U.S. Department of Homeland Security
Nebraska Avenue Complex Master Plan
DRAFT ENVIRONMENTAL IMPACT STATEMENT

GSA

Homeland Security

January 14, 2011

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Draft
Environmental Impact Statement

Responsible Agency:
U.S. General Services Administration
National Capital Region
301 7th Street, SW
Washington, D.C. 20407

In cooperation with the
National Capital Planning Commission
U.S. Department of Homeland Security

Nebraska Avenue Complex Master Plan

The U.S. General Services Administration (GSA) is studying the impacts resulting from the proposed development of a Master Plan for the consolidation of a portion of U.S. Department of Homeland Security (DHS) functions at the Nebraska Avenue Complex (NAC) at 3801 Nebraska Avenue NW, Washington D.C. The No Action Alternative and three action alternatives are studied in detail in the Draft Environmental Impact Statement (EIS).

Comments must be postmarked no later than March 1, 2010. Questions or comments on the Draft EIS should be addressed to:

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ES EXECUTIVE SUMMARY

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ES EXECUTIVE SUMMARY

The Draft Environmental Impact Statement (EIS) has been prepared pursuant to:

- The National Environmental Policy Act of 1969 (NEPA);
- Council on Environmental Quality (CEQ) regulations to implement NEPA contained in 40 Code of Federal Regulations (CFR) Parts 1500 to 1508;
- GSA Order ADM 1095.1F (Environmental Considerations in Decision-making), dated October 19, 1999; and
- PBS (Public Buildings Service) National Environmental Policy Act – NEPA Desk guide (GSA, October 1999).

NEPA requires all federal agencies to provide a detailed EIS for every major federal action, planned and proposed, that may significantly affect the quality of the human environment. The EIS should include information on:

- the environmental impact of the Proposed Action;
- any adverse environmental effects that cannot be avoided should the proposal be implemented;
- alternatives to the Proposed Action;
- the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity; and
- any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented.

NEPA also requires consultations with federal agencies that have jurisdiction or special expertise with respect to environmental impacts.

ES.1 Proposed Action

The proposed action is the development and implementation of a Master Plan for the Nebraska Avenue Complex (NAC) as a campus capable of being maintained at the appropriate security level to house the current tenant, the U.S. Department of Homeland Security (DHS), and for future DHS consolidation at the site. It is intended that the Plan will guide future renovation and development of a cohesive campus by establishing design and land-use planning principles for the construction of new buildings, roadways, open green space, utility systems, and other infrastructure needs, while minimizing environmental, economic, and social impacts.

The proposed action supports the goals of the DHS National Capital Region (NCR) Housing Master Plan which propose to consolidate over 28,000 DHS employees currently housed in over 40 locations into 7 to 10 locations—the NAC site being one of the primary sites identified for certain DHS components. Over the past six years, various DHS components have been relocated to the NAC site, placing strain on the nearly 100-year old installation. A comprehensive plan to guide federal investment is needed in order to maintain, improve, and/or construct new campus facilities, security, and infrastructure.

ES.2 Location

The NAC is a 37.39-acre site located at 3801 Nebraska Avenue, NW, Washington, D.C., within a largely residential section of northwest Washington, D.C. The campus is adjacent to Glover-Archbold Park, the Gatesly House, the Washington bureau of NBC Television, and American University (AU). The site is less than 0.75 miles from the Tenleytown-AU Metrorail Station.

The NAC site is owned by the U.S. government and managed by GSA. DHS is a tenant. Glover-Archbold Park is controlled by the National Park Service (NPS).

ES.3 Alternatives

This document evaluates three action alternatives and the No Action Alternative:

- *No Action* – the "No Action" alternative would result in the NAC project site continuing to operate in the existing facilities following current management protocol. However, DHS would continue to seek a permanent location for additional employees not currently accommodated at the NAC. The total amount of floor space contained within the buildings on campus is approximately 653,400 GSF, which accommodates a total of 2,390 seats, and there are 1,239 parking spaces.

- *Alternative A: Low Density Development* – Existing buildings and new construction would equate to approximately 1.1 million GSF of space for DHS and a total of 3,700 seats at the location (1,780 existing seats after demolition plus 1,920 new seats). The new construction would come in the form of both new buildings and an architectural parking structure. Many of the new buildings would have green roofs. The existing building mass on campus would be concentrated along the north half of Nebraska Avenue set back from the road, and new massing would be added to the northeast and east portions of the site. The location and appearance of the parking structure would create a visible building mass along Ward Circle, giving the campus an observable presence from this corner. There would be three entrances to the site: two from Nebraska Avenue and one from Massachusetts Avenue. This alternative would feature 1,025 parking spaces; 925 within the parking garage outside the secure perimeter and 100 spaces inside the secure perimeter. The landscape concept would be comprised of core design elements present in all alternatives, including reestablished historic courtyards, preservation of existing trees on-site, primary pedestrian

Seats: seats are used as a unit of density throughout this document. Seats are not equivalent to the total number of employees but rather represent the maximum number of people who may be physically working at the NAC project site at any point in time. The total number of employees may be higher as some employees may choose to telework or participate in another flexible work program that does not require them to be physically present on-site.

access ways with ramps for Americans with Disabilities Act (ADA) accessibility, and redesigned internal campus walkways with bioswales and urban design features. At the southwest corner of the site, a signature landscape would surround the parking garage, complementing the design of the new structure.

- *Alternative B: Mid-Density Development* – Existing buildings and new construction would equate to approximately 1.2 million GSF of space for DHS and a total of 4,200 seats at the location (1,780 existing seats after demolition plus 2,420 new seats). The new construction would come in the form of new buildings and a parking structure. Many of the new buildings would have green roofs. The location of a building on Ward Circle is one of the main differentiating features between this alternative and the others. There would be two entrances onto the site; one from Nebraska Avenue and one from Massachusetts Avenue. There would also be an exit-only driveway on Nebraska Avenue directly north of the Gatesly house. This alternative would feature 1,150 parking spaces with 1,050 outside the secure perimeter and 100 spaces inside the secure perimeter. The landscape concept for Alternative B would be composed of core design elements consistent across all alternatives, including reestablished historic courtyards, preservation of existing trees on-site, primary pedestrian access ways with ramps for ADA accessibility, and redesigned internal campus walkways with bioswales and urban design features. At the southwest corner of the site, a signature landscape would complement the design of the new building near Ward Circle. This alternative also allows for significant open space between Buildings A and B and across from Buildings 12, 13, and 14. Historically, this area has contained terraced sport courts.

- *Alternative C: High Density Development* – Existing and new construction would equate to approximately 1.3 million GSF of space for DHS and a total of 4,500 seats at the location (1,780 existing seats after demolition plus 2,720 new seats). The new construction would come in the form of new buildings and a parking structure. The parking garage would be located at the southwest corner of the site (adjacent to Ward Circle) and would feature a green roof. There would be three entrances onto the site: two from Nebraska Ave and one from Massachusetts Ave. This alternative would feature 1,225 parking spaces with 1,125 outside the secure perimeter and 100 spaces inside the secure perimeter. The landscape would be composed of core design elements consistent across all alternatives, including reestablished historic courtyards, preservation of existing trees on-site, primary pedestrian access ways with ramps for ADA accessibility, and redesigned internal campus walkways with bioswales and urban design features. At the southwest corner of the site, a parking structure with a green roof would be located at Ward Circle and the parking lot would be recessed into the ground so that the vegetated roof, but not the building, is visible from Ward Circle. This would minimize the urban presence of the campus from this corner.

ES.4 Impacts

Potential direct, indirect, short-term, long-term and cumulative impacts associated with each alternative under consideration were studied in relation to a variety of resource topics. The conclusions of this analysis are summarized below by resource topic.

Land Use

- No Action Alternative: No direct or indirect impacts would occur within the site or study area.
- Alternatives A, B and C: No adverse direct or indirect impacts would occur within the study area. Beneficial, long-term impacts on land use within the NAC would result due to the consolidation of parking, increased landscape coverage, and the introduction of low impact development practices such as green roofs on buildings.

Plans and Policies

- No Action Alternative: No impacts to the policies and plans to which it currently conforms. This alternative would not conform with several initiatives in the Federal Elements of the Comprehensive Plan for the National Capital and the DC Green Agenda.
- Alternatives A, B and C: The alternatives would have no short-term or long-term adverse impacts on plans and policies.

Community Facilities

- No Action Alternative: No direct or indirect impacts would occur.
- Alternatives A, B and C: Long-term, negligible indirect impacts on community facilities and services would be generated by the demand from additional people at the NAC site.

Visual Resources

- No Action Alternative: Impacts would be negligible.
- Alternatives A, B and C: Beneficial impacts to views along Nebraska Avenue, NW, at Ward Circle, and along Massachusetts Avenue, NW would occur. There would be minor adverse impact on views from Glover-Archbold Park.

Cultural and Historic Resources

- No Action Alternative: There would be long-term minor to moderate adverse impacts to potential historic properties and cultural resources.
- Alternative A: Long-term direct adverse impacts to historic resources would be moderate due to the removal of one contributing building, with beneficial impacts from the preservation and rehabilitation of some contributing landscape features. Short and long-term impacts to historic resources within the secondary Area of Potential Effects (APE) are anticipated to be minor.
- Alternative B: Long-term direct adverse impacts to historic resources would be moderate due to the removal of one contributing building, with beneficial impacts from maintaining building and spatial relationships and from the preservation and rehabilitation of some contributing landscape features. Beneficial impacts would also occur from maintaining the historic openness of the athletic/recreational historic area under this alternative. Short and

long-term impacts to historic resources within the secondary APE are anticipated to be minor.

- Alternative C: Long-term direct adverse impacts to historic resources would be moderate due to the removal of one contributing building, with beneficial impacts from the preservation and rehabilitation of some contributing landscape features. Short and long-term impacts to historic resources within the secondary APE are anticipated to be minor.

Archaeological Resources

- No Action Alternative: Impacts would be negligible.
- Alternatives A, B and C: There is the potential for long-term minor adverse impacts to archaeological resources.

Geologic Resources

- No Action Alternative: No direct or indirect impacts would occur.
- Alternatives A, B and C: Long-term minor adverse impacts to geologic resources would occur.

Soil Resources

- No Action Alternative: No direct or indirect impacts would occur.
- Alternative A: Minor, adverse, direct, site-specific, short-term and long-term impacts on soils would occur. Beneficial impacts to soils could occur due to a decrease in impervious surfaces and additional vegetative cover.
- Alternatives B and C: Minor to moderate, adverse, direct, site-specific, short-term impacts and minor, adverse, direct, long-term site-specific impacts would occur. Beneficial impacts to soils could occur due to a decrease in impervious surfaces and additional vegetative cover.

Topographic Conditions

- No Action Alternative: No direct or indirect impacts would occur.
- Alternatives A, B and C: Minor to moderate, adverse, direct, site specific impacts on topography would occur.

Water Resources and Water Quality

- No Action Alternative: Long-term minor to moderate adverse impacts to water resources and water quality would occur due to the lack of stormwater management practices.
- Alternatives A and C: Short-term moderate adverse construction-related impacts to surface water and groundwater would occur, as well as short-term minor indirect adverse impact on wetlands in the vicinity of the NAC site due to soil erosion. Long-term, direct minor to moderate adverse impacts to water resources and long-term direct beneficial impacts to streams, groundwater, and wetlands could occur due to improved stormwater management on-site.
- Alternative B: Short-term moderate adverse construction-related impacts to surface water and groundwater would occur, as well as short-term minor indirect adverse impact on wetlands in the vicinity of the NAC site due to soil erosion. Long-term, direct minor adverse impacts to water resources and long-term direct beneficial impacts to streams, groundwater, and wetlands could occur due to improved stormwater management on-site.

Stormwater Management

- No Action Alternative: Long-term minor to moderate adverse impacts to water resources and water quality both locally and regionally would occur due to the lack of stormwater management.
- Alternatives A, B and C: Long-term, beneficial impacts on stormwater quality and quantity control on the site and within the local area and region would occur. Impervious surface cover would be reduced under each alternative through the introduction of additional open space and landscaping, the consolidation of surface parking into a parking structure, the installation of green roofs, and the use of pervious materials for pathways.

Vegetation

- No Action Alternative: Impacts would be negligible to minor due to the removal of one heritage tree.
- Alternatives A and C: Minor, short-term adverse impacts to vegetation would occur. Minor, long-term adverse impacts to vegetation would occur due to the removal of one heritage tree. The reestablishment of historic landscape features and at least a 10% increase in the tree canopy would also result in long-term, beneficial impacts.
- Alternative B: Minor, short-term adverse impacts to vegetation would occur. As no heritage trees would be removed, long-term adverse impacts to vegetation would negligible to minor. The reestablishment of historic landscape features and at least a 10% increase in the tree canopy would also result in long-term, beneficial impacts.

Hazardous Materials, Waste, and Contamination Conditions

- No Action Alternative: Impacts would be negligible.
- Alternatives A, B and C: Impacts to site contamination conditions would be negligible. Impacts due to the closure or removal of Underground Storage Tanks (UST) and Above-ground Storage Tanks (AST) would be short-term, negligible, and direct with potential long-term, indirect, beneficial impacts resulting from fewer older storage tanks in use on the site. In regard to hazardous material, short-term impacts from construction activities would be adverse, minor, and direct and long-term adverse impacts would be negligible.

Transportation

- No Action Alternative: Short- and long-term impacts on study intersections, NAC driveways, and on queues along public streets would be negligible. No impacts would occur on public transportation and parking. Impacts to pedestrian and bicycle conditions would be negligible.
- Alternatives A and B: Short- and long-term impacts on study intersections and on queues along public streets would be negligible. There would also be negligible short-term and negligible to minor long-term impacts on intersection capacity at NAC driveways; long-term beneficial impacts on public transportation; short-term, moderate adverse impacts to parking on the site due to construction; and long-term, negligible, adverse impacts on parking outside the NAC site. Impacts to bicycle and pedestrian circulation would be minor and adverse due to construction activities in the short-term and beneficial impact in the long-term.
- Alternative C: Long-term, minor adverse impact on the intersection of Ward Circle and Massachusetts Avenue (West) during the AM and PM peak hours would occur. Short- and long-term impacts to all other study intersections would be negligible. Impacts on queues along public streets would be negligible, and impacts to intersection capacity at NAC driveways would be negligible in the short-term and negligible to minor in the long-term. Short-term moderate adverse impacts due to construction would occur to parking on the site, and there would be long-term, negligible, adverse impacts on parking outside the NAC site. Short-term minor adverse impacts would occur to bicycle and pedestrian circulation due to construction. There would be long-term, beneficial impacts to public transportation and pedestrian and bicycle conditions.

Infrastructure and Utilities

- No Action Alternative: No impacts on the chilled water system, High Temperature Hot Water (HTHW) system, electrical system, water service and fire protection system, wastewater system, or natural gas system would occur.
- Alternatives A, B and C: Minor, short-term, adverse, impacts would occur during the construction and demolition of facilities while systems are re-sited. Beneficial, long-term impacts to chilled water system, HTHW system, electrical system, water service and fire protection system, and natural gas system during operation of the facility. Negligible long-term adverse impacts to wastewater system.

Air Quality

- No Action Alternative: Impacts would be negligible.
- Alternatives A, B and C: Minor adverse short-term impacts on air quality would occur. There would also be a minor long-term impact on local and regional air quality. No alternative would not cause or contribute to an exceedance of any National Ambient Air Quality Standards (NAAQS) or interfere with the attainment or maintenance of any NAAQS.

Noise

- No Action Alternative: Impacts would be negligible.
- Alternatives A, B and C: Moderate, short-term, adverse impacts would occur during the site preparation and construction phases. During the site's operation, there would be negligible, adverse long-term impacts to noise levels.

Climate Change and Sustainability

- No Action Alternative: Adverse impacts on climate change and site sustainability would occur due to inefficient buildings and lack of stormwater management techniques.
- Alternatives A, B and C: Minor adverse impact on global climate change would occur in the short-term due to construction activities and in the long-term due to greenhouse gas emissions. Long-term, beneficial impacts to sustainability would also occur through increased employment of sustainable practices and techniques.

1.0 Introduction

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1.1 WHY IS THIS DOCUMENT BEING PREPARED?

This Draft Environmental Impact Statement (EIS) has been prepared by the U.S. General Services Administration (GSA) to assess the potential impacts that would result from the implementation of the proposed Master Plan for the U.S. Department of Homeland Security (DHS) at the Nebraska Avenue Complex (NAC) in Northwest, Washington, D.C. The NAC Master Plan meets the objectives of the DHS National Capital Region (NCR) Housing Master Plan which proposes to consolidate over 28,000 DHS employees currently housed more than 40 locations into approximately 7 to 10 locations. The NAC site is one of the primary sites identified for the consolidation of certain DHS components.

The **National Environmental Policy Act** is the legislation establishing national policy for protecting and enhancing the environment. Under NEPA, federal agencies must follow established procedures for determining the potential impacts of federal actions, including federal projects.

The National Environmental Policy Act (NEPA) requires federal agencies to prepare an EIS for actions that may significantly affect the quality of the human environment [40 Code of Federal Regulations (CFR) 1502.2 (1978)]. GSA has prepared this Draft EIS to assess the impacts of implementing the proposed Master Plan on both natural and man-made environments. NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken (40 CFR 1500.1 (b)). This Draft EIS is being prepared in compliance with NEPA of 1969, as amended, the Council on Environmental Quality (CEQ) regulations implementing NEPA [40 Code of Federal Regulations (CFR) 1500-1508 (1986)], the National Historic Preservation Act (NHPA) of 1966, as amended, GSA's PBS *NEPA Desk Guide*, and GSA's *Preservation Desk Guide*.

The **National Register of Historic Places** is the nation's official list of cultural resources worthy of preservation. Properties listed in the Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture.

In addition, this Draft EIS provides information on impacts to historic resources required by Section 106 of the NHPA of 1966. Under NHPA, GSA must evaluate the action impacts to historic resources and evaluate potential effects to any district, site, building, structure, or object listed in, or eligible for listing in, the National Register of Historic Places (NRHP).

The NAC site has been determined eligible for listing in the National Register as a historic district and a draft nomination is being developed. The site is significant in the areas of education (during the period of 1916 – 1942) and military (during the period of 1943 – 1952) history. The impacts that the Master Plan would have on historic resources are described in Chapter 3: Affected Environment and Impacts to the Human Environment.

1.2 WHAT IS BEING CONSIDERED IN THIS DOCUMENT?

This Draft EIS analyzes the impacts from three action alternatives and a No Action Alternative. Potential environmental impacts are described for each of the alternatives, including short-term construction-related impacts and long-term operational impacts. Cumulative impacts resulting from the implementation of the proposed action concurrent with other existing and planned projects are also discussed. In addition, mitigation measures are suggested to address identified impacts. The study area for the assessment of impacts is generally within a quarter-mile radius of the site, however, this area may expand or contract based on the resource discipline.

Written comments on the Draft EIS may be sent to:

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Comments on the Draft EIS must be postmarked by March 1, 2010.

1.3 WHAT OTHER ENVIRONMENTAL LAWS AND REGULATIONS ARE RELEVANT TO THIS PROJECT?

In addition to NEPA and NHPA, GSA must also comply with many statutes, regulations, plans, and Executive Orders (EOs) when developing a federal property such as the NAC. GSA is incorporating compliance with these laws and regulations into their project planning and NEPA compliance. Table 1-1 lists the statutes, regulations, plans, EOs, and Presidential Memorandums relevant to this project.

Table 1-1 Statutes, Regulations, Plans, Executive Orders, and Presidential Memorandums

Statutes
National Environmental Policy Act (NEPA) of 1969
Clean Air Act (CAA) of 1970 as amended
Clean Water Act (CWA) of 1977 as amended
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980
Archaeological Resources Protection Act (ARPA) of 1979
Endangered Species Act of 1973
Section 5 of the National Capital Planning Act of 1952
Resource Conservation and Recovery Act (RCRA) of 1976
National Energy Conservation Policy Act of 1978
National Historic Preservation Act (NHPA), as amended through 2006
Noise Control Act of 1972
Archaeological and Historic Preservation Act (AHPA) of 1974
Energy Independence and Security Act of 2007
Regulations
Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508)
36 CFR Part 800 – Protection of Historic Properties

Regulations continued
32 CFR Part 229 – Protection of Archaeological Resources: Uniform Regulations
40 CFR 6, 51, and 93 – Conformity of General Federal Actions to State or Federal Implementation Plans
33 CFR 320-330 – U.S. Army Corps of Engineers Regulations
40 CFR Parts 300 through 399 – Hazardous Substance Regulations
Secretary of the Interior Standards and Guidelines for Archeology and Historic Preservation
Plans
Comprehensive Plan for the National Capital: Federal Elements, National Capital Planning Commission (2004)
Comprehensive Plan for the National Capital: District Elements, District of Columbia Office of Planning (2006)
District of Columbia Bicycle Master Plan, District of Columbia Department of Transportation (2005)
CapitalSpace Plan, National Capital Planning Commission (2010)
U.S. General Services Administration FY 2010-2015 Sustainability Plan (2010)
Department of Homeland Security Strategic Sustainability Performance Plan (2010)
Executive Orders
Executive Order 11593 – Protection and Enhancement of the Cultural Environment
Executive Order 11988 – Floodplain Management
Executive Order 11990 – Protection of Wetlands
Executive Order 12898 – Environmental Justice
Executive Order 13287 – Preserve America
Executive Order 13327 – Federal Real Property Asset Management
Executive Order 13423 – Strengthening Federal Environmental, Energy, and Transportation Management
Executive Order 13508 – Chesapeake Bay Protection and Restoration
Executive Order 13514 – Federal Leadership in Environmental, Energy, and Economic Performance
Presidential Memorandums
Disposing of Unneeded Federal Real Estate – Increasing Sales Proceeds, Cutting Operating Costs, and Improving Energy Efficiency (June 10, 2010)

1.4 WHAT IS THE NEBRASKA AVENUE COMPLEX MASTER PLAN?

The proposed NAC Master Plan provides the blueprint for development on site in order to accommodate additional DHS employees and to serve as one of the main locations for DHS consolidation. It is intended that the Master Plan would guide future renovation and development of a cohesive campus through 2020 by establishing design and land-use planning principles for the construction of new buildings, roadways, open green space, utility systems, and other infrastructure needs, while minimizing environmental, economic, and social impacts. The NAC Master Plan is needed to support the goals of the DHS NCR Master Housing Plan which proposes to consolidate approximately 28,000 DHS employees currently housed in more than 40 locations into approximately 7 to 10 locations.

