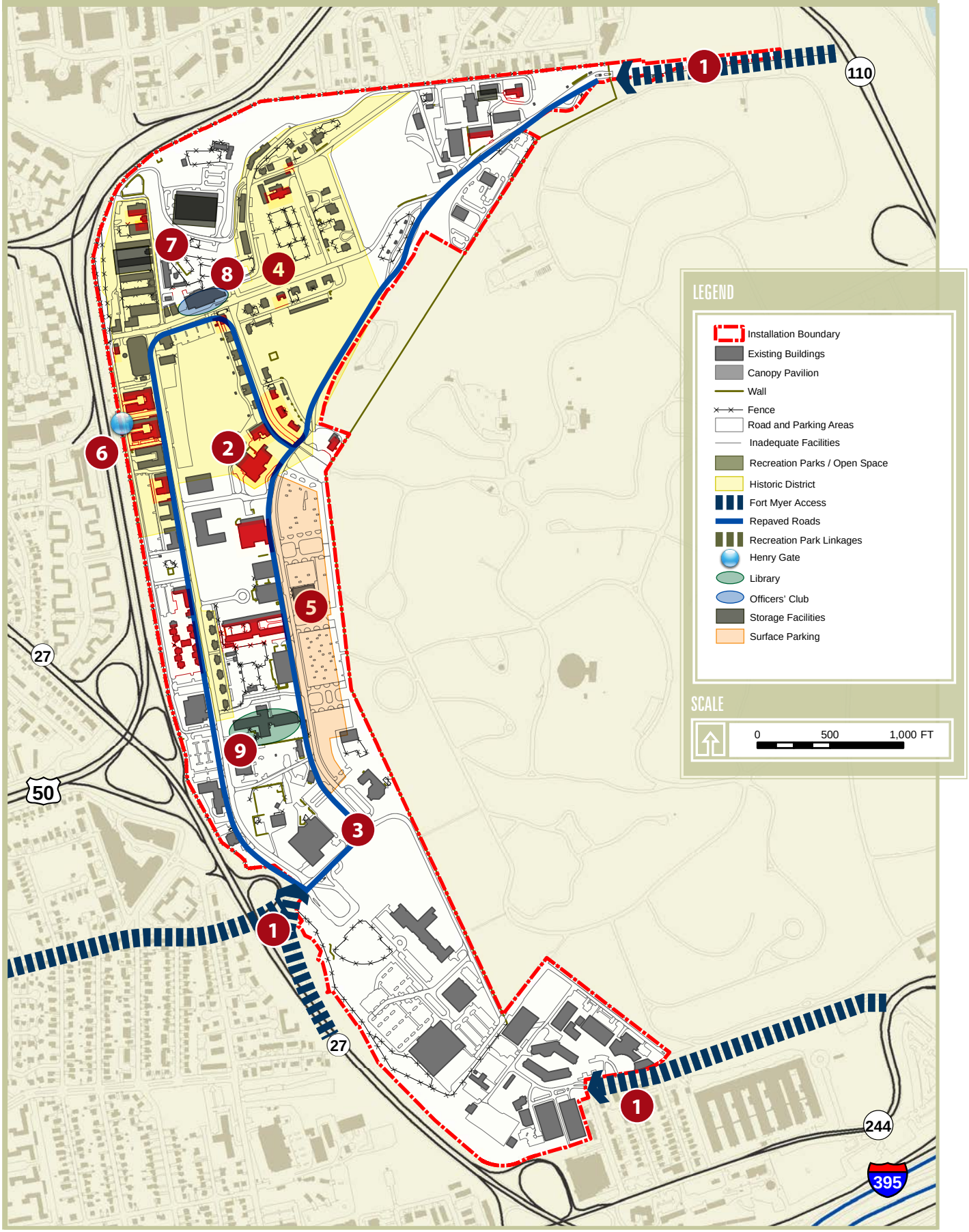
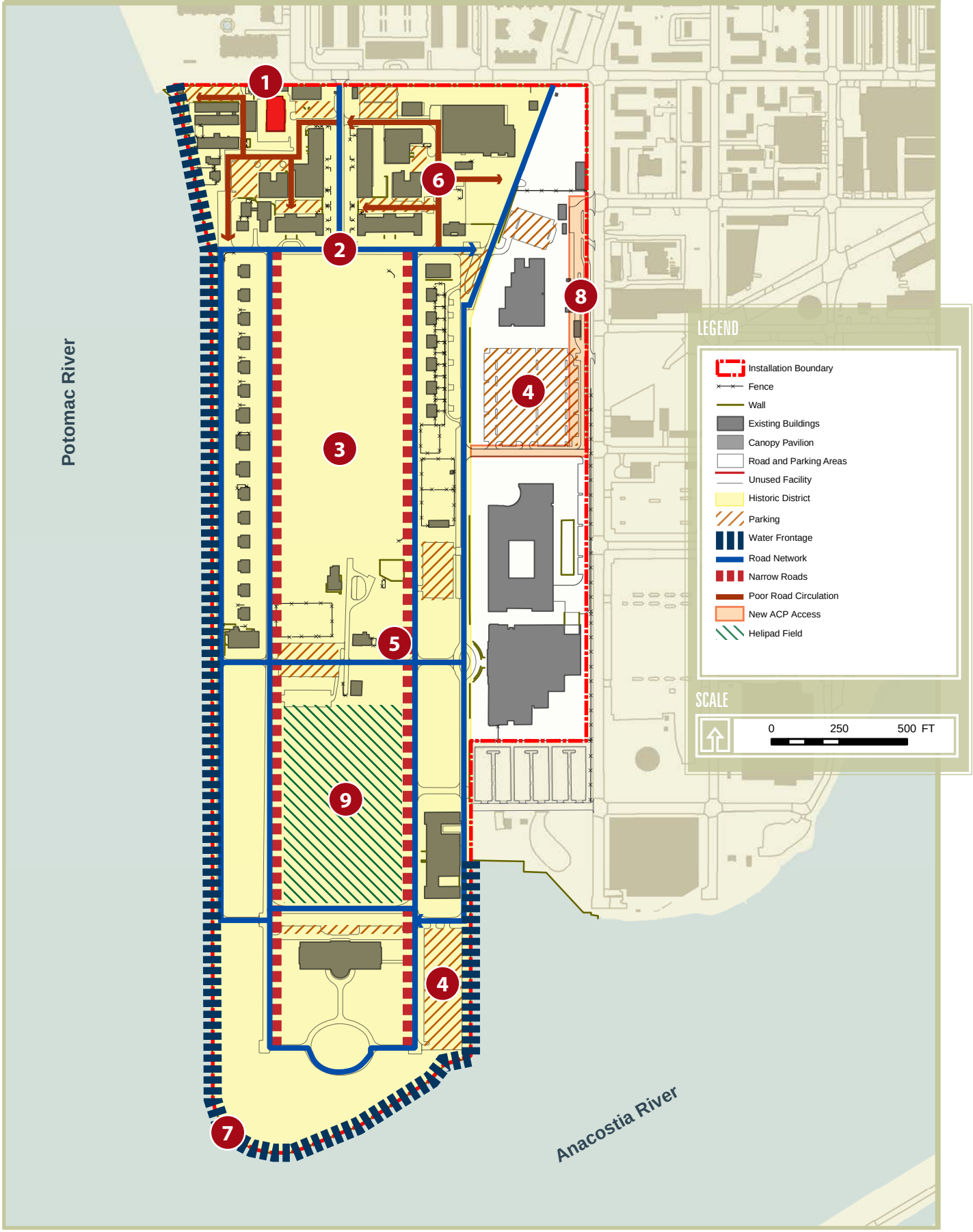


Figure 2.70 Fort McNair Infrastructure Opportunities and Constraints Map



2.12.5 Force Protection / Safety

JBM-HH Opportunities

1. Separate secure area exists for top level residents.
2. Close proximity to the Pentagon for mission support.

Privatization allows for improvements to supporting critical infrastructure.

JBM-HH Constraints

3. Existing buildings have inadequate standoffs and will require mitigation. Narrow layout and limited space make required standoffs a challenge; buffers reduce already limited buildable areas.
4. View looking into JBM-HH from the north is a challenge to Installation protection.
5. Closeness to Route 50 increases vulnerability.
6. Electric substation by dog kennels is close to the Installation boundary.
7. Space for DES ammunition storage is lacking.

Circulation is hindered by: on-street parking and one-way streets that block lanes for emergency service vehicles.

8. Perimeter fencing is lacking reinforcement.

Fort McNair Opportunities

Privatization allows for improvements to supporting critical infrastructure.

Fort McNair Constraints

1. Proximity to open water increases vulnerability, particularly for Emergency Operations; which is not equipped with modern protective measures.
2. Fort McNair lacks restricted area for high-ranking residents.

Figures 2.71 and 2.72 illustrate the force protection/safety opportunities and constraints at JBM-HH and Fort McNair.

Figure 2.71 JBM-HH Force Protection Opportunities and Constraints Map

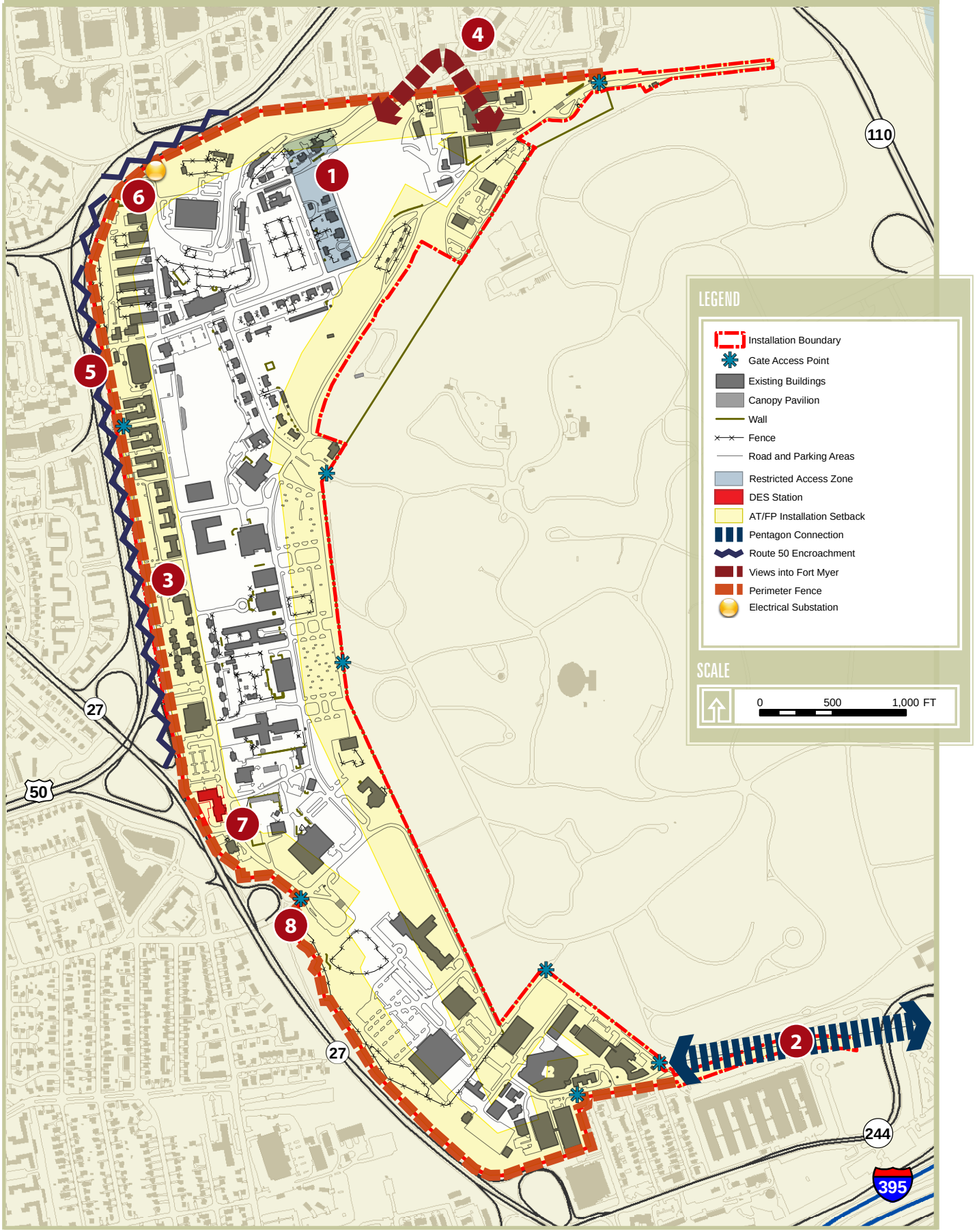
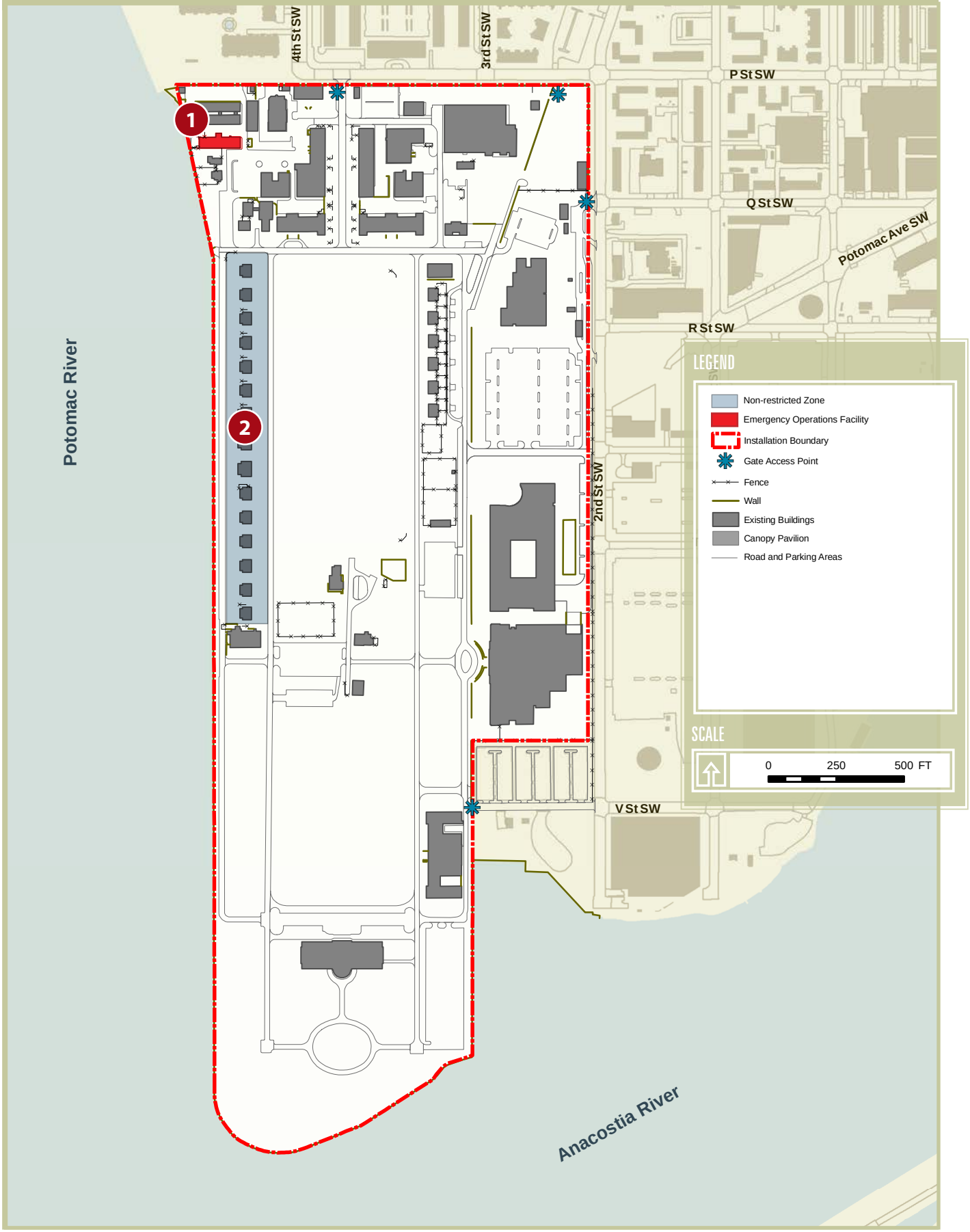


Figure 2.72 Fort McNair Force Protection Opportunities and Constraints Map



3.1 OVERVIEW

Land development patterning involves the analysis of existing functional relationships and spatial land use patterns. The examination of existing relationships provides a basis for understanding how future changes to land and facilities may be best organized in order to meet the needs of Joint Base Myer-Henderson Hall.

Optimal organization of real property allows the Installation to operate more efficiently and ensures effective mission support. In addition it helps the Installation:

- Institute effective means to support and sustain Army and Marine Corps readiness.
- Identify compatible/incompatible component activities.
- Achieve functional economies of scale, visual order, and quality of life.
- Improve circulation patterns and efficiency of operations.

The analysis of existing land use patterns results in concept diagrams that depict the proposed land use changes and the primary factors motivating these decisions. At the conclusion of this section, a preferred Land Use Plan is selected and refined. The Land Use Plan forms the basis of the next section, Section 4 Future Development Planning, which further defines the type and location of future development on each site.

3.2 APPROACH

This section addresses Land Development Patterning at Fort Myer, Henderson Hall, and Fort McNair. The section begins with an installation-wide assessment of functions, categorized within the land uses of the Installation, and examines how the multiple functions of the Installation, each of which has a mission-supporting role, relate to each other both on-post and off-post. Existing spatial relationships are then analyzed to highlight redevelopment opportunities and constraints, with the goal of identifying the highest and best use for future development. This chapter presents the Land Use Plan, derived from the Land Use Plan alternatives, contained in Appendix B.

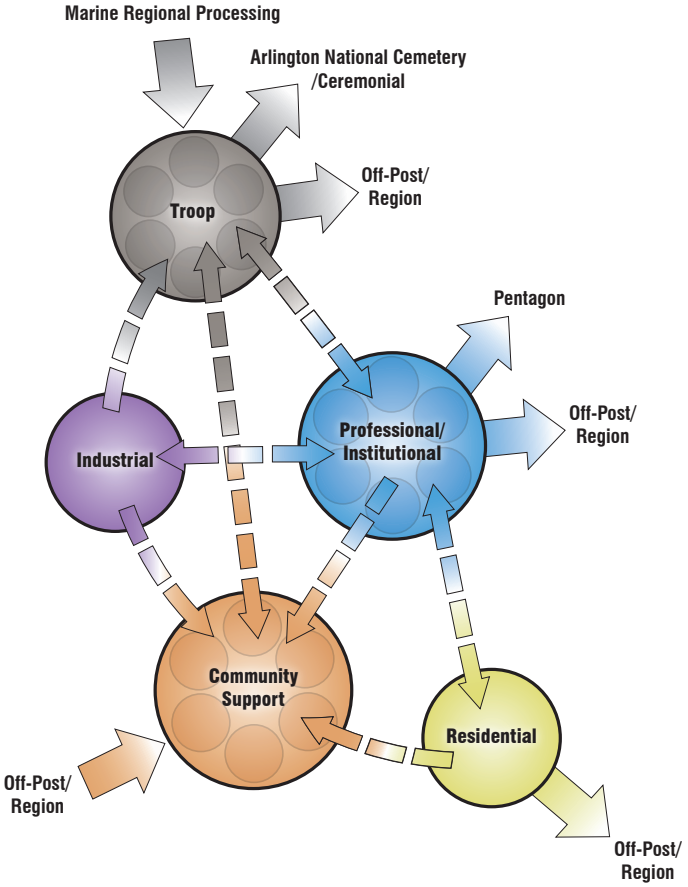
3.3 EXISTING FUNCTIONAL RELATIONSHIPS

3.3.1 JBM-HH

JBM-HH is charged with several diverse missions, many of them having a significant impact on the National Capital Region. Currently, its primary mission falls into the categories of: troop, community support, and professional/institutional.

Units that fall under the troop land use have an especially close functional relationship with neighboring Arlington National Cemetery. The Old Guard (3rd U.S. Infantry Regiment) at JBM-HH provides ceremonial duties in the form of casket teams, firing parties, and marching platoons for military funerals, while also maintaining a 24-hour vigil at the Tomb of the Unknowns. Additional ceremonial functions include special events and parades performed by: The U.S. Army Band (TUSAB), the Fife and Drum Corps, the U.S. Army Drill Team, and the Commander in Chief's Guard. In addition to its status as the U.S. Army's official ceremonial unit, The Old Guard provides security for the nation's capital as a first-response infantry unit. Therefore, there is a strong functional relationship with the NCR and Washington, D.C.

Figure 3.1 JBM-HH Existing Functional Relationships Diagram



Community Support at JBM-HH provides crucial services and support to more than 6,000 Soldiers and more than 114,000 family members, retirees, and veterans in the National Capital Region. Services that attract those both on and off the Installation include the Andrew Rader U.S. Army Health Clinic, Army Community Services programs, childcare, banking, education, recreational facilities, and shopping.

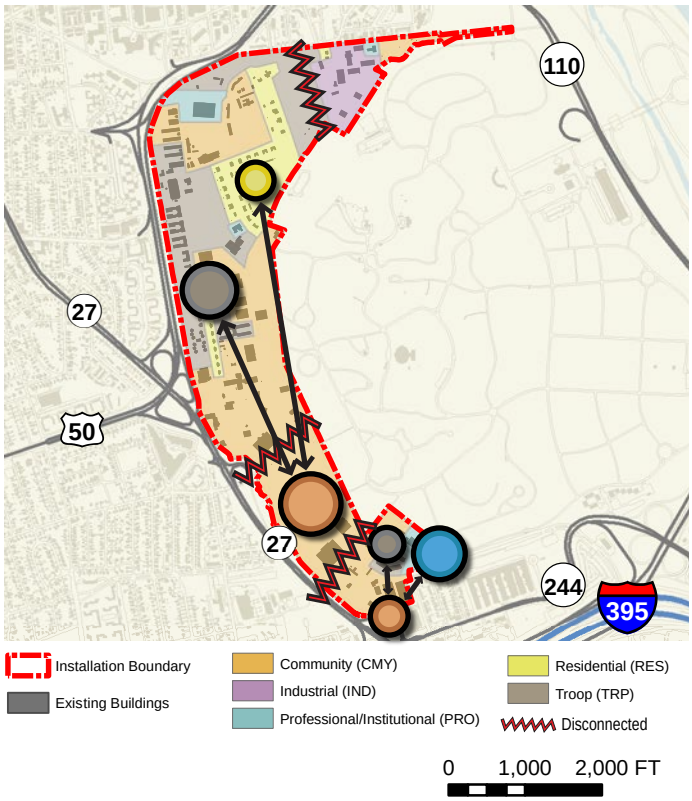
Professional/Institutional functions at JBM-HH comprise a relatively small amount of space, but are vital to the overall mission of the Installation. The Headquarters Command Battalion is the premier headquarters command battalion in the U.S. Army and presently consists of two companies: Headquarters Company, United States Army; and Headquarters Company, United States Army Garrison. Headquarters Marine Corps provides administrative support to Marines at JBM-HH and in the NCR.

Additional functions represented at JBM-HH fall within industrial and residential land uses. Residential land uses comprise a small number of housing for senior officers and senior NCOs, who have a strong functional relationship to the Pentagon and the region as a member of the Joint Force Headquarters-National Capital Region-Military District Washington (JFHQ-NCR-MDW). Industrial functions at JBM-HH are primarily in support of Installation operations.

JBM-HH On-Post Assessment

- There is a lack of cohesion between Fort Myer and Henderson Hall. The physical land and functional relationships should be strengthened in order to create a joint base that improves access and efficiency.
- There is a physical disconnect between the two main community support areas. A better street network and infill development would improve accessibility and shared usage.
- Whipple Field effectively separates residential and industrial land uses. Maintaining this buffer is recommended in order to separate two non-conforming uses and retain an open space area.
- Troop functions are functionally aligned with troop facilities, community support services, and recreation.
- Residential functions are functionally aligned with the regional community services available, such as the Commissary and Rader Clinic.
- At Henderson Hall, both troop and Professional/Institutional functions make use of the community services available.

Figure 3.2 JBM-HH On-Post Functional Relationships



JBM-HH Off-Post Assessment

- Many retirees, dependents, and military personnel in the region use community support services on the Installation.
- JBM-HH is functionally aligned with Arlington National Cemetery (ANC). TOG provides ceremonial services as a core part of its mission.
- JBM-HH has a functional relationship with the National Capital Region as a first response unit during emergencies.
- Henderson Hall provides Marine Corps Regional Processing for all Marines in the National Capital Region.
- JBM-HH has a close functional relationship with JFHQ-NCR-MDW and the Pentagon.