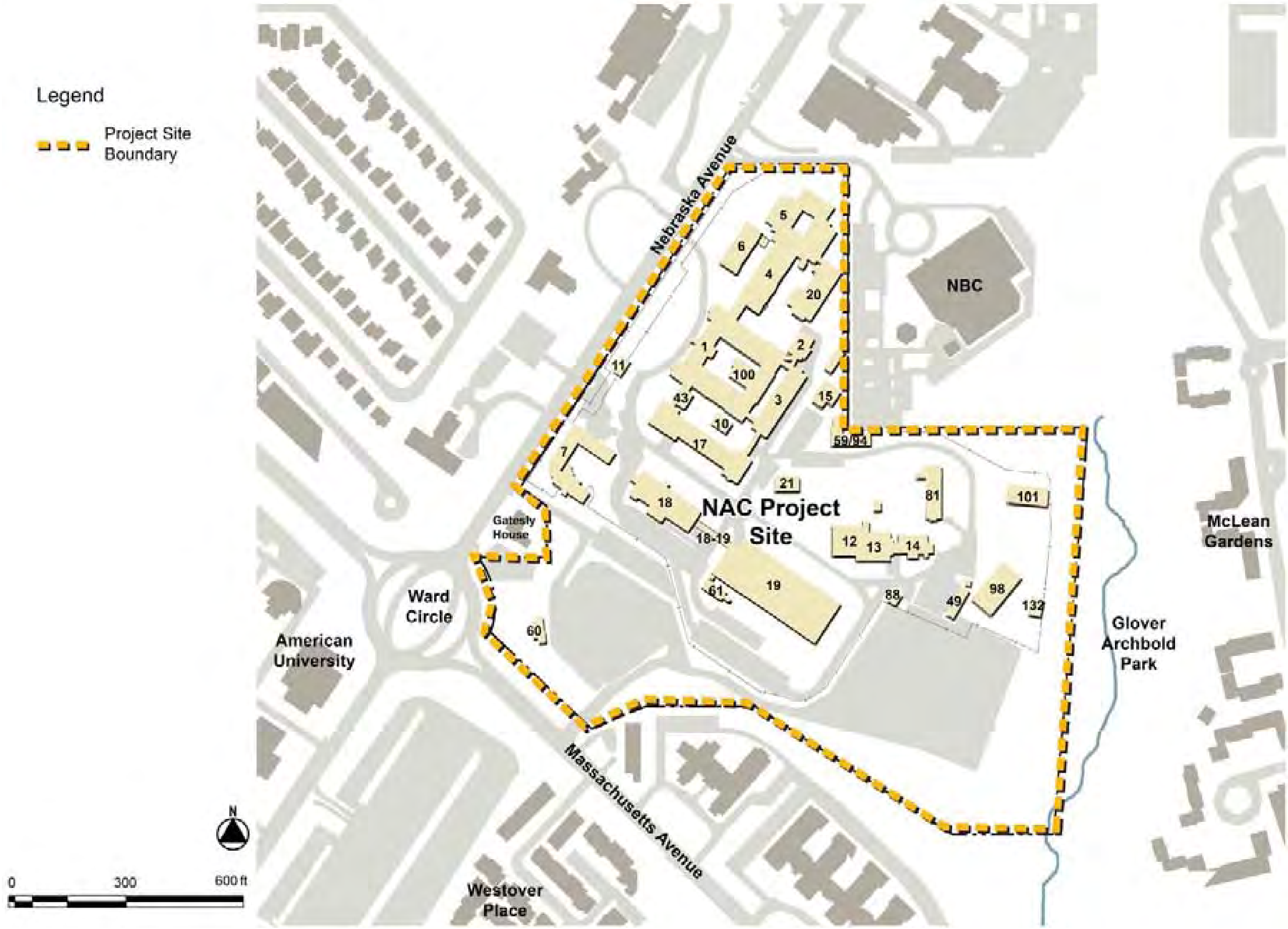
A range of alternatives with varying densities – from 3,700 to 4,500 seats at the site – are being analyzed in this Draft EIS. The current DHS population at the NAC is 2,390 seats. Each alternative includes a mixture of major building renovations, demolition and new construction, resulting in a total density from over 1.07 million GSF within the low-density alternative to approximately 1.31 million GSF within the high-density alternative. Pursuant to NEPA, a No Action Alternative is also being analyzed in this Draft EIS.

1.5 WHERE IS THE SITE LOCATED?

The NAC is a 37.39-acre site located at 3801 Nebraska Avenue, NW, Washington, D.C., within a largely residential section of northwest Washington, D.C. The campus is adjacent to Glover-Archbold Park, the Gatesly House, the Washington bureau of NBC Television, and American University (AU). The site is less than 0.75 miles from the Tenleytown-AU Metrorail Station. See Figure 1-1 and Figure 1-2 for the location of the NAC.

Figure 1-1 Location of the Nebraska Avenue Complex within Washington, D.C.

Figure 1-2 Location of the Nebraska Avenue Complex



The NAC site is owned by the U.S. government and managed by GSA. DHS is a tenant. Glover-Archbold Park is controlled by the National Park Service (NPS).

1.6 WHICH FEDERAL AGENCY IS LEADING THIS PROJECT?

GSA is a federal agency that supports the basic functions of the U.S. government and is the development manager for federal facilities. In this role, GSA acts as the landlord for federal facilities and maintains the upkeep of facilities under its purview, including facility renovation when needed. GSA is also responsible for the construction of new facilities.

Public Law (PL) 108-268, which was enacted on July 2, 2004, required the Secretary of the Navy to transfer custody and control of the NAC to GSA for the purpose of accommodating DHS. Therefore, for the NAC Master Plan, GSA is the lead agency under NEPA. GSA is developing the NAC Master Plan in order to determine how best to accommodate additional employees on site through the construction of new buildings and renovation of existing buildings.

1.7 WHO ARE THE COOPERATING AGENCIES?

GSA is developing this EIS in cooperation with DHS and the National Capital Planning Commission (NCPC). According to the Council on Environmental Quality (CEQ) regulations implementing NEPA, a cooperating agency is an agency that has relevant jurisdiction or expertise with respect to any environmental impact involved in a project (40 CFR 1508.5). DHS currently occupies the NAC site and would continue to occupy the NAC after completion of the Master Plan; DHS is a tenant of GSA. NCPC is a federal agency that has regulatory authority over federal development and develops long-range planning efforts within the District of Columbia.

> **"Cooperating agency"** means any Federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major Federal action significantly affecting the quality of the human environment. A State or local agency of similar qualifications or, when the effects are on a reservation, an Indian Tribe, may by agreement with the lead agency become a cooperating agency. (40 CFR Part 1508.5)

1.8 WHAT IS THE BACKGROUND AND HISTORY OF THE PROJECT?

The NAC site was originally developed as the Mount Vernon Seminary for Girls in the early part of the twentieth century when this part of the District of Columbia was largely rural in nature. The main school building, which is attributed to architect Wesley Sherwood Bessell, was built in 1916 in the Georgian Revival style and set the tone for much of the later development on the campus. Today this building is the primary public face of the complex. Bessell went on to design several additional buildings on the Mount Vernon Seminary's academic campus.

The U.S. Navy took ownership of this property in 1943 for the U.S. Naval Cryptanalysis operations during World War II. The first four major buildings built for the U. S. Navy were also designed by Bessell, utilizing the same design vocabulary and respecting the same campus grid established by the Mount Vernon Seminary for Girls. In 2004, the NAC was transferred to GSA for use by DHS. DHS has occupied the site and has proposed plans to maintain occupancy of the NAC as part of its long-term strategic housing plan.

1.9 WHAT IS THE PURPOSE OF AND NEED FOR THE NEBRASKA AVENUE COMPLEX MASTER PLAN?

The purpose of the proposed action is to develop a Master Plan for the NAC as a campus capable of being maintained at the appropriate security level to house DHS. It is intended that the Master Plan would guide future renovation and development of a cohesive campus by establishing design and land-use planning principles for the construction of new buildings, roadways, open green space, utility systems, and other infrastructure needs, while minimizing environmental, economic, and social impacts. The Master Plan's design and planning principles encourage the preservation and rehabilitation of the NAC's historic landscape and buildings.

The NAC Master Plan is needed to support the goals of the DHS National Capital Region Housing Master Plan which proposes to consolidate 28,000 DHS employees currently housed in more than 40 locations into approximately 7 to 10 locations. The extreme dispersion of DHS components imposes significant inefficiencies in daily operations which can be magnified at the most critical moments when the department must act as an integrated team responding to significant natural disasters or terrorist threats. In order to fulfill DHS' significant space needs, GSA continues to explore various locations for DHS facilities throughout the National Capital Region. In December 2008, GSA issued a Record of Decision for the DHS Consolidated Headquarters at St. Elizabeths West Campus in Washington, DC and an EIS is underway for the remaining DHS Headquarters Consolidation requirement at the St. Elizabeths East Campus. The St. Elizabeths facilities would accommodate 14,000 of the 28,000 DHS employees in the NCR. The NAC is identified in the DHS NCR Housing Master Plan as a facility not suitable for the permanent DHS headquarters given its physical limitations, however, the NAC can be a viable site for certain DHS components.

In order to strengthen DHS operational management capabilities, the DHS NCR Housing Master Plan suggests that DHS employees continue to be housed at the NAC – one of the few locations in Washington, DC that can achieve the Interagency Security Committee (ISC) requirements for an ISC Level V secure campus. DHS' NCR-wide consolidation efforts could result in new or additional components to be housed at the NAC; therefore, a Master Plan is needed to guide any anticipated new facility, security, or infrastructure requirements.

Further, a NAC Master Plan is needed to serve as a guide that will provide for functional flexibility in serving programmatic changes related to the evolving mission of DHS. The NAC Master Plan would steer long range campus construction, renovation, and maintenance to serve DHS mission needs. There is a need for a comprehensive plan to guide federal investment to maintain, improve or construct new campus facilities, security, and infrastructure.

1.10 HOW HAVE THE PUBLIC AND STAKEHOLDER AGENCIES BEEN INVOLVED?

Public involvement is a critical part in the NEPA process. By involving citizens, stakeholder groups, and local, state, and federal agencies, the Federal Government can make better informed decisions. Through the NEPA process, the public has had, and will continue to have, opportunities to comment on the NAC Master Plan and this EIS.

"Scoping" is a tool for identifying the range, or scope, of issues that should be addressed in the EIS; scoping provides the public with the opportunity to help define priorities and express concerns regarding the agency's proposed action. GSA and DHS initiated the public scoping process on November 3, 2009 through publication in the *Federal Register* of a Notice of Intent (NOI) to prepare an EIS. The NOI announced GSA's plans to prepare an EIS for the proposed Master Plan to guide future development of a campus for DHS at the NAC. It also announced GSA's related consultation with the District of Columbia State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) under Sections 106 and 110 of the National Historic Preservation Act (16 U.S.C. 470(f) and 470(h-2)). Letters announcing the scoping comment period and the public meeting were sent to agencies, organizations, and individuals. The comment period was open from November 3, 2009 through December 4, 2009 and comments received during this period of time were taken into consideration in the development of this Draft EIS.

During the 30-day scoping period, a public meeting was held on Tuesday, November 17, 2009 from 7 p.m. until 9 p.m. at Horace Mann Elementary School, located at 4430 Newark Street, NW, Washington, D.C. 20016. Community members were notified of the public meeting via the publication of newspaper advertisements, the distribution of flyers, and the mailing of letters. The meeting followed an informal open house format; attendees were able to visit nine topic area stations, each displaying up to five boards. Topics presented on the boards included:

1. Purpose/Need and Section 106/NEPA Process,
2. Site Overview,
3. Visual Resources/Community Assessment,
4. Historic and Cultural Resources,
5. Natural Features,
6. Land Use/Zoning,
7. Transportation,
8. Utilities and Stormwater, and
9. Preliminary Development Concept.

GSA, DHS and the consultant team representatives assisted attendees by answering questions and recording comments.

Additional consultation/coordination meetings were held with stakeholder agencies in order to help define the scope of the EIS and to solicit input during the alternatives development process. A meeting with representatives from NCPC, the District of Columbia Office of Planning (DCOP), the District Department of Transportation (DDOT) and SHPO was held on November 20, 2009. The meeting was held in order to discuss these agencies' preliminary concerns regarding the proposed Master Plan project.

Another stakeholder coordination meeting was held on December 16, 2009 at the U.S. Commission of Fine Arts (CFA) for stakeholders unable to attend the November 20, 2009 meeting. Attendees included CFA and the SHPO.

In addition to providing verbal input at the stakeholder agency meetings, NCPC, DCOP, SHPO and District of Columbia Water and Sewer Authority (D.C. Water) provided written comments.

Table 1-2 Comment Respondents during the Scoping Period

Organization	Comment Method	Number of Respondents
DCOP	Written	1
	Verbal	1
DC WASA	Written	1
Embassy of Sweden	Written	1
	Verbal	1
NCPC	Written	1
	Verbal	1
DDOT	Verbal	2
Greenbriar Condominium	Written	2
DC SHPO	Verbal	2
CFA	Verbal	2
Westover Place	Verbal	6
American University	Verbal	2
DC FEMS	Verbal	1
Individuals (no organization listed)	Verbal	2

As shown in Table 1-2, representatives from eleven organizations/agencies and two individuals commented during the scoping period. The issues raised during scoping are discussed in Section 1.11.

During the development of the Master Plan alternatives and the Transportation Management Plan in the spring and summer of 2010, additional meetings were also held with the National Park Service (NPS), American University (AU), DDOT, the Advisory Neighborhood Commission (ANC-3E01, 3E02, and 3E05), NCPC, CFA, and the SHPO.

1.11 WHAT ISSUES WERE RAISED DURING THE SCOPING PROCESS?

The following is a summary of the major issues that were identified through written comments, the public scoping meeting, and agency consultation and coordination meetings. These issues are organized by topic area and listed below.

Visual Resources

Public comments suggested that GSA/DHS should take into account views to/from local landmarks or sites such as the National Cathedral and Ward Circle.

Historic and Cultural Resources

Public comments suggested that GSA/DHS should ensure historic buildings as well as historic landscapes are respected and taken into account while developing potential campus concepts and analyzing the potential impacts in the Draft EIS.

Natural Resources

Public comments suggested that GSA/DHS should consider going above and beyond LEED Silver for sustainability certification for the project design and should address the potential impacts to air quality, hydrology, noise, water quality, vegetation/tree canopy, and wetlands in the analysis of the Draft EIS.

Land Use and Planning Policies

Public comments suggested that GSA/DHS should evaluate the NAC's context and potential impacts on adjacent neighborhoods, its incorporation of green space within the campus property, its edge treatment of the property (particularly on the border of Ward Circle), and its consistency with D.C. planning policies and goals. The NAC should also coordinate its Master Plan development with the development of the AU Master Plan, currently underway.

Transportation and Parking

Public comments suggested that GSA/DHS should commission a traffic study, consider a range of alternative transportation options to access the site, evaluate shared parking arrangements with nearby entities (such as AU), and consider pedestrian and vehicle safety improvements while developing potential campus concepts and analyzing the potential impacts in the Draft EIS.

Utilities

Public comments suggested that GSA/DHS should evaluate utilities infrastructure present on the site, their adequacy (particularly as it relates to water lines and fire suppression pressure), and their level of maintenance accessibility due to security measures, and take them into account when developing potential campus concepts and analyzing the potential impacts in the Draft EIS.

Stormwater

Public comments suggested that GSA/DHS should investigate ways to reduce stormwater runoff through the reduction of impervious surfaces and consideration of other techniques when developing potential campus concepts and analyzing the potential impacts in the Draft EIS.

Security

Public comments suggested that GSA/DHS should design campus security measures to be integrated with the potential campus concept plans in a way that beautifies the public realm, does not impede sidewalk use and does not impact the health of existing trees.

Noise

Public comments suggested that GSA/DHS should restrict noisy equipment in the early morning and Sundays and evaluate the potential impacts of noise from ongoing operations at the NAC in the Draft EIS.

Environmental Health

Public comments suggested that GSA/DHS should investigate the possibility of contaminated fill and evaluate the potential impacts of its presence on site in the Draft EIS.

1.12 WHAT RESOURCE ISSUES HAVE BEEN CONSIDERED IN THIS DOCUMENT?

The issues raised by stakeholders were taken into consideration in the development of the Draft EIS and the Master Plan. Based on a thorough review of the suggestions made during internal, agency and public meetings, the topics listed below are included in this Draft EIS:

- Section 3.3 Land Use
- Section 3.4 Plans and Policies
- Section 3.5 Community Facilities
- Section 3.6 Visual Resources

- Section 3.7 Cultural and Historic Resources
- Section 3.8 Archaeological Resources
- Section 3.9 Geologic Resources
- Section 3.10 Soil Resources
- Section 3.11 Topographic Conditions
- Section 3.12 Water Resources and Water Quality
- Section 3.13 Stormwater Management
- Section 3.14 Vegetation
- Section 3.15 Hazardous Materials, Waste, and Contamination
- Section 3.16 Transportation
- Section 3.17 Infrastructure/Utilities
- Section 3.18 Air Quality
- Section 3.19 Noise Assessment
- Section 3.20 Climate Change and Sustainability

A number of issues were considered for evaluation at the outset of the Draft EIS process but were eliminated from detailed study within this Draft EIS based on the fact that impacts would be non-existent or negligible in intensity or that the resource is not present within the study area or area of impact. The issues include economic/fiscal resources, floodplains, threatened and endangered species, wildlife, and demographics and environmental justice. The rationale for their exclusion is outlined in Section 3.2.

2.0 ALTERNATIVES

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2.1 HOW WERE THE ALTERNATIVES DEVELOPED FOR THE NEBRASKA AVENUE COMPLEX MASTER PLAN?

Public Scoping Meeting, 11/17/09.

A project team of architects, urban planners, landscape architects, architectural historians, and engineers worked together to create the alternatives for the NAC Master Plan. The project team identified and studied the existing conditions of the site and development constraints prior to developing the proposed action alternatives. Key issues included:

- Historic buildings and landscape features;
- Views into the campus from Ward Circle, Nebraska Avenue, and Massachusetts Avenue, and views from within campus towards the towers of the National Cathedral;
- Natural resources such as Glover-Archbold Park, which is managed by the NPS, and steep topography and drainage towards the eastern edge of the site;
- Transportation conditions in the vicinity of the site; and
- ISC Level V security requirements.

Planning principles to guide the development of the Master Plan alternatives were also developed through a collaborative process between GSA, DHS, and the project team in the fall of 2009. The principles were also reviewed at a public scoping meeting on November 17, 2009 and by key stakeholders including the staff of NCPC, the Commission of Fine Arts (CFA), the District of Columbia SHPO, DDOT, NPS, ANCs, and American University. Transportation issues were identified as the major concerns to be addressed on this site. Public and agency comments received during the scoping process helped shape the development of the Master Plan alternatives.

Preliminary Master Plan alternatives were also reviewed by the CFA, SHPO, and NCPC in the summer of 2010.

The Master Plan principles include:

- Development Areas – Use the historic core and site perimeter influences to define the areas that can be developed on site.
- Campus Layout – Organize the campus along a primary and secondary axis.
- Campus Environment - Provide indoor and outdoor, formal and informal meeting, social and physical fitness spaces that reinforce a sense of campus.
- Zones - Reinforce existing campus zones with new buildings and landscaping.
- Campus Edges - Define the character of the campus perimeter for consistency with adjacent developments.
- Circulation - Create a pedestrian-centered campus that minimizes walking distances and increases connectivity. Encourage multimodal travel to the site by utilizing the nearby transit services and connecting to pedestrian and bicycle access.
- Access - Minimize the number of site access points to reduce the impact on traffic. Strategically locate secure perimeter access points to promote multi-modal transportation.
- Parking - Consolidate parking in a perimeter location to create a more pedestrian-friendly campus consistent with the historic site. Design the garages to minimize visual impact and incorporate sustainable features such as landscaping.

- Security - Provide security to an ISC Level V with a 100' minimum setback from the outer boundary perimeter. A 50' setback from the existing fence would be required at the rear of the site next to Glover-Archbold Park.
- Historic Character - Rehabilitate and renovate the existing historic resources to the extent possible. In the development of new facilities on site, consideration should be given to appropriate siting and to the use of materials, scale, and proportion that would be compatible with the historic built environment.
- Views - Reinforce and maintain key view corridors around the site and provide a park-like setting to the buildings.
- Infrastructure and Utilities - Explore ways to reduce the visual impact of the infrastructure and utilities by consolidating the utilities, mechanical, and electrical infrastructure on the site.
- Stormwater Management - Provide a stormwater management strategy to address municipal and Section 438 of the Energy Independence and Security Act of 2007 (EISA) requirements in order to reduce stormwater runoff.
- Sustainability - Minimize the environmental impact through planning sustainable sites, conserving materials and resources, protecting water, increasing energy efficiency, and improving indoor environmental quality.

2.2 WHAT ALTERNATIVES ARE BEING CONSIDERED?

The NAC Master Plan Draft EIS evaluates three action alternatives and a No Action alternative. The three action alternatives differ in the placement of buildings within the NAC site, the size of buildings, the total number of seats accommodated, the number of parking spaces, and site access and circulation. The other components of the alternatives, including the treatment of historic resources, sustainability features, and security requirements, are consistent between the three action alternatives.

It is important to note that the new buildings described in the following sections, under all action alternatives, have yet to be designed. The GSA Design Excellence architect-engineer selection process would result in the selection of the design team who would be responsible for the design of buildings and the overall architectural expression of the campus; the design would adhere to the planning principles and guidelines set forth in the Master Plan, NEPA, and Section 106 processes.

2.2.1 Elements Common to the Action Alternatives

There are several features of the proposed project that are common to the three action alternatives. These elements include buildings identified for demolition, security setbacks, historic stewardship, and sustainable design.

Building Renovation and Demolition

Under all three action alternatives, Buildings 5, 7, 10, 15, 18, 19A, 21, 49, 59/94, 60, 81, 88, 98, 100, 101 and 132 would be demolished (Figure 2-1). These buildings largely represent non-historic resources identified for removal in order to achieve sufficient security setbacks, re-establish the campus' historic quads, or to make room for new facilities that can meet DHS' needs. Building 5 is considered a contributing resource to the proposed historic district. The National Register nomination is under development and ongoing consultation regarding contributing buildings is occurring. Due to the ongoing consultation and continued development of the National Register Nomination, a final determination on the status of two other buildings proposed for demolition (Buildings 15 and 18) is unresolved.

Figure 2-1 Building Demolition, *Red buildings would be demolished.*

The purpose for demolition of existing buildings at the NAC would be to eliminate miscellaneous, non-contributing buildings that do not support the historically rich fabric of the existing campus. In the northeast portion of the site, there are many small, non-contributing buildings that preclude further development because of their sprawling nature. In the historic core of the site, there are buildings that have in-filled courtyard spaces and, therefore, would be removed. Buildings 5 and 7 are proposed for demolition as they would need to be hardened, which would be cost prohibitive.

All buildings on site that would be demolished would be deconstructed. This includes the selective dismantlement of the building components, specifically for re-use, recycling, and waste management. During demolition, dust mitigation and noise mitigation measures would be used to minimize the disruption to the campus and the neighborhood.

Buildings 1, 2, 3, 4, 6, 12, 13, 14, 17, 20, 43 and 61 would remain on the NAC campus (Figure 2-2). Renovation and modernization would occur for all remaining buildings, except for Buildings 12, 13, 14, 19 and 61 as these five buildings would be renovated under the No Action Alternative.

Figure 2-2 Building Renovation, *Beige buildings would be renovated.*

The renovation of the buildings would include modernization of the buildings systems for life safety and to comply with current building codes. A whole-building renovation may include replacement of the building HVAC system, replacing electrical distribution, lighting, fire protection, plumbing, and security systems. The exterior envelope may also be renovated to better align the building with its new function. Improvements such as window replacements, exterior wall insulation, or new roofing adapt the aging structure to significantly reduce energy use.

Security Requirements

The security requirements for the NAC site would remain an ISC Level V secure campus. A 100-foot setback from the property line would be required for all buildings except the historic chapel (Building 6). Any existing buildings located within this zone would be required to be hardened. As a result, Building 20 would be hardened. The setback on the eastern portion of the site adjacent to Glover-Archbold Park would be 50 feet from the present perimeter security fence line.

Currently the perimeter security fence is mostly a double fence around the secure campus. The fence sits on or near the property line along Nebraska Avenue and on the north edge of the site. In other locations the fence is set back from the perimeter of the site to accommodate steep terrain, existing trees, and circulation around the site outside the secure area. The fences that face Massachusetts Avenue and Nebraska Avenue are decorative in nature but have been upgraded in order to be crash resistant. There are buried intrusion detection systems on the site, but no flood lights around the perimeter. It is anticipated that the security measures currently in place would remain under each alternative.

Historic Stewardship

Under all three action alternatives, one historic contributing resource (Building 5) would be demolished. Building 5 was erected by the Navy and is a flat-roofed, one story structure with a massive footprint surrounding a small interior courtyard. It is attached to Building 4. As Building 5 is one story, the return on investment was determined to be too low to bear the costs of hardening (unlike Building 20, which is a larger, more functional building). Further, the National Register nomination is under development and ongoing consultation regarding contributing buildings is occurring. Due to the ongoing consultation and continued development of the

National Register Nomination, a final determination on the status of several buildings within the proposed Historic District is unresolved.

Treatment of the site under each action alternative would recapture as much of the historic landscape as possible. The main circular drive and green space between the Chapel (Building 6) and the original main building (Building 1) would remain free of additional development in order to preserve historic views into the campus. Each action alternative would also seek to reestablish courtyards and interior green space within the campus and maintain the main axes. Finally, each action alternative would consolidate provisions for parking vehicles outside the central campus to improve the overall feel and look of the original campus concept.

Sustainable Design

Under each alternative, sustainability would be emphasized by using the highest feasible LEED ratings for new projects on the site. New construction or major rehabilitation projects would meet, at a minimum, GSA's LEED Gold requirement. The entire campus would follow directives in Executive Order 13514 *Federal Leadership in Environmental, Energy, and Economic Performance* and would implement the guiding principles from GSA's "Greening of Federal Facilities" (2001). These principles would be applied to all projects on campus and would strive to optimize energy performance, protect and conserve water, enhance indoor environmental quality, and reduce the environmental impacts of building materials.

Overall, the alternatives would incorporate sustainable design strategies, including the adaptive reuse of historic buildings, energy efficient new buildings with green roofs, use of renewable energy (where feasible), pervious pavements, the collection and reuse of water on site, enhanced indoor environmental quality, and reduced construction and demolition waste. Stormwater quantity and quality would also be controlled through ponds, gravel beds, underground detention, pocket bio-retention

Impervious Surface: a surface that cannot be penetrated by precipitation, which can lead to excessive stormwater runoff and limit the amount of stormwater that remains on site or recharges local aquifers. Common impervious surfaces include roadways, rooftops, and parking lots (*Green DC 2010*).

Pervious Surface: a soil or other material that allows the infiltration or passage of water or other liquids (*Low Impact Development Center 2003*).

or organic filters and bio-swales. Vehicular traffic on site would be minimized by limiting parking to one parking space for every four employees and the use of shuttle buses. Bicycle racks, bicycle lanes, and shower facilities would also be included in the campus to encourage alternate modes of transportation to the site.

Whole Building Design Guide, Design Excellence, and the Secretary of the Interior's Standards for the Treatment of Historic Properties

The three action alternatives would follow the Whole Building Design Guide (WBDG) and GSA's Design Excellence Program. Historic resources that would be retained would also be subject to the Secretary of the Interior's Standards for the Treatment of Historic Properties. Each of these programs is described in more detail below:

- WBDG is a protocol employed by several federal agencies, including GSA, and was developed by the National Institute of Building Sciences to promote a comprehensive approach to developing federal property. The comprehensive approach provides guidance throughout the entire lifecycle of a building including Design Guidance, Project Management, and Operations and Maintenance. In this respect, the Whole Building Design seeks to maximize the efficiency and performance of the building by taking an integrated design approach. The integrated design approach considers the ultimate project goals and coordinates design objectives, such as accessibility, sustainability, and aesthetics, to maximize performance and meet the project's goals. To achieve integrated design, an integrated team process is essential because it brings all of the technical professionals, such as architects, engineers and planners, together with the building's stakeholders instead of keeping team members isolated from each other.

- GSA's Design Excellence Program was initiated within its Public Buildings Service (PBS) to ensure that federal architecture is of the highest quality. PBS applies this process to all new construction, modernization, preservation, and renovation projects. PBS defines Design Excellence as:

    - Providing best value to our customer agencies and the American taxpayer.
    - Developing safe, productive, and attractive workplaces.
    - Operating efficiently and effectively – keeping projects on time and budget.
    - Ensuring that projects respond positively to national urban and environmental policies.
    - Selecting America's best designers and artists to create facilities that ultimately become respected landmarks.

  To accomplish Design Excellence, the Program outlines the various phases associated with the construction process such as site selection, and soliciting and evaluating an Architectural/Engineering Team. Use of private sector consultants to provide a high level of expertise in fields like architecture, historic preservation and urban design is one of the Program's key components. This aspect of the program is important because it exemplifies a holistic approach to development that draws on several areas of professional services to create the best project possible. Since the program's start in 1994, many newly constructed federal buildings have reflected GSA's commitment to delivering exceptional projects that service as models for emulation.

- The Secretary of the Interior's Standards for the Treatment of Historic Properties provide guidance on how to protect and preserve historic resources while allowing for them to be reused and restored. Four treatments are outlined ranging in degrees of preservation and each with its own distinct standards. The first treatment is preservation, which seeks to retain all of a structure's historic fabric through conservation, maintenance and repair. The second treatment is rehabilitation which allows for the reconstruction and repair of historic properties. The third is restoration which attempts to bring a historic property back to its most significant time period. Finally, reconstruction allows for re-creation of a non-surviving resource.

  The Standards also offer guidance on which treatment to choose for a given historic property. Each historic property should be assessed on its relative importance in history, physical condition, proposed use, and mandated code requirements to prior to choosing a treatment standard.

2.2.2 Alternative A: Low Density Development

Alternative A includes a mixture of major building renovations, demolition and new construction on the NAC site. Existing buildings (505,450 GSF) and new construction (567,270 GSF) would comprise approximately 1.1 million GSF of space for DHS and a total of 3,700 seats at the location (1,780 existing seats plus 1,920 new seats). Approximately 37% of the NAC site would be covered by impervious surfaces, a decrease of 18% from current conditions. The new construction would include five buildings and a parking structure. The location and appearance of this parking structure, as well as density and number of seats, are the main differentiating features between this alternative and the others. The new construction within Alternative A is described in further detail below and is shown in Figure 2-3:

- Building A – approximately 164,940 GSF
- Building B – approximately 56,270 GSF
- Building C – approximately 93,465 GSF
- Building D – approximately 159,470 GSF
- Building E – approximately 93,125 GSF
- Parking Structure – a new five-story architectural parking deck would be constructed in the southwest corner of the NAC site where it abuts Ward Circle. As an architectural parking structure, this structure's function would be largely masked by its designed façade, creating an urban presence on Ward Circle. It would replace what currently is a surface parking lot, surrounded by dense trees and brush. The majority of campus parking would be consolidated in this structure; it would accommodate 925 vehicles.

Architectural: designed with consideration for aesthetic effect.

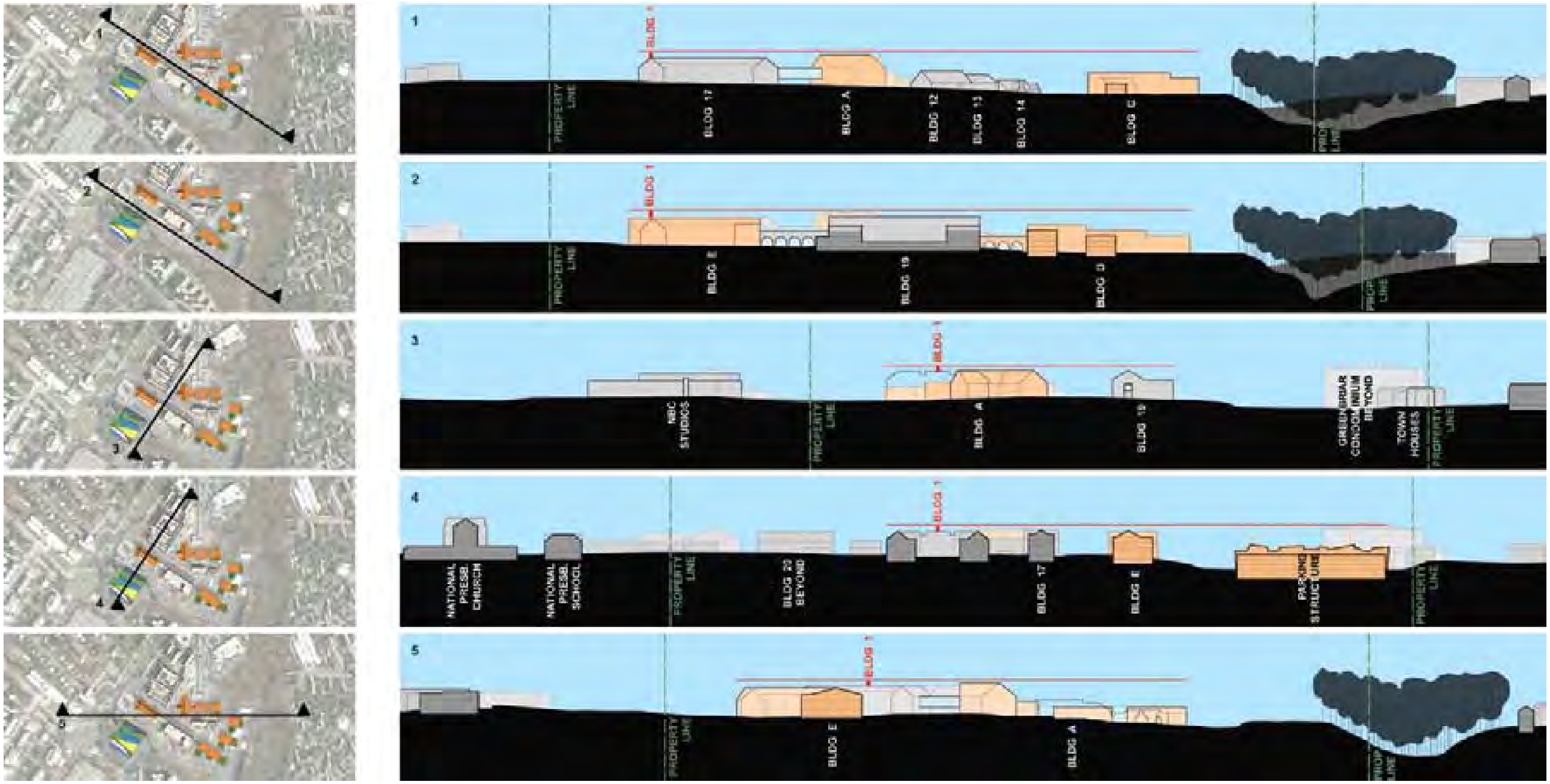
As the buildings and structures of the Master Plan have yet to be designed, the term "architectural" indicates that the final design of the parking structure should have a visually appealing façade that hides its function (storing parked cars).

Figure 2-3 Three Dimensional Perspective of the NAC Master Plan, Alternative A

In this alternative, the existing building mass on campus would continue to be concentrated along the north half of the site and set back from the road. New massing would be added to the northeast and east portion of the site. The new building at the center of campus (Building A) would create a buffer to the adjacent NBC property and would relate in scale and height to the adjacent existing historic buildings. A new building massing (Buildings E and D) at the east end of the main campus axis would reinforce the axis and relate the mass of Building 19 to Glover-Archbold Park. The new buildings on the northeast corner of the site would fan out to the adjacent park and step down to the east to create a transition to the parkland. As the buildings under all of the action alternatives have yet to be designed, building heights have not been determined; however, no building would be higher than Building 1 as seen from Nebraska Avenue (Figure 2-4).

The majority of buildings on campus would be used for general office use. However, this alternative, as with Alternatives B and C, would also include a cafeteria and food service spaces, conference and training spaces, employee services (such as a branch bank and ATM and a health center), and a childcare facility.

Figure 2-4 Alternative A Site Cross Sections



Access & Circulation

As shown in Figure 2-5, there would be three driveways to enter and exit the site:

- Nebraska Avenue (north) – This entry and exit point would be located between Building 17 and E and would be for pedestrians, bicycles, and VIP/Emergency vehicles. This would be both an entry to the site and an entry into the secure perimeter. This entry would be marked by a gate house, a guard booth, turnstiles and vehicle barriers. Bicyclists would need to walk their bicycle within the pedestrian spine of the site after entering the secure perimeter.
- Nebraska Avenue (south) – This entry and exit point would be located south of Building E, near the parking structure. It would serve pedestrians, bicyclists, and vehicular traffic and would be marked by a guard booth.
- Massachusetts Avenue – This entry and exit would have a guard booth set back significantly from Massachusetts Avenue and would be for vehicular, truck, bicycle, and pedestrian traffic.

Figure 2-5 Site Access, Alternative A

In addition to the entry point through the secure perimeter directly off of Nebraska Avenue, there would be two additional entry points into the secure site. One entry to the secure site would be between Buildings E and 19 for pedestrians who arrive at the site on foot, by shuttle, or by driving a personal vehicle or cycling and parking in the parking structure. This entry would be marked by turnstiles and a guard booth. Another entry to the secure site would be on the east side of campus between Buildings D and 19. This would be a vehicular entrance that provides screening of vehicles, trucks, and bicycles entering the secure perimeter through a Vehicle Screening Building. Pedestrians would be excluded from this entry to the secure perimeter due to operational considerations related to site security, access considerations (topography and proximity to public sidewalks), and safety considerations. Bicycle lanes would be provided on all roads within the NAC site, where practical.

The following summarizes access to the site by user group:

- Access to the site as an employee: Enter site and secure perimeter from Nebraska Avenue as a pedestrian or bicyclist; enter site in a vehicle or bicycle from Nebraska Avenue or Massachusetts Avenue and enter secure perimeter on foot between Buildings E and 19; enter the site from Nebraska Avenue via shuttle and enter secure perimeter on foot between Buildings E and 19.

- Access to the site as a visitor: Enter site from Massachusetts Avenue or Nebraska Avenue in a vehicle or by bicycle and enter secure perimeter on foot between Buildings E and 19; enter site and secure perimeter from Nebraska Avenue as a pedestrian or bicyclist.

- Vehicular access to the secure perimeter: Enter site from Nebraska Avenue or Massachusetts Avenue and enter the secure campus area by car or bicycle at the vehicle screening area between Buildings 19 and Building D.