Figure 3.3 JBM-HH Off-Post Functional Relationships

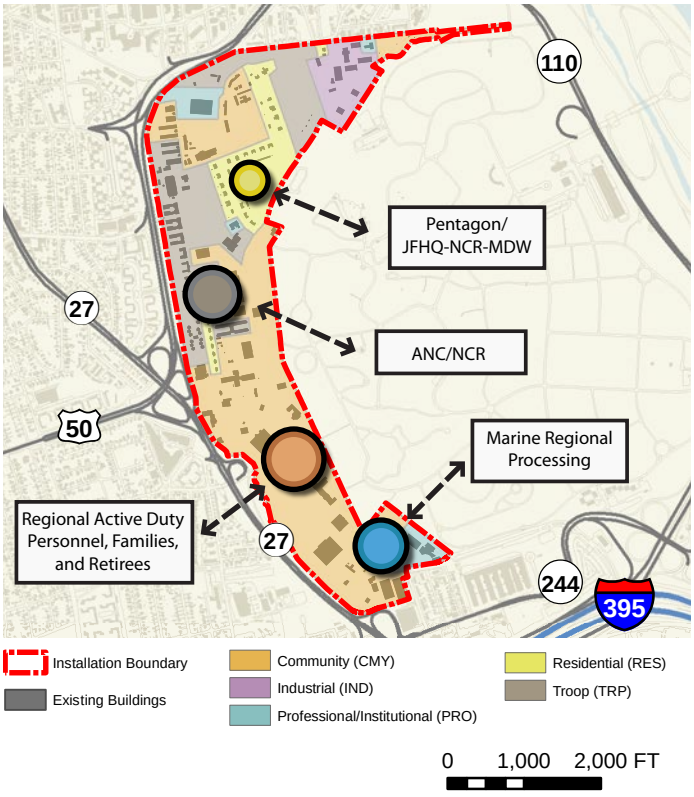
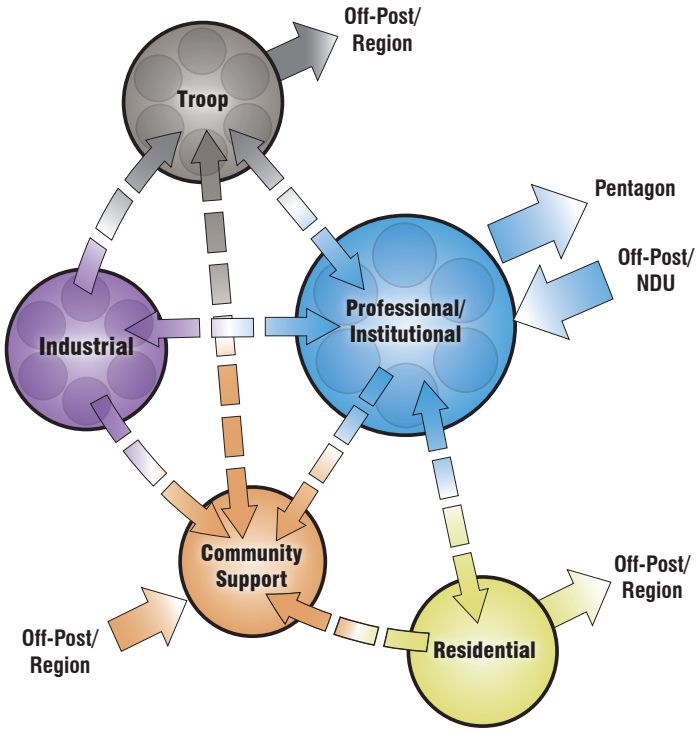


Figure 3.4 Fort McNair Existing Functional Relationships Diagram



3.3.2 Fort McNair

The principal functional relationship at Fort McNair is associated with Professional/Institutional land uses and military education. This consists of the National Defense University, the Inter-American Defense College, and the Center of Military History. Students reside off-Post and commute to Fort McNair. Educational institutions, historical buildings, and a historical layout create a campus environment. In addition, the JFHQ-NCR-MDW is headquartered at Fort McNair, and serves a key function within the NCR.

Community support functions at Fort McNair include: the new fitness center, a gas station and shoppette, the Officers' Club, and the open space of the parade grounds. Users of these facilities include students and many others located off-Post.

Like Fort Myer and Henderson Hall, Fort McNair Residential functions are relatively small and are comprised of senior officers, senior NCOs, and their families. Many of these senior personnel are employed off-post and have a weak relationship with other on-post functions.

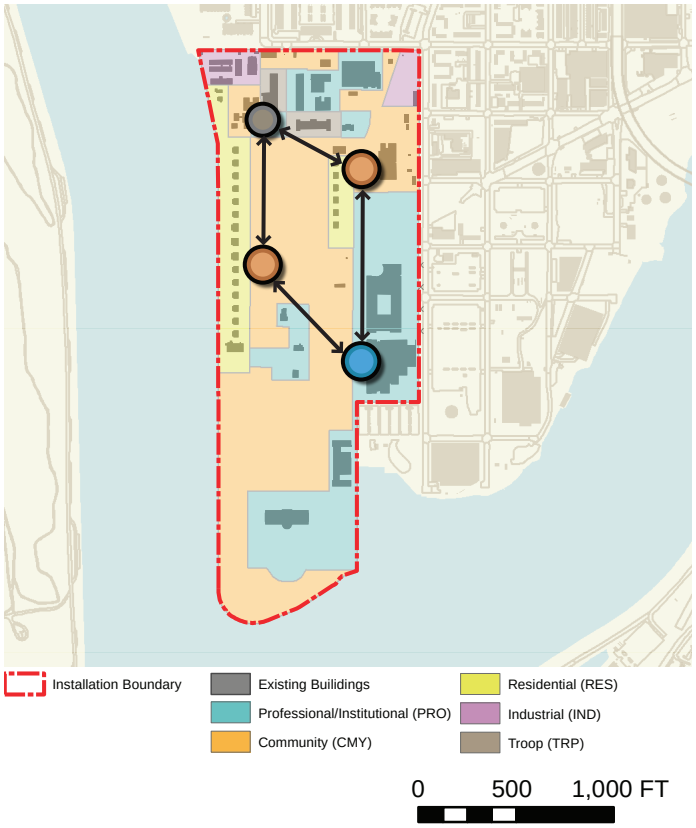
Members of TUSAB, the 767th Ordnance Company (EOD), and the 3rd Platoon Military Police comprise the primary Troop functions at Fort McNair. TUSAB participates in TOG's mission, performing ceremonial duties in the NCR. The 767th EOD's primary mission is to mitigate the effects of nuclear, biological, chemical, and conventional munitions in any theater of operations. They provide training and support to Federal and military personnel within the NCR.

Industrial functions at Fort McNair are primarily in support of Installation operations.

Fort McNair On-Post Assessment

- National Defense University (NDU), Inter-American Defense College, Africa Center for Strategic Studies, and the Center of Military History are functionally compatible on an installation with a campus-like setting.
- Troop and academic institutions make use of the on-site fitness center and recreation fields.

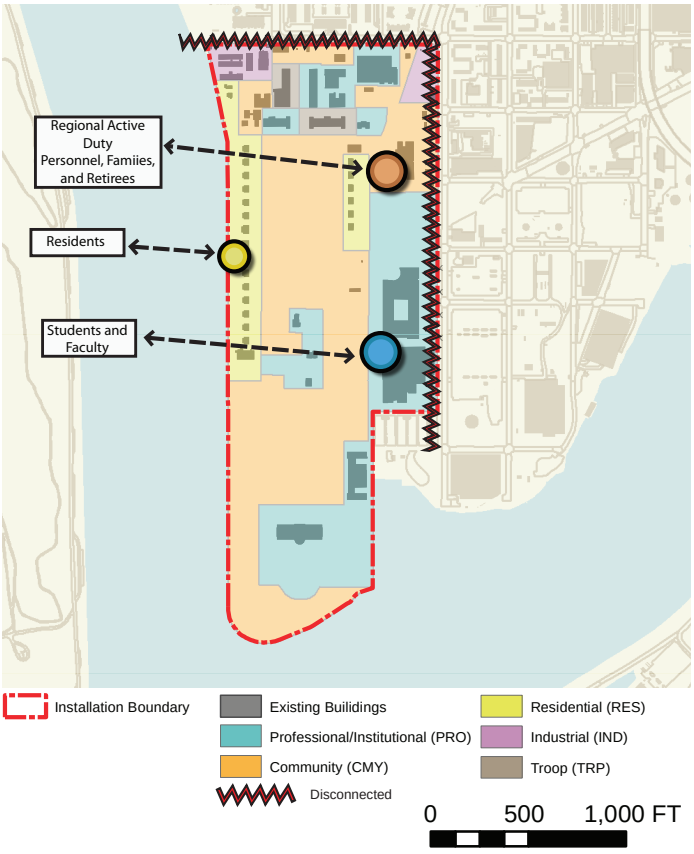
Figure 3.5 Fort McNair On-Post Functional Relationships



Fort McNair Off-Post Assessment

- Students and employees from the surrounding area use the fitness center.
- Students and employees of academic institutions live off-post and commute to the Installation daily.
- Those residents living at Fort McNair are employed off-post.
- Ceremonial activities attract visitors from the region.
- Fort McNair has minimal physical and functional relationships with the immediate neighborhood.

Figure 3.6 Fort McNair Off-Post Functional Relationships



3.4 SPATIAL RELATIONSHIPS

Spatial relationships address physical development including buildings, layout, open space, and aesthetics. This assessment, in combination with the land use concepts, determines the character of future development in developable areas.

JBM-HH

JBM-HH has a relatively compact development pattern with a large historic district in the northern section of the Installation. Existing development is clustered, with gaps and open areas created by natural, cultural, and operational constraints. In addition, JBM-HH is surrounded by dense urban areas and ANC, reinforcing the need to efficiently use existing space. Streets, parking lots, and buildings comprise most of the land area. The local roads are typically meandering, mixed with parking lots, and generally not fitting for a dense environment. Natural resources are urban in nature; wildlife and vegetation is limited to urban species.

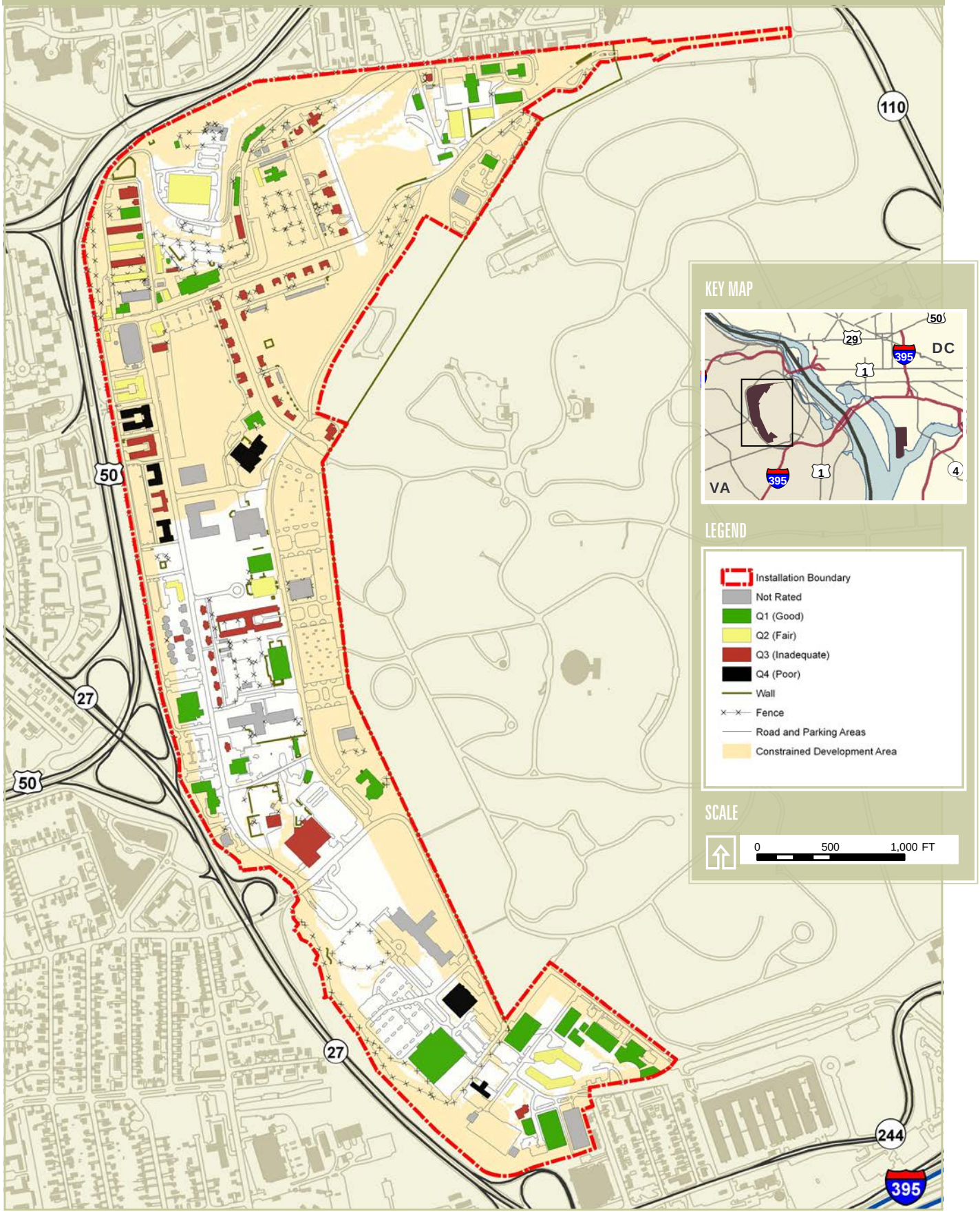
Outside of the Constrained Area, development potential is limited by a lack of available space. Dense and multi-story infill development located on existing parking lots and vacant sites provides additional space. Redevelopment in the form of building renovation, reuse, or replacement can be supported by Installation Status Report ratings (ISR), indicated in Figure 3.7.

Within the Constrained Areas, development options are more limited. Renovation and new construction within the Historic District must adhere to regulatory guidelines and review by the Virginia's Department of Historic Resources (DHR) and must conform to the current historic nature of the district. In addition, the ANC viewshed is available for restricted development as designated by the National Capital Planning Commission (NCPC). Any development must comply with height standards and designated setbacks, in order to preserve the memorial setting of neighboring ANC.

Additional natural constraints also impact the type and nature of development. Low-lying areas within the southern boundary of Henderson Hall experience flooding, which affects Building 12 and its parking.

Within the historic district, topography exceeding a slope of 15% exists and contributes to the aesthetic quality and views of JBM-HH. Whipple Field and Summerall Field are important open spaces, and are therefore considered off limits for any type of future development.

Figure 3.7 JBM-HH Spatial Map



Fort McNair

Fort McNair has maintained a relatively compact development pattern along with its historical designation and character. The Installation generally adheres to its 1903 McKim, Mead, and White Master Plan with a strong Beaux-Arts campus setting. The northern portion of the Installation is comprised of a dense cluster of historic buildings with narrow roads that meander, have blind corners, and are often indistinct from parking lots. The rest of the Installation has an open and orderly design, centered around the parade field.

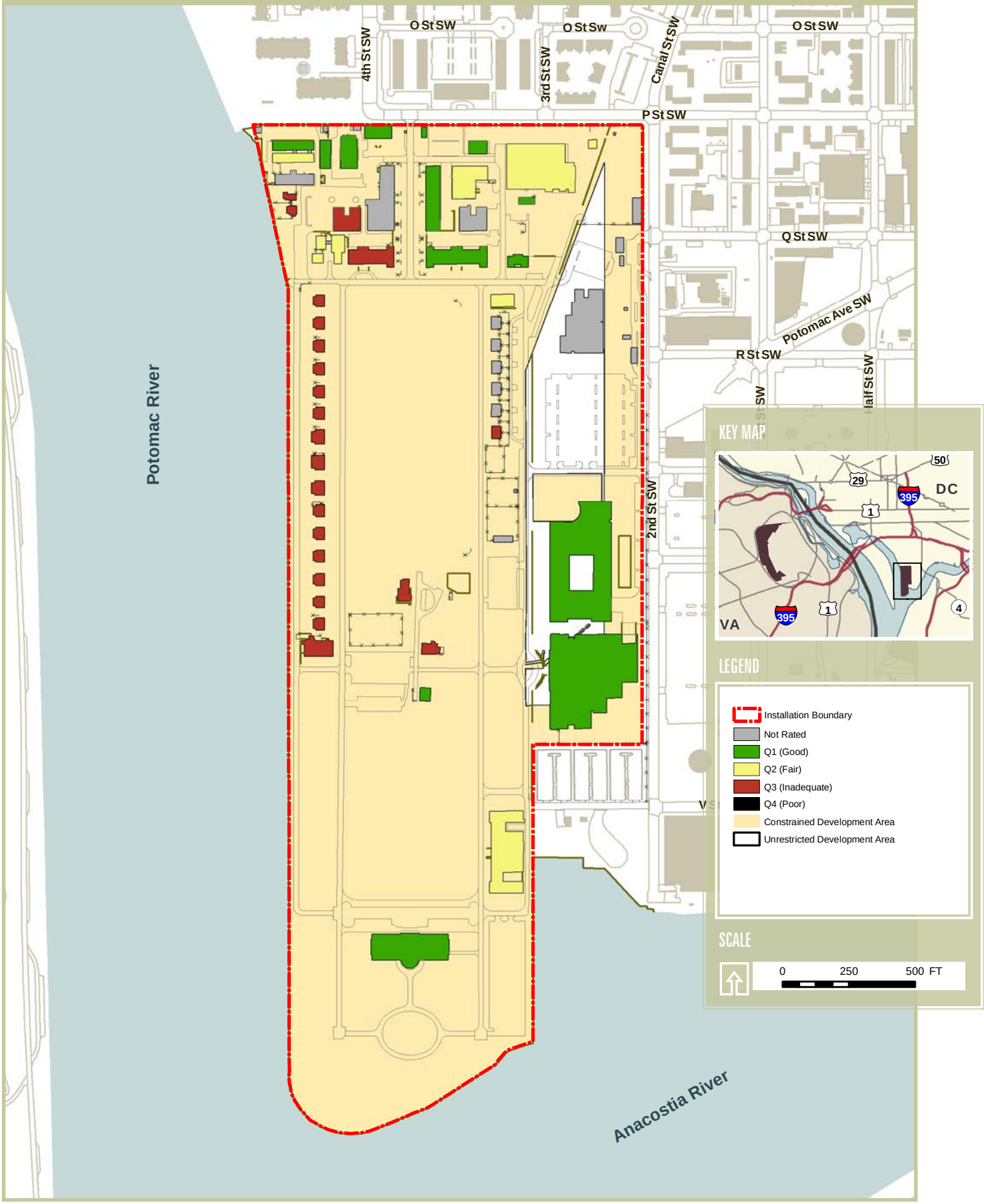
Development potential is limited due to the lack of available space and historic designation. Infill development is limited to existing parking lots, a few parcels around the parade field, and the temporary ACP at P Street. Removing existing structures is an option only if they are deemed of little historic value. Renovation of existing structures is common, but often challenging due to historic standards and guidelines. The historic district is available for restricted development requiring approval by local historic preservation agencies. New construction, renovation of historic buildings, and demolition of historic buildings are all subject to strict regulatory guidelines.

Unrestricted development is limited to the recently expanded section on the east side of Fort McNair. This parcel is already heavily developed; the fitness center parking lot is the only parcel deemed unconstrained.

The southernmost portion of the Installation is dominated by Roosevelt Hall, a National Historic Landmark. The area around Roosevelt Hall is characterized by grass fields and planted trees, on a prominent point where the Potomac and Anacostia Rivers meet. This area and the parade field are generally considered unavailable for development, due to natural constraints associated with flooding and its historical character/layout.

Natural resources are limited to grass, planted trees, and urban wildlife species such as squirrels. The Washington Channel denotes the western perimeter of the Installation.

Figure 3.8 Fort McNair Spatial Map



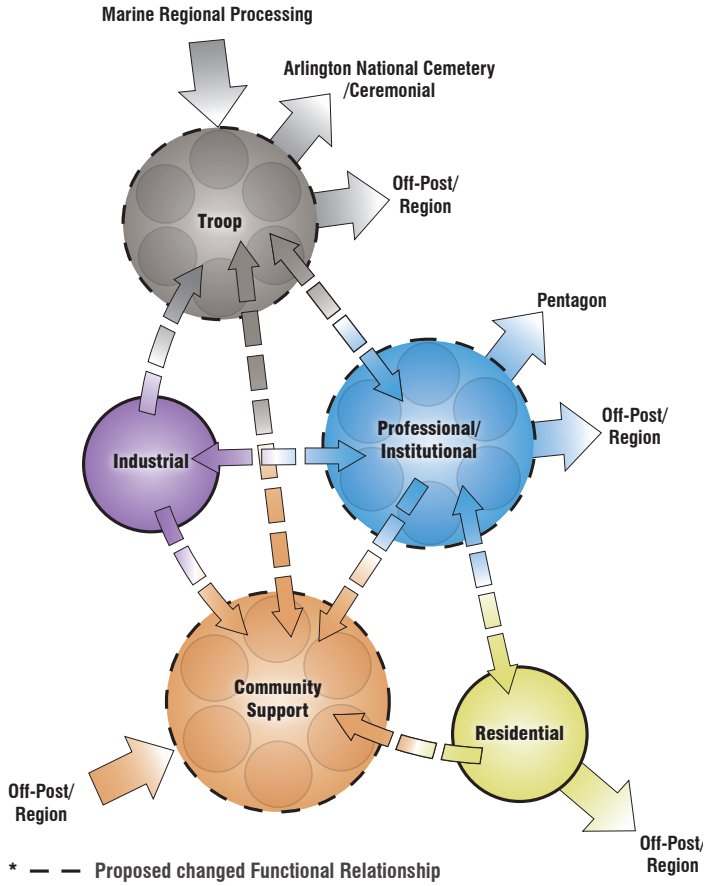
3.5 PROPOSED FUNCTIONAL RELATIONSHIPS

3.5.1 JBM-HH

The ideal functional relationship for JBM-HH results in an increase of troop, professional/institutional, and community support functions (see Figure 3.9).

Troop functions are increased in part by the relocation of TUSAB units at Fort McNair to JBM-HH. Consolidation of TUSAB in their new training facilities will make for a more efficient and functional use of space. An increase in troop functions is anticipated in the long term, with the introduction of more soldiers through the "grow the force" initiative. New centralized barracks and troop facilities planned at JBM-HH will be able to accommodate an increase in troop functions and allow the Installation to meet its current and future mission. Professional/Institutional functions will be expanded to meet increased mission demands.

Figure 3.9 JBM-HH Proposed Functional Relationships Diagram



Community support functions will be expanded to meet the needs of those on-Post, as well as those within the region who depend on JBM-HH for a wide range of services. Family, Morale, Welfare and Recreation (FMWR), health, and temporary lodging are a few of the community support functions expected to increase in demand. Centralization of community support functions in a town center atmosphere will increase efficiency and convenience, while encouraging alternative forms of transportation.

Residential functions may increase slightly, while industrial functions are not expected to change.

JBM-HH Functional Areas

As shown in Figure 3.10, JBM-HH is divided into six distinct functional areas. Functional areas help determine the location of future facilities by encouraging similar types of development within each area.

Industrial Zone
The industrial Zone contains the Department of Public Works, a motor pool, and other maintenance related functions of the Post. Future industrial functions would be ideally located here.

Mission Support 1
This area is characterized by senior officer housing, historic stables, the Officers' Club, swimming pools, tennis courts, and some open spaces.