Campus Parking

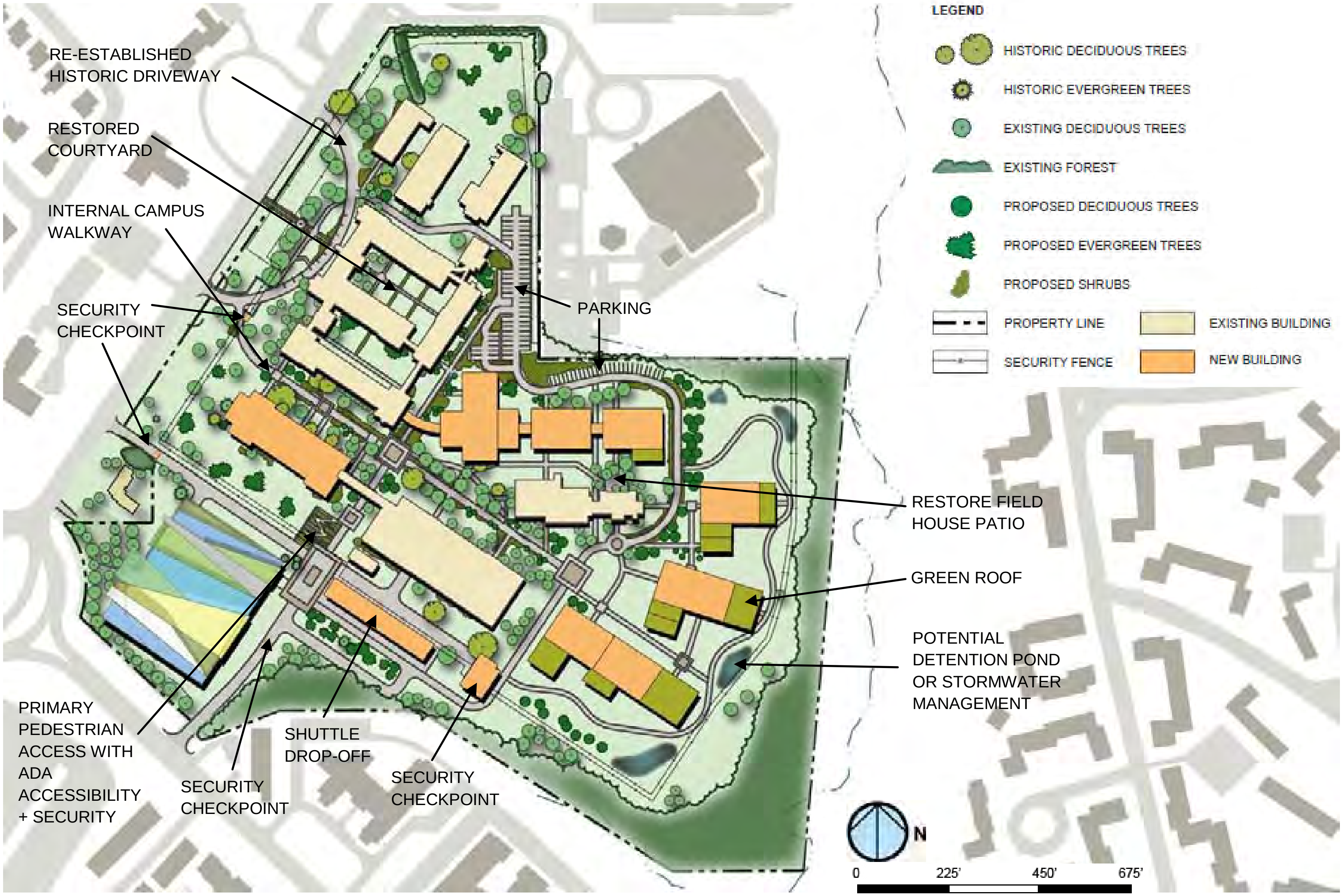
Under Alternative A, the NAC campus would include 1,025 parking spaces, with 925 spaces provided within the parking garage outside the secure perimeter and 100 spaces located inside the secure fence, primarily adjacent to the NBC property on the northeast edge of the site. It would utilize a 1:4 ratio for regular DHS employees (one parking space for every four employees, employee parking would equal 925 spaces). The 100 spaces included outside the 1:4 ratio would include 80 parking spaces for security (24/7 employees) and 20 authorized visitor parking spaces; these spaces would primarily be located outside the secure fence. It should be noted under all action alternatives that the 100 spaces inside the perimeter fence may be part of the 1:4 ratio or the 100 additional spaces. For instance, the visitor spaces would naturally be outside the perimeter fence while security spaces may be a combination of inside and outside the security fence. A limited number of visitors would be anticipated at the NAC under each alternative due to the nature of DHS' activities on-site.

Bicycle parking would be provided near the Nebraska Avenue entrance and within the parking garage outside the secure perimeter and within the secure perimeter near Buildings 12, 13, and 14.

Landscape Concept

As shown in Figure 2-6, the landscape concept for Alternative A would consist of core design elements consistent across all alternatives, including reestablished historic courtyards, preservation of existing trees on site, primary pedestrian access ways with ramps for ADA accessibility, and redesigned internal campus walkways with bioswales and urban design features. However, at the southwest corner of the site, a designed landscape, using native trees and vegetation, would surround the parking garage, complementing the design of the new structure. The existing trees and brush at Ward Circle would be cleared, allowing the parking structure and landscape to be visible to the passerby. Furthermore, the primary pedestrian spine of the campus, which runs perpendicular to Nebraska Avenue, would terminate its main view corridor at the dense forest of Glover-Archbold Park

Figure 2-6 Landscape Concept, Alternative A



2.2.3 Alternative B: Mid-Density Development

Alternative B includes a mixture of major building renovations, demolition, and new construction on the NAC site. Existing buildings (505,450 GSF) and new construction (715,000 GSF) would total approximately 1.2 million GSF of space for DHS and a total of 4,200 seats (1,780 existing seats plus 2,420 new seats). Approximately 38% of the NAC site would be covered by impervious surfaces, a decrease of 17% from current conditions. The location of Building F on Ward Circle is one of the main differentiating features between this alternative and the others. New construction under Alternative B is described in further detail below (Figure 2-7).

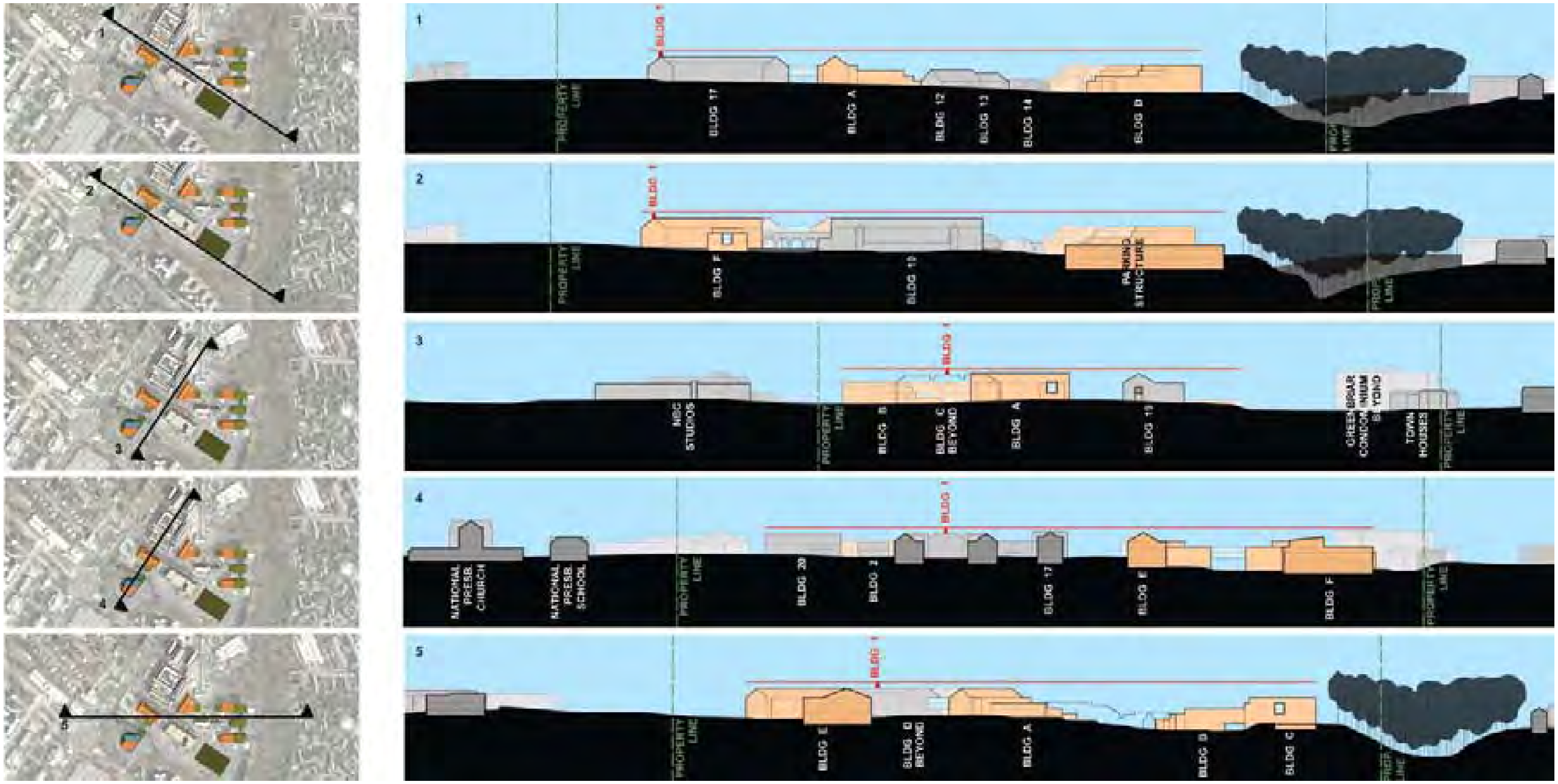
- Building A – approximately 109,300 GSF
- Building B – approximately 139,380 GSF
- Building C – approximately 87,395 GSF
- Building D – approximately 104,885 GSF
- Building E – approximately 112,190 GSF
- Building F – This building would be approximately 161,850 GSF and is intended to be architecturally and stylistically differentiated, giving the campus a distinctive presence and improving the urban character at Ward Circle. This building would also feature a connection to Building E.
- Parking Structure – a new five-story parking deck with a green roof would be constructed in the southeast corner of the site, replacing what currently is a surface parking lot. The majority of campus parking would be consolidated in this structure; it would accommodate 1,050 vehicles.

Figure 2-7 Three Dimensional Perspective of the NAC Master Plan, Alternative B

In this alternative, the existing building mass on campus would continue to be concentrated along the north half of the site and set back from the road. The new building at the center of campus (Building A) would create a buffer to the adjacent NBC property and would relate in scale and height to the adjacent existing historic buildings. New buildings B, C, and D would step up in height as they approach the park in order to avoid heavy massing near the historic buildings (Buildings 12, 13, and 14). The parking structure and Building E along the main campus axis would reinforce this axis and relate the mass of Building 19 to Glover-Archbold Park. As previously discussed, Building F would create an urban presence on Ward Circle. As the buildings have yet to be designed, building heights have not been determined; however, no building under any of the action alternatives would be higher than Building 1 as seen from Nebraska Avenue (Figure 2-8).

The majority of buildings on campus would be used for general office use. However, this alternative, as with Alternatives A and C, would also include a cafeteria and food service spaces, conference and training spaces, employee services (such as a branch bank and ATM and a health center), and a childcare facility.

Figure 2-8 Alternative B Site Cross Sections



Access & Circulation

As shown in Figure 2-9, there would be three driveways for the site under Alternative B:

- Nebraska Avenue (north; entrance only for non-VIP and emergency vehicles) – This entrance from Nebraska Avenue would divide into two separate entrances in order to enter the secure perimeter. The northern entry would be for pedestrians, bicyclists, and VIP/Emergency vehicles and would be marked by turnstiles and vehicle barriers. Bicyclists would need to walk their bicycle within the pedestrian spine of the site after entering the secure perimeter. The southern entry drive would run parallel to Nebraska Avenue and would be restricted to vehicular traffic and shuttle buses. There would be a small vehicle screening bay, vehicle barriers and guard booth at this location to screen vehicles, provide an entry point into the secure fence, and permit vehicles to travel under the potential bridge between Buildings E and F.
- Nebraska Avenue (south; exit only) – This driveway would only be used as a vehicle exit and would occur between Buildings E and F, directly north of the Gatesly House. Due to the need to travel under Building F to exit the site from this point, this exit would be secure, meaning vehicles exiting from this point would need to undergo screening.
- Massachusetts Avenue – This vehicular, bicyclist, and pedestrian entry and exit point would be marked by a guard booth significantly set back from the road.

Figure 2-9 Site Access, Alternative B

In order to access the secure perimeter, there would be an entry point between Buildings E and 19. This entry point would be for pedestrians only. The third secure perimeter entry point would be between Buildings D and 19. This entry point would for secure vehicles, bicyclists, pedestrians and trucks. This entry would be marked by a vehicle screening building, vehicle barriers and turnstiles. Bicycle lanes would be provided on all roads within the NAC site, where practical.

The following summarizes access to the site by user group:

- Access to the site as an employee: Enter site and secure perimeter from Nebraska Avenue as a pedestrian; enter site in a vehicle from Nebraska Avenue or Massachusetts Avenue and enter secure perimeter on foot between Buildings E and 19; enter the site from Nebraska Avenue via shuttle and enter secure perimeter on foot between Buildings E and 19.

- Access to the site as a visitor: Enter site from Massachusetts Avenue or Nebraska Avenue in a vehicle and enter secure perimeter on foot between Buildings E and 19; enter site and secure perimeter from Nebraska Avenue as a pedestrian.

- Vehicular access to secure perimeter: Enter site from Nebraska Avenue or Massachusetts Avenue and enter the secure campus area by car at the vehicle screening area between Buildings D and 19.

Campus Parking

The NAC campus would include 1,150 parking spaces, with 1,050 located outside the secure perimeter and 100 spaces located inside the secure fence, primarily adjacent to the NBC property on the northeast edge of the site. It would utilize a 1:4 ratio for regular DHS employees (one parking space for every four employees). The 100 spaces included outside the 1:4 ratio would include 80 parking spaces for security (24/7 employees) and 20 authorized visitor parking spaces; these spaces would primarily be located outside the secure fence. As previously stated, a limited number of visitors would be anticipated at the NAC under each alternative due to the nature of DHS' activities on-site.

Bicycle parking would also be provided near the Nebraska Avenue entrance and within the parking garage.

Landscape Concept

As shown in Figure 2-10, the landscape concept for Alternative B would consist of core design elements consistent across all alternatives, including reestablished historic courtyards, preservation of existing trees on site, primary pedestrian access ways with ramps for ADA accessibility, and redesigned internal campus walkways with bioswales and urban design features. At the southwest corner of the site, the landscape design, using native trees and vegetation, would complement the design of the new building near Ward Circle. Due to security requirements of DHS, the edge of the site would be demarcated by a secure fence. However, the existing trees and brush at Ward Circle would be cleared, allowing the building and complementary landscape to be visible to the passerby through the secure perimeter. This alternative would also allow for significant open space between Buildings A and B and across from Buildings 12, 13, and 14. Historically, this area has contained terraced sport courts. While sports courts are no longer appropriate for the project site, open space in this location would be compatible with the historic appearance of the campus.

Figure 2-10 Landscape Concept, Alternative B

2.2.4 Alternative C: High Density Development

Alternative C includes of a mixture of major building renovations, demolition and new construction on the NAC site. Existing (505,450 GSF) and new (803,640 GSF) construction would total approximately 1.3 million GSF of space for DHS and a total of 4,500 seats (1,780 existing seats plus 2,720 new seats). Approximately 37% of the NAC site would be covered by impervious surfaces, a decrease of 18% from current conditions. The new construction would include Buildings A, B, C, D, and a parking structure. As a unique feature of this alternative, the parking garage would be located at the southwest corner of the site (adjacent to Ward Circle) and would feature a green roof. New construction under Alternative C is described in further detail below and is shown in Figure 2-11.

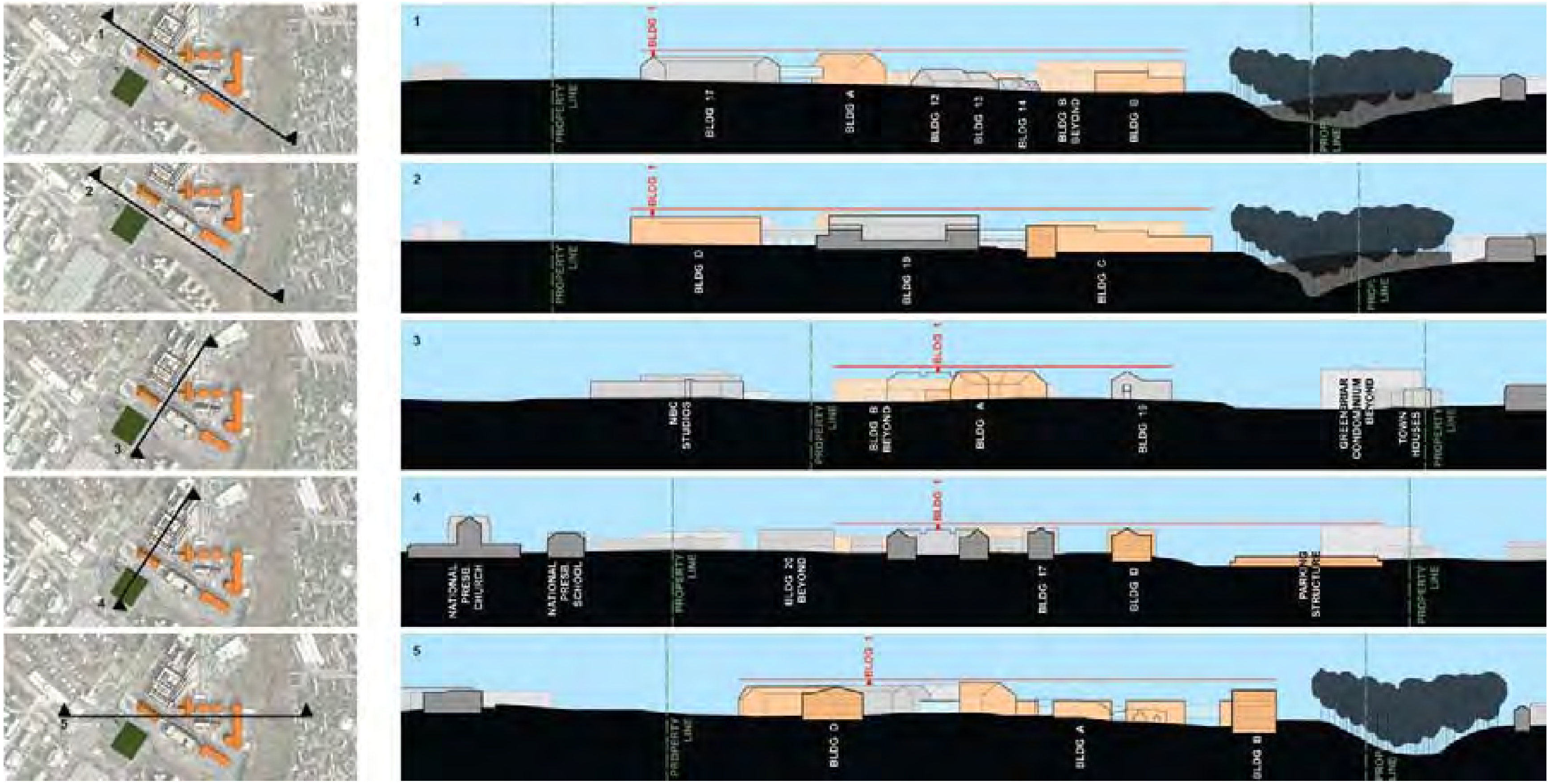
- Building A – approximately 181,270 GSF
- Building B – approximately 382,970 GSF
- Building C – approximately 152,950 GSF
- Building D – approximately 91,450 GSF
- Parking Structure - a new five-story parking deck with a green roof would be constructed in the southwest corner of the NAC site on the corner that abuts Ward Circle. It would replace what currently is a surface parking lot, surrounded by dense trees and brush. The majority of campus parking would be consolidated in this structure; it would accommodate 1,125 vehicles.

Figure 2-11 Three Dimensional Perspective of the NAC Master Plan, Alternative C

In this alternative, the existing building mass on campus would continue to be concentrated along the north half of the site and set back from the road. The new building at the center of campus (Building A) would create a buffer to the adjacent NBC property. Building B, located along the east edge of the site, would be significantly larger in massing than the buildings in similar locations within the other action alternatives. A new building massing (Buildings C and D) along the main campus axis would reinforce this axis and relate the mass of Building 19 to Glover-Archbold Park. Building C would step down to the southeast to create a transition to the parkland. As the buildings have yet to be designed, building heights have not been determined; however, no building under any of the action alternatives would be higher than Building 1 as seen from Nebraska Avenue (Figure 2-13).

The majority of buildings on campus would be used for general office use. However, similar to the other action alternatives, the campus under Alternative C would also include a cafeteria and food service spaces, conference and training spaces, employee services (such as a branch bank and ATM and a health center), and a childcare facility.

Figure 2-12 Alternative C Site Cross Sections



Access & Circulation

- Under this alternative, there would be three entrances into and exits from the site (Figure 2-13):
- Nebraska Avenue (north) – This entry and exit point would be located between Buildings 17 and D and would be for pedestrians, bicycles, and VIP/Emergency vehicles. This would be both an entry to the site and an entry into the secure perimeter, and the entry would be marked by a gate house, a guard booth, turnstiles and vehicle barriers. Bicyclists would need to walk their bicycle within the pedestrian spine of the site after entering the secure perimeter.
- Nebraska Avenue (south) – This entry and exit point would be located south of Building D, near the parking structure. It would serve pedestrians, bicyclists, and vehicular traffic and would be marked by a guard booth.
- Massachusetts Avenue – This entry and exit would have a guard booth set back significantly from Massachusetts Avenue and would be for vehicular, truck, bicycle, and pedestrian traffic.

Figure 2-13 Site Access, Alternative C

In addition to the entry point through the secure perimeter directly off of Nebraska Avenue, there would be two additional entry points into the secure site. One entry to the secure site would be between Buildings D and 19 for pedestrians arriving to the site either by shuttle, bicycle, walking, or by personal vehicle and parking in the parking structure. This entry would marked by turnstiles and a guard booth. Another entry to the secure site would be on the east side of campus between Building 19 and C. This would be a vehicular or bicycle entrance that provides screening of vehicles and trucks entering the secure perimeter through a Vehicle Screening Building. Pedestrians would be excluded from this entry to the secure perimeter due to operational considerations related to site security, access considerations (topography and proximity to public sidewalks), and safety considerations. Bicycle lanes would be provided on all roads within the NAC site, where practical.

The following summarizes access to the site by user group:

- Access to the site as an employee: Enter the site and secure perimeter from Nebraska Avenue as a pedestrian or bicyclist; enter the site in a vehicle or bicycle from Nebraska Avenue or Massachusetts Avenue and enter secure perimeter by foot between Buildings D and 19; enter the site from Nebraska Avenue via shuttle and enter secure perimeter by foot between Buildings D and 19.

- Access to the site as a visitor: Enter site from Massachusetts Avenue or Nebraska Avenue in a vehicle or bicycle and enter secure perimeter on foot between Buildings D and 19; enter site and secure perimeter from Nebraska Avenue as a pedestrian or bicyclist.

- Vehicular access to secure perimeter: Enter site from Nebraska Avenue or Massachusetts Avenue and enter the secure campus area by car or bicycle at the vehicle screening area between Buildings 19 and C.

Campus Parking

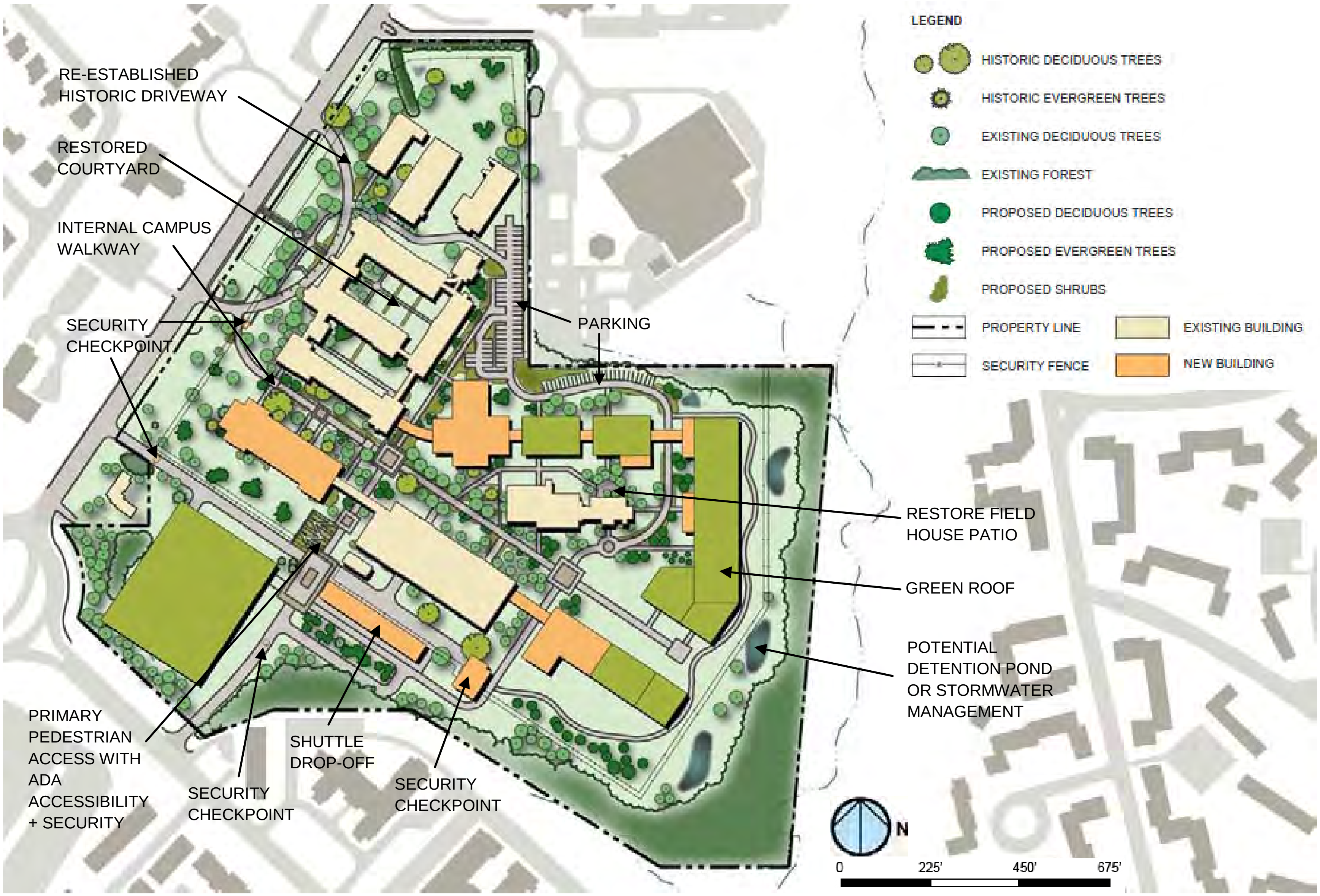
The NAC campus would include 1,225 parking spaces, with 1,125 located outside the secure perimeter and 100 spaces located inside the secure fence, primarily adjacent to the NBC property on the northeast edge of the site. It would utilize a 1:4 ratio for regular DHS employees. The 100 spaces included outside the 1:4 ratio would include 80 parking spaces for security (24/7 employees) and 20 authorized visitor parking spaces; these spaces would primarily be located outside the secure fence. As with the other action alternatives, a limited number of visitors would be anticipated at the NAC under each alternative due to the nature of DHS' activities on-site.

Bicycle parking would be provided near the Nebraska Avenue entrance and within the parking garage outside the secure perimeter and within the secure perimeter near Buildings 12, 13, and 14.

Landscape Concepts

As shown in Figure 2-14, the landscape concept for Alternative C would consist of core design elements consistent across all alternatives, including reestablished historic courtyards, preservation of existing trees on site, primary pedestrian access ways with ramps for ADA accessibility, and redesigned internal campus walkways with bioswales and urban design features. At the southwest corner of the site, a parking structure with a green roof would be located at Ward Circle; the parking lot would be partially recessed into the ground so that the vegetated roof, but not the building, would be visible from Ward Circle. Furthermore, the existing trees and brush at Ward Circle would be thinned, allowing the green roof to show through. The area around the garage would also be lightly landscaped using native trees and vegetation. In contrast with the other alternatives, this would minimize the urban presence of the campus from this corner. Finally, the primary pedestrian spine of the campus, which runs perpendicular to Nebraska Avenue, would terminate its main view corridor at the dense forest of Glover-Archbold Park.

Figure 2-14 Landscape Concept, Alternative C



2.2.5 No Action Alternative

According to CEQ regulations, specifically Section 1502.14(d), alternatives analysis in the Draft EIS "include the alternative of no action." This alternative is defined by CEQ as one that considers the environmental consequences of not undertaking the proposed action. Including the No Action alternative conditions in an EIS provides decision makers the opportunity to understand the environmental consequences of continuing to operate a facility under the existing conditions and management programs. These consequences can then be compared against those of the action alternatives.

In this particular case, the No Action alternative would result in the NAC project site continuing to operate in the existing facilities following current management protocol. However, the campus would continue to change as piecemeal maintenance and operational changes are made. DHS would continue to seek a permanent location for the additional employees, as part of facility consolidation, that are not currently accommodated at the NAC. Since the new Master Plan would not be implemented under the No Action alternative, this alternative would not meet the purpose and need of the Proposed Action.

As shown in Figure 2-15, most of the buildings on the campus are concentrated along the northern side of the site (the portion closer to Nebraska Avenue) and are set back from the road. The main campus axis runs perpendicular to Nebraska Avenue through the middle of the site. The northeastern area of the site contains low scattered buildings. Their massing is further diminished by a decrease in grade on the east side of the site. The southeast and southwest areas of the site do not contain buildings; the predominant use in these areas is surface parking lots.

Figure 2-15 Three Dimensional Perspective of Existing Site, No Action Alternative

One of the largest building masses on campus is Building 19. The highest element on campus is the cupola of Building 1. Buildings 12, 13, 14, 19 and 61 have undergone or would undergo renovation as per current management strategies for the NAC. The total amount of floor space contained within the buildings on campus is approximately 653,400 GSF, which accommodates a total of 2,390 seats. Approximately 55 percent of the site is impervious, meaning it is developed with buildings, parking, and other paved surfaces.

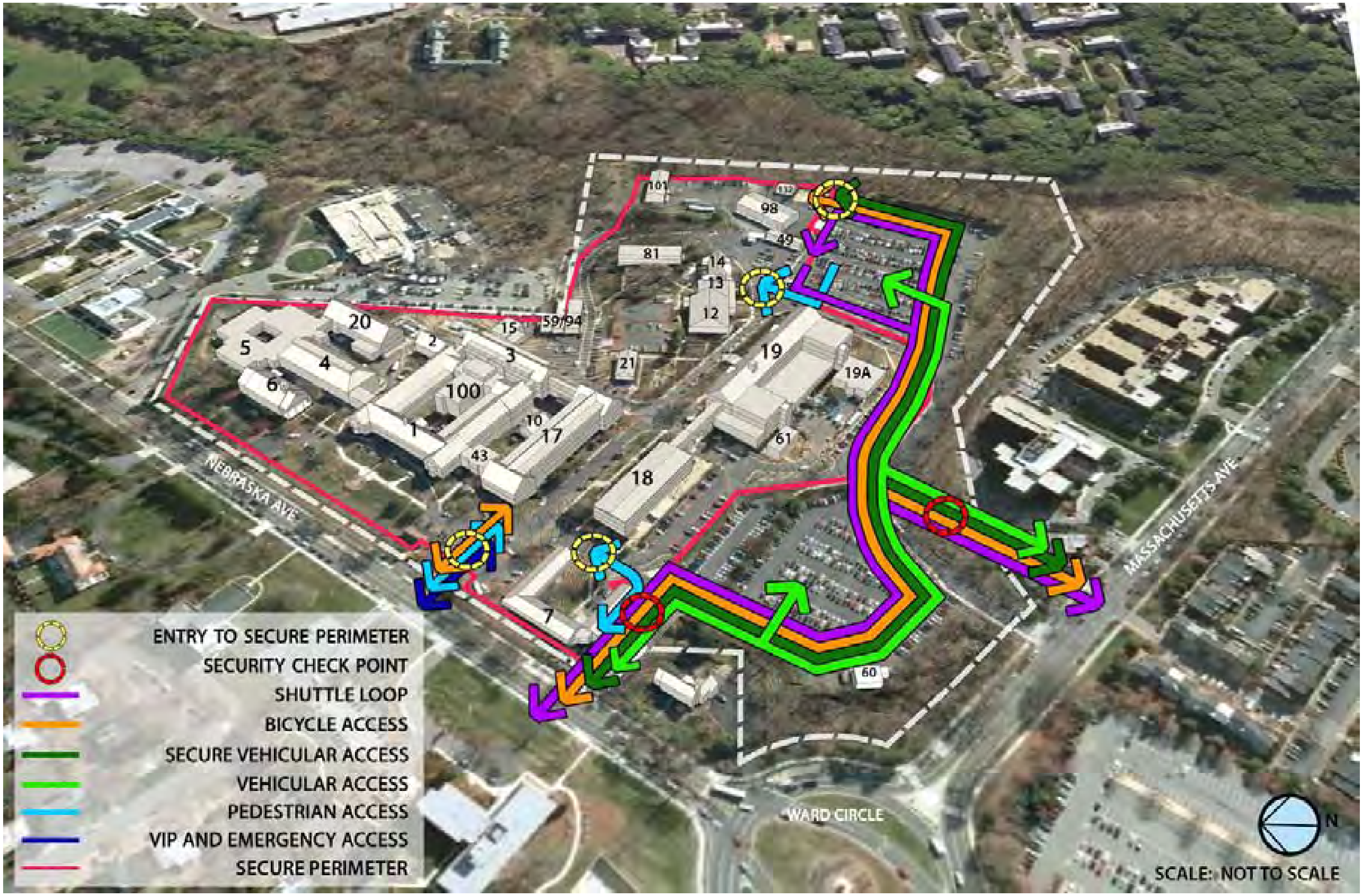
Access & Circulation

Under the No Action Alternative, there are currently three entrances into and exits from the site (Figure 2-16):

- Nebraska Avenue (north) – This entry and exit point is located north of Building 7 and is for pedestrians, bicycles, and VIP/Emergency vehicles. This is both an entry to the site and an entry into the secure perimeter, and the entry is marked by a gate house, a guard booth, turnstiles and vehicle barriers.
- Nebraska Avenue (south) – The second entry and exit point is located south of Building 7. This driveway serves pedestrians, bicyclists, and vehicular traffic (including the shuttles).
- Massachusetts Avenue – This entry and exit is for vehicular, shuttle, truck, and bicycle traffic.

In addition to the entry point through the secure perimeter directly off of Nebraska Avenue, there are additional entry points into the secure site. One pedestrian entry to the secure site is between Buildings 7 and 18, and an additional two entries occur on the east side of campus near Building 19 for pedestrians and near Building 98 for bicycles and vehicles.

Figure 2-16 Site Access, No Action Alternative



2.2.6 Summary of Master Plan Alternatives

Table 2-1 Comparison of Master Plan Alternatives

Characteristic	No Action Alternative	Alternative A	Alternative B	Alternative C
Number of New Buildings	-	5	6	4
Number of Parking Spaces	1,239	1,025	1,150	1,225
Inside Secure Perimeter	*450*	*100*	*100*	*100*
Outside Secure Perimeter	*789*	*925*	*1,050*	*1,125*
Gross Square Footage	653,400	1,072,720	1,220,450	1,309,090
Existing Buildings	*653,400*	*505,450*	*505,450*	*505,450*
New Buildings	-	*567,270*	*715,000*	*803,640*
Number of Seats	2,390	3,700	4,200	4,500

Table 2-1 provides a summary of the numerical characteristics of the alternatives. As previously discussed, Alternative C is the highest density (regarding both gross square footage and number of seats) alternative followed by Alternative B and then Alternative A. All three action alternatives preserve approximately 505,450 GSF of existing building space.

Table 2-2 provides a summary of the impacts of each alternative by resource topic. Impacts are discussed further in Chapter 3.

Table 2-2 Summary of Impacts

Resource Topic	No Action Alternative	Alternative A	Alternative B	Alternative C
Land Use	No impacts to land use within the site or study area.	No impacts to land use within the site or study area. Beneficial, long-term impacts on land use within the NAC due to consolidation of parking, increased landscape coverage, and the introduction of low impact development practices.	No impacts to land use within the site or study area. Beneficial, long-term impacts on land use within the NAC due to consolidation of parking, increased landscape coverage, and the introduction of low impact development practices.	No impacts to land use within the site or study area. Beneficial, long-term impacts on land use within the NAC due to consolidation of parking, increased landscape coverage, and the introduction of low impact development practices.
Plans and Policies	No impacts to the policies and plans to which it currently conforms. Would not conform with several initiatives in the Federal Elements of the Comprehensive Plan for the National Capital and the DC Green Agenda.	No adverse impacts on plans and policies.	No adverse impacts on plans and policies.	No adverse impacts on plans and policies.
Community Facilities	No impacts on community facilities.	Negligible, indirect, long-term impact on the local community services and facilities.	Negligible, indirect, long-term impact on the local community services and facilities.	Negligible, indirect, long-term impact on the local community services and facilities.

Resource Topic	No Action Alternative	Alternative A	Alternative B	Alternative C
Visual Resources	Negligible impacts to visual resources.	Beneficial impacts to views along Nebraska Avenue, NW, at Ward Circle, and along Massachusetts Avenue, NW. Minor adverse impact on views from Glover-Archbold Park.	Beneficial impacts to views along Nebraska Avenue, NW, at Ward Circle, and along Massachusetts Avenue, NW. Minor adverse impact on views from Glover-Archbold Park.	Beneficial impacts to views along Nebraska Avenue, NW, at Ward Circle, and along Massachusetts Avenue, NW. Minor to moderate adverse impact on views from Glover-Archbold Park.
Cultural and Historic Resources	Long-term minor to moderate adverse impacts to potential historic properties and cultural resources.	Moderate long-term direct adverse impacts to historic resources due to the removal of one contributing building. Beneficial impacts to contributing landscape features. Minor, short and long-term impacts to historic resources within the secondary APE.	Moderate long-term direct adverse impacts to historic resources due to the removal of one contributing building. Beneficial impacts to contributing landscape features and due to maintaining the historic openness of the athletic/recreational historic area. Minor, short and long-term impacts to historic resources within the secondary APE.	Moderate long-term direct adverse impacts to historic resources due to the removal of one contributing building. Beneficial impacts to contributing landscape features. Minor, short and long-term impacts to historic resources within the secondary APE.
Archaeological Resources	Negligible impacts to archaeological resources.	Minor adverse impacts to archaeological resources.	Minor adverse impacts to archaeological resources.	Minor adverse impacts to archaeological resources.
Geologic Resources	No impacts on geologic resources.	Long-term minor adverse impacts to geologic resources.	Long-term minor adverse impacts to geologic resources.	Long-term minor adverse impacts to geologic resources.

Resource Topic	No Action Alternative	Alternative A	Alternative B	Alternative C
Soil Resources	No impacts on soil conditions.	Minor, adverse, direct, site-specific, short-term and long-term impacts on soils. Beneficial impacts to soils could occur due to a decrease in impervious surfaces and additional vegetative cover.	Minor to moderate, adverse, direct, site-specific, short-term impacts and minor, adverse, direct, long-term site-specific impacts. Beneficial impacts to soils could occur due to a decrease in impervious surfaces and additional vegetative cover.	Minor to moderate, adverse, direct, site-specific, short-term impacts and minor, adverse, direct, long-term site-specific impacts. Beneficial impacts to soils could occur due to a decrease in impervious surfaces and additional vegetative cover.
Topographic Resources	No impact on topography.	Minor to moderate, adverse, long-term, direct impacts on topography.	Minor to moderate, adverse, long-term, direct impacts on topography.	Minor to moderate, adverse, long-term, direct impacts on topography.
Water Resources and Water Quality	Long-term minor to moderate adverse impacts to water resources and water quality due to the lack of stormwater management practices.	Short-term moderate adverse construction-related impacts to surface water and groundwater. Short-term minor indirect adverse impact on wetlands in the vicinity of the NAC site due to soil erosion. Long-term, direct minor to moderate adverse impacts to water resources and long-term direct beneficial impacts to streams, groundwater, and wetlands could occur due to improved stormwater management on-site.	Short-term moderate adverse construction-related impacts to surface water and groundwater. Short-term minor indirect adverse impact on wetlands in the vicinity of the NAC site due to soil erosion. Long-term, direct minor adverse impacts to water resources and long-term direct beneficial impacts to streams, groundwater, and wetlands could occur due to improved stormwater management on-site.	Short-term moderate adverse construction-related impacts to surface water and groundwater. Short-term minor indirect adverse impact on wetlands in the vicinity of the NAC site due to soil erosion. Long-term, direct minor to moderate adverse impacts to water resources and long-term direct beneficial impacts to streams, groundwater, and wetlands could occur due to improved stormwater management on-site.

Resource Topic	No Action Alternative	Alternative A	Alternative B	Alternative C
Stormwater Management	Long-term minor to moderate adverse impacts to water resources and water quality both locally and regionally due to the lack of stormwater management. Impervious surface: 55%	Long-term, beneficial impacts on stormwater quality and quantity control on the site and within the local area and region. Impervious surface: 37%	Long-term, beneficial impacts on stormwater quality and quantity control on the site and within the local area and region. Impervious surface: 38%	Long-term, beneficial impacts on stormwater quality and quantity control on the site and within the local area and region. Impervious surface: 37%
Vegetation	Negligible to minor impacts on vegetation due to the removal of one heritage tree.	Minor, short-term adverse impacts to vegetation. Minor, long-term adverse impacts to vegetation due to the removal of one heritage tree. Long-term beneficial impacts due to the reestablishment of historic landscape features and at least a 10% increase in the tree canopy.	Minor, short-term adverse impacts to vegetation. Negligible to minor long-term adverse impacts on vegetation as no heritage trees would be removed. Long-term beneficial impacts due to the reestablishment of historic landscape features and at least a 10% increase in the tree canopy.	Minor, short-term adverse impacts to vegetation. Minor, long-term adverse impacts to vegetation due to the removal of one heritage tree. Long-term beneficial impacts due to the reestablishment of historic landscape features and at least a 10% increase in the tree canopy.

Resource Topic	No Action Alternative	Alternative A	Alternative B	Alternative C
Hazardous Materials, Waste, and Contamination	Negligible impacts to hazardous materials, waste and contamination conditions.	Negligible impacts to site contamination conditions. Impacts due to the closure or removal of USTs and ASTs would be short-term, negligible, and direct with potential long-term, indirect, beneficial impacts resulting from fewer older storage tanks in use on the site. In regard to hazardous material, short-term impacts from construction activities would be adverse, minor, and direct and long-term adverse impacts would be negligible.	Negligible impacts to site contamination conditions. Impacts due to the closure or removal of USTs and ASTs would be short-term, negligible, and direct with potential long-term, indirect, beneficial impacts resulting from fewer older storage tanks in use on the site. In regard to hazardous material, short-term impacts from construction activities would be adverse, minor, and direct and long-term adverse impacts would be negligible.	Negligible impacts to site contamination conditions. Impacts due to the closure or removal of USTs and ASTs would be short-term, negligible, and direct with potential long-term, indirect, beneficial impacts resulting from fewer older storage tanks in use on the site. In regard to hazardous material, short-term impacts from construction activities would be adverse, minor, and direct and long-term adverse impacts would be negligible.