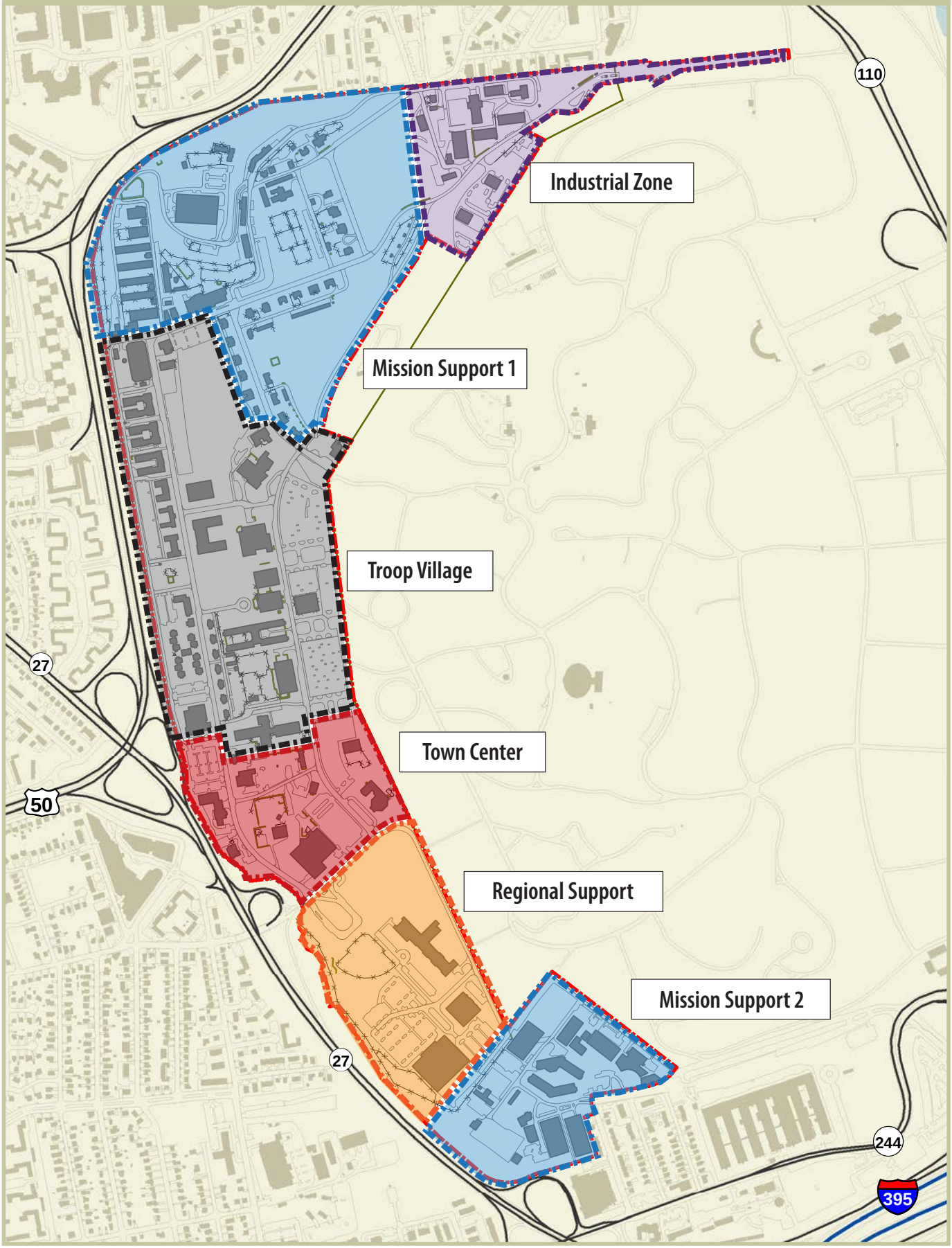
Troop Village
This area is characterized by troop functions including barracks, HQ buildings, NCO housing, band buildings, dining hall, and recreation facilities.

Town Center
This area includes community support facilities geared to local and regional customers, such as the PX and shoppette, emergency services, and a Privatized Army Lodging (PAL).

Regional Support
This area consists of community functions that support regional users, including CDCs, the Commissary, and Rader Clinic.

Mission Support 2
This functional area is characterized by administration buildings, a Marine Corps Exchange, and a swimming pool. Future development will most likely be focused on administrative/office functions.

Figure 3.10 JBM-HH Functional Areas Map



3.5.2 Fort McNair

The ideal functional relationship for Fort McNair results in a decrease of troop functions and an increase in professional/institutional functions (see Figure 3.11).

Professional/institutional functions with a focus on military education in the form of the NDU, Inter-American Defense College, Africa Center for Strategic Studies, and the Center of Military History are expected to expand to meet increased educational demand. A campus-like environment already exists at Fort McNair and can be enhanced in the future.

With the relocation of TUSAB units to JBM-HH and no known replacement, the Troop function will be reduced at Fort McNair. Troop facilities will be adapted for different uses.

Industrial functions will be reduced in terms of space allocation, but industrial spaces and functions will maintain their mission on the Installation.

Fort McNair Functional Areas

As shown in Figure 3.12, Fort McNair is divided into three distinct functional areas. Functional areas help determine the location of future facilities by encouraging similar types of development within each area.

Mission Support
The Mission Support functional area consists of DPW offices, industrial functions, administration and headquarters buildings, and a fitness center.

Residential
This functional area consists of housing, the Officers' Club, and open space (parade field).

Academic
This functional area is comprised of primarily administration and instructional buildings for the National Defense University.

Figure 3.11 Fort McNair Proposed Functional Relationships Diagram

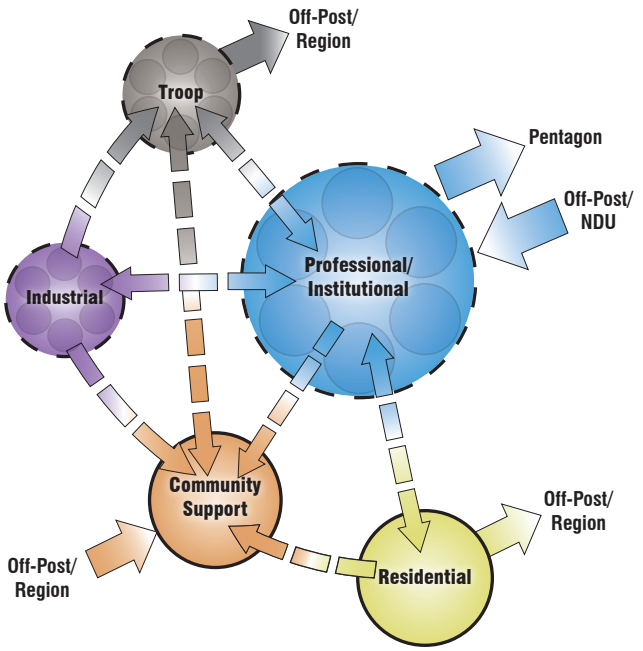
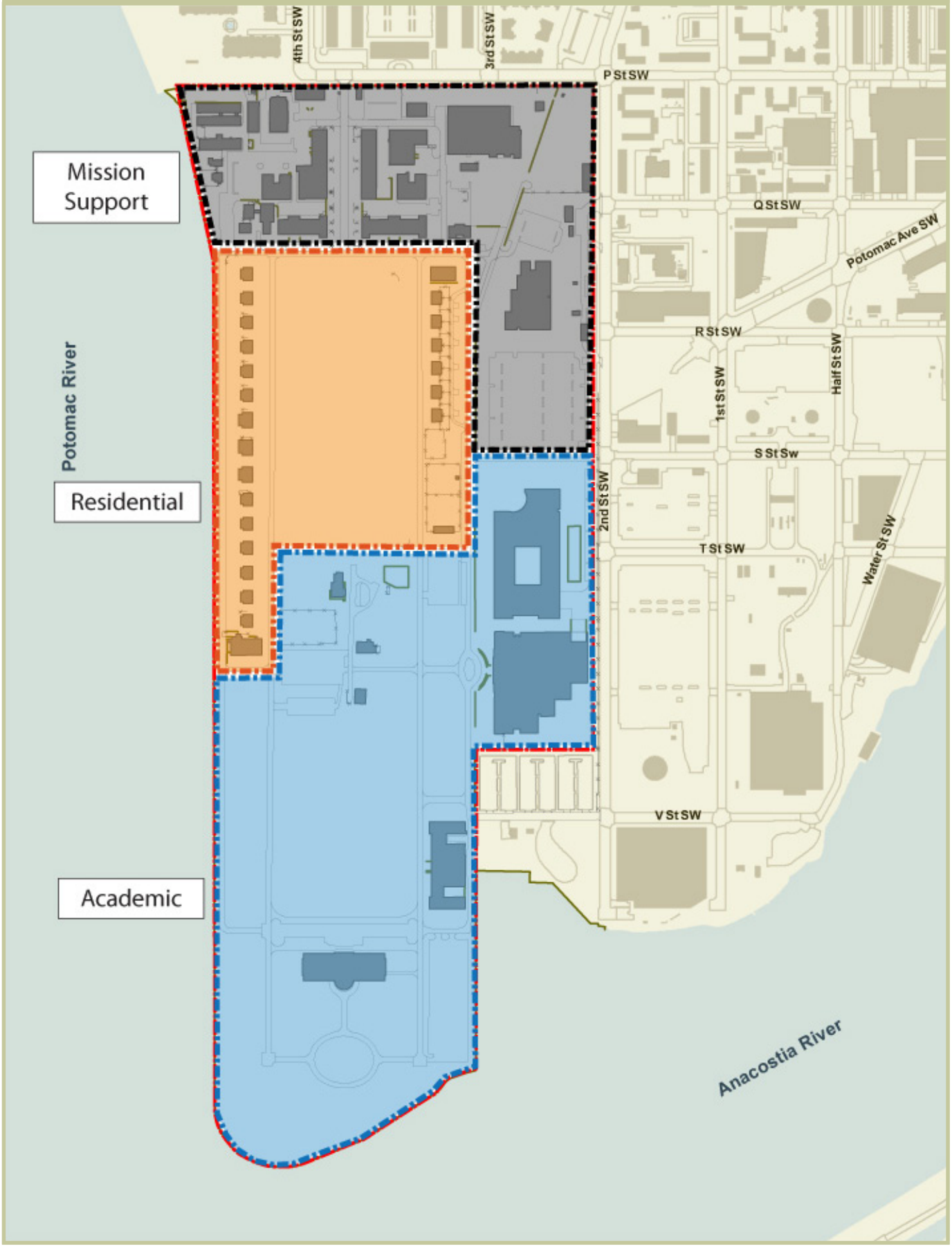


Figure 3.12 Fort McNair Functional Areas Map



3.6 LAND USE PLAN

The Land Use Plan (Figure 3.13) identifies five land uses on JBM-HH. A description of these land uses can be found in Chapter 2 in the Existing Land Use section. Below is a description of the fundamental land use changes:

Industrial

The northeastern section of the Post will be maintained as industrial land use primarily supporting DPW.

1. Road improvements will help facilitate better traffic circulation.

Troop

Troop functions will be expanding in the northern and central sections of the Post to accommodate joint basing and consolidation.

2. Troop expansion will include storage and administrative functions. The thrift shop and auto craft shop will be relocated to the town center.

3. A troop village will be expanded along the pedestrian spine in order to consolidate troop functions and encourage pedestrian use.

Community

Community land use in the northern section of the Post is shifting east. In the central area there is a loss of community land use through the expansion of the troop village. Community functions will be consolidated into three main areas.

4. A compact and walkable town center will consolidate on-site community support functions serving the local and regional population.

5. Regional community support facilities will be concentrated in this area to provide convenient access to services frequented by the local and regional population. A new road alignment will allow for pedestrian access and strengthen connections to the Henderson Hall area.

6. Recreational activities will be concentrated in the northern section of the Post. A new park will be a welcome addition to the existing tennis courts and swimming pools.

Residential

Residential land use is expanding minimally.

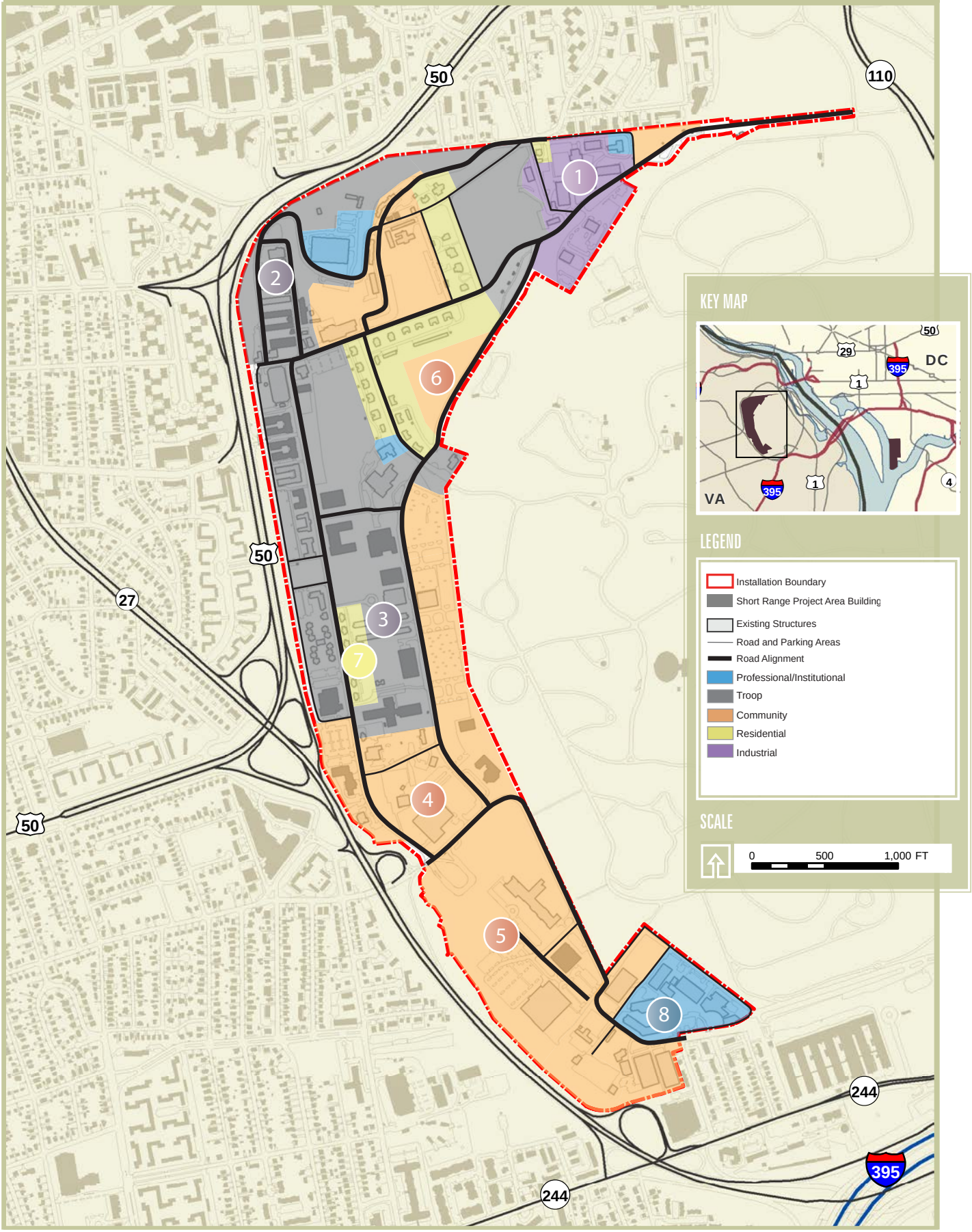
7. Senior NCO housing will be expanding adjacent to the troop village.

Professional/Institutional

A small amount of professional/Institutional land use will be maintained in its current locations throughout the Post. Expansion will occur in the Henderson Hall area.

8. The demolition of Barracks Building 25 presents an opportunity for Henderson Hall to be developed as a Professional/Institutional center on-Post.

Figure 3.13 JBM-HH Land Use Plan



The Land Use Plan (Figure 3.14) identifies five land uses on Fort McNair. A description of these land uses can be found in Chapter 2 in the Existing Land Use section. Below is a description of the fundamental land use changes:

Industrial

Industrial land use is expanding in the northern section of the Post.

1 The U.S. Army Transportation Agency is relocating to Fort McNair.

Troop

Land designated as troop will decline with the departure of TOG units to JBM-HH.

Community

Overall, with new development on the east side of the parade field, community land use is decreasing.

Residential

Residential land use is not expanding in accordance to the Fort McNair development pattern.

Professional/Institutional

Professional/institutional land use is expanding both on and off-Post in four key areas. These land use changes reinforce Fort McNair as a center for military education.

2 This area is identified for expansion.

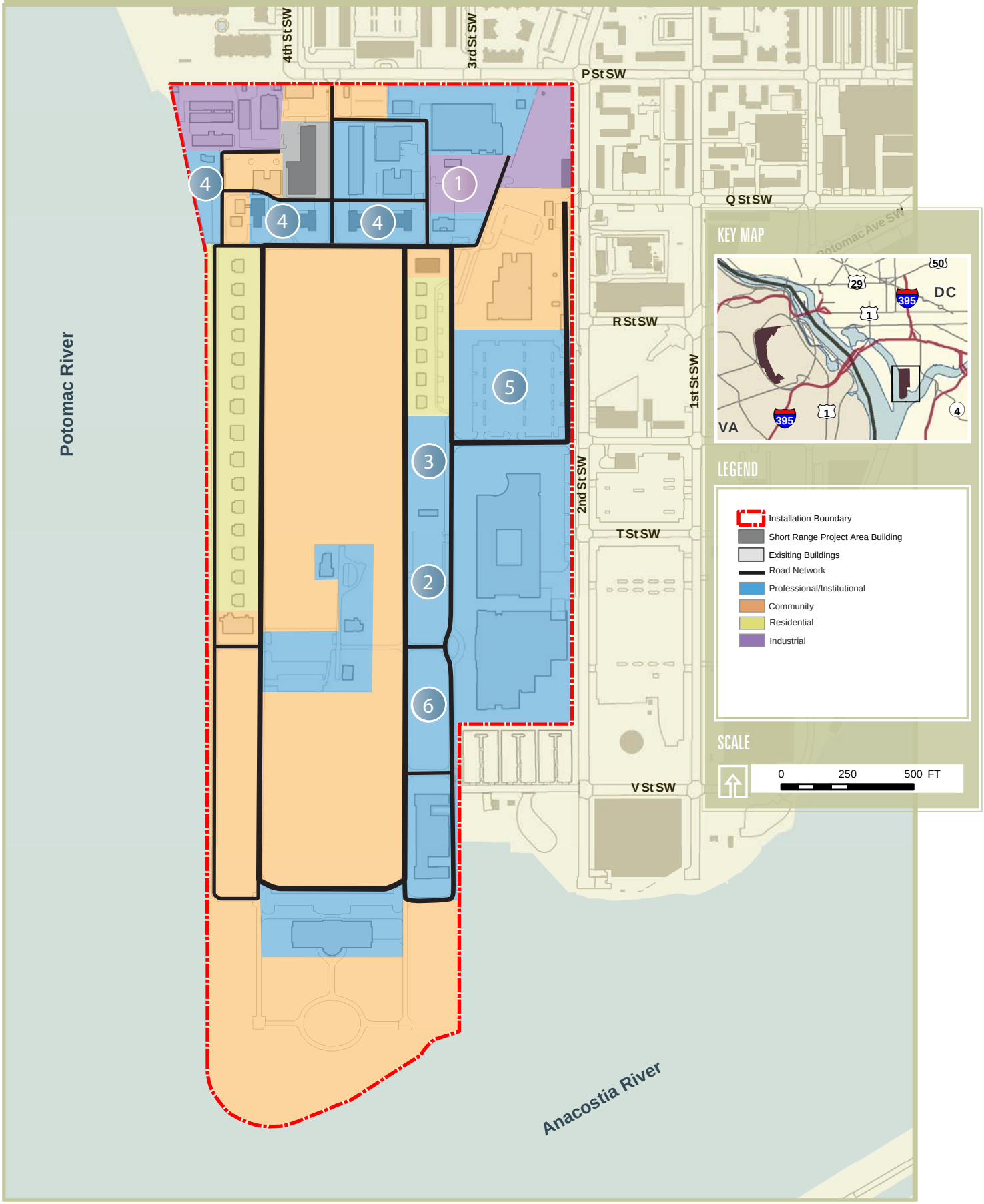
3 Construction of the new Joint Force Headquarters - National Capital Region facility is planned.

4 Two residences will be demolished, providing room for professional/institutional expansion. Buildings 47 and 54 will be converted into administration facilities.

5 This area has been identified as an NDU expansion area.

6 A new instructional building is slated for this location.

Figure 3.14 Fort McNair Land Use Plan



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4.1 OVERVIEW

This chapter reflects a consensus for all aspects of future installation development, and provides an adaptable blueprint that brings control, coordination, and direction to current and future changes. This step in the planning process integrates divergent issues with competing long-range development, while complying with the Installation's Mission, Vision, Goals, and Objectives.

4.1.1 The Planning Framework

The Planning Framework results from the on- and off-Post analysis contained in Chapters 2 and 3 of this document. This section presents the framework for each installation by Density, Circulation, Open Space, and Viewshed. As a combination of these critical elements, the Planning Framework identifies activity nodes, connectors, and linkages for the entire Installation in a cohesive and unified way.

4.1.2 The Future Development Plan

The Future Development Plan further details long-range development on the Installation. Uses are in accordance with the Land Use Plan, and locations and orientation are aligned with the Installation Framework.

The Future Development Plan for JBM-HH: proposes new and infill development to meet mission requirements; maintains the existing road network, except where a change would greatly improve both circulation and functional relationships; establishes pedestrian linkages to activity nodes and green spaces; and maintains the historic nature of both installations by preserving the viewsheds, as well as historic character. The following sections describe these in further detail.

4.2 PLANNING FRAMEWORK

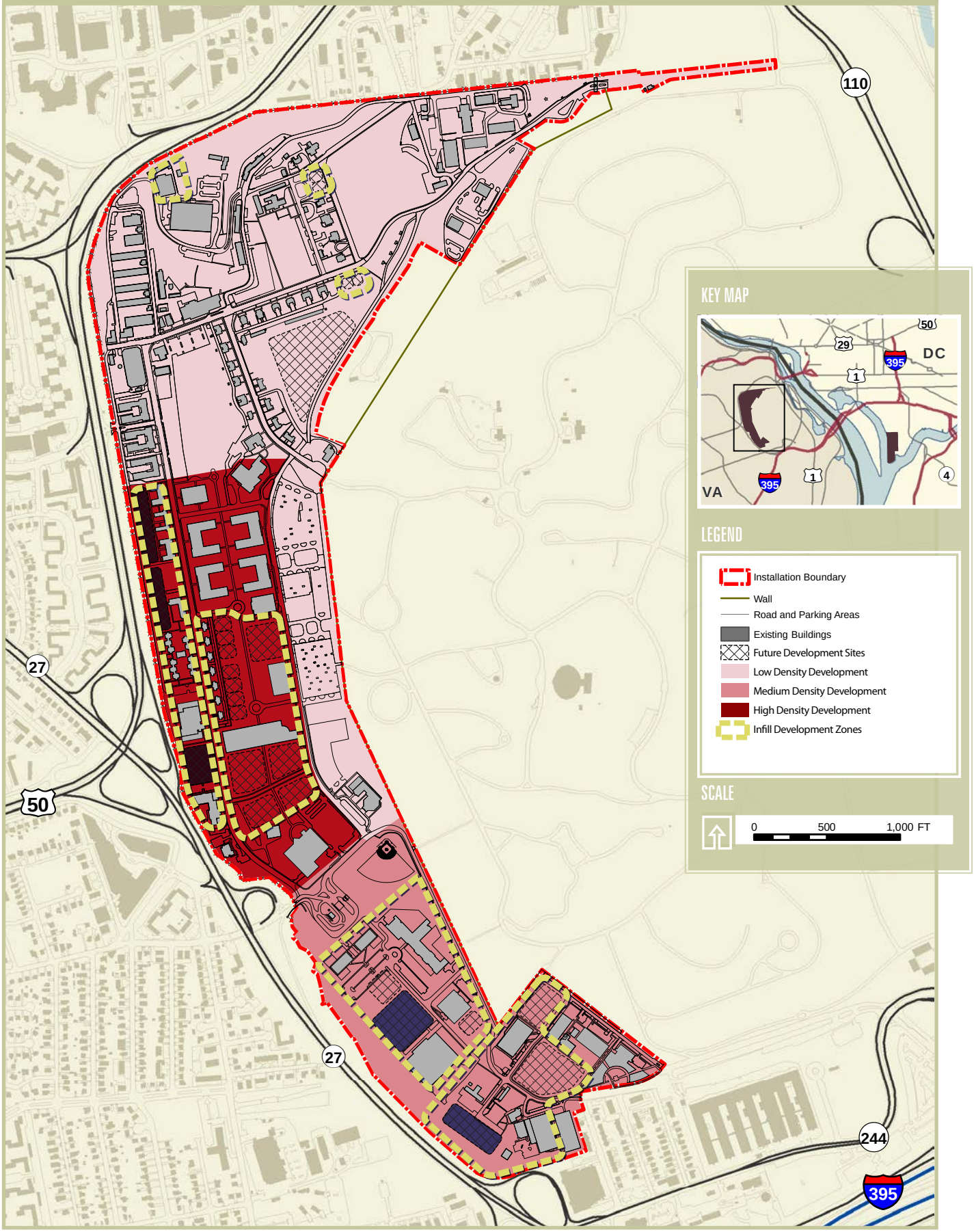
4.2.1 Framework Plan: Density

JBM-HH Development Framework

The development framework:

- Creates a dense urban core along the primary north-south pedestrian axis of the Installation through redevelopment of the central area
- Strengthens existing development and locates additional developments along central transportation corridors
- Locates regional uses along primary roads and in the central core to take advantage of proximity to the public/main gate
- Preserves the historic district in the north section with infill development that matches the historic development pattern
- Infills development to meet mission requirements while providing areas for expansion in accordance with the current development pattern
- Consolidates similar functions into core areas to improve efficiency of the workforce, as well as traffic movement

Figure 4.1 JBM-HH Framework Plan: Density

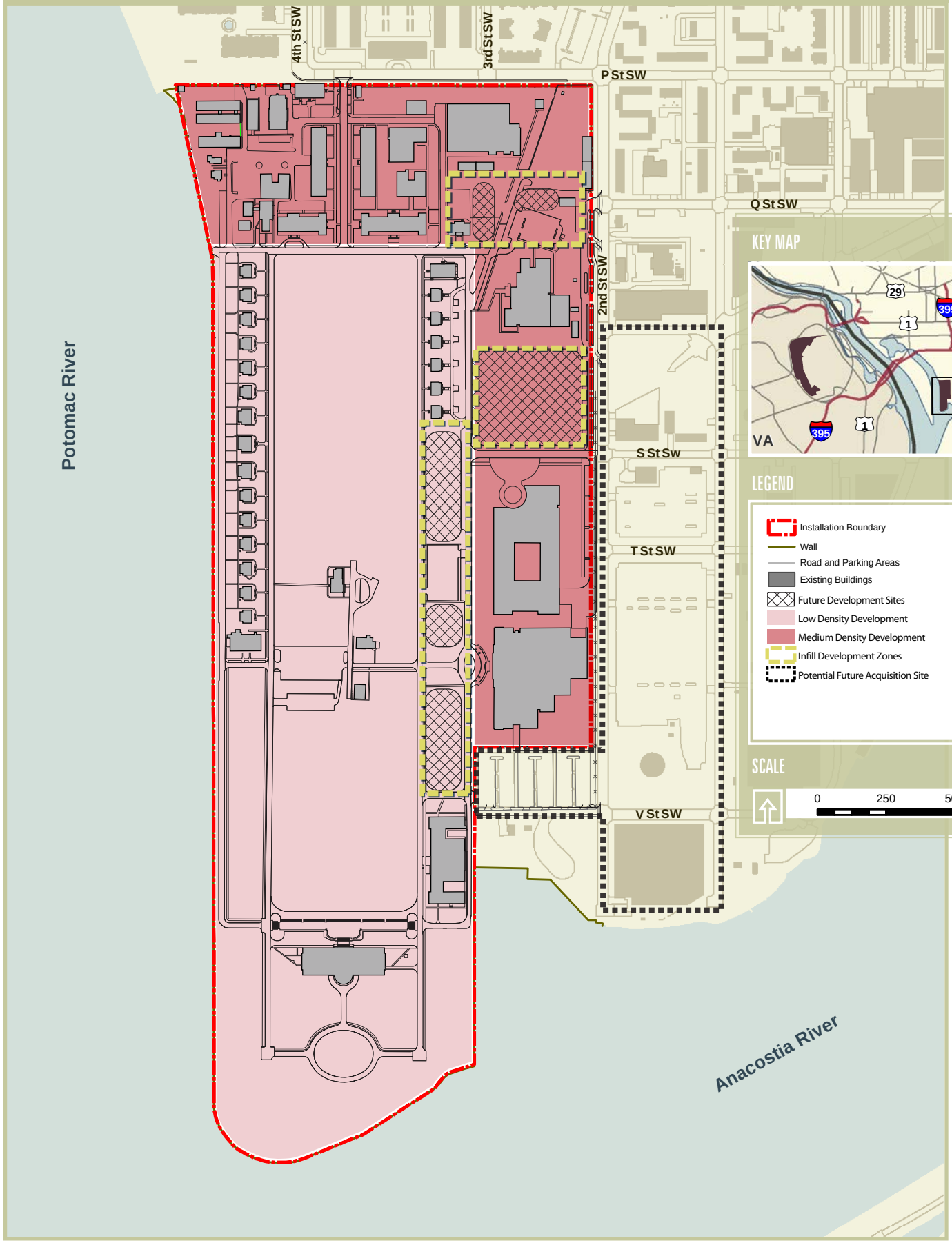


Fort McNair Development Framework

The development framework:

- Supports a comprehensive campus design
- Preserves historic recreation and parade field development as low density to maintain viewsheds of the Potomac River
- Infills development to meet mission requirements while maintaining the current development pattern on the Installation
- Consolidates parking into central areas to enhance a campus atmosphere on the Installation
- Identifies parcels outside the Installation boundary for expansion to meet mission requirements with AT/FP considerations

Figure 4.2 Fort McNair Framework Plan: Density



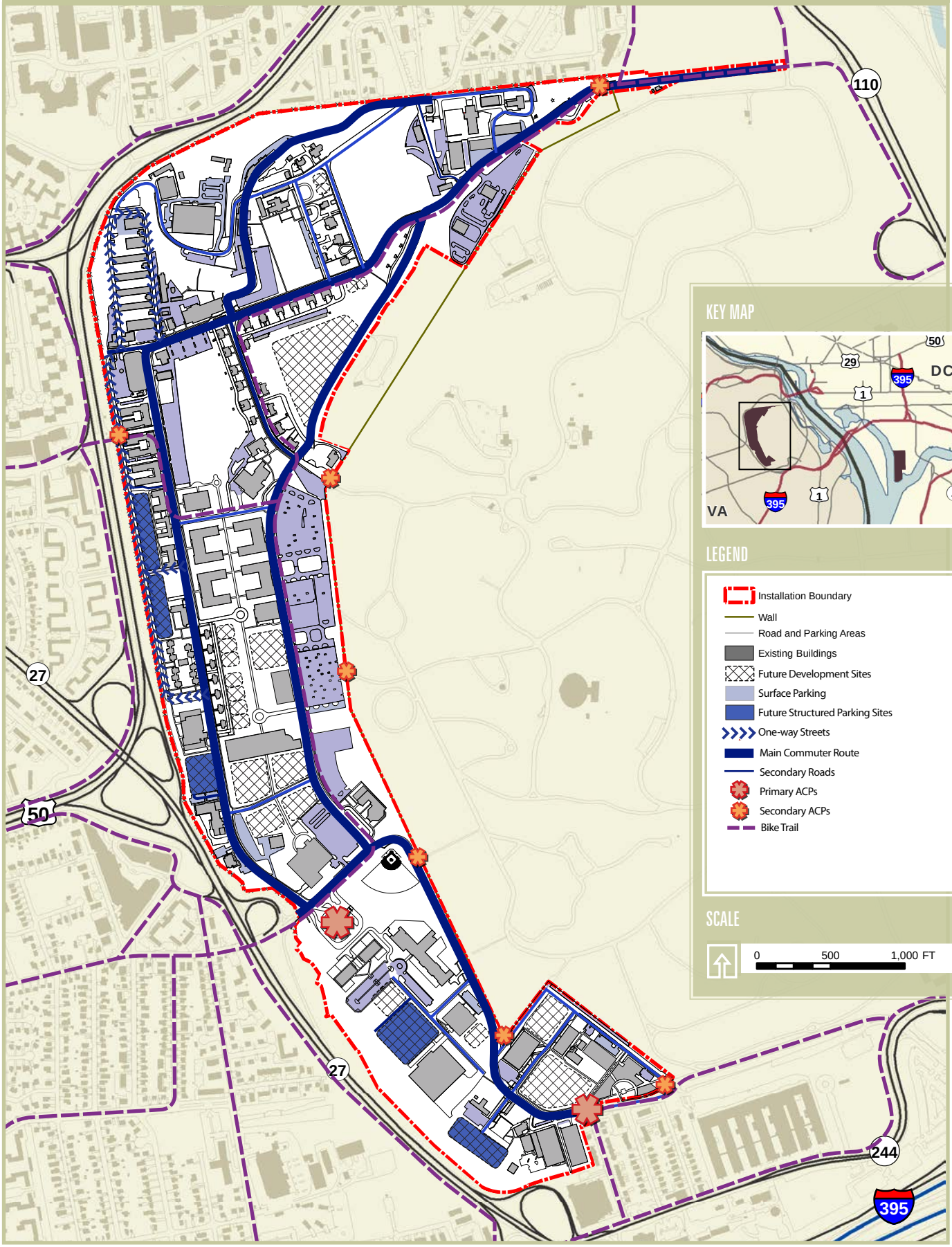
4.2.2 Framework Plan: Circulation

JBM-HH Circulation Framework

The circulation framework:

- Creates a loop road circulating around the Installation's central urban core
- Connects Henderson Hall to Fort Myer with an access road that promotes efficient traffic flow
- Proposes intersection traffic improvements that allow large vehicles to move more efficiently throughout the Installation
- Identifies areas where parking and roadways should be separated to improve traffic circulation
- Consolidates parking into structures or shared central areas to solve parking shortages on the Installation and accommodate increased densities
- Integrates new ACP layout for main gate, which eases traffic congestion onto main highways and meets AT/FP requirements

Figure 4.3 JBM-HH Framework Plan: Circulation

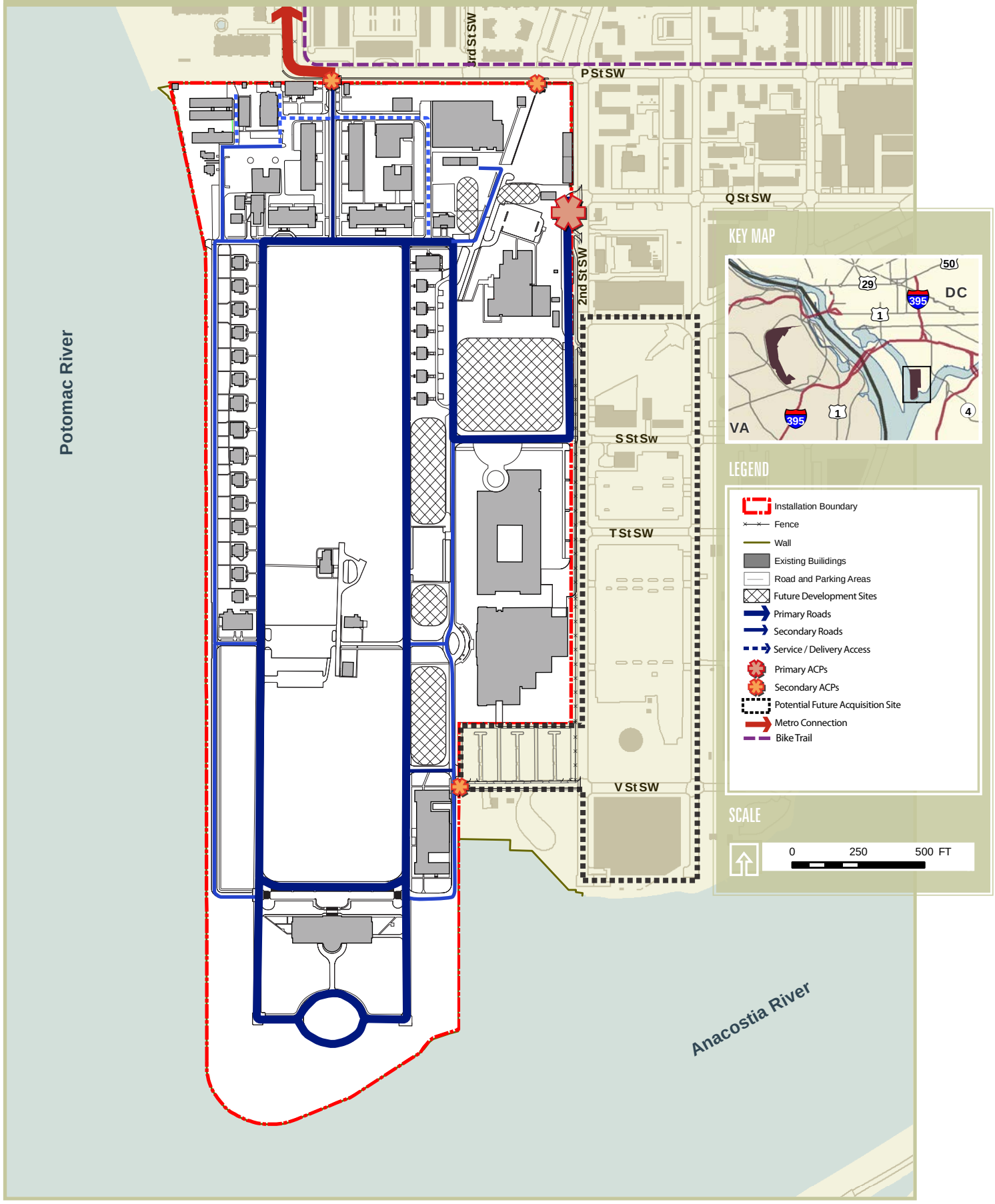


Fort McNair Circulation Framework

The circulation framework:

- Maintains the current central loop around the Installation
- Removes surface parking areas to meet force protection requirements and create green space that enhances the campus atmosphere of Fort McNair
- Maintains the pedestrian and secondary vehicle gate at the historic main gate on P Street

Figure 4.4 Fort McNair Framework Plan: Circulation



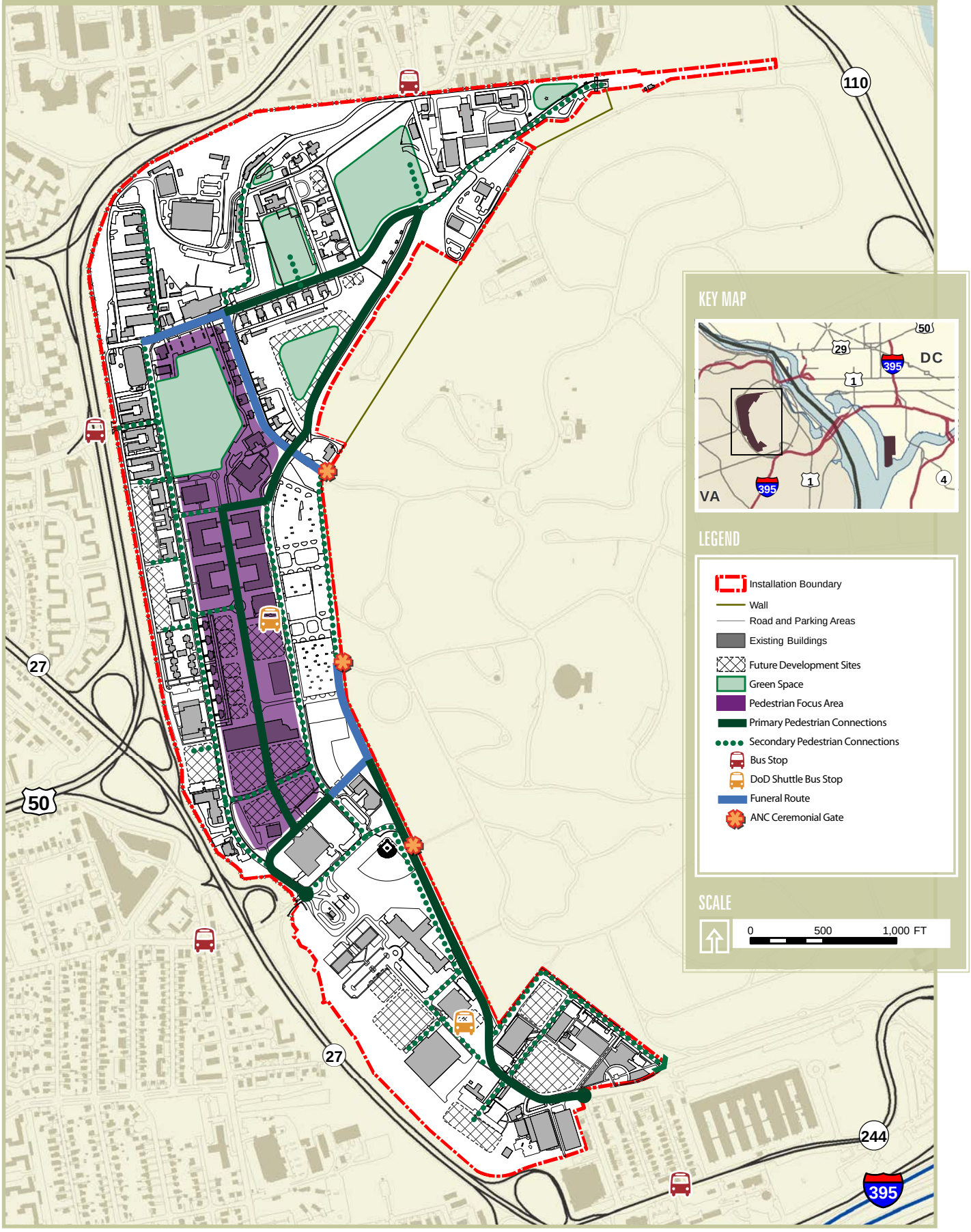
4.2.3 Framework Plan: Open Space

JBM-HH Open Space Framework

The open space framework:

- Implements a more robust pedestrian network, complete with walkways and multimodal paths
- Creates a central pedestrian corridor that connects main activity centers on the Installation
- Improves current pedestrian circulation by implementing a more complete multimodal pedestrian network paralleling the main roadways
- Integrates new recreational facilities spread across the Installation for ease of access by all
- Preserves historic open green spaces for passive recreation
- Connects the pedestrian network to all the active and passive recreation areas, as well as the CDCs' playgrounds to create an open space network

Figure 4.5 JBM-HH Framework Plan: Open Space

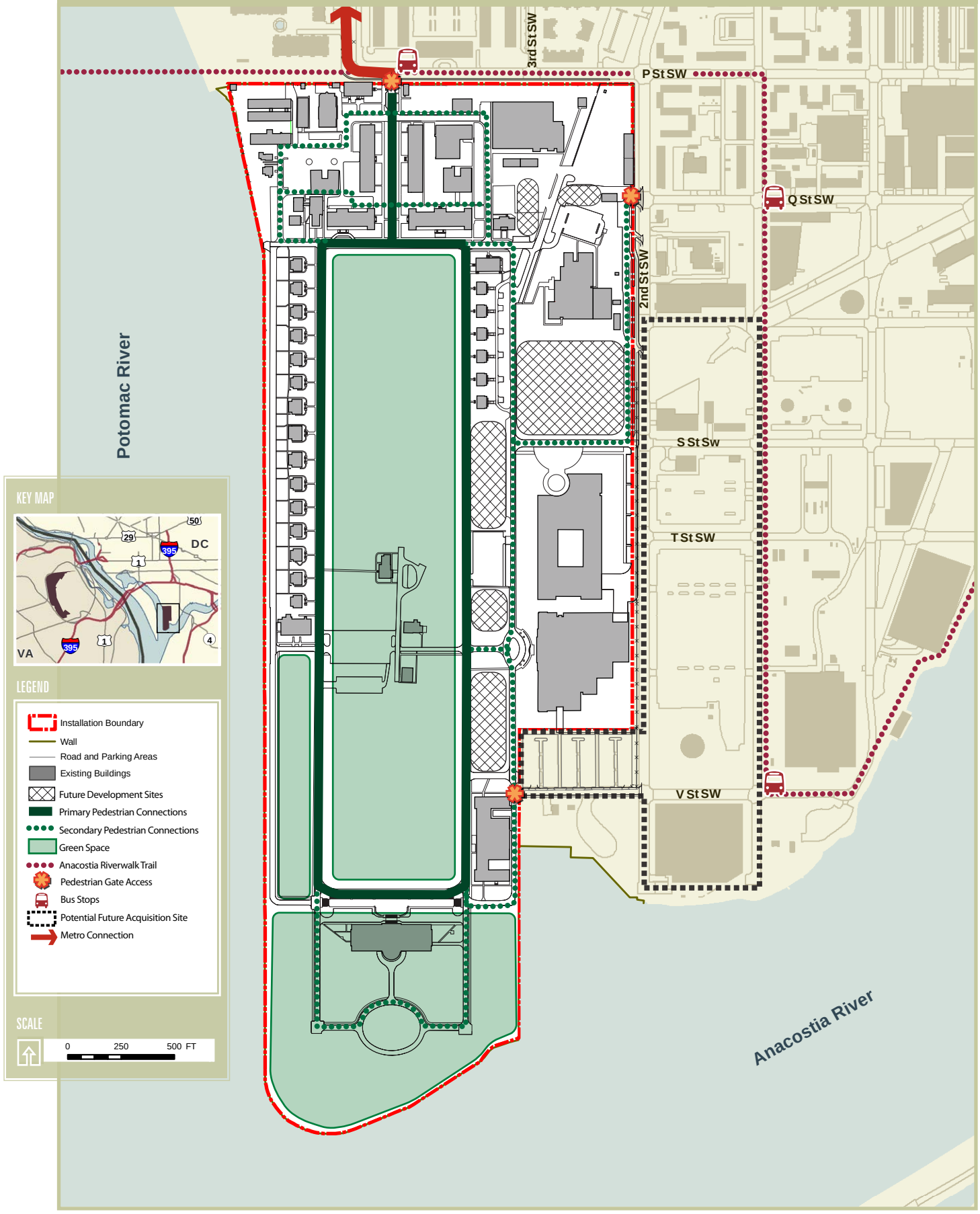


Fort McNair Open Space Framework

The open space framework:

- Maintains the parade field and recreational sports fields as the central green space
- Preserves the south and southwest point of the Installation as passive recreational areas that protect the viewshed
- Connects the central pedestrian loop to all the green spaces with activity nodes on the Installation
- Connects the pedestrian-only gate at the historic main gate on P Street to the central loop and entire Installation for ease of access to pedestrians
- Provides access to the regional trail system, connects to the Anacostia River trailways at the historic main gate and the new 2nd Street gate
- Reduces pedestrian access in areas with AT/FP constraints

Figure 4.6 Fort McNair Framework Plan: Open Space



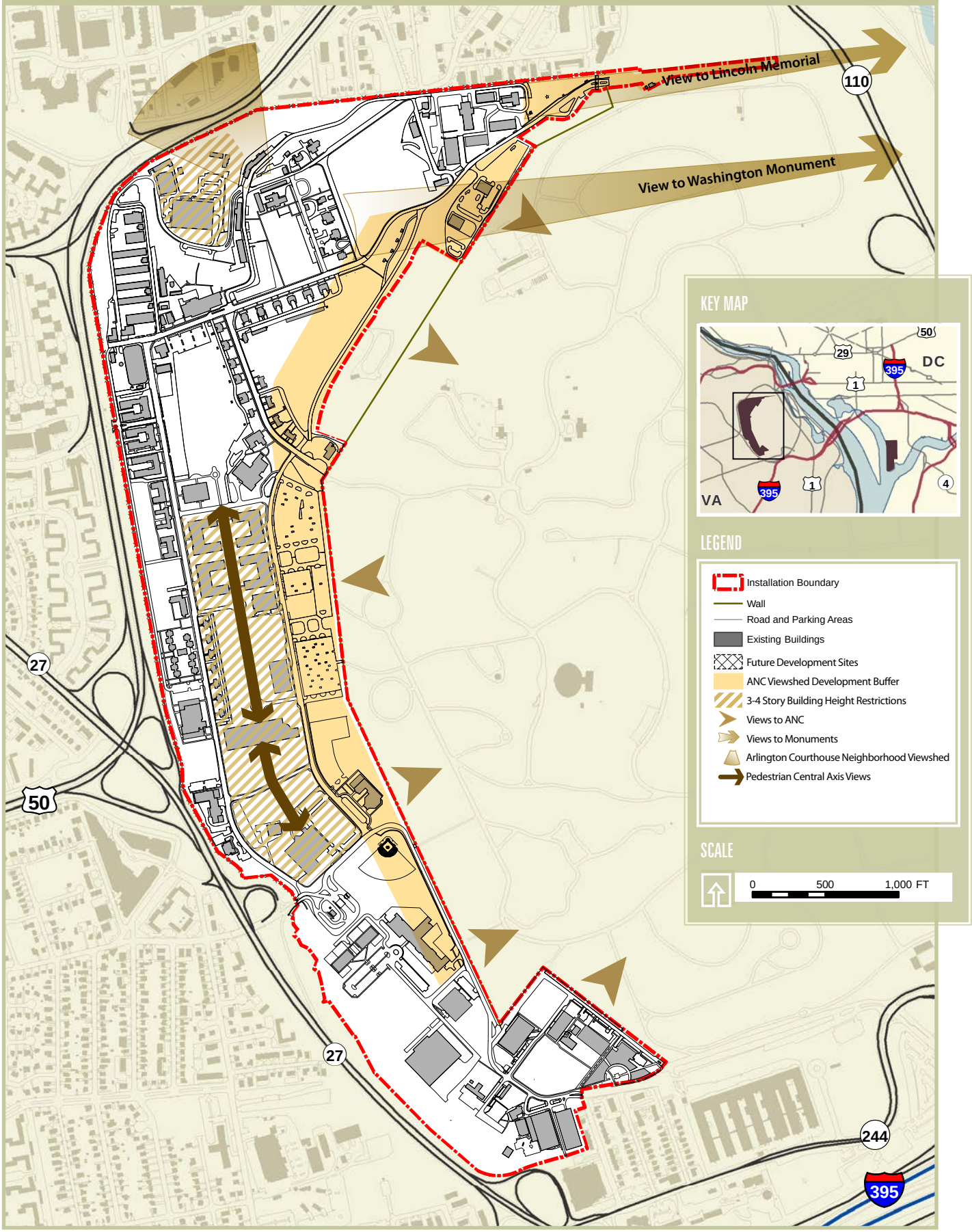
4.2.4 Framework Plan: Viewshed

JBM-HH Viewshed

The viewshed framework provides the following features:

- Maintains the viewshed to the Capitol, as well as the historic views of Washington D.C. from Fort Myer
- Keeps infill development within the ANC viewshed buffer to a minimum to maintain views to and from ANC
- Restricts development within the central core area to a maximum 4-story building height
- Ensures compatibility of infill development along the Installation's eastern boundary (adjacent to ANC) with cemetery land use and ceremonial functions

Figure 4.7 JBM-HH Framework Plan: Viewshed

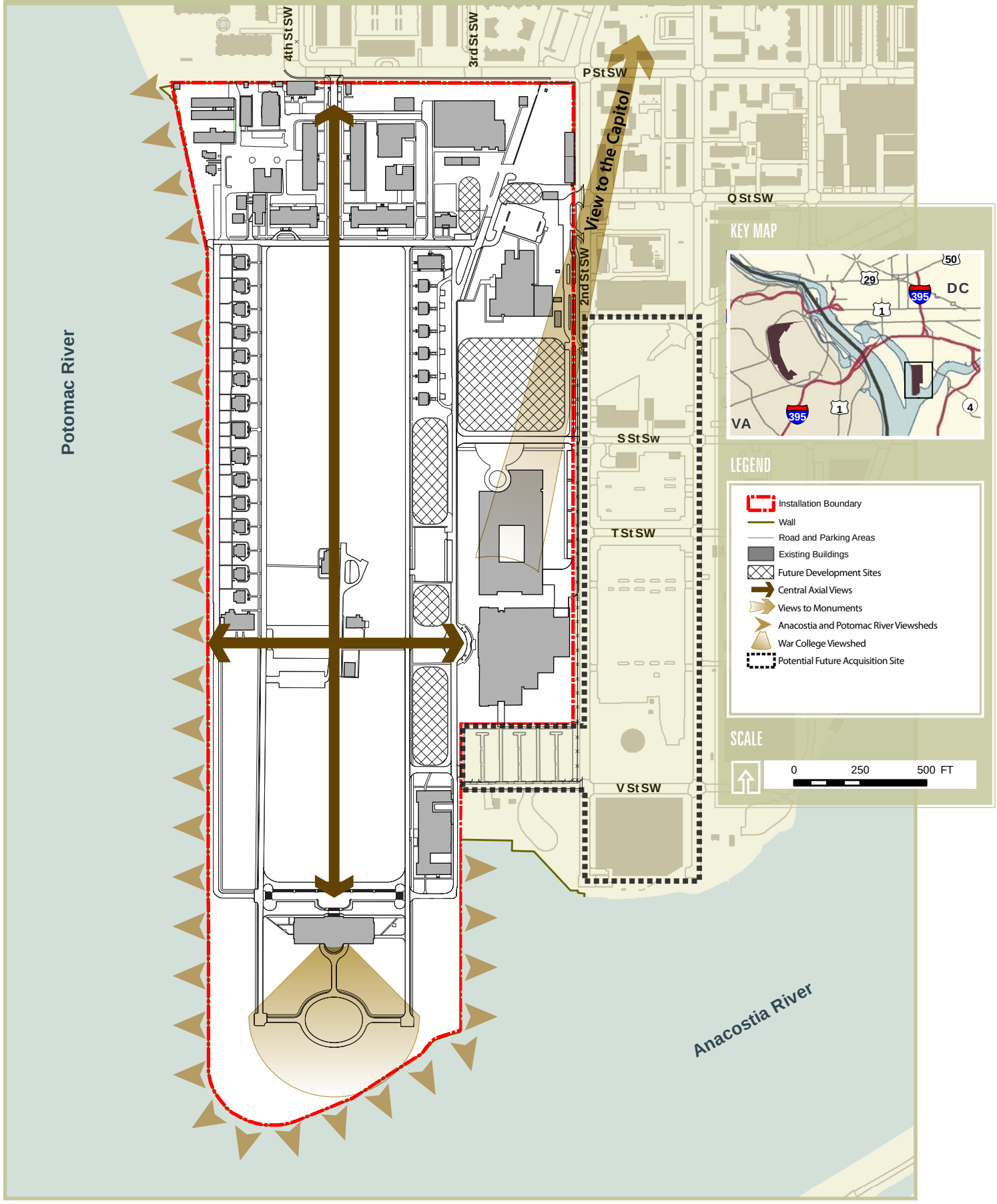


Fort McNair Viewshed

The viewshed framework provides the following features:

- Restricts development along the western and southern boundaries of the Installation to maintain viewsheds to the Potomac and Anacostia Rivers
- Restricts building heights associated with new construction to maintain viewsheds
- Maintains views to Washington D.C. from the northern section of the Installation with low-density development
- Preserves the historic nature of the Installation by maintaining views to the War College and the historic buildings in the central and northern sections

Figure 4.8 Fort McNair Framework Plan: Viewshed



4.3 FUTURE DEVELOPMENT PLAN

JBM-HH Future Development Plan

Figure 4.9 illustrates future development for JBM-HH to 2030. The plan recommends the type and location of development within the context of the Future Land Use and defined framework, as well as projects supported in the Capital Improvement Strategy (CIS) and the Short Range Component (SRC). The Future Development Sites identified in Figure 4.9 allow this plan to serve as a flexible, overall guide that does not become outdated as the installation implements projects. The plan:

- Provides the framework for accommodating the growth of the Installation to 2030
- Recycles land, space, and facilities to achieve its strategic goals, due to land availability constraints
- Connects Henderson Hall to Fort Myer to establish a unified Installation under one garrison command for real property responsibilities
- Maintains the historic mission and character of the Installation, while still providing development that meets mission requirements and areas for expansion
- Consolidates similar functional uses together in one area for efficiency of workforce, as well as ease of access to and usage of infrastructure
- Reserves sites within Henderson Hall for Joint Base Mission Use that are currently not determined
- Enhances the quality of life of service members, their families, and civilian workers by providing: more efficient facilities that meet operational requirements, more community focused options, and an efficient transportation system with available parking options
- Protects and maintains environmental and cultural resources throughout the Installation
- Includes major utility improvements

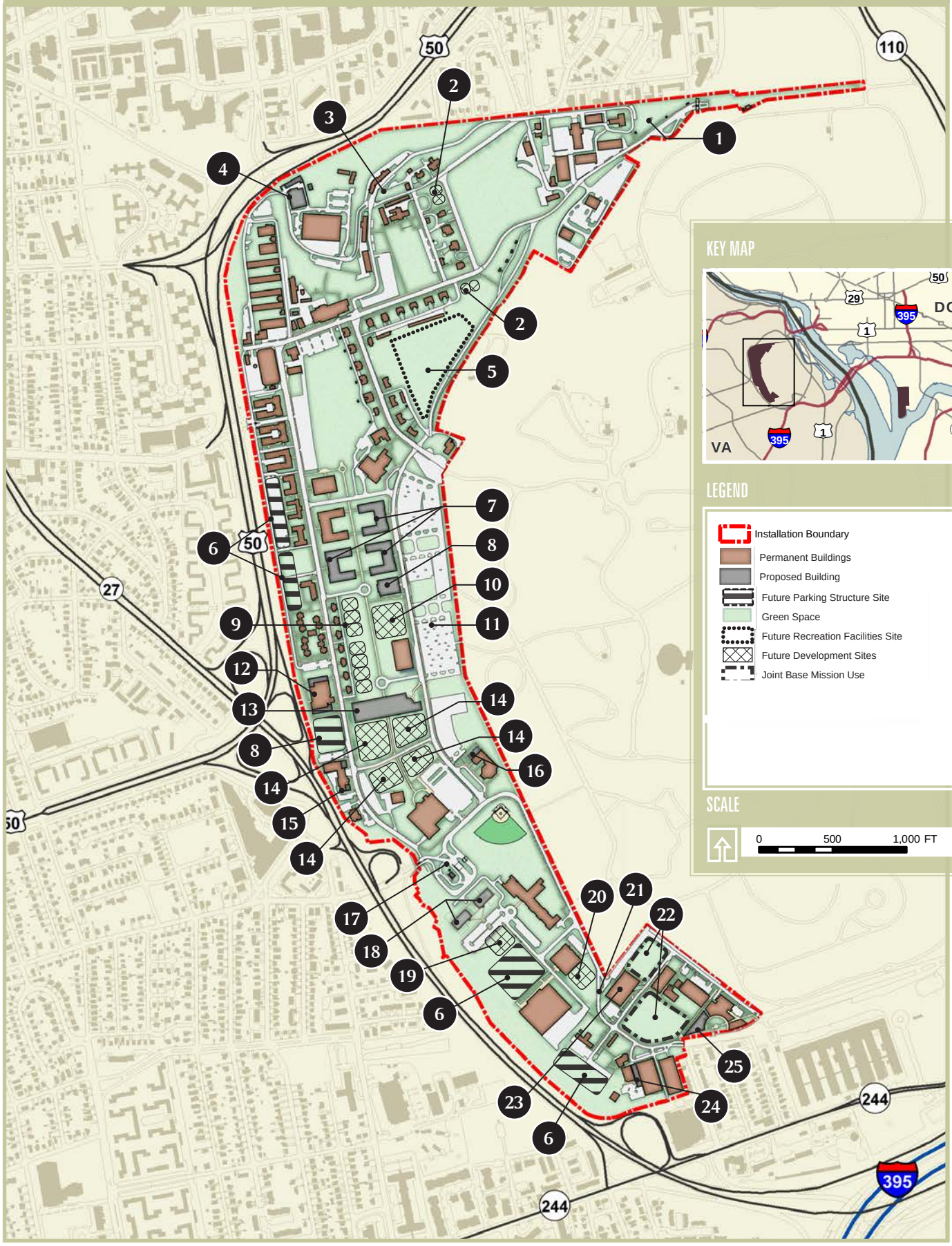
Transportation and Utility Plans are included in the next sections of this chapter. These plans provide improvements required for full implementation of the 2030 year JBM-HH Future Development Plan.

Future Project Sites and Expansion Areas

1. Buffalo Soldiers Memorial Site
2. General Flag Officers Quarters Sites
3. Historic Interpretive Park Site
4. DVP Substation Site
5. Recreation Area
6. Parking Structure Sites
7. New Unaccompanied Personnel Housing Sites*
8. New Dining Facility (DFAC) Site
9. Senior NCO Housing Sites
10. New Company HQ & In-Processing Center Site
11. TUSAB Staging Area & TOG Emergency Response Area
12. Fitness Center Addition
13. New United States Army Band (TUSAB) Facility Site
14. Expansion Opportunity Site - Town Center
15. Department of Emergency Services Facility Addition
16. Memorial Chapel Addition
17. Improved Access Control Point (ACP)
18. New Child Development Centers (CDCs) Sites
19. Expansion Opportunity Site - Regional Community Support
20. Rader Clinic Addition Site
21. New Primary Roadway connecting Henderson Hall
22. Joint Base Mission Use Sites
23. IT Hub Facility Site
24. MCX Annex Expansion
25. Administrative Facility Site

*Final design and layout TBD

Figure 4.9 JBM-HH Future Development Plan



Fort McNair Future Development Plan

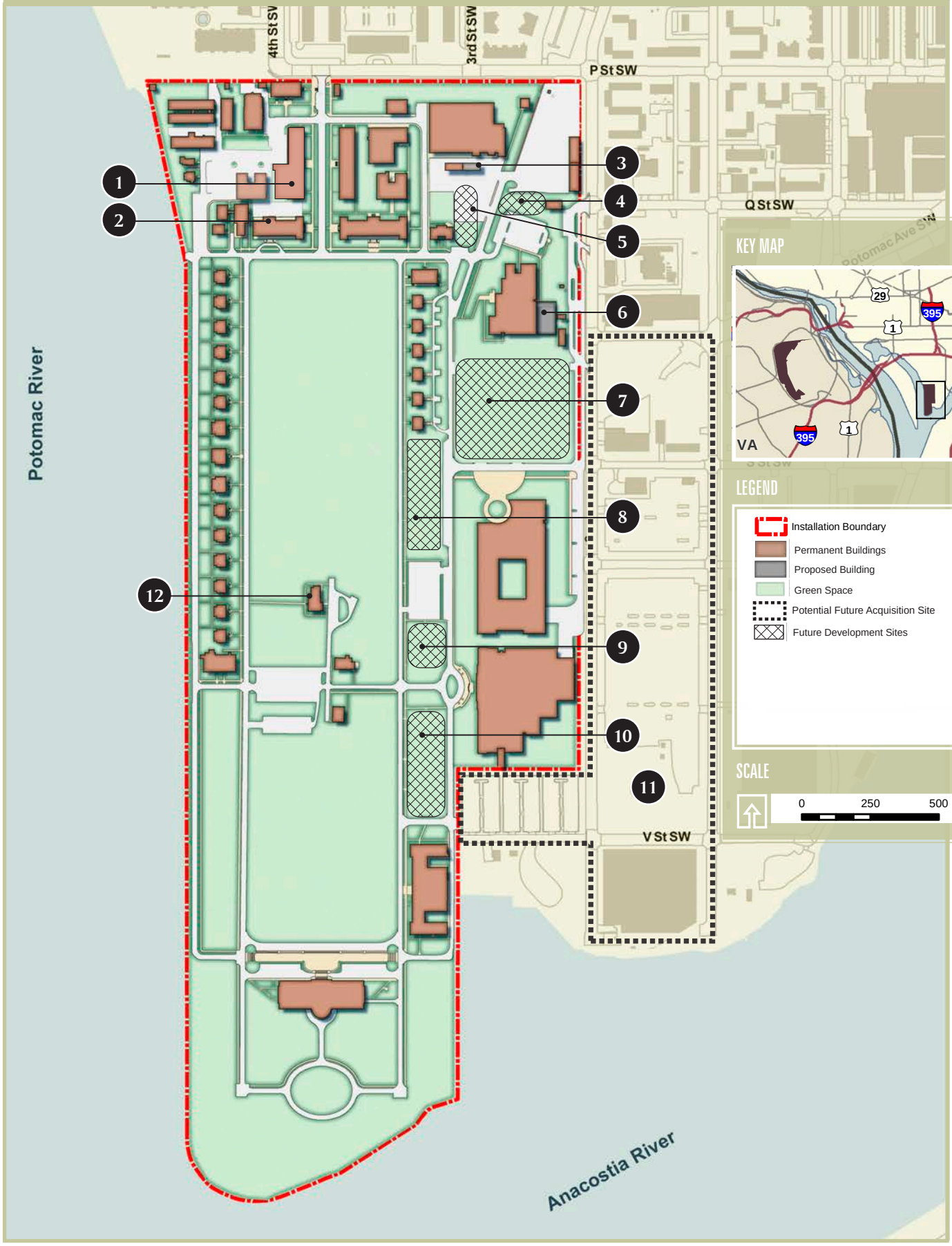
Figure 4.10 illustrates future development for Fort McNair to 2030. The plan recommends the type and location of development within the context of the defined framework, as well as projects related to the Capital Investment Strategy (CIS) and the Short Range Component (SRC). The Future Development Sites identified in the figure allow this plan to serve as a flexible, overall guide that does not become outdated as the installation implements projects. The plan:

- Provides the framework for accommodating the growth of the Installation to 2030
- Recycles land, space, and facilities to achieve its strategic goals, due to land availability constraints
- Infills development of similar scale in open parcels of land or redevelopment sites
- Maintains the historic mission and character of the Installation, while still providing development that meets mission requirements
- Consolidates similar functional uses together in one area for efficiency of workforce, as well as ease of access to and usage of infrastructure
- Protects and maintains environmental and cultural resources throughout the Installation
- Uses land resources (the potential future acquisition site) outside the Installation boundary to fulfill mission requirements and parking shortages on-post
- Minimizes surface parking to create a campus-like atmosphere while meeting AT/FP requirements

Future Project Sites and Expansion Areas

1. Modernization of Building 48
2. Modernization of Inter-American Defense College
3. Addition to Shoppette
4. Fire Station Site
5. U.S. Army Transportation Agency Site
6. Pool Facility Addition
7. Expansion Opportunity Site
8. New Joint Force Headquarters-National Capital Region Site
9. Expansion Opportunity Site
10. Expansion Opportunity Site - National Defense University
11. Potential Future Acquisition Site
12. Renovation of Grant Hall

Figure 4.10 Fort McNair Future Development Plan



4.4 TRANSPORTATION ASSESSMENT

This section describes the elements of the installation transportation network at JBM-HH and Fort McNair, which are proposed to be established as part of the 20-year development plan. These improvements are conceptual in nature, and will need further traffic studies and roadway/site design plans for exact recommendations, including any: dedicated right- and left- turn lanes, roadway widening, geometric design, intersection traffic control (stop-control and/or signalization), and layout of Access Control Points (ACPs).

JBM-HH Future Transportation Plan

Focus Areas

The future transportation plan at JBM-HH will generally maintain the existing roadway network of primary and secondary streets for traffic circulation. Given the expected significant increase in gross building area and population, especially in the central core (Troop Village and Town Center) along Sheridan Avenue and McNair Road, roadway improvements, including widening and dedicated turn lanes, may be needed to manage the future increased traffic volumes. The same holds true for the ACPs, which may need to be expanded and/or upgraded to handle future traffic volumes without adding additional delay.

The compact nature of the majority of the Installation – a high density of buildings in close proximity to one another – provides significant opportunity to support non-vehicular traffic as the primary mode of circulation within the Installation. As such, the Historic District, the Troop Village, the Town Center north of the main ACP, and Henderson Hall will be designated as pedestrian-oriented focus areas. These areas will establish developed, pedestrian circulation networks, including central pedestrian corridors along: main activity centers, sidewalk connections to buildings, and connections to multimodal transit opportunities. The purpose of the roadway network in these pedestrian-oriented focus areas will be to circulate traffic off roadways into consolidated parking areas (details of which follow), as well as provide a primary connection to the rest of the installation network. Conversely, the Town Center south of the main ACP and the Industrial Zone will be designated as car-oriented focus areas. In the Town Center south of the main ACP, a significant amount of traffic will be single-trip traffic that enters the Installation to utilize the regional facilities, such as the commissary, the PX, the CDCs, and the clinic. In the Industrial Zone, a significant amount of truck traffic will be present. In these areas, both of which are located in proximity to ACPs, the priority will be maintaining convenient access and traffic flow for personally-owned vehicles and truck deliveries.

Figure 4.11 JBM-HH Circulation Focus Areas

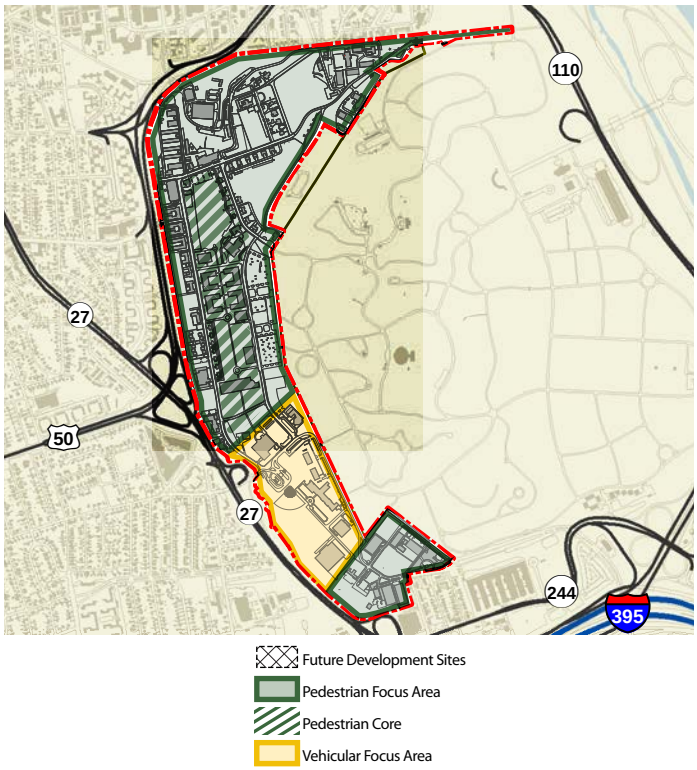
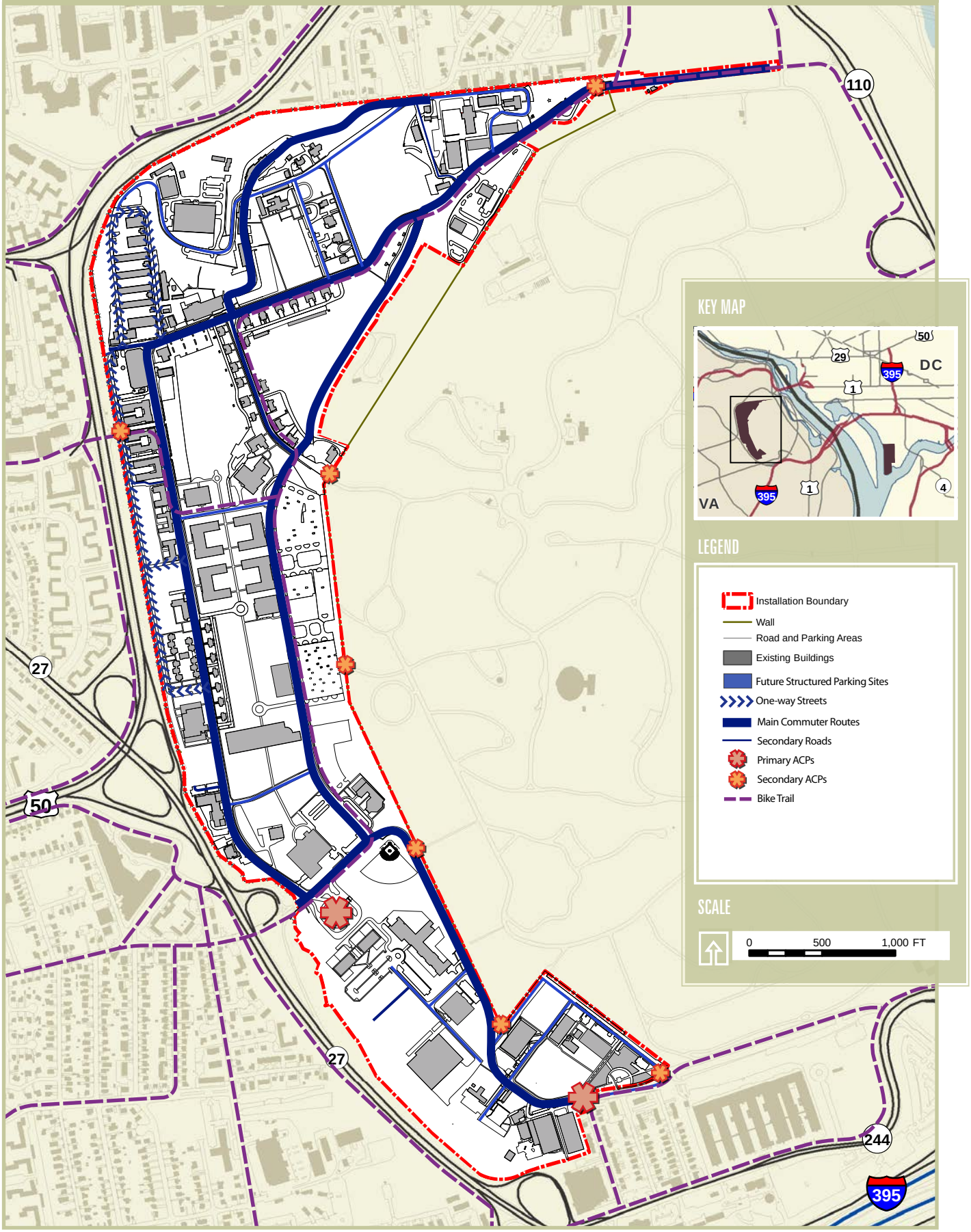


Figure 4.12 JBM-HH Transportation Assessment Map



Traffic Circulation Improvements

The following roadway improvements will facilitate traffic circulation of the future development network.