Resource Topic	No Action Alternative	Alternative A	Alternative B	Alternative C
Transportation	Negligible short- and long-term impacts on study intersections, NAC driveways, and queuing along public streets. No impact on public transportation and parking. Negligible impact on pedestrian and bicycle conditions.	Negligible short- and long-term impacts on study intersections and queuing along public streets. Negligible short-term and negligible to minor long-term impacts on intersection capacity at NAC driveways. Long-term beneficial impact on public transportation. Short-term, moderate adverse impacts to parking on the site due to construction and long-term, negligible, adverse impacts on parking outside the NAC site. Short-term, minor adverse impact to bicycle and pedestrian circulation due to construction activities. Long-term beneficial impact to the pedestrian and bicycle conditions in the study area.	Negligible short- and long-term impacts on study intersections and queuing along public streets. Negligible short-term and negligible to minor long-term impacts on intersection capacity at NAC driveways. Long-term beneficial impact on public transportation. Short-term, moderate adverse impacts to parking on the site due to construction and long-term, negligible, adverse impacts on parking outside the NAC site. Short-term, minor adverse impact to bicycle and pedestrian circulation due to construction activities. Long-term beneficial impact to the pedestrian and bicycle conditions in the study area.	Long-term, minor adverse impact on the intersection of Ward Circle and Massachusetts Avenue (West). Negligible short- and long-term impacts on all other study intersections. Negligible impacts on queuing along public streets. Negligible short-term and negligible to minor long-term impacts on intersection capacity at NAC driveways. Long-term beneficial impact on public transportation. Short-term, moderate adverse impacts to parking on the site due to construction and long-term, negligible, adverse impacts on parking outside the NAC site. Short-term, minor adverse impact to bicycle and pedestrian circulation due to construction activities. Long-term beneficial impact to the pedestrian and bicycle conditions in the study area.

Resource Topic	No Action Alternative	Alternative A	Alternative B	Alternative C
Infrastructure/ Utilities	No impacts on the chilled water system, HTHW system, electrical system, water service and fire protection system, wastewater system, or natural gas system.	Minor, short-term, adverse impacts during the construction and demolition of facilities while systems are re-sited. Beneficial, long-term impacts to chilled water system, HTHW system, electrical system, water service and fire protection system, and natural gas system during operation of the facility. Negligible long-term adverse impacts to wastewater system.	Minor, short-term, adverse impacts during the construction and demolition of facilities while systems are re-sited. Beneficial, long-term impacts to chilled water system, HTHW system, electrical system, water service and fire protection system, and natural gas system during operation of the facility. Negligible long-term adverse impacts to wastewater system.	Minor, short-term, adverse impacts during the construction and demolition of facilities while systems are re-sited. Beneficial, long-term impacts to chilled water system, HTHW system, electrical system, water service and fire protection system, and natural gas system during operation of the facility. Negligible long-term adverse impacts to wastewater system.
Air Quality	Negligible impacts to air quality.	Minor adverse short-term impact on air quality. Minor long-term impact on local and regional air quality and would not cause or contribute to an exceedance of any NAAQS or interfere with the attainment or maintenance of any NAAQS.	Minor adverse short-term impact on air quality. Minor long-term impact on local and regional air quality and would not cause or contribute to an exceedance of any NAAQS or interfere with the attainment or maintenance of any NAAQS.	Minor adverse short-term impact on air quality. Minor long-term impact on local and regional air quality and would not cause or contribute to an exceedance of any NAAQS or interfere with the attainment or maintenance of any NAAQS.
Noise	Negligible short-and long-term impacts to noise levels	Moderate, short-term, adverse impacts during the site preparation and construction phases. Negligible, adverse long-term impacts to noise levels.	Moderate, short-term, adverse impacts during the site preparation and construction phases. Negligible, adverse long-term impacts to noise levels.	Moderate, short-term, adverse impacts during the site preparation and construction phases. Negligible, adverse long-term impacts to noise levels.

Resource Topic	No Action Alternative	Alternative A	Alternative B	Alternative C
Climate Change and Sustainability	Adverse impacts on climate change and site sustainability due to inefficient buildings and lack of stormwater management techniques.	Minor adverse impact on global climate change in the short-term due to construction and long-term due to greenhouse gas emissions. Long-term, beneficial impacts to sustainability would also occur through increased employment of sustainable practices and techniques.	Minor adverse impact on global climate change in the short-term due to construction and long-term due to greenhouse gas emissions. Long-term, beneficial impacts to sustainability would also occur through increased employment of sustainable practices and techniques.	Minor adverse impact on global climate change in the short-term due to construction and long-term due to greenhouse gas emissions. Long-term, beneficial impacts to sustainability would also occur through increased employment of sustainable practices and techniques.

2.3 WHAT IS THE PREFERRED ALTERNATIVE AND WHY WAS IT SELECTED?

All of the action alternatives would meet the purpose and need of the proposed action. However, GSA has selected Alternative B as the preferred alternative. A building at Ward Circle, rather than a parking garage, would better improve the urban character of the site at Ward Circle and increase the visibility of the campus along this edge. Alternative B is also the middle density alternative at 4,200 seats, a capacity adequate to meet the needs of the DHS. Furthermore, the siting and size of new buildings would be most compatible with the existing buildings on the site. This alternative would also allow for significant open space across from Buildings 12, 13, and 14 where the sports courts are currently located. This landscape feature would not be maintained in the other alternatives.

2.4 WHAT OTHER ALTERNATIVES WERE CONSIDERED BUT DISMISSED?

Under the National Environmental Policy Act (NEPA), Federal agencies are required to "rigorously explore and objectively evaluate" a range of reasonable alternatives as well as briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). "Reasonable" alternatives include those that are practical, or feasible, from a common sense, technical and economic standpoint. CEQ guidance on the EIS process also states that the number of reasonable alternatives considered in detail should represent the full spectrum of alternatives that meet the agency's purpose and need, but an EIS does not have to discuss every unique alternative when it would require consideration of an unmanageably large number of scenarios. In short, an agency does not have to look at every conceivable alternative—only those reasonable alternatives that would meet the goals and objectives of the Proposed Action.

As part of this Draft EIS process, additional design options were eliminated from further consideration following consultation and coordination with stakeholders, reflection on programmatic needs, and successive refinement of the original Master Plan concepts.

Nine concepts were developed as potential alternatives but only three were selected for detailed analysis in this Draft EIS. Therefore, six concepts were ultimately dismissed from further analysis. The concepts are briefly described below along with the rationale for their dismissal:

- Dismissed Concept 1 proposed a new building at the center of the campus to house office space, joint use space, and infrastructure. This building would have related to the size, scale and character of the existing historic context. Parking would have been accommodated in a new proposed above-grade parking structure and the existing surface parking lot located on the southeast portion of the site. The green roof of the new two-level parking structure would be on grade at Ward Circle. Parking within the secure perimeter would have been minimized. The concept would have accommodated 2,560 seats. This density was deemed too low to adequately provide additional capacity and functional flexibility for the DHS; therefore, this concept was dismissed.

- Dismissed Concept 2 proposed four new buildings to house a mix of office space, joint use space, and infrastructure. Building A would have been centrally located on campus to help create a campus node along the two campus axes. Buildings B, C and D would have been located on the east side of campus in a fan shape to provide framed views into the adjacent park land. This concept would have maintained Building 18. Parking would have been accommodated in a new parking structure with two levels above grade and two levels below grade. The green roof of the parking structure would have been on grade at Ward Circle. Parking within the secure perimeter would have been minimized. At 3,380 seats, this concept also would not adequately provide additional capacity and functional flexibility for DHS and was thus dismissed.

- Dismissed Concept 3 proposed five new buildings to house a mix of office space, joint use space, and infrastructure. Building A would have been centrally located on campus to help create a campus node along the two campus axes. Buildings B, C and D would have been located on the east side of campus in a fan shape to provide framed views into the adjacent park land. Building E would have replaced existing Building 18 and would have strengthened the front edge of campus along Nebraska Avenue. Parking would have been accommodated in a new proposed parking structure with two levels above grade and two levels below grade. The green roof of the parking structure would have been on grade at Ward Circle. Parking within the secure perimeter would have been minimized. This concept would have included a total of 3,540 seats; however, this density was still too low to adequately provide additional capacity and functional flexibility to meet the needs of DHS.

- Dismissed Concept 4 proposed two new buildings to house a mix of office space, joint use space, and infrastructure. Building A would have created an edge to the campus on the east side. Building B would have replaced existing Building 18 and would have strengthened the front edge of campus along Nebraska Avenue. Parking would have been accommodated in the two existing surface parking lots located on campus. Parking within the secure perimeter would have been minimized. This scheme would also have maintained and restored the existing historic landscape at the tennis courts. However, at 2,650 seats, this concept would not have adequately met DHS' need for additional capacity and functional flexibility and was therefore dismissed.

- Dismissed Concept 5 proposed 4,000 seats and three new buildings to house a mix of office space, joint use space, and infrastructure. Buildings A and B would have created a buffer to the adjacent park land and NBC site. Building C would have replaced existing Building 18 and would have strengthened the front edge of campus along Nebraska Avenue. This concept would have maintained the existing surface parking lot on Ward Circle and would have built a parking structure at the back of the site. The parking structure would have had two levels above grade and three levels below grade. While this concept would have would met the capacity needs of DHS, a surface parking lot at Ward Circle was not considered desirable for the aesthetics of the neighborhood and campus image. Therefore, this concept was dismissed.

- Dismissed Concept 6 proposed 4,000 seats and two connected buildings (Buildings A and B) at the rear edge of the site, a new Building C to replace Building 18 at the west of the existing campus, and a new parking garage with a green roof adjacent to Ward Circle. The back surface parking lot on site would have been maintained, and parking within the secure perimeter would have been minimized. While this concept would have met the capacity and functional needs of DHS, the siting and mass of Buildings A and B were determined to overwhelm the historic buildings, particularly Buildings 12, 13, and 14, and thus, this concept was dismissed.

3.0 Affected Environment and Impacts to the Human Environment

3.1 WHAT IS THE AFFECTED ENVIRONMENT AND HOW ARE THE IMPACTS EVALUATED?

The affected environment describes the existing social and environmental resources that may be impacted by the proposed alternatives. The descriptions focus on those resources that are most likely to be impacted by the proposed action, either adversely or beneficially.

In the following analysis, impacts are characterized by several factors including intensity, type, and duration. Definitions of these terms and related assumptions are provided below:

Intensity – The intensity of an impact describes the magnitude of change that the impact generates. For the majority of the resource areas, the intensity thresholds are as follows:

- **Negligible**: There would be no impact, or the impact would not result in a noticeable change in the resource;
- **Minor**: The impact would be slight but detectable, resulting in a small but measurable change in the resource;
- **Moderate**: The impact would be readily apparent and/or easily detectable;
- **Major**: The impact would be widespread and would substantially alter the resource. A major adverse impact would be considered significant under NEPA.

For specific resource areas, such as visual resources, more specific thresholds are necessary. When this is the case, these thresholds are provided prior to the impacts analysis.

Type – The impact type refers to whether it is adverse (negative) or beneficial (positive). Adverse impacts would potentially harm resources, while beneficial impacts would improve resource conditions. Within the analysis, impacts are assumed to be adverse unless identified as beneficial.

Duration – The duration of an impact identifies whether it occurs over a restricted period of time (short-term), or persists over a longer period (long-term). For the purposes of this analysis, it is assumed that short-term impacts would occur during the construction of the improvements, while long-term impacts would persist once the construction is complete. For the purposes of this analysis, impacts are assumed to be long-term unless identified otherwise.

In addition to the factors detailed above, impacts may be characterized as direct, indirect, or cumulative. A direct impact is caused by the action and occurs at the same time and place. An indirect impact is caused by the action but occurs later in time, or farther removed in distance. A cumulative impact occurs when the proposed action is considered together with other past, ongoing, or planned actions.

The impacts of each of the proposed alternatives were assessed using scientific studies, reports developed for the NAC site, guidance documents and information. The resources used to analyze the impacts were obtained from federal, state, and local agencies as well as outside research organizations. These include but are not limited to:

- Cultural resource reports
- District of Columbia official reports and documents
- EPA technical reports and publications
- FEMA floodplain maps
- FWS threatened and endangered species lists
- FWS National Wetlands Inventory
- Hazardous material reports

Direct impacts: are caused by the action and occur at the same time and place (40 CFR 1508.8).

Indirect impacts: are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (40 CFR 1508.8).

Cumulative impact: the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

- MWCOG publications
- USGS soil surveys

A complete list of references is provided in Chapter 4 of this Draft EIS and sources are referenced in the analysis of each resource topic area.

3.2 WHAT TOPICS HAVE BEEN ELIMINATED FROM FURTHER ANALYSIS?

As indicated in Chapter 1, several resource areas were initially considered but were dismissed from detailed analysis because the proposed action would cause a negligible impact or the resource was not present within the area of impact. These topics and the rationale for their elimination are briefly discussed below.

3.2.1 Economic/Fiscal

Under all alternatives, the NAC would include food services (a cafeteria and satellite areas to dispense food), as well as additional employee services such as a branch bank and ATM, a health center/clinic, and a childcare center. There are few retail services outside of the site boundary in close proximity to the NAC. The closest services are located within the American University campus. As DHS employees are only allocated thirty minutes for lunch, it is anticipated that the majority of employees would use on-site services and, therefore, would have little economic impact on the surrounding neighborhood during work hours. Employees might use nearby services before or after work; however, these expenditures are likely to be negligible. Thus, this resource area was dismissed from detailed study.

3.2.2 Floodplains

Floodplains – such as a 100-year or 500-year floodplain – are areas likely to be inundated by flood over a given period of time. A 100-year floodplain is defined as an area subject to a one percent or greater chance of flooding in a given year and a 500-year floodplain is defined as an area subject to a 0.2 percent chance of flooding in a given year. *Executive Order 11988: Floodplain Management* directs Federal agencies to consider the risks, danger, and potential impacts of locating projects within floodplains and to minimize potential harm to, or within, the floodplain when alternatives are not practical.

According to the official Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (Washington, DC, Community Panel Number 1100010004C; effective date September 27, 2010), the project site is located outside the boundaries of both the 100-year and 500-year floodplains (FEMA 2010). As the NAC does not lie within the 100-year or 500-year floodplain, construction would not be required to comply with associated regulations. Thus, this resource area has been dismissed from detailed analysis.

3.2.3 Threatened and Endangered Species

The U.S. Fish and Wildlife Service, Chesapeake Bay Field Office indicated in 1995 that no federally listed threatened or endangered species were known to exist on the NAC site. As such, no biological assessment or formal Section 7 consultation with the agency was required. A letter was sent to the U.S. Fish and Wildlife Service in June 2010 requesting an updated confirmation that no proposed or federally listed endangered or threatened species are known to occur in the project area. The U.S. Fish and Wildlife Service responded on August 4, 2010 and confirmed that, except for occasional transient wildlife, there are no proposed or federally listed endangered or threatened species known to exist in the project impact area.

According to the U.S. Fish and Wildlife Service, Chesapeake Bay Field Office, there is only one Federally Listed Endangered or Threatened Species in the District of Columbia, the Endangered Hay's Spring Amphipod (*Stygobromus hayi*) (USFWS CBFO 2009). This small aquatic amphipod is endemic to Washington, D.C. and is only known to inhabit one spring located near the National Zoological Park. The amphipod has been collected at the south end of the National Zoo and at four other locations within Rock Creek Park, which is adjacent to the National Zoo. The collection sites lie in close proximity to each other and the identified habitat of the amphipod is extremely small. Precise data on the habitat is lacking because the aquifer is largely inaccessible (USFWS 2002). These collection sites are not adjacent to the NAC site.

Based on the fact that there are no federally listed threatened or endangered species known to exist within the project area, and that the site is in a densely developed urban environment, this resource area was dismissed from detailed analysis.

3.2.4 Wildlife

As a developed site, any wildlife present on the site and in the surrounding area is limited to species that thrive in and around human habitations. The forested strips on the site could provide habitat for some species tolerant of urban conditions, such as squirrels, mice, and other small rodents. Songbirds, such as English sparrows, starlings, song sparrows and robins, may also be present in the deciduous forest areas (Tetra Tech 2004).

Due to the absence of wildlife on the site and that the site is in a densely developed urban environment, this resource area was dismissed from detailed analysis.

3.2.5 Demographics and Environmental Justice Populations

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations calls on Federal agencies to take appropriate steps, to the greatest extent practicable and permitted by law, to identify and address disproportionately high and adverse impacts of Federal projects on the health or environment of minority and low-income populations. Each federal entity is to accomplish these programs, policies, and activities in a manner that does not exclude communities from participation in such actions, deny the benefits of such actions, or subject communities to discrimination under such actions due to race, color, or national origin.

An Environmental Justice Community of Concern requires fulfillment of one of three criteria: (a) a low-income population based on the Bureau of Census Current Population reports, (b) a minority population of the affected area that exceeds 50 percent, or (c) a minority population percentage of the affected area that is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic (CEQ Environmental Justice Guidance Under the National Environmental Policy Act 1997).

U.S. Census data indicates there are no census tracts in the vicinity of the NAC project site in which the minority population exceeds 50 percent of the total population. In terms of income, an examination of the economic demographic data indicates the majority of the population in this area has substantially higher median household incomes than DC as a whole. Similarly, there are much lower proportions of households living below the income poverty level within the NAC property's census tract and neighboring census tracts than the citywide average (20%). The census tract (CT 10.02) that features the highest proportion of residents living below the poverty level (18.1%) is most likely influenced by a concentration of college students living in the tract due to its proximity to American University.

Studies have indicated the inclusion of college students in poverty data can misrepresent the levels of poverty in the community due to many students' lack of an income while enrolled in school full-time (Hicks 2008).

According to *Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks,* federal entities must identify and assess environmental health and safety risks and ensure their policies, programs, activities and standards address effects on children since children may suffer disproportionately from them. Health and safety risks are defined as those "that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breathe, the food we eat, the water we drink or use for recreation, the soil we live on, and the products we use or are exposed to)" (EO 13045).

U.S. Census data indicates that most census tracts in the vicinity of the NAC project have a youth population well below the citywide average. Given the below-average population of children in the immediate vicinity of the site, the overall environmentally-focused nature of the proposed action, and the self-contained environment of the site (it is fully enclosed by a security perimeter and inaccessible to the public), implementation of the NAC Master Plan under one of these alternatives is not expected to disproportionately and adversely impact children.

Due to the absence of minority and low income populations which could be disproportionately and adversely impacted by this Federal action and the low proportion of children near the project site, this topic was eliminated from further detailed study within this Draft EIS.

3.3 LAND USE

3.3.1 What Land Uses Currently Exist on the Project site?

The NAC campus is comprised of approximately 37 acres of land and 33 buildings. GSA owns and manages the NAC site; the U.S. Navy controls a small parcel that contains the Admiral's Quarters (Building 8). While the Admiral's Quarters reside within the historic boundaries of the site, it is not a part of the NAC Master Plan, or this Draft EIS, due to its control by the U.S. Navy (NAC Land Use Feasibility Study 2009).

Land uses within the site fall into six general categories: Administration, Special Uses, Storage, Infrastructure, Landscape, and Parking/Roadways as shown in Figure 3-1.

- The **Administration** land use designation includes buildings utilized for office space or laboratories. Currently, there are 11 buildings which fall within this land use category, which comprises 34 percent of the site.
- The **Special Uses** land use designation encompasses buildings used for specific purposes. Currently there are 11 buildings which fall within this land use category: the gymnasium, recreation services, cafeteria, chapel, classified waste destructor, auto hobby shop, dispensary, public works maintenance shop, visitors center, picnic shelter and rear gate house, which comprise four percent of the site.
- The **Storage** land use designation includes buildings utilized for general storage and hazardous materials storage. There are three general storage buildings and one hazardous/flammable storage structure on the campus, which comprise one percent of the site.
- The **Infrastructure** land use designation encompasses those facilities that house utility and mechanical equipment. There are four such structures on

the campus: the chiller plant, boiler house, fire pump house, and mechanical equipment building, which comprise 1 percent of the site.

- The **Landscape** land use encompasses those areas of the site free of development. This equates to approximately 47 percent of the site. These areas consist primarily of cultivated landscaped areas but also include some mature vegetation along the eastern edge of the site closest to Glover-Archbold Park (which is part of the NPS-controlled Rock Creek Park system). Significant open spaces within the NAC campus such as the tree-lined corridor in front of Buildings 18 and 19 are believed to be remnants of the site's original landscape design. Another significant space exists in front of Building 1.
- The **Parking/Roadways** is also a common land use within the NAC and includes those areas utilized for on-site parking or drive aisles. There are 18 parking lots on the campus ranging from large surface parking lots to smaller lots dispersed throughout the site. Lot 11 (southeast corner of the site) and Lot 9 (southwest corner of the site) provide more than half of the NAC parking supply. The smallest parking lot on NAC, Lot 1 in the northeast corner of the site, accommodates just four parking spaces. This land use comprises 13 percent of the site.

Figure 3-1 Land Uses within the NAC

3.3.2 What Land Uses are Currently Found Adjacent to the Project Site?

For the purposes of this Draft EIS, the study area for land use impacts will be comprised of adjacent properties that may potentially be affected the most by the development of NAC according to the Master Plan. This study area is bounded on the north by Van Ness Street, on the east by Wisconsin Avenue, on the south by the point formed at the intersection of Massachusetts Avenue, Idaho Avenue and 39th Street, and on the west by New Mexico Avenue (Figure 3-2).

Directly north of the NAC is NBC Studios, categorized as a commercial land use, and the National Presbyterian Church and School facilities, categorized as a semi-public institutional land use.

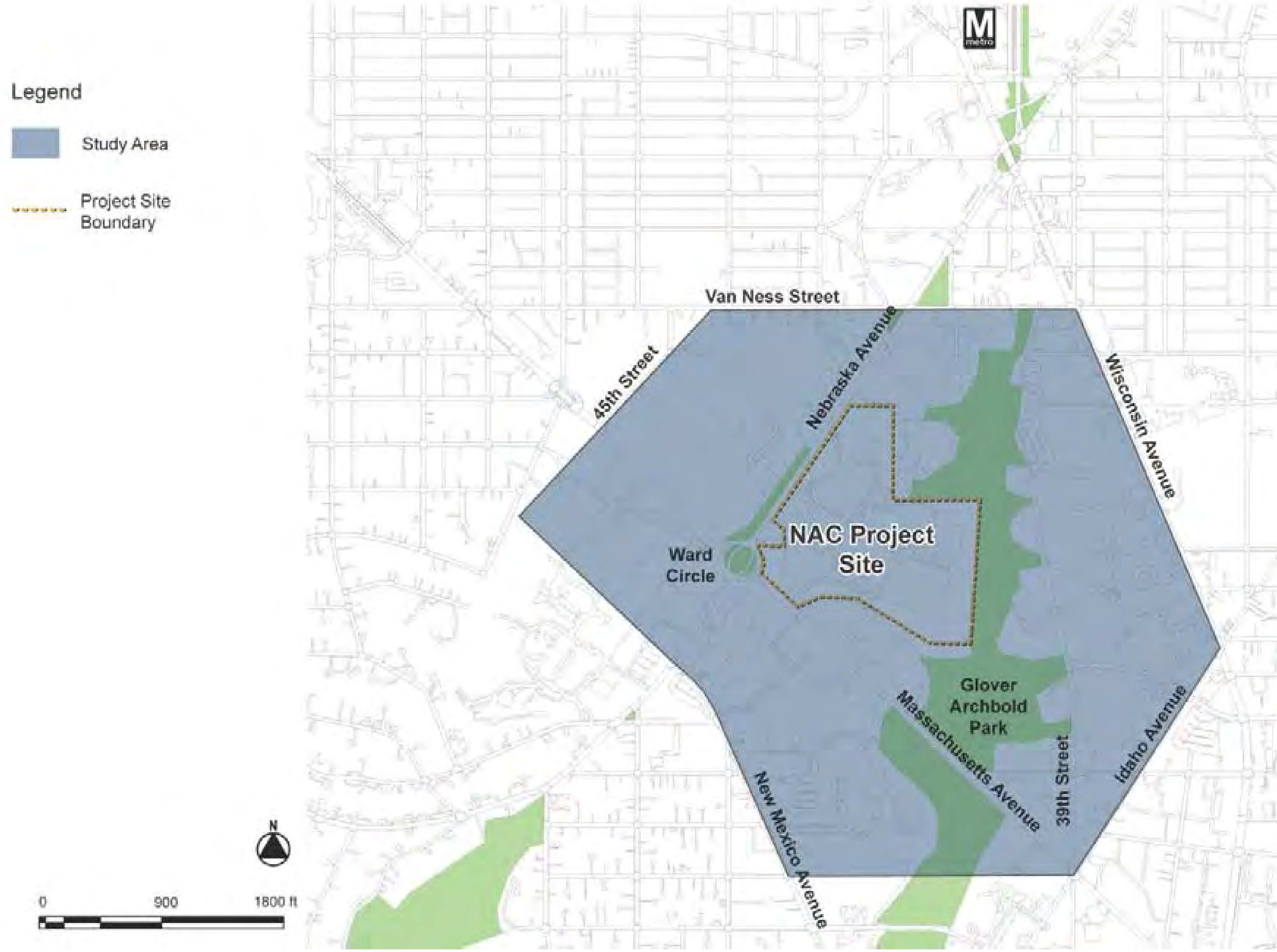
On the east perimeter of the site is Glover-Archbold Park, which is managed by the NPS and categorized as parks and open space. East of Glover-Archbold Park, closer to Wisconsin Avenue, the area consists of a mixture of commercial land uses that primarily line the roadway (e.g. restaurants and businesses), federal public land (e.g. the Fannie Mae facility), medium-density housing (e.g. mid-rise apartment buildings), high-density housing (e.g. high-rise apartment buildings) local public land (e.g. D.C. Police Department), low-density housing (e.g. single-family detached homes), and semi-public institutional land uses (e.g. Sidwell Friends School, Washington Hebrew Congregation). Commercial, federal public land and semi-public institutional land uses primarily front Wisconsin Avenue, with low-density and medium-density housing located closer to Glover-Archbold Park or Massachusetts Avenue.

Directly south of the site between the property perimeter and Massachusetts Avenue is high-density residential uses such as apartment buildings and condominiums. The area south of Massachusetts Avenue, between Massachusetts Avenue and New Mexico Avenue, and as far south as the point formed by the intersection of Massachusetts Avenue, Idaho Avenue and 39th Street, is characterized by several land uses. Glover-Archbold Park meanders south through this area, providing parks and open space within the surrounding development. Medium-density residential (e.g. mid-rise apartment buildings), low-medium density residential (e.g. town houses), commercial (e.g. Foxhall Square shops and medical offices) and semi-public institutional land use (e.g. AU Nebraska Avenue parking lot) also make up the area south of the NAC.

To the west of the site, directly across Nebraska Avenue are AU academic facilities and student housing, as well as Temple Baptist Church; both are semi-public institutional land uses. Low-density single-family housing also sits directly west of the NAC, closer to Van Ness Street (DC Atlas 2010).

The NAC, AU, Glover-Archbold Park, and the neighboring residential buildings are the most notable features in the study area for land use impacts given their size and location.

Figure 3-2 Land Use Study Area Boundary



3.3.3 How Would Land Use be Affected by the NAC Project?

No Action Alternative

Under the No Action Alternative, impacts to land use within the site or study area would not occur since the Master Plan would not be implemented and changes to the site would not take place. The existing buildings, parking lots and landscaped areas would remain.

Alternative A

Under Alternative A, approximately 567,270 GSF of new building space for Administration, Special Uses, Storage and Infrastructure would be constructed on the site. No new land uses would be introduced to the site. Much of the NAC site's current parking would be reduced and replaced by a new consolidated parking structure, or converted to landscape to enhance sustainability on the site. Existing and newly-constructed buildings would contribute to the total impervious surface coverage of the site (which consists of rooftops, drive aisles, parking lots and pathways); however, the total amount of impervious surface coverage on the site would drop from 55 percent to approximately 37 percent under Alternative A. Beneficial, long-term impacts on land use within the NAC would result due to the consolidation of parking, increased landscape coverage, and the introduction of low-impact development practices such as green roofs on buildings.

It is anticipated that there would be no adverse impacts to land uses in the study area as the uses on site would remain the same. The development at NAC is also not anticipated to spur development because of to the preexisting urban context of the site and the lack of room for additional future build-out. Further, much of the surrounding land is privately owned by institutions, corporations or individuals who would have to comply with local zoning regulations and permitting processes for any change in use of their property. It is anticipated that there would also be no adverse impacts on federally administered Glover-Archbold Park. There could be beneficial impacts to local land use through the site's enhanced sustainability and the positive environmental impacts associated with those improvements.

Alternative B

Under Alternative B, approximately 715,000 GSF of new building space for Administration, Special Uses, Storage and Infrastructure would be constructed on the site. No new land uses would be introduced to the site. Much of the NAC site's current parking would be reduced and replaced by a new consolidated parking structure, or converted to landscape to enhance sustainability on the site. Existing and newly-constructed buildings would contribute to the total impervious surface coverage of the site (which consists of rooftops, drive aisles, parking lots and pathways); however, the total amount of impervious surface coverage on the site would drop from 55 percent to approximately 38 percent under Alternative B.

Similar to Alternative A, no impacts are anticipated to adjacent land uses within the study area and beneficial impacts to adjacent land uses are anticipated due to implementation of sustainable site design and low-impact development.

Alternative C

Under Alternative C, approximately 803,640 GSF of new building space for Administration, Special Uses, Storage and Infrastructure would be constructed on the site. No new land uses would be introduced to the site. Much of the NAC site's current parking would be reduced and replaced by a new consolidated parking structure, or converted to landscape to enhance sustainability on the site. Existing and newly-constructed buildings would contribute to the total impervious surface coverage of the site (which consists of rooftops, drive aisles, parking lots and pathways); however, the total amount of impervious surface coverage on the site would drop from 55 percent to approximately 37 percent under Alternative C.

Similar to Alternatives A and B, no impacts are anticipated to adjacent land uses within the study area and beneficial impacts to adjacent land uses are anticipated due to implementation of sustainable site design and low-impact development.

3.4 PLANS AND POLICIES

3.4.1 What Federal and Local Plans and Policies are Applicable to the Proposed Master Plan?

Development within the District of Columbia is guided by several planning documents, policies and guidelines. The dynamic between both the federal and District entities require adherence to these documents in order to fully consider each entity's interests. Also as a result of this unique dichotomy and to protect these varied interests several regulatory agencies were created. The National Capital Planning Commission (NCPC) is a federal agency that has regulatory authority over federal development and develops long-range planning efforts within the District of Columbia. The District of Columbia Office of Planning (DCOP) takes on a similar regulatory role as NCPC, however, has a broader view to focus on all development within DC. Similar to development, transportation planning is guided by the District of Columbia Department of Transportation (DDOT) for district interests and the Transportation element of the Comprehensive Plan for the National Capital, Federal Elements.

Comprehensive Plan for the National Capital, Federal Elements (2004)

The *Federal Elements* is the principal planning document utilized by NCPC when considering the planning and development of Federal properties within the National Capital Region. The Plan is comprised of goals, objectives, and policies intended to guide growth and development in the Nation's Capital. Policies under the Federal Workplace, Transportation, Parks and Open Space, Federal Environment, and

Preservation and Historic Features Elements are relevant to the NAC Master Plan. Specific policies are outlined below.

The **Federal Workplace Element** identifies a number of policies that are relevant to the NAC Master Plan including the following:

- "Support regional and local agency efforts to coordinate land use with the availability or development of transportation alternatives to the private automobile."
- "Utilize available federally owned land or space before purchasing or leasing additional land or building space."
- "Consider the modernization, repair, and rehabilitation of existing federally owned facilities for federal workplaces before developing new facilities."
- "Plan federal workplaces to be compatible with the character of the surrounding properties and community and, where feasible, to advance local planning objectives such as neighborhood revitalization."
- "Guide the long-range development for all installations on which more than one principal building, structure, or activity is located or proposed through a master plan."
- "Develop sites and buildings consistent with local agencies' zoning and land use policies and development, redevelopment, or conservation objectives, to the maximum extent feasible."

The **Transportation Element** identifies a number of policies that are relevant to the NAC Master Plan including the following:

- "Outside of the Central Employment Area, but within the Historic District of Columbia boundaries, the parking ratio should not exceed one space for every four employees."

- "Prepare Transportation Management Plans (TMPs) to encourage employee commuting by modes other than the single-occupant vehicle."
- "Develop TMPs that explore methods and strategies to meet prescribed parking ratios, and include a thorough rationale and technical analysis in support of all TMP findings."

The **Parks and Open Space Element** identifies a number of policies that are relevant to the NAC Master Plan including the following:

- "Maintain and conserve trees and other vegetation in the landscaped buffer areas on federal installations in a natural condition."
- "Preserve and protect stream valley parks and small urban forest areas in their natural conditions."
- "Protect and maintain the narrow threads of natural areas throughout the District, such as Whitehaven Parkway, Klingle Valley Parkway, Glover-Archbold Park, Soapstone Valley Park, Piney Branch Parkway, and Oxon Run Parkway."

The **Federal Environment Element** identifies a number of policies that are relevant to the NAC Master Plan including the following:

- "Use pervious surfaces and retention ponds to reduce stormwater runoff and impacts on off-site water quality."
- "Encourage the use of innovative and environmentally 'Best Management Practices' in site and building design and construction practice, such as green roofs, rain gardens, and permeable surface walkways to reduce erosion and avoid pollution of surface waters."
- "Discourage development in areas of identified high erosion potential, on slopes with a gradient of 15 percent and above, and on severely eroded soils. Excessive slopes (25 percent and above) should remain undeveloped."

- "Maintain and preserve woodlands and vegetated areas on steep slopes and adjacent to waterways, especially to aid in the control of erosion and sediment."

The **Preservation and Historic Features Element** identifies a number of policies that are relevant to the NAC Master Plan including the following:

- "Sustain exemplary standards of historic property stewardship."
- "Identify and protect both the significant historic design integrity and the use of historic landscapes and open space."
- "Ensure that new construction is compatible with the qualities and character of historic buildings and their settings, in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the Guidelines for Rehabilitating Historic Buildings."

CapitalSpace Plan (2010)

The CapitalSpace plan is a partnership between NCPC, the National Park Service and the District to improve parks and open space in Washington, D.C. The plan presents six big ideas to improve parks and open space: 1) Link the Fort Circle Parks, 2) Improve Public Schoolyards, 3) Enhance Urban Natural Areas, 4) Improve Playfields, 5) Enhance Center City Parks and 6) Transform Small Parks. The plan outlines a number of steps the partners can take to achieve the overarching vision of the CapitalSpace plan. This plan is relevant to the NAC Master Plan given the site's proximity to Glover-Archbold Park, which is part of the larger Rock Creek Park system.

Comprehensive Plan for the National Capital, District Elements (2006)

The *District Elements* provides planning direction for the City at a three-tier level: Citywide Elements, Area Elements and Small Area Plans. Citywide Elements include topics such as Land Use, Transportation, Economic Development, Parks and Recreation, Urban Design, (etc.) and provides an Implementation Element section to address each topic and steps to measure their progress. The second tier of the Comprehensive Plan divides Washington D.C. into 10 Area Elements which are focused on specific geographic areas. The Rock Creek West Area Element focuses on the northwest quadrant of Washington D.C. where the NAC facility is found. Small Area Plans, while technically not a part of the current Comprehensive Plan, have been developed in the past, and the Implementation Element of the Comprehensive Plan outlines where and under what conditions such plans should be undertaken in the future.

The section of the *Comprehensive Plan for the National Capital, District Elements* that deals most directly with the NAC site is the Rock Creek West Area Element. While the area is largely built out, projections indicate new households and jobs will locate to this area. Based on community feedback, issues such as traffic congestion, pedestrian safety, noise and parking are major concerns to residents of this area. The harmonious interaction between institutional and government land uses and residential neighborhoods will be of paramount importance. Considering the NAC is a Federal employment center and trip generator, this is particularly relevant to the Master Plan.

Zoning

The NAC campus land is zoned R-5-A by the District of Columbia (DC Zoning Map 2010, Figure 3-3). However, as a Federal facility, the NAC is not required to conform to local land use policies and controls. However, Federal facilities do follow predominate zoning to the extent feasible. New design and renovation projects on federal property are regulated by NCPC, pursuant to the District of Columbia Zoning Enabling Act of 1938 (ch. 534, 52 Stat. 802 and DC ST § 6-641.15). In accordance with the Act, NCPC has approval authority for use, open space, height, and bulk.

As described by the D.C. Department of Zoning summaries of zoning districts and overlay districts, designations for properties directly adjacent to the NAC are shown in Table 3-1.

Table 3-1 Zoning Designations Adjacent to the NAC

Zoning District	Description
R-1-B	Permits matter-of-right development of single-family residential uses for detached dwellings with a minimum lot width of 50 feet for residential and 120 feet for schools, a minimum lot area of 5,000 square feet for residential and 15,000 square feet for schools, a maximum lot occupancy of 60% for a church or public school use and 40% for all other structures; and a maximum height of three (3) stories/forty (40) feet. Rear yard requirements are twenty (20) feet, side yard requirements are eight (8) feet.
R-5-A	Permits matter-of-right development of single-family residential uses for detached and semi-detached dwellings and, with the approval of the Board of Zoning Adjustment, new residential development of low density residential uses including row houses, flats, and apartments to a maximum lot occupancy of 40%, 60% for churches and public schools; a maximum floor area ratio (FAR) of 0.9, and a maximum height of three (3) stories/forty (40) feet. Rear yard requirements are twenty (20) feet, side yard requirements are not less than eight (8) feet. If all other provisions of the zoning regulations are complied with, conversion of existing buildings to flat or apartment use is permitted as a matter-of-right.
D/R-5-A	The Diplomatic (D) Overlay District is employed at suitable locations in implementation of the Foreign Missions Act and the Foreign Missions and International Organizations element of the Comprehensive Plan. The Overlay is mapped in combination with another district and not instead of the underlying district. A chancery shall be a permitted use in a D Overlay District, subject to disapproval by the Board of Zoning Adjustment. Building height, occupancy and floor area ratio requirements are determined by the underlying zoning districts.
R-5-B	Permits matter-of-right moderate development of general residential uses, including single-family dwellings, flats, and apartment buildings, to a maximum lot occupancy of 60%, a maximum FAR of 1.8, and a maximum height of fifty (50) feet. Rear yard requirements are not less than fifteen (15) feet.

Source: D.C. Department of Zoning, 2010.

Figure 3-3 Zoning Designations Adjacent to the NAC

District of Columbia Bicycle Master Plan

The District of Columbia plans to expand opportunities for biking in the city. In 2005, the District of Columbia Bicycle Master Plan was produced. Currently, the District has 17 miles of bike lanes, 50 miles of bike paths, and 64 miles of bicycle routes. Massachusetts Avenue and Nebraska Avenue serve as signed bicycle routes, but the road is shared with vehicular traffic. In the future, DDOT would like to introduce a multi-use trail or multi-use trail connection on Massachusetts Avenue and Nebraska Avenue (DC Bicycle Master Plan, 2005). Plans to develop a multi-use tail along this route trail are underway, and both DDOT and American University are partnering to implement various street and sidewalk improvements to enhance bicycle access.

In September 2010, the District of Columbia expanded its existing bike sharing system and launched the *Capital Bikeshar*e program. The program has approximately 1,100 bikes and 114 stations across Washington, D.C. and Arlington, VA. Adjacent to the project site, there is one bike sharing station at American University/Ward Circle, with five bikes and ten parking docks. An additional bike sharing station is located at the Tenleytown Metrorail Station.

Green DC Agenda

The Green DC Agenda includes a specific goal to increase the District's tree canopy from its current 35 percent to 40 percent. A report completed in April 2009 by the University of Vermont titled "A report on Washington D.C.'s Existing and Possible Urban Tree Canopy," concluded that non-park federal sites offer significant opportunities for increasing the District's tree canopy. Of the 15 land use types that were evaluated, the study found that non-park federal sites were one of the top two where the potential to increase tree canopy through large-scale greening initiatives is greatest. Current tree canopy cover on all non-park federal sites is 16 percent, but the report found that a total amount of tree canopy cover could be increased as much as 46 percent.

Urban Forest Preservation

The Urban Forest Preservation Act of 2002, effective June 12, 2003 (D.C. Law 14-309; D.C. Official Code 8-6501.01 *et seq.*), established an urban forest preservation program requiring a Special Tree Removal Permit prior to the removal of a tree with a circumference equal to or greater than 55 inches. If a tree removal permit is approved, the Urban Forestry Administration will require the replacement of lost trees based on caliper, either on the site or in a comparable area and/or the payment of a fee to the Urban Forestry Administration's Tree Fund.

3.4.2 Would the NAC Master Plan Comply with these Plans and Policies?

No Action Alternative

The No Action Alternative would not introduce new development at the NAC site. As such, the facility would continue to comply with policies to which it currently conforms. However, implementation of the No Action Alternative would not comply with several policies found in the Federal Elements of the Comprehensive Plan for the National Capital such as the creation of a Master Plan for federal facilities with multiple buildings and focusing on modernizing, repairing and rehabilitating existing facilities before engaging in new construction. Finally, the DC Green Agenda cites non-park federal sites as one of the top areas to increase the tree canopy. Under the No Action Alternative, no new trees are proposed and would not comply with the Agenda. As a result, the No Action Alternative would yield minor, long-term adverse effects on relevant local plans and polices.

Alternatives A, B, and C

Under Alternatives A, B, and C, the NAC Master Plan would result in a comprehensive vision for the facility and it would support many of the relevant policies outlined above. Overall, there would be no adverse impacts to plans and policies under each of the action alternatives and long-term beneficial impacts could occur. The action alternatives share underlying planning principles; therefore, the discussion of their relationship to other plans and policies are discussed together in this section.