1. Hatfield Gate is the primary entrance for employees, visitors and delivery trucks. The current gate layout does not meet DoD standards for access control points. Congestion and traffic problems hinder traffic flow entering and leaving Fort Myer. Improvements may include traffic improvements to the ramps connecting Hatfield Gate to Route 27/Washington Boulevard. Arlington County has indicated their support for plans and actions to improve traffic flow in and out of Fort Myer via the Hatfield Gate. The new ACP will include security features required by current AT/FP standards. This project should not have any significant historic preservation issues, as it is located outside of the Fort Myer Historic District.
2. A new primary roadway connection to Henderson Hall will be established, and is currently in the design phase. This roadway will: link the Henderson Hall area to the rest of the Installation, provide a connection to the Installation's main ACP from both Henderson Hall and the Regional Support facilities, and act as the sole primary roadway in Henderson Hall in order to provide a roadway hierarchy in an area where it is currently indiscernible.
3. The roadway around the historic stables (Forrest Circle) will be designated as a one-way loop roadway to improve traffic circulation issues, as it currently operates as a mixed one-way and two-way system.
4. It is anticipated that the one-way loop will be a counter-clockwise flow to facilitate circulation along Jackson Avenue.
5. In general, improvements such as new curb cuts will be made to provide separation between roadways and parking areas, as in the Industrial Zone (near the intersection of Marshall Drive and Fenton Circle) where there is currently little distinction.
6. Truck access to sites will be improved with measures such as increased turning radii and mountable curbs at intersections and/or medians that are known to be problematic, including the intersection of Custer Road and Bloxon Street. This intersection is along the truck delivery route to the Building 205 area; currently, trucks must make a sharp hairpin turn, often driving over the curb.

Traffic circulation will be improved by removing parked vehicles from the flow of traffic along primary roadways. Additionally, separated parking areas will increase safety by minimizing the chance of vehicle/pedestrian conflicts.

Aligned with the RPMP, the JBM-HH TMP (2012) provides recommendations to reduce personal occupancy vehicles (POV)as a mode choice for JBM-HH commuters and improve parking ratios to NCPC standards. Since any future development at JBM-HH is likely to include a growth in population, and with the potential of parking lots to be used as development sites, parking on the Installation could be consolidated with the addition of any of the potential five new parking structures (see Figure 4.14 and Table 4.1). It is the intention of this Master Plan that the proposed parking structures are considered potential solutions to future parking issues. Parking structures would be built on an as needed basis and evaluated based on the specifics of proposed future projects. In general, direct access to/from the parking structures would be provided via secondary roadways to remove turning/queuing traffic from the primary roadways.

The locations of all five potential parking structures are currently utilized as existing surface parking lots. Table 4.4 shows the number of existing and estimated proposed parking spaces, as well as the total net gain in parking spaces based on proposed parking structure height. This table can be used as a conceptual guide for accommodating parking at major destinations, as building densities increase in the future. In the pedestrian-oriented focus area of the Troop Village, the three parking structures would be located toward the edge of the zone, external to the primary roadways. This placement will direct car traffic away from the center of the pedestrian area and promote pedestrian activity within the zone. Additionally, the locations of the Proposed Parking Structures 1 and 2 will require that nearby barracks building structures be hardened, as their proximity violates AT/FP setback requirements.
In the car-oriented area of the Town Center, a parking structure could be centrally located to provide immediate access to the regional facilities. A parking structure located just south of the Town Center would provide additional parking for those facilities, as well as to Henderson Hall. Note that the most northern parking structure in this Town Center area (Proposed Parking Structure 3) is shown as being accessed directly from a primary roadway. This access is not ideal for traffic circulation; the addition of a secondary roadway to provide access would be physically feasible, but this would violate AT/FP setback requirements. Small surface lots will remain throughout the Installation for handicapped parking, as well as for specific buildings within the Historic District and Industrial Zone, where there will not be parking structures. The band staging area and its related bus traffic will be located in a large surface parking lot along McNair Road, in proximity to the new Band Building.

Figure 4.13 JBM-HH Vehicle Circulation Improvements Map

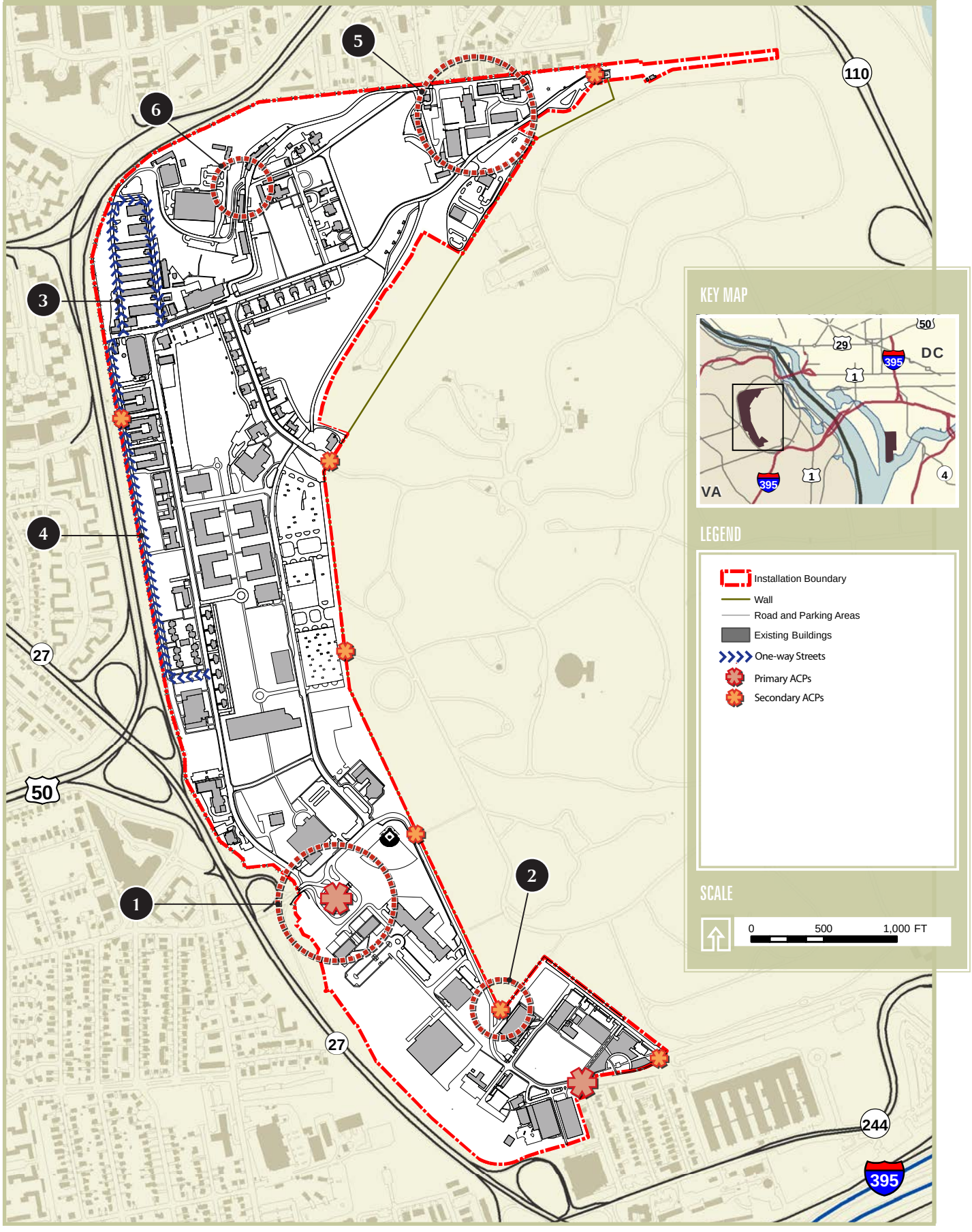


Table 4.1 **JBM-HH Proposed Parking Structures Capacity**

Proposed Parking Structure	Targeted Users	# of Existing Parking Spaces in Surface Lot	# of Parking Spaces with Two Levels*	Net Gain	# of Parking Spaces with Three Levels*	Net Gain	# of Parking Spaces with Four Levels*	Net Gain
1	Troop village, including barracks, Summerall Field, and headquarters facilities.	147	300 (150/level)	153	450	303	600	453
2	Troop village, including barracks, Summerall Field, and headquarters facilities.	76	260 (130/level)	184	390	314	520	444
3	Town center and the southern part of the troop zone including the fitness center and band building.	118	220 (110/level)	102	330	212	440	322
4	Regional support area specifically targeting the commissary, Rader Clinic, and CDCs.	374	540 (270/level)	166	810	436	1080	706
5	Mission support 2 area (Henderson Hall) including the MCX and future facilities to be constructed on the site of Building 25 North and South barracks.	74	400 (200/level)	326	600	526	800	726

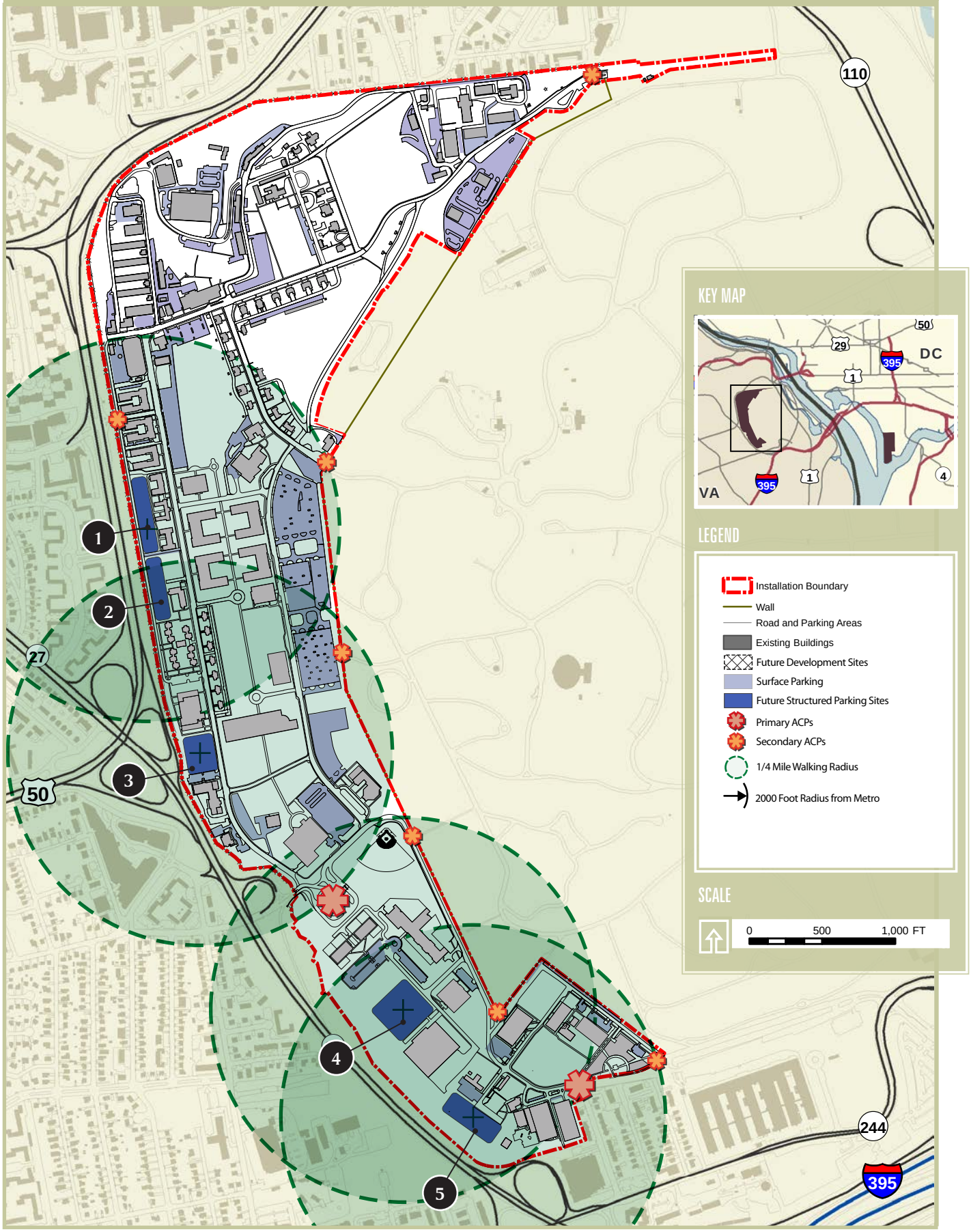
* Estimates based on standard parking garage dimensions, AT/FP setbacks, and site dimensions.

Fort McNair Future Transportation Plan

The layout and utilization of the existing roadway network on Fort McNair will support the proposed future development, given that the location of the proposed buildings within the existing network does not require major realignments or new roadways. However, with the potential for increase in gross building area and population (especially in the Academic and Mission Support areas along 2nd and 4th Avenues), roadway improvements that include widening and dedicated turn lanes may be needed to manage future increased traffic volumes. The same holds true for the ACPs, which may need to be expanded and/or upgraded to handle future traffic and resulting delays. Note that in the future transportation plan, the P Street Gate will operate as a restricted-access gate to allow entrance to certain agencies, such as the USATA.

There is limited space for parking expansion at Fort McNair; any significant expansion would require the construction of structured parking. If demand for parking increases at Fort McNair due to future growth, acquisition of off-Post sites should be explored to meet this demand.

Figure 4.14 JBM-HH Parking Structure Map



4.5 UTILITIES ASSESSMENT

JBM-HH

Industrial Zone

There is no future development within the industrial area; therefore there will be no need for capacity-related utility improvements. Any utility improvements in this area will be a result of existing capacity issues or aging infrastructure.

Mission Support 1

Mission support 1 has only a 6% potential increase in future development. The future development in this area includes four new residences and a new electric substation. The substation will help to meet the increasing power needs of the Installation. The increase in density is minimal. The future residences could potentially have impacts on the utility systems, especially water and sewage. A capacity study should be performed to ensure that the development in this area will not have adverse impacts on those systems. The historic district has a few areas that could be considered for additional stormwater management if necessary. Ideal locations would be near the recreation fields and in the residential areas. There are many low impact development options that can create aesthetically pleasing areas with a small footprint, such as bioretention and bioswales.

Troop Village

The troop village has a potential 24% increase in gross building area. This area consists of: barracks, housing, dining hall, administrative offices, and a recreation facility. Future development plans include: seven additional houses, private Army lodging, increased administrative space, an addition to the gym, parking structures, and the band building. The net increase is only 24% as a result of demolition. Due to the nature of the future development, there will likely be significant increases in water demand and sewage discharge. Capacity studies should be performed before any major development is implemented, especially in areas of increased troop residency. A possible stormwater management solution that could be considered are green roofs, especially on the parking structure. Green roofs help to minimize the impervious area and runoff on the Installation.

Town Center and Regional Support

The town center area has potential to increase in gross building area by 178% and the regional support area by 48%. Although there are no residential functions expected in this area, more than doubling the current size will likely put a large strain on the current utilities. Proposed functions include: two child development centers, retail support facilities for regional and local customers, and a parking structure. In order to determine impacts on the utilities, studies must be performed, especially for water and sanitary sewer. Because of the major increase in gross building area, careful consideration needs to be given to stormwater management. It will be necessary to implement several different facilities to deal with the quality/quantity controls. Low impact development options would be ideal in this area, due to the lack of available land.

Mission Support 2

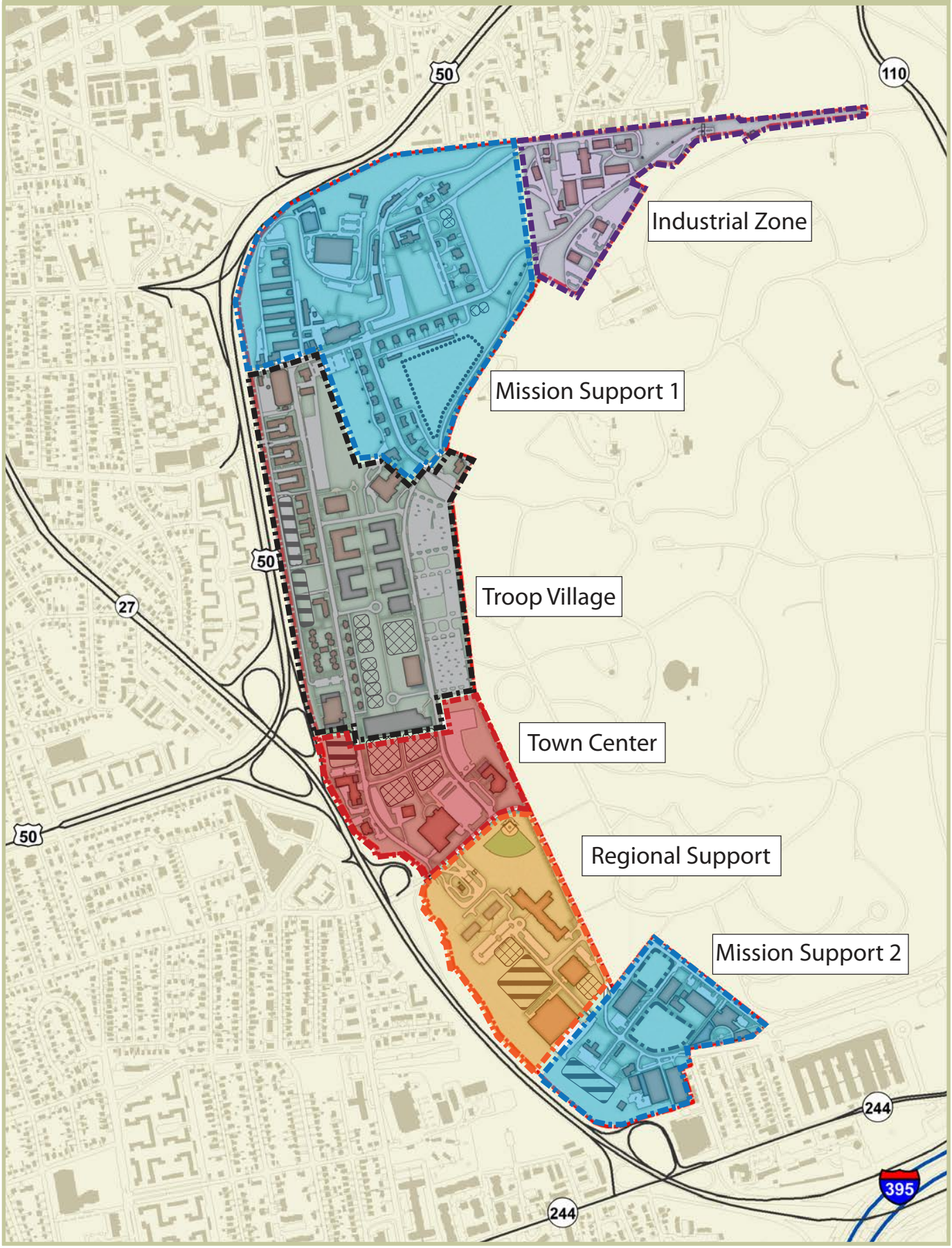
Due to lack of information about the mission support 2 area, it is not possible to determine the increase in gross building area. However, before any additional development occurs, studies should be completed on the major utilities to ensure adequate capacity and determine the need for upgrades. There is an apparent drainage issue in this area that has not been resolved. Any future development will likely worsen this problem due to increased runoff, so drainage must be a major design consideration, with possible impacts on the developable area.

Table 4.2 **JBM-HH Development Capacity**

Functional Area	Existing GSF	Demolition GSF	Proposed Projects GSF	Resulting Total GSF	Percent Change	Acres	Gross FAR
Industrial	162,411	0	0	162,411	0	22.4	0.17
Mission Support 1	563,841	0	35,720	599,561	6%	80.7	0.17
Troop	913,742	320,908	540,725	1,133,559	24%	75.9	0.34
Town Center	133,236	23,995	260,793	370,034	178%	26.7	0.32
Regional Support	139,028	0	66,966	205,994	48%	37.9	0.12
Mission Support 2	Unavailable	N/A	31,650	N/A	N/A	25.5	N/A
TOTAL*	1,912,258	344,903	935,854	2,471,559	31%	269.1	0.23

* Total calculations do not include Henderson Hall.

Figure 4.15 JBM-HH Functional Areas Map



Fort McNair

Mission Support

The future development of the mission support area has potential to increase by 47%. This area consists primarily of: Department of Public Works and industrial functions, administration and headquarters buildings, a fitness center, and the proposed expansion areas. Proposed functions will likely impact the current water and sewer systems, and studies should be performed to ensure capacity. Utility upgrades will likely be necessary.

Residential

The residential area will potentially increase building area by 20%. Adding a new headquarters facility may have minimal impacts to the utilities, but studies should be performed to ensure that there will not be adverse impacts to the systems. The residential area includes large open space areas. This would be a place to consider incorporating stormwater management, including bioswales and bioretention areas. These low-impact development alternatives have a minimal footprint, but can help with pollutant removal and stormwater runoff, as they promote infiltration.

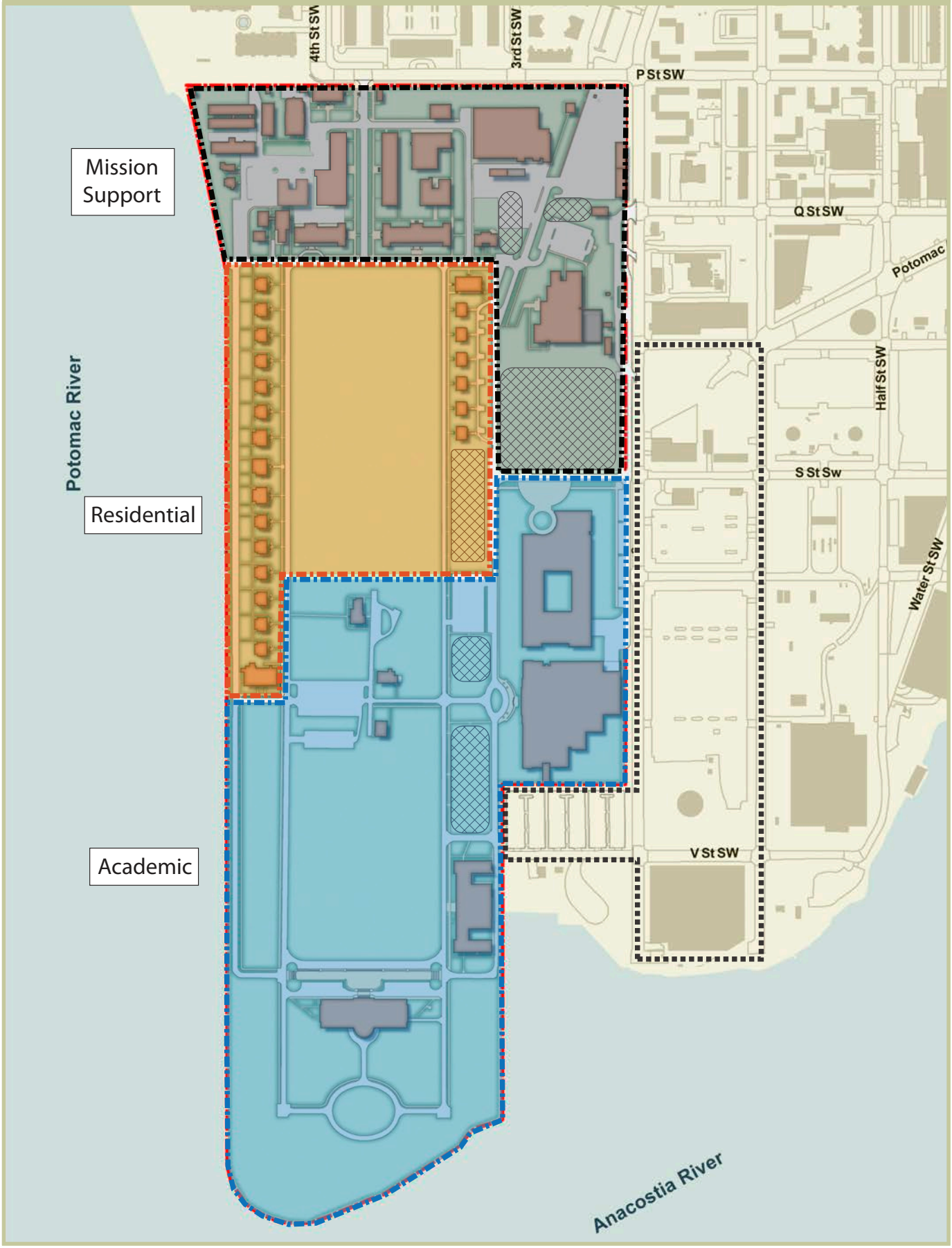
Academic

The academic area has a potential future development increase of 26%. This area primarily consists of administration and instructional buildings for the National Defense University. Proposed facilities include the consolidated community support building and an NDU expansion building. These facilities will likely impact the existing utility systems and require capacity studies before construction. The open space in this area would be an ideal location for low-impact development stormwater management facilities.

Table 4.3 **Fort McNair Development Capacity**

Functional Area	Existing GSF	Demolition GSF	Proposed Projects GSF	Resulting Total GSF	Percent Change	Acres	Gross FAR
Mission Support	385,197	0	181,009	566,206	47%	28	0.46
Residential	168,922	0	33,000	201,922	20%	26.1	0.18
Academic	529,942	0	139,070	669,012	26%	53.7	0.29
TOTAL	1,084,061	0	353,079	1,437,140	33%	107.8	0.31

Figure 4.16 Fort McNair Functional Areas Map



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BACKGROUND

In July 2008, as part of the Master Plan Process, a visioning workshop was held. The objectives of the session were to:

- Communicate the Master Planning Process.
- Develop a vision for the Master Plan at FMMC.
- Develop Guiding Principles for the Master Plan at FMMC.

The process below was used to accomplish these objectives.

1. Present information on the Master Plan Process.
2. Assess the current state in four areas: work facilities, home/family life, general infrastructure, and outdoors.
3. Describe elements of a desired future state in four areas: work facilities, home/family life, general infrastructure, and outdoors.
4. Create a vision for the Master Plan.
5. Develop Guiding Principles.

Early in the meeting Mr. Bill Niez, DPW, shared the following "givens" with the group:

- Must recycle land and space
- Must gain approval from NCPC, Commission of Fine Arts, and historic agencies for Master Planning and construction projects
- Consider current requirements of Anti-Terrorism/Force Protection (AT/FP) and what land could then be given up for Arlington National Cemetery (ANC)
- Integrate plan with ANC and Army Leadership
- Improve mission efforts as we move into a joint base environment
- Funding constraints

The group was asked to keep the above "givens" in mind as they participated in the meeting.

To help ensure efficient/effective discussion and decision-making, participants agreed to the following Ground Rules:

- Everyone must stay awake
- Organize by vested interest
- Everyone should participate
- A little patience with people's comments
- Provide an outside perspective
- Try not to use too many acronyms
- Cell phones on vibrate—step out if you need to take a call

Table A.1 Table of the participants in the July 22-23 Visioning Workshop					
Name	Organization	Email	Phone	7/22	7/23
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ASSESS CURRENT STATE

Participants were divided into four groups and each group was asked to describe the current pluses and minuses in one of the following four categories:

Work Facilities including:

- Space
- Condition
- Expansion
- Location
- Suitability for use

Home/family life including:

- Family housing
- Shopping
- Schools
- Recreation
- Support (day care, counseling)
- Deployment issues

General infrastructure including:

- Roads-access, traffic, parking
- Heating
- Cooling
- Connectivity
- Others

Outdoors including:

- Environmental/open space
- Urban design
- Landscaping
- Architectural character
- Overall visual image
- Training areas

After each group created their list they shared it with the larger group. Some additions were made as a result of this review. The final list of pluses and minuses are below.

Table A.2 Work Facilities	
Strengths	**Weaknesses**
Location of US Army Band facility ■ 85% of band performances are on Fort Myer or in DC ■ Current facility functions as a "break" area for TOG Soldiers and other service bands during funerals and ceremonies in inclement weather ■ Excellent access to Old Chapel, ANC, and Summerall Field ■ Lobby is nice, rehearsal facilities are useable ■ Original facility could be used by Fife & Drum Corps, other TOG assets	Original facility for US Army Band was designed for smaller unit ■ 180 persons vs. 260 now ■ 1974 = 10 females ■ 2008 = 58 females
Building 205 ■ Sufficient work space ■ Wide open ambiance ■ Parking	Facility Issues (US Army Band) ■ Lack of locker room space ■ Lack of equipment storage ■ HVAC issues ■ Administrative space (not enough) ■ Practice rooms (not enough) ■ Lack of large group rehearsal space ■ Admin functions are in other buildings which are slated for demolition
	Building 205 ■ Location of warehouse bad for tractor-trailer trucks ■ Many roof leaks ■ No exhaust fan in restrooms ■ HVAC issues ■ Insufficient electrical capacity
	Fort Myer—Historic buildings too close to fence line. Could be used for office space
	Fort McNair—MDW-JFHQ facilities need upgrade of infrastructure. Parking is an issue (MDW-JFHQ insufficient for level of sensitivity required)
	Henderson Hall—Parking situation is bad. Unused open area is also flood zone
	Insufficient preventative maintenance for all facilities
	Fort McNair—Master Planning on Fort McNair / Fort Myer difficult because of matching architectural styles
	Fort McNair / Fort Myer / Henderson Hall lack of large, dry storage space

Additional Thoughts

- All 3—See which agencies could possibly be moved to Belvoir or Meade
- Henderson Hall – Fort Myer Joint Basing opens up joint usage of Exchange facilities as well as physical fitness centers, running paths

Table A.3 Home/Family life	
Strengths	Weaknesses
New gym	No schools on post
2 pools + 1 at Henderson Hall	Need additional family housing – GFOQ
Auto crafts shop	No company grade housing + field grade (04-06) housing
Bowling center	Limited for outdoor recreation opportunities
Rec center + 2 ITR offices	Picnic area being taken over by ANC
New Child Development Center	Enlisted housing is limited
2 PX facilities: 1 Army (AAFES) and 1 Marine Corps Exchange. AAFES plans to expand and build a parking garage	Average commute is 30-90 minutes
USO as a partner	Parking is hard to find
Commissary is adequate	Medical – limited emergency response services
ACS is very active	No religious education center—serves active, retirees, civilian, contractors
Deployment cycle is low—population does not ebb and flow	Housing cost
2 clubs providing community meeting space	BAH level not adequate
5 minutes away from a great city	The Old Guard is increasing numbers (new battalion being added) with increased requirements for facilities and services
PAL valuable	No garages / covered parking for on-Post residents
Good school system available	No playgrounds for gen. off. Hsg.—not enough playgrounds
	No backup power for family housing
	PAL taking up valuable space
	Expansion is limited to geography
	Insufficient space for CDC

Table A.4 General Infrastructure	
Strengths	Weaknesses
New paving (Fort Myer)	Not enough roads (no room to expand) (Fort Myer)
New Access Control Point (ACP) at Fort McNair and perimeter wall	Go through housing / circulation connections lack
Decentralization of heating plants	5th Avenue at Fort McNair needs widening
Dominion Power privatization	Need more parking / rearrange parking
Fort McNair—back up power at major facilities	Drainage issues—seawall
Underground utilities	Funding to move IT line out of Building 237 at Fort Myer and 32 at Fort McNair
New DVP substation	Basements flood
Replacing aging infrastructure	Lack of Preventative Maintenance (PM)
Good access to METRO / public transportation	Out of date technical system (IT)
Circulation loop at Fort McNair	Traffic congestion at McNair & Marshall
Henderson House has own centralized system (heat)	Lack of AT/FP stand off distances
Henderson House facilities are in good condition	Access / wayfinding from off-Post to Fort Myer
Henderson House roads are in good condition	No bus access
	Traffic / circulation around BPW / BUND intersection
	Parking structure at Henderson Hall needs work
	Potential access to Henderson Hall when ANC takes land / Southgate Road closes
	Parking lot in Henderson Hall floods
	Marshall Drive at Wright Gate & 110 needs repair / falling apart
	ANC expansion

Table A.5 Outdoors	
Strengths	**Weaknesses**
Environment / Open Space ■ Historical Site	**Environment / Open Space** ■ No open spaces - Whipple Field (Historical), Summerall Fields (Historical), Ball field ■ Lack of tactical / training areas
Urban Design ■ Colonial look ■ Everything within walking distance ■ Traffic flows ■ CDC is large	**Urban Design** ■ Expensive to maintain ■ Location of parking is inconvenient ■ Force Protection measures prevent using buildings near Route 50 as barracks ■ Extensive approval process to make any changes ■ No schools on post ■ MWR facilities do not accommodate Soldiers population
Landscaping ■ Existing landscaping is acceptable ■ Trees are protected by Green laws ■ Keeps Historical nature intact	**Landscaping** ■ Lack of areas for landscaping ■ Lack of funding for landscaping ■ Expensive upkeep
Architectural Character ■ Maintains historical appearance ■ Generates tourism	**Overall Visual Image** ■ Old and run down (TOG, DPW, Henderson Hall)
Overall Visual Image ■ Very powerful image based on location near National Capital Region ■ GO housing visually appealing	**Training Areas** ■ Closest TA is A.P. Hill (1 hour 45 minute drive) ■ No area for caisson to ride ■ No area for salute battery to fire ■ No area for tactical training ■ No PT areas ■ No LZ (Landing Zone) on Fort Myer
Training Areas ■ K9 facilities have been updated ■ C-Hall is a great indoor facility (Can practice in it) ■ Town Hall is great for large briefings	

DESCRIBE ELEMENTS OF A DESIRED FUTURE STATE

Once the pluses and minuses of the current state were captured participants were asked to describe elements of a desired future state for each of the same four categories. These elements should build off the pluses and eliminate or mitigate the minuses. Additionally, each group was asked to describe any issues dealing with change or growth in their category along with any "sacred areas" that should or should not be developed.

To help participants think about the elements of a desired future state they were given the following future scenario, "It is twenty years in the future and you have returned to FMMC to show it to your grandchildren / great-grandchildren / grandnieces / grandnephews / friends. As you walk around with them you point to many things with great pride stating that these things were a direct result of a visioning workshop you participated in twenty years ago."

After each group created their list they shared it with the larger group and others had the opportunity to make additions. The final lists of elements of a desired future state, change issues, and sacred areas for each category are shown below.

Work Facilities

Elements of a Desired Future State

Fort Myer
- New band building for ALL personnel and equipment
- Storage space / warehouse space for multiple organizations
- Dining facility
- Multilevel parking garage for Fort Myer, Fort McNair, and Henderson Hall
- Renovate & max use of Town Hall
- Explore tours of Band, TOG facilities

Fort McNair
- New MDW / JFHQ building for mission purposes
- Reuse vacated buildings
- Swimming pool
- Expand Shoppette / Gas Station for multiple use

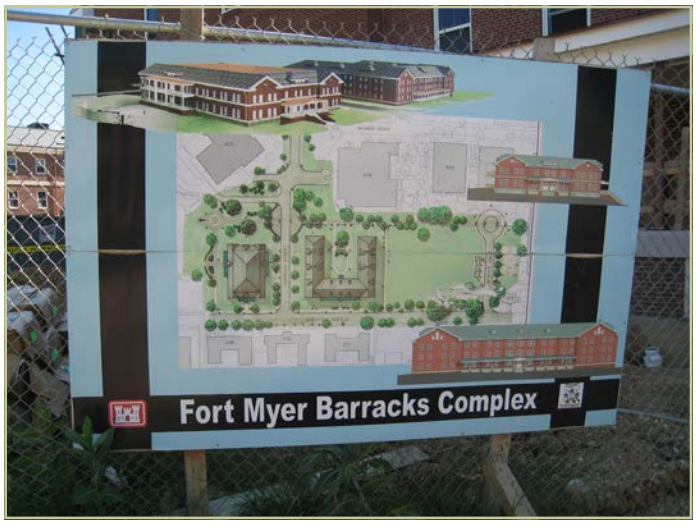
Fort Myer and Fort McNair
- Improving medical facility
- Build new PX

Issues Dealing with Change
- Army standards in general
- Funding—not as much as needed is available
- Inaccurate data to estimate cost of building a square foot of space—PAX system

Sacred Areas

Fort Myer
- Summerall Field
- Whipple Field
- Ball field
- Historic buildings

Fort McNair
- Parade Field
- Golf course (used to be)
- Historic buildings



Home/Family Life

Elements of a Desired Future State

- Apartment style living—Hi Rise
- Parking garages
- MWR focus mission on Single Soldier or geographical bachelor and retiree community
- Large brick town homes with garages and covered parking
- Medical needs / urgency care
- Religious Education Center
- Increase BAH. Bring family members closer to Post and move utilization of facilities
- Improve quality of goods sold in PX
- Quality of services on Post match or exceeds those offered off Post
- More of an urban environment
- Focus on unique events and facilities that people will want to drive on Post for
- New different forms of housing that are denser or higher
- Bring family housing closer to the Post by increasing BAH to allow them to take advantage of services provided on Post, which in turn improves the quality and quantity of services provided, and allows personnel to save time and costs of commute

Issues Dealing with Change

- Funding allocations will have to change
- Change in the way Master Planning is done
- Change in mindset for personnel / on Post community

Sacred Areas

- Two parade fields
- General housing
- Historical landmarks

General Infrastructure

Elements of a Desired Future State

- Parking structures
- PX / Commissary—retail located off Post
- Pedestrian corridor
- Water taxi to/from Fort McNair
- Alternate forms of transportation
- Continue development within historic district / atmosphere
- Proper maintenance of facilities
- Maintain landmarks
- State of the art utilities and IT systems
- Automated access at gates
- Develop with future in mind
- Develop community / MWR recreation partnerships—active interface with community
- Better circulation / traffic patterns
- Update street lighting for light pollution and technology

Issues Dealing with Change

- Resistance to centralized Commissary / PX
- Loss of control / income for community with MWR facilities
- Lack of land for parking structure (Fort Myer)
- Approval process for facilities / Army funding to provide compatible design
- Security issues with other transport forms
- Funding

Sacred Areas

- Historic landmarks
- Historic structures / district
- Parade fields / Whipple Field
- Tri-service parking lot?
- General Officers housing
- MCX at Henderson Hall
- Marine Corps Club at Henderson Hall

Outdoors

Elements of a Desired Future State

Environment / Open Space
- Water recreation available
- Desire more open space
- PT track
- Ball field
- Picnic area(s)

Urban Design
- Continue to develop layout facilities for pedestrian vs. car traffic
- Better location for parking, i.e., parking structure
- Create more facility space
- Build up / schools, MWR facilities
- Combine facilities with Henderson Hall to expand potential developing areas

Landscaping
- More shade around parking
- More landscaping to hide generators, etc.

Architectural Character
- Future buildings design consistent with historical "feel" design even outside Historical District

Overall Visual Image
- All buildings renovated / furbished
- Entrance(s) to base(s) should reflect historical nature of post(s) / "best foot forward"

Training Areas
- Have training on Post
- Summerall Field redesign
- Urban tactical training
- PT areas / track
- Expand use of Town Hall

Issues Dealing with Change

Environment / Open Space
- Limited resources

Urban Design
- Cultural change
- Limited resources
- Safety around Fort McNair

Training Areas
- Residents on Post
- Condensed Post

Sacred Areas
- None listed

CREATE VISION FOR THE MASTER PLAN

With the elements for a desired future state described, and in preparation for creating the vision statement, the group held a discussion of themes to a desired future state that appeared in the various categories. The list generated is below.

- Adequate family housing
- Historical
- Limited resources (constraint)
- Adequate facilities
- Aesthetics
- Force Protection / Security
- Safety
- Traditions or ceremonies
- Building higher or denser
- Alternate resources
- Flexible design

Participants were then put into two groups and asked to create a vision statement for the FMMC Master Plan. The two vision statements are listed below.

Group 1
The Master Plan will support the development of a unified military installation that partners with surrounding communities to support the mission of JBM-HH through efficient and sustainable use of operational, environmental, and cultural resources.

Group 2
The Master Plan will provide a unified post for military and families to train, live, and work at a historical installation which will provide the tradition to enable continued family and military life honoring the past while embracing the future in a safe and secure environment.

Both groups shared their vision statements with the larger group. After a conversation over the similarities and differences of the two vision statements participants created a single, consolidated vision. This final vision appears below.

Final Vision
The Master Plan will support a unified military installation that partners with the surrounding community to protect and enhance the mission and traditions of JBM-HH through efficient and sustainable use of operational and historical resources to enable continued family and military life that honor the past while embracing the future in a safe and secure environment.

DEVELOP GUIDING PRINCIPLES

With the Vision Statement agreed to participants were asked to develop Guiding Principles to help ensure that decisions made during the Master Plan Process were aligned and consistent with their Master Plan Vision. Participants were told that these Guiding Principles would eventually be converted into Master Plan Principles to provide concrete guidance to the Planners.

Participants were divided into two groups. Each group was asked to first brainstorm Guiding Principles and then indicate which were the five most important Guiding Principles. The output of each group is shown below with the top five Guiding Principles listed first in italics.

Group 1
- Ensure compliance with environmental and cultural resource requirements
- Sustainable use of historical assets
- Continue to enhance quality of life
- Maintain traditional standards
- Coordinate master planning with surrounding communities
- Continue to enforce security measures
- Design with end user in mind

Group 2
- Upholding traditions
- Protect and maintain the quality of the environment
- Look out for the welfare of Service members, their families, and the civilian workforce
- Provide for a safe and secure environment
- Involve a diverse group of subject matter experts in the decision-making process
- Accomplish the mission
- Enhancing the overall image of DoD
- You are only as strong as your weakest link
- Use all resources in the most efficient manner
- Participation and communication with surrounding communities

After each group shared their Guiding Principles the participants were asked to consolidate the output of the two groups into a single, consolidated list of Guiding Principles. This consolidated version of the Guiding Principles is shown below.

- Protect and maintain the environmental and cultural resources
- Continue to enhance the quality of life of service members, their families, and civilian workers
- Maintain traditions and standards of the ceremonial mission
- Coordinate Master Planning with surrounding communities and agencies
- Continue to enforce and enhance security measures to provide a safe and secure environment
- Involve a customer base and diverse group of experts in the planning process

Once the Guiding Principles were identified, participants were asked to prioritize them through a voting process. Each participant was given a total of three votes to assign to the five Guiding Principles he or she felt deserved the highest priority. The votes were then tallied and are shown below in parentheses after the Guiding Principle.

1. Protect and maintain the environmental and cultural resources (5)
2. Continue to enhance the quality of life of service members, their families, and civilian workers (13)
3. Maintain traditions and standards of the ceremonial mission (13)
4. Coordinate Master Planning with surrounding communities and agencies (1)
5. Continue to enforce and enhance security measures to provide a safe and secure environment (10)
6. Involve a customer base and diverse group of experts in the planning process (6)

There was much discussion about how to interpret the voting results from above. Some in the group believed the priority of the Guiding Principles should be listed as the votes turned out. Different individuals strongly advocated that Guiding Principles that received the 3rd most, 4th most, or 5th most votes should each be considered the most important Guiding Principle. Consensus was reached that all the Guiding Principles were important and the relative importance between them will depend on the context of when they are used to guide a specific decision.

After the discussion of prioritization the group was asked to provide specific examples of what was meant by each of the Guiding Principles. These examples are shown below.

1. Protect and maintain the environmental and cultural resources.

- Protected historical areas
- Protected watersheds
- Take a more systems approach to the environmental community (surrounding areas share the same ecosystems as FMMC)
- Erosion control (trees and soil)
- Implement sustainable / green practices
- Explore alternative / renewable sources of energy (for instance, solar panels and wind power)
- Air quality
- Recycling

2. Continue to enhance the quality of life of service members, their families, and civilian workers (the below list details what is meant by the phrase quality of life).

- Housing / barracks
- Technology
- Recreation
- Transportation
- Counseling
- Dining facilities
- Operational facilities
- Medical / Dental
- Morale, Welfare, Recreation (MWR)
- Childcare
- Handicapped accessibility
- Better environmental
- Maintaining green spaces
- Landscaping

3. Maintain traditions and standards of the ceremonial mission.

- Funeral ceremonies
- Sunset Parade / Twilight Tattoo
- Special events (for instance, Army 10 Miler, Marine Corps Marathon, Inauguration, White House ceremonies)
- Reveille and Retreat / Colors
- PT (training and fitness testing)
- Protocol

4. Coordinate Master Planning with surrounding communities and agencies (the list below details what is meant by the word communities).

- Arlington County and City
- Washington, DC—primarily Ward 6
- VDOT
- ANC
- United States Coast Guard
- Retirees within NCR (National Capital Region)
- Tribal / Native American
- AAFES / MCX
- Diplomatic communities
- Pentagon
- Veterans groups

5. Continue to enforce and enhance security measures to provide a safe and secure environment.

- Budget
- Resources
- Stand off distances
- Accessibility
- Traffic control
- Design of gates
- Evacuation routes
- Use of new technology
- Address unique needs of JBM-HH

6. Involve a customer base and diverse group of experts in the planning process.

- Needs to be a consistent group, as much as possible. Continuity is the key, for example when a department sends different people to represent them at the meetings of the Real Property Planning Board (RPPB), each person from that department will represent the department, but can do it in a different manner—this lack of continuity lowers the quality of the output of the RPPB
- Develop consistent guidelines—that way if people change the guidelines will help ensure consistency

OUTBRIEF OF GARRISON LEADERSHIP

During the discussion on prioritization of the Guiding Principles Mr. Bill Niez, DPW, returned to the meeting for an Outbrief. An overview of the process and results was shared with Mr. Niez who commented that, from his perspective, all the key aspects were captured in the Vision and Guiding Principles.

Final Real Property Vision

The Master Plan will support a unified military installation that partners with the surrounding community to protect and enhance the mission and traditions of JBM-HH through efficient and sustainable use of operational and historical resources to enable continued family and military life that honor the past while embracing the future in a safe and secure environment.

Final Guiding Principles

1. Continue to enhance the quality of life of service members, their families, and civilian workers.
2. Maintain traditions and standards of the ceremonial mission.
3. Continue to enforce and enhance security measures to provide a safe and secure environment.
4. Involve a customer base and diverse group of experts in the planning process.
5. Protect and maintain the environmental and cultural resources.
6. Coordinate Master Planning with surrounding communities and agencies.

When Mr. Niez receives the meeting summary he will brief the Garrison Commander and her Deputy.

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PROPOSED LAND USE OPTIONS

JBM-HH

Town Center Concept

The town center concept is focused on consolidating community services and any conforming uses in a compact, central location. Consolidation of community service facilities in one central location results in greater efficiency in use and potential significant cost savings. Consolidating these uses opens space for other uses throughout the installation.

The long-term build out has potential for expanding the town center and providing space for future development. The focus of this area is regional services as well as any potential conforming uses.

The main features to the town center concept are:

- Consolidation and centralization of community services in a town center setting.
- A long-term build out area allows for future community and conforming use development.
- Expansion of troop facilities with a focus on building on existing troop areas.
- Consolidated recreation fields and facilities.
- Establishment of a ceremonial staging area at Chapel Gate.
- Potential for services between Fort Myer and Henderson Hall to be consolidated.

Historic Troop Concept

The historic-Troop concept emphasizes an increase in Troop facilities and preservation of historic buildings and installation layout.

The main features of the historic-troop concept are:

- An expansion of Troop functions.
- Preservation of historic character.
- Establishment of a memorial park at Chapel Gate.
- Establishment of a Troop staging area near Chapel Gate.
- Consolidation of recreation field.
- Troop training area on site of existing tennis courts

Contingency Concept

The contingency concept focuses on troop and emergency support land uses. In the event of an emergency situation in the National Capital Region JBM-HH is expected to provide support in terms of response (Troop mission) and facility accommodations.

The main features of the contingency concept are:

- A Troop central core that consolidates and centralizes troop land uses.
- Establishment of a troop deployment and emergency facilities area in order to provide appropriate rapid response and support.
- New DES facilities in order to improve responses to emergency situations.
- A new emergency facility that can provide long term support for any personnel relocated to the installation.

Figure B.1 Land Use Plan Alternative: JBM-HH

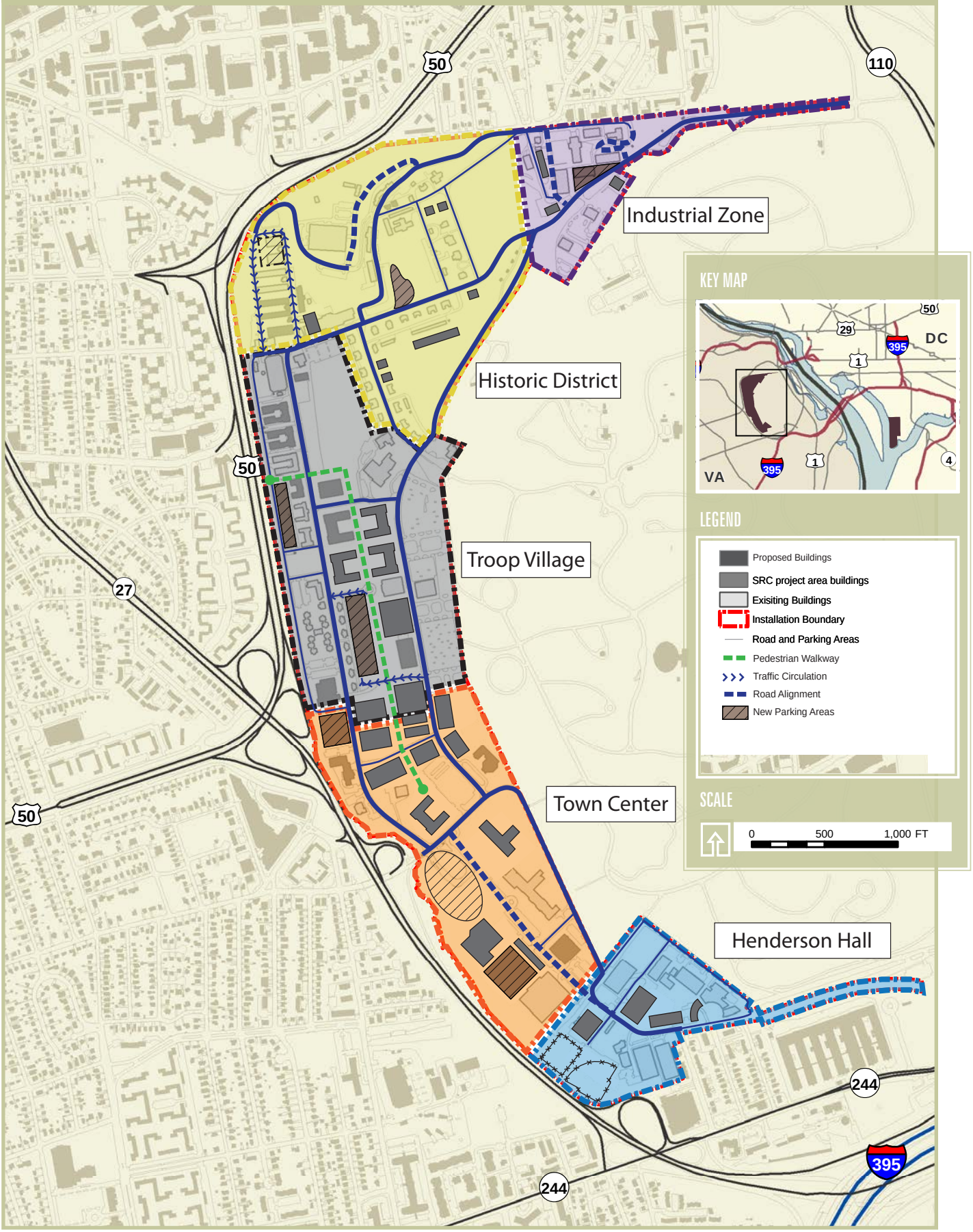


Figure B.2 Land Use Plan Alternative: JBM-HH Historic-Troop Concept

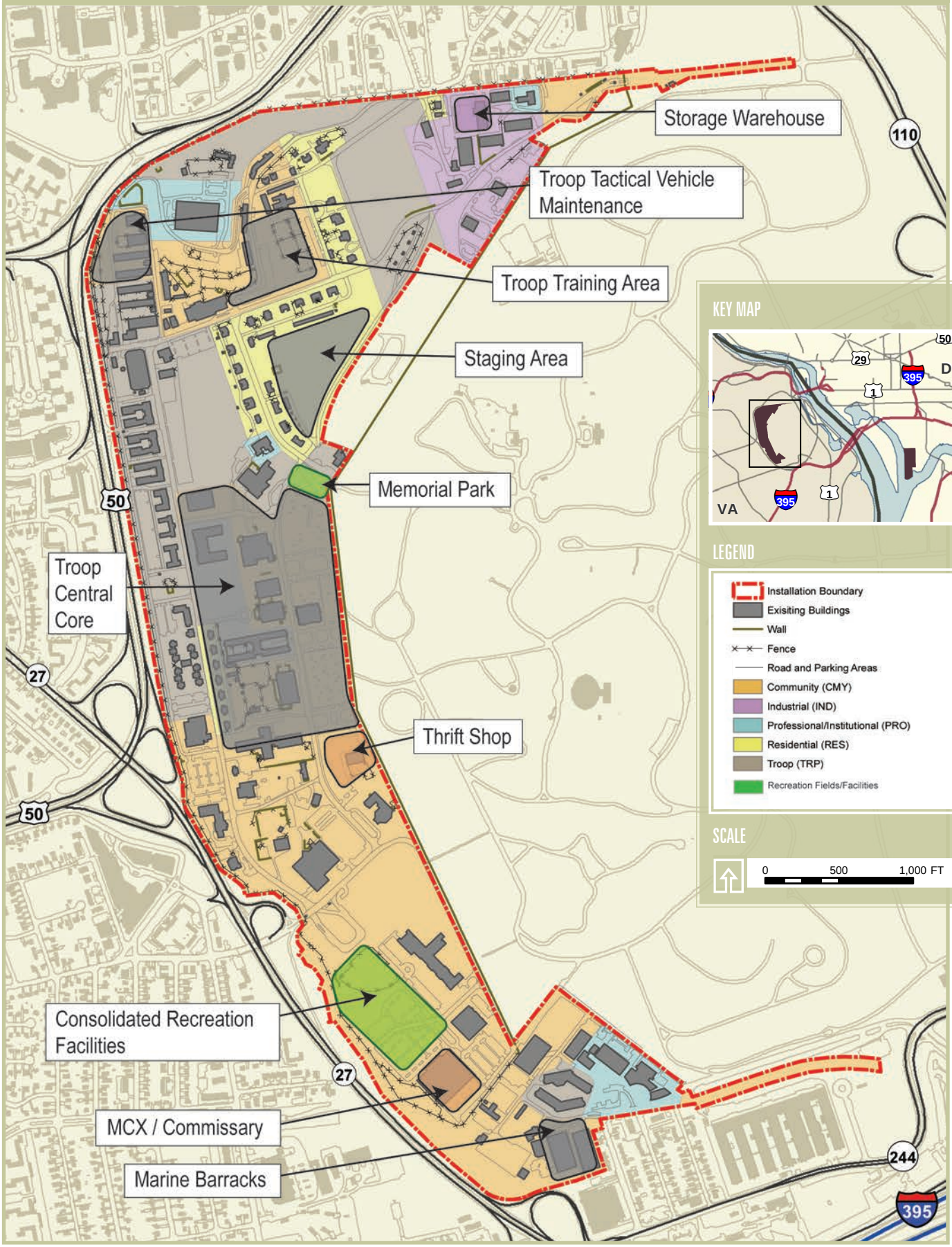
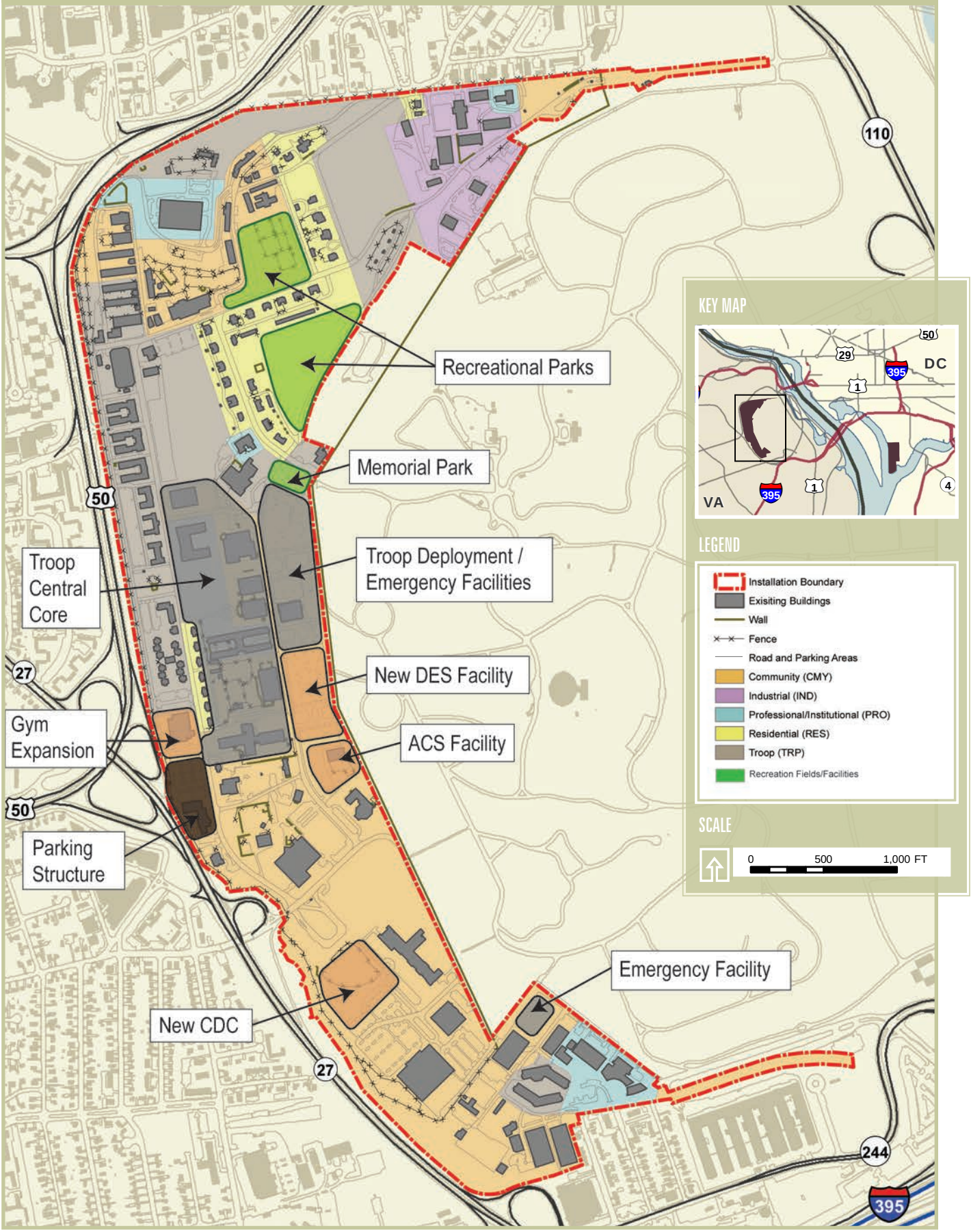


Figure B.3 Land Use Plan Alternative: JBM-HH Contingency Concept Map



Fort McNair

Academic-Open Space Concept

The academic-open space-recreation concept focuses on developing a campus-like environment by providing academic space for various academic institutions located on the installation. Enhanced open spaces and consolidated recreation fields and facilities reinforce this theme.

The main features of the academic-open space-recreation concept are:

- Re-location of buildings 17, 20, and 21 to the long-term build out area in order to create an uninterrupted parade field and quality open space.
- Consolidation of recreation fields and facilities along B Street.
- Establishment of an open space/special events area on a prominent point in Washington, DC.
- Long-term build out areas along the perimeter of the parade field for academic facilities or conforming uses.
- TOG moves to JBM-HH freeing space for academic activities.
- Temporary ACP will become a long-term build out.

Contingency Concept

The contingency-mission concept emphasizes an expansion of JFHQ-NCR/MDW and strengthening the installation ability to respond to emergency situations.

The central features of the contingency-mission concept are:

- Expansion of JFHQ-NCR facilities in a campus-like environment in the northern part of the installation.
- New DES facilities will be developed on the temporary ACP site.
- Privatized Army Lodging will be constructed south of the O'Club.
- Establishment of an emergency services dock and staging area.
- Long term build out areas along the perimeter of the parade field.

Figure B.4 Land Use Plan Alternative: Fort McNair Academic-Open Space Concept

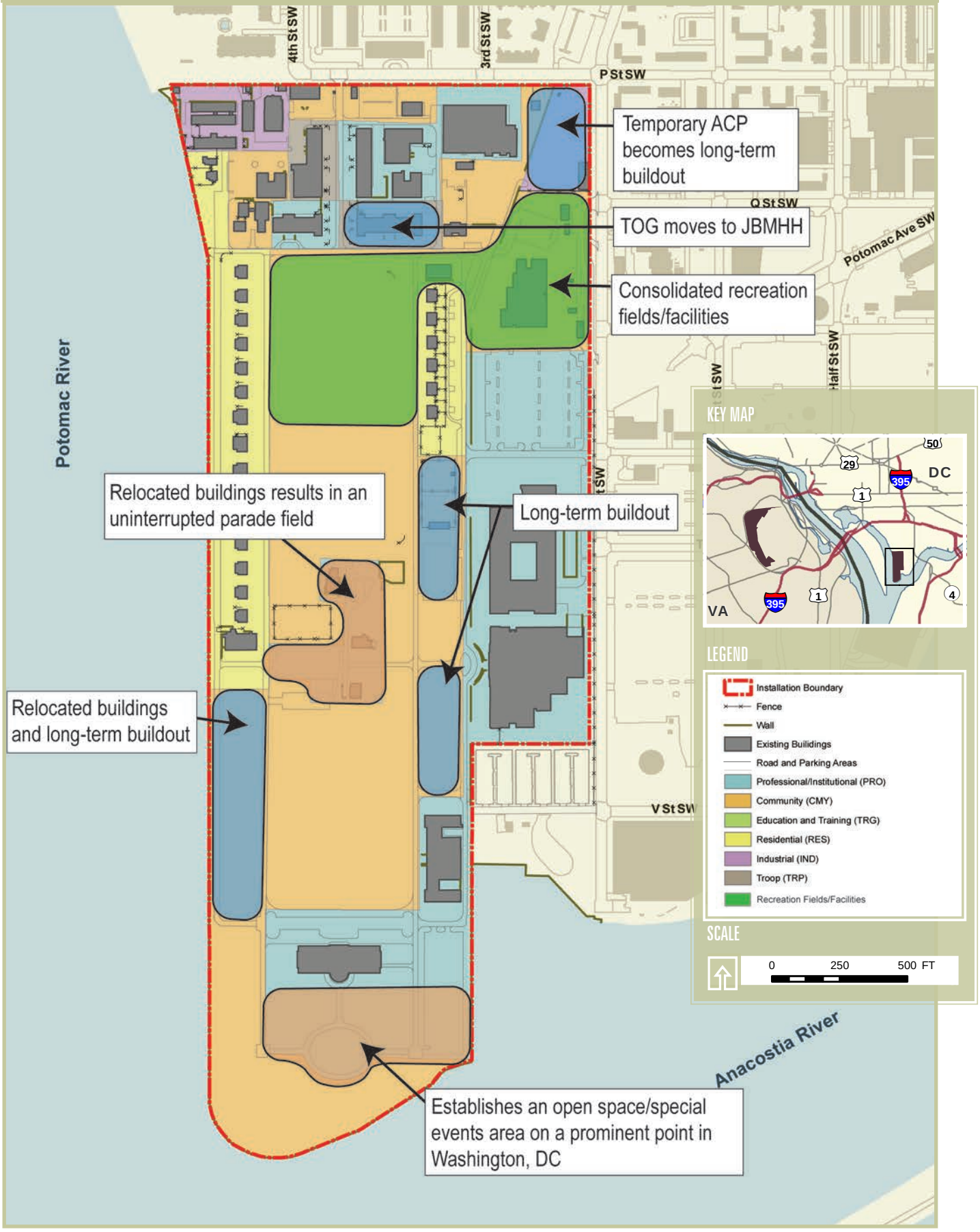
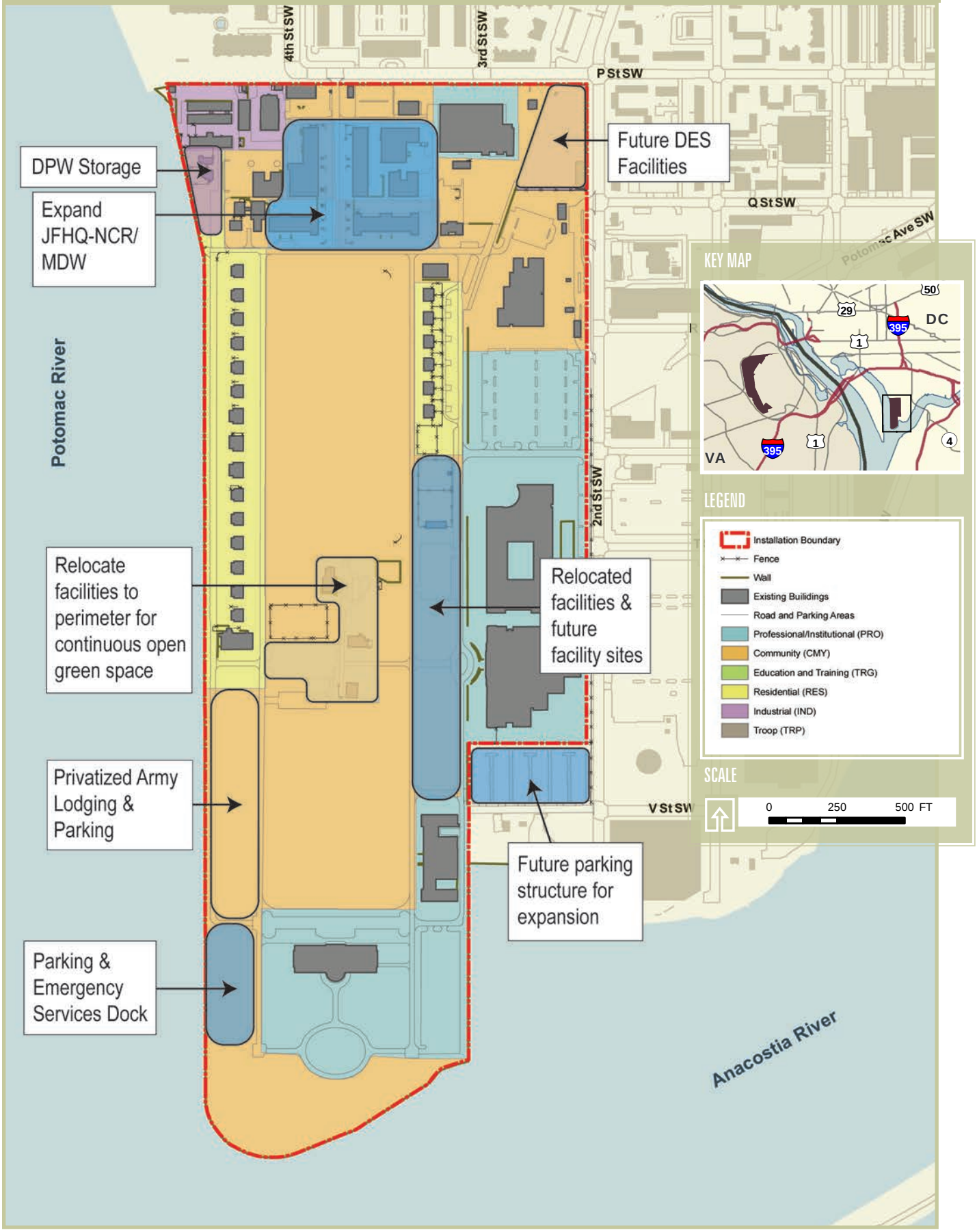


Figure B.5 Land Use Plan Alternative: Fort McNair Contingency Concept



ALTERNATIVES ANALYSIS

The land use alternatives provide a foundation for development of the Land Use Plan. The alternatives analysis supports the decision-making process and reinforces adherence to the Real Property Vision, Goals and Objectives arrived upon early in the planning process.

In the following tables, each alternative is rated on a scale of 1 (minimal) to 3 (ideal) on how well each alternative achieves the stated planning objectives. Because it is early in the planning process, details relative to circulation, design principles, and infrastructure are not yet recognized; these elements will be addressed and analyzed later in the planning process in subsequent submittals.

JBM-HH

Table B.1 JBM-HH Alternative Issues and Evaluations Table

Criteria	Ranking		
	Town Center	Troop/Historic	Contingency
Space Use			
Optimizes Troop Mission Space	2	3	2
Optimizes Training Space	1	1	1
Optimizes Ceremonial Mission space	3	3	2
Optimizes Recreation Spaces	3	3	2
Provides Expansion Areas	3	3	2
Layout			
Consolidates Spaces	3	2	2
Improves functional co-location	3	3	2
Adaptive Reuse	2	2	1
Enhances Views/Open Space	2	2	1
Circulation			
Promotes Walking/Alternative Transportation on Post	3	2	2
Improves Rapid Emergency Response	1	2	3
On-Post Access to Community Services	3	2	2
Off-post Access to Community Services	2	3	3
Establishes on-Post Connectivity	3	2	2

Fort McNair

Table B.2 Fort McNair Alternative Issues and Evaluations Table		
Criteria	Ranking	
	Academic/Open Space	Contingency
Space Use		
Optimizes Troop Mission Space	2	3
Optimizes Training Space	1	1
Optimizes Ceremonial Mission space	3	1
Optimizes Recreation Spaces	3	2
Provides Expansion Areas	3	3
Layout		
Consolidates Spaces	2	3
Improves functional co-location	3	2
Adaptive Re-use	2	3
Circulation		
Promotes Walking/Alternative Transportation on Post	2	2
Improves Rapid Emergency Response	1	3
Improves On-Post Access to Community Services	1	1
Establishes On-Post Connectivity	2	2

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ACRONYMS

AAFES: Army & Air Force Exchange Service
ACP: Access Control Point
ACS: Army Community Services
ADA: Americans with Disabilities Act
ADP: Area Development Plan
ANC: Arlington National Cemetery
APCB: Air Pollution Control Board
AQCR: Air Quality Control Region
ARPA: Archaeological Resources Protection Act
ART: Arlington Transit
AT-FP: Anti-Terrorist Force Protection
AWI: Anacostia Waterfront Initiative
BCT: Basic Combat Training
BN: Battalion
BRAC: Base Realignment and Closure
CDC: Child Development Center
CERCLA: Comprehensive Environmental Resources Compensation Liability Act
CIS: Capital Investment Strategy
COF: Consolidated Operation Facility
CRMP: Cultural Resource Management Plan
DCWASA: DC Water and Sewer Authority
DDOT: District Department of Transportation
DES: Directorate of Emergency Services
DFAC: Dining Facility
DHR: Department of Historic Resources
DOD: Department of Defense
DOIM: Directors of Information Management
DPW: Department of Public Works
EA: Environmental Assessment
EPA: Environmental Protection Agency
ESA: Endangered Species Act
ESQD: Explosive Safety Quantity Distance
FHWA: Federal Highway Administration
FMMC: Fort Meyer Military Community; includes Joint Base Meyer-Henderson Hall and Fort McNair
FTA: Federal Transit Administration
FUS: Facility Utilization Survey
GFA: Gross Floor Area
GO: General Officer
HH: Henderson Hall
HOT Lanes: High Occupancy Toll lanes
HOV Lane: High Occupancy Vehicle Lane
HPO: Historic Preservation Office
HRDS: High Reliability Distribution System
IET: Initial Entry Training
INRMP: Integrated Natural Resources Management Plan
ISR: Installation Status Report
JBM-HH: Joint Base Myer-Henderson Hall
JFHQ-MDW: Joint Force Headquarters-Military District Washington
LBP: Lead Based Paint
LRC: Long Range Component
MARC: Maryland Area Regional Commuter
MFSC: Marine and Family Services Center
MMRP: Military Munitions Response Program
MP: Military Police
NCO: Non-Commissioned Officer
NCPC: National Capital Planning Commission
NDU: National Defense University
NEPA: National Environmental Policy Act
NHL: National Historic Landmark
NHPA: National Historic Preservation Act
NRHP: National Register of Historic Places
NSR: New Source Review
OSUT: One Station Unit Training
PAH: Polyaromatic Hydrocarbons
PAL: Privatized Army Lodging
PFC: Physical Fitness Center
PN: Persons
PRS: Petroleum Release Sites
PRV: Plant Replacement Value
PSA: Petroleum Storage Area
PXP: Post-Exchange
RCI: Residential Communities Initiative
RCRA: Resource Conservation & Recovery Act
RDT&E: Research Development Testing & Evaluation
RPA: Resource Protection Area
RPMP: Real Property Master Plan
SFPS: Shore Facilities Planning System
SHPO: State Historic Preservation Office
SIP: State Implementation Plans
SPCL: Spill Prevention, control, Countermeasures
SRC: Short Range Component
TCLP: Toxicity Characteristics Leaching Procedure
TIP: Transportation Improvement Plan
TMP: Transportation Management Plan
TOE: Table of Organization and Equipment

TOG: The Old Guard
TSCA: Toxic Substances Control Act
TUSAB: The US Army Band
UEPH: Unaccompanied Enlisted Personnel Housing
USACE: US Army Corps of Engineers
UST: Underground Storage Tank
VDOT: Virginia Department of Transportation
VOC: Volatile Organic Compound
VRE: Virginia Railway Express
WAD: Washington Aqueduct Division
WMATA: Washington Metropolitan Area Transit Authority

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