Comprehensive Plan for the National Capital, Federal Elements (2004)

The Federal Workplace Element:

The location and selection of the NAC site for DHS consolidation efforts is supportive of the policy to coordinate land use with the availability of transportation alternatives given its proximity to Metrorail and Metrobus service. All three alternatives would allow the Federal government the opportunity to utilize available federally-owned land or space before purchasing or leasing additional land or building space. All three alternatives would also include considerable modernization, repair and rehabilitation of existing NAC facilities in addition to new construction that would be compatible with the character of the surrounding facilities, properties and community. Furthermore, all three alternatives would provide the blueprint needed for the consolidation of DHS activities at the NAC site. Finally, because the site is federally owned and managed, it is exempt from local zoning regulations. It should be noted, however, that the surrounding zoning classification is residential and the office use maintained under the alternatives would not comply, if applicable.

The Transportation Element:

Under all three alternatives parking on the facility would adhere to NCPC standards for facilities within the Historic District of Columbia boundaries. The majority of facility parking would be planned at the 1:4 (one space for every four employees) ratio; however, some facility parking would be planned for those NAC employees in 24/7 positions. As a condition of the Master Plan, a TMP which presents methods and strategies to encourage alternative transit and meets the prescribed parking ratio would be prepared for the NAC facility. All three alternatives would meet one of the Master Plan's goals to improve the overall accessibility and circulation of the site—particularly for pedestrians and cyclists. Overall, all three alternatives would reconfigure the campus parking supply and dramatically improve the existing parking ratio.

The Parks and Open Space Element:

Despite the differences between the three alternatives in their development scenarios, all of them support the policies outlined in this Federal element.

Under all three alternatives, the Master Plan would introduce additional campus open space through the re-establishment of historic courtyards between buildings and more landscaped grounds. Such action will provide additional green space and reduce existing impervious surface coverage on the facility. The Master Plan would also preserve as much of its natural landscape buffer as possible, particularly as it relates to significant tree specimens.

In addition, the Master Plan calls for the construction of new facilities near the NAC border with Glover-Archbold Park, but this development would respect the natural condition of the property it abuts through its emphasis on compatible architecture and sustainable design. These green buildings would replace what is currently surface parking. Combined with the integration of low-impact development practices across the facility, and more open space, these strategies would help reduce the existing amount of impervious surface coverage on the site. Such action would consequently help decrease the amount of stormwater generated on site and improve the overall quality of runoff. In turn, the improvements would benefit the surrounding environment, including Glover-Archbold Park.

The Federal Environment Element:

As discussed in the Parks and Open Space Element, all three alternatives for the Master Plan emphasize environmentally-sensitive site and building design; therefore, they are consistent with this set of policies. All alternatives call for the employment of new “green” practices on the installation such as rain gardens, porous pavers, and water reuse, as well as stormwater management quantity and quality controls such as ponds, gravel beds, underground detention and bio-retention techniques such as vegetative swales. These techniques would help reduce stormwater runoff and its associated impacts on off-site water quality, particularly within Glover-Archbold Park. Additional construction within the property would largely be set back from the steep slopes present along the property’s eastern and southern boundaries. The naturally-occurring woodlands and vegetated areas on these steep slopes would be preserved, helping aid in the control of erosion and sediment.

The Preservation and Historic Features Element:

The preservation of historic buildings and landscapes within the NAC facility is a priority shared by all three alternatives. Under each action alternative, one “contributing” building (Building 5) would be recommended for documentation and removal. However, the National Register nomination is under development and ongoing consultation regarding contributing buildings is occurring. Due to the ongoing consultation and continued development of the nomination, a final determination on the status of two other buildings (Buildings 15 and 18) proposed for demolition is unresolved.

The remaining contributing buildings would undergo major renovation and rehabilitation in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the Guidelines for Rehabilitating Historic Buildings. These buildings would be re-used and host DHS components. New construction would respect the existing design character of the present facilities through massing, proportions and materials in order to achieve compatibility with the predominant historic precedents. Furthermore, the design of the overall site would seek to restore and recapture as much of the historic landscape as possible through the maintenance and restoration of historic courtyards, open green spaces and vistas. GSA would commit to historic property stewardship and reinforce the project's alignment with the Preservation and Historic Features Element.

CapitalSpace Plan (2010)

The NAC Master Plan would incorporate environmentally-sensitive site and building design into each action alternative. New "green" practices on the installation such as rain gardens, porous pavers, water reuse and LID stormwater management techniques such as vegetative swells, ponds, and gravel beds would be used to help with storm water quantity and quality control on site. Each alternative also incorporates the installation of green roofs into its building design, helping the site increase its level of pervious surfaces and reducing the amount of stormwater generated from impervious cover. All these efforts would help reduce the volume of stormwater leaving the site and the current environmental impact of stormwater runoff from the NAC on the adjacent Glover-Archbold Park, which is part of the Rock Creek Park system. It would also limit the site's impact on the park over the long-term. This in turn would help promote one of *CapitalSpace Plan*'s goals which is to enhance the city's urban natural areas through greater protection of assets from environmental degradation caused by challenges such as stormwater management.

Comprehensive Plan for the National Capital, District Elements (2006)

The section of the *Comprehensive Plan for the National Capital, District Elements* that deals most directly with the NAC site is the Rock Creek West Area Element. The NAC Master Plan, under all three alternatives, would help address the issues identified in the Rock Creek West Area Element. Issues such as traffic congestion, pedestrian safety, noise and parking are major concerns to residents of this area.

A TMP would be implemented in conjunction with the NAC Master Plan. The TMP would encourage the use of alternative transportation by NAC employees in order to mitigate traffic generated by the facility. Internally, pedestrian safety would be improved through new access points, additional connections and limited vehicle circulation within the secure perimeter to increase campus walkability. Construction noise would produce short-term adverse impacts that would be mitigated through internal efforts and restrictions; future operational activities would be expected to comply with the District of Columbia noise control regulations (DC Municipal Regulations, Chapter 27). Finally, a majority of the parking for NAC employees would be provided on-site within a multi-level parking garage. Implementation of any of the alternatives would reduce the strain on local infrastructure, such as roadways and parking amenities; and improve pedestrian safety through reduced traffic volumes as a result of the TMP. Noise during the construction phase would be unavoidable but would comply with local noise standards and be short-term in nature. Overall the alternatives would comply with the District Elements of the Comprehensive Plan.

Zoning

No adverse impact to zoning would result on the site or to the surrounding area since local zoning regulations do not apply to the NAC property. It should be noted, however, that the surrounding zoning classification is residential, and the office use maintained under the Alternatives would not comply, if applicable.

The District of Columbia Bicycle Master Plan

The NAC Master Plan is intended to create a more sustainable site with a transportation goal to reduce auto-oriented commuting to the campus by employees. The NAC Master Plan would improve internal base circulation for pedestrians and bicyclists through the addition of sidewalks and paths across campus as well as bicycle amenities, such as shared traffic lanes and bicycle storage. New bike racks would be installed at buildings within the site and shower facilities would be available on site in order to encourage employees to take alternative transportation to and from the NAC. The NAC Master Plan would support the goals of the *DC Bicycle Master Plan* by including bicycle access within the site to connect to the future installation of the proposed multi-use trails along Nebraska Avenue and Massachusetts Avenue. Further, the other improvements to the area suggested in the *Bicycle Master Plan*, such as the expanded *Capital Bikeshare* program, would increase the accessibility and provide another transportation link to the larger DC area. As a result, these planned improvements would support the alternative transportation goals of the NAC TMP by making it safer and easier for bicyclists to access the area.

Green DC Agenda

In Alternatives A, B and C, the NAC Master Plan would increase tree canopy on the site from the existing canopy of 30 percent to approximately 40 percent, an approximately 10 percent increase in tree canopy. All of the action alternatives would support the Green DC Agenda and its goal to increase the city's tree canopy. As each of the alternatives aims to follow historic landscape precedents, further increasing the tree canopy (beyond 40 percent cover) would be inappropriate from a historical perspective (see Cultural Landscape Report in Appendix A).

Tree Removal Permit

The NAC Master Plan would not result in the removal of a tree with a circumference equal to or greater than 55 inches.

3.4.3 What Measures Should be Taken to Improve Compliance with Applicable Plans and Policies?

Coordination with the Urban Forestry Administration should occur regarding the removal of trees on the site. GSA should incorporate bike racks within the final design in compliance with the *District of Columbia Bicycle Master Plan*. The rehabilitation and/or restoration of other currently missing or significantly altered important historic resources and/or landscape features of the campus should occur where feasible as the detailed design progresses.

3.5 COMMUNITY FACILITIES

3.5.1 What Community Facilities and Services Are Present in the Area?

Community facilities and services typically include libraries, educational facilities, child care facilities, parks and open space, recreation and community centers, emergency services such as fire and rescue and law enforcement, and hospitals and medical services. The study area for community facilities includes resources generally within 0.5 mile radius of the site; however, when noted, some community facilities and services lie just outside the 0.5 mile radius. The 0.5 mile radius is based upon what is accessible within a 15-minute walk from the site.

Due to the fact that the DHS employees who would be re-assigned to the NAC campus currently work within the National Capital Region, it is unlikely a significant number of employees would relocate from their current places of residence to the neighborhoods adjacent to the NAC site. Instead, it is more likely these employees would simply change their commute to work. Therefore, since the resident population in the area would not be impacted by NAC-generated residential growth, a number of facilities and services were dismissed from further study. These include libraries, educational facilities and recreational facilities. An inventory of the remaining facilities and services—child care facilities, parks and open space, emergency services, and hospital and medical facilities—was developed through field inspections and on-line data.

Community Facility(ies): facility in which public services for residents are provided, including recreational and cultural services, and services for youth and seniors (*DC Office of Planning 2006*).

Community Services: services provided to the public such as law enforcement, fire, emergency medical, and health care services (*DC Office of Planning 2006*).

Childcare Facilities

There are two childcare facilities located within the study area or just outside it (DC Atlas 2010). These facilities include Child Setting Service Kid Care at 4301 Massachusetts Ave., NW (.17 miles) and St. Columba's Episcopal Nursery School at 4201 Albemarle St. (.65 miles).

Parks and Open Space

The most substantial presence of parks and open space near the NAC project site is directly east of the facility. The NAC site is bordered on its east side by Glover-Archbold Park, a part of the National Park Service Rock Creek Park system, which was established in 1890 and consists of 1,755 acres in total. Glover-Archbold Park itself is smaller at about 180 acres. There are footpaths for park users that connect to a system of hiking trails in the area (NPS 2010). There is an entrance to Glover-Archbold Park off of Massachusetts Avenue. There are a few examples of smaller parks or open areas in the vicinity of the site such as a small triangle park at the intersection of Van Ness St., NW, and Nebraska Ave., NW (.35 miles northeast of the NAC site), and a medium-sized triangle park across the road bounded by Van Ness St., NW, Nebraska Ave., NW, and 41st St. (.44 miles northeast of the NAC site). There also is Friendship Park Recreation Center at 4500 Van Ness St., NW, (.38 miles north of the NAC site) which features ball fields, basketball courts, tennis courts, playground equipment and a recreation center (DCPR 2010).

Emergency Services

There is a fire station located near the intersection of Warren St. and Wisconsin Ave. at 4300 Wisconsin Ave., NW, approximately 0.5 mile north of the NAC site (DC Atlas 2010). This station is home to D.C. Department of Fire and Emergency Medical Services Engine Company 20 (DCFEMS 2010). The NAC site is within this company's coverage area.

There is a police station located near the intersection of Newark St. and Idaho Ave. at 3320 Idaho Ave., NW, approximately 0.5 mile southeast of the NAC site (DC Atlas 2010). The project site falls within the Second Police District of the D.C. Metropolitan Police Department, in Police Service Area 204 (MPDC 2010).

Hospital Medical Services

There is a psychiatric hospital—Psychiatric Institute of Washington—located at 4228 Wisconsin Ave., NW, near the corner of Van Ness St., NW, and Wisconsin Ave., NW. The facility is approximately 0.5 mile north of the NAC site. The closest full-service hospital with acute care is Sibley Memorial Hospital located at 5255 Loughboro Road, NW (approximately 1.5 miles west of the NAC site). The next closest full-service hospital with acute care is Georgetown University Hospital at 3800 Reservoir Road, NW (approximately 2 miles south of the NAC site). These two full-service hospitals are both outside the study area but accessible from the NAC site (DC Atlas 2010).

3.5.2 How Would Community Facilities and Services be Affected?

No Action Alternative

Under the No Action Alternative, the employee population would remain at 2,390 seats. Therefore, there would be no increased demand for community facilities and services in the surrounding area.

Alternative A

Under Alternative A, impacts on community facilities and services would be generated by demands from additional people and additional facilitates on the NAC site that could potentially increase demand for community services or facilities. Alternative A proposes to increase the number of seats at the facility from 2,390 seats to 3,700 seats, and to add six new buildings and a parking structure, creating the least amount of demand on community facilities and services among the alternatives.

Child Care

The NAC would host a childcare facility on the NAC property for employees. Therefore, it is expected this on-site facility would satisfy employee demand, limiting any excess demand on the local community facilities. However, if additional demand were generated, it would not be expected to adversely affect local facilities' ability to provide service to the surrounding residents. Alternative A would result in negligible, indirect, long-term impacts on community childcare facilities.

Parks and Open Space

Parks and Open Space, particularly Glover-Archbold Park, would be slightly impacted by the development of the NAC site. The park may see an increase in the number of visitors as Federal employees learn more about the area and take advantage of the local offerings by visiting the park after hours or during non-work hours. Alternatives A would result in minor, indirect, long-term impacts on parks and open space in the community.

Emergency Services

In terms of impacts to emergency services, the NAC would introduce additional facilities and people to the local emergency/fire and rescue service area. Therefore, Alternative A would generate a slight increase in the potential need for coverage, thus creating an indirect impact on emergency/fire and rescue services. However, all new development would incorporate standard safety features for fire prevention and suppression. The NAC would also continue to function as an ISC Level V secure facility with its own state-of-the-art security system and security force. As a result, there would be a very limited indirect impact on D.C. law enforcement through an increase in service calls.

Hospital Medical Services

Hospital services in the area could potentially experience an increase in demand for services due to increased employee population at the NAC. However, it is expected normal first aid and treatment for non-life threatening conditions could be treated on-site or in any number of area hospitals, thus limiting the demand.

Therefore, Alternative A would result in a negligible, indirect, long-term impact on the local community services and facilities discussed above.

Alternative B

Similar to Alternative A, the impacts to community services and facilities under Alternative B would also result from the increase in demand created by additional employees and development. Alternative B proposes to increase the number of seats at the facility from 2,390 seats to 4,200 seats, and to add seven new buildings and a parking structure, creating slightly more demand than Alternative A. Similar impacts to Child Care, Parks and Open Space, Emergency Services, and Hospital Medical Service are anticipated under Alternative B as were described in Alternative A. As a result, the implementation of Alternative B would yield negligible, indirect, long-term impacts to community service and facilities.

Alternative C

Similar to Alternatives A and B, the impacts to community services and facilities under Alternative C would also result from the increase in demand created by additional employees and development. Alternative C proposes to increase the number of seats at the facility from 2,390 seats to 4,500 seats, and to add five new buildings and a parking structure, creating the most demand of the alternatives. However, this increase is still marginal and similar impacts to Child Care, Parks and Open Space, Emergency Services, and Hospital Medical Service are anticipated under Alternative C as were described in Alternatives A and B. As a result, the implementation of Alternative C would yield negligible, indirect, long-term impacts to community service and facilities.

3.5.3 What Would be Done to Prevent Impacts on Community Services and Community Facilities?

GSA and DHS should continue to coordinate with local service providers such as law enforcement and fire and rescue to ensure the increase in on-site employees and buildings, and the potential demand they could generate, is mitigated to the greatest extent possible.

3.6 VISUAL RESOURCES

3.6.1 What are the Existing Visual Conditions at the Site?

Due to the site location, views are generally afforded along streets that border the site and adjacent parkland. The streets include Nebraska and Massachusetts Avenues, NW and Ward Circle. Glover-Archbold Park comprises a portion of the National Park Service's Rock Creek Park. The following discussion characterizes the four sides of the site and the associated view corridors.

Nebraska Avenue, NW/ West of the site

Nebraska Avenue, NW, a four-lane roadway that extends approximately 1,000 feet along the front of the NAC, forms the facility's western border. The views of the NAC can be seen between Ward Circle to the south (Figure 3-4) and Van Ness Street, NW to the north (Figure 3-5). The street views are framed by trees, with predominantly campus settings on either side of the road emphasizing the appearance of an urban boulevard. The street is defined by landscaped strips and deep setbacks to the east (NAC) and institutional uses with grassy lawns and deep setbacks to the west.
Along the eastern side of Nebraska Avenue, NW, a tree-lined landscape strip extends from the curb to the sidewalk, with an additional landscape strip running from the sidewalk to the fence along the NAC property line (Figure 3-4 and Figure 3-5). The fence is iron with brick columns. In the southern portion of the street section, there is no fence or additional line of trees; instead, an evergreen hedge of approximately five feet runs along the property line (Figure 3-6). Two bus stops with glass and metal shelters are located between the sidewalk and fence/hedge line (Figure 3-5 and Figure 3-6). Most of the buildings are set back and have minimal visibility from the street, with the exceptions of the guard house at the main entrance and Building 7. These low-rise, one-story buildings are located approximately 20 feet from the

fence line, interrupting the dominant building line. There are three entrance points each of which is landscaped and has a gate.

On the western side of Nebraska Avenue, NW, across from the NAC, are primarily institutional uses. These include AU, Temple Baptist Church, and ambassadorial residences and facilities. AU's Katzen Art Center has extensive landscaping, which is setback roughly in line with Nebraska Avenue, NW buildings. These plants and trees can be seen from the street. American University's Nebraska Hall is an L-shaped, three-story building significantly set back from street. Generally in line with Nebraska Hall, Temple Baptist Church has two two-story buildings that flank a central church with a steeply pitched roof. A large parking lot is located to the south. The Swedish ambassadorial facilities are largely screened by vegetation and fencing, although it is possible to see portions of the multi-story structure that is set back from the street by a circular driveway. The Japanese ambassadorial facilities are almost entirely screened by vegetation and fencing, allowing little of the long, multi-story building set back from the roadway to be seen. Along the northern portion of the roadway, the streetscape features street trees, a sidewalk, a grass strip, and a fence of iron with brick posts. As the road extends south, this pattern gives way to a tree-lined street with large, grass lawns leading to the structures. These buildings have deep setbacks. Additionally, there are several breaks in the streetscape pattern to accommodate vehicle entrances.

NBC Studios, the National Presbyterian School, and the National Presbyterian Church lie to the north of the NAC along Nebraska Avenue, NW (Figure 3-8). The entrance to NBC Studios, located on the northern edge of the NAC, is divided by a landscaped median. No NBC Studios buildings are visible from the street, but two communication towers can be seen. A small service entrance with a concrete driveway and curb cut connect Nebraska Avenue, NW and the National Presbyterian School north of the NBC Studios entrance. The school is a long, one-story building set back in approximate alignment with Building 6, the Chapel. Between the property line and the school building are a playground and play fields. The general streetscape configuration found on Nebraska Avenue, NW in front of the NAC also extends north to the National Presbyterian School, with tree-lined landscape strips on either side of the sidewalk and a fence along the property line. The National Presbyterian Church has a large, multi-story church and a tower set back from the street, with a plaza in front of the complex. To the north and south of the church, one-story buildings are attached. Further to the north, a relatively small, three-story building is also set back from the street, with an expansive grass lawn reaching Nebraska Avenue, NW and Van Ness Street, NW. Between the National Presbyterian Church and the intersection with Van Ness Street, NW, no fence exists.

To the south of the NAC along Nebraska Avenue, NW is a single-family house, the Gatesly house. A tree-lined strip lies between the curb and sidewalk. Inside of the sidewalk is an additional landscaped strip with trees and other plant materials. A chain-link gate and fence, largely covered by hedge, is aligned with the hedge of the NAC.

Figure 3-4 View South on Nebraska Avenue, NW

Source: AECOM 2010

Figure 3-5 View North on Nebraska Avenue, NW

Source: AECOM 2010

Figure 3-6: View North on Nebraska Avenue, NW (with hedge)

Source: AECOM 2010

Figure 3-7 View North on Nebraska Avenue, NW

Source: AECOM 2010

Figure 3-8: View North on Nebraska Avenue, NW

Source: AECOM 2010

Figure 3-9 View South on Nebraska Avenue, NW

Source: AECOM 2010

Ward Circle/Southwest of the Site

Ward Circle lies at the southwest corner of the NAC site, at the intersection of Nebraska Avenue and Massachusetts Avenue, NW. The site curves to conform to the traffic circle, which is a circular four-lane roadway of one-way traffic. Within the circle are two two-lane segments for Nebraska Avenue, NW through traffic. The streetscape at Ward Circle includes a tree-lined grass strip between the curb and sidewalk and a narrow grass strip inside of the sidewalk. Beyond the grass is a wooded area with much overgrowth (Figure 3-10 and Figure 3-11).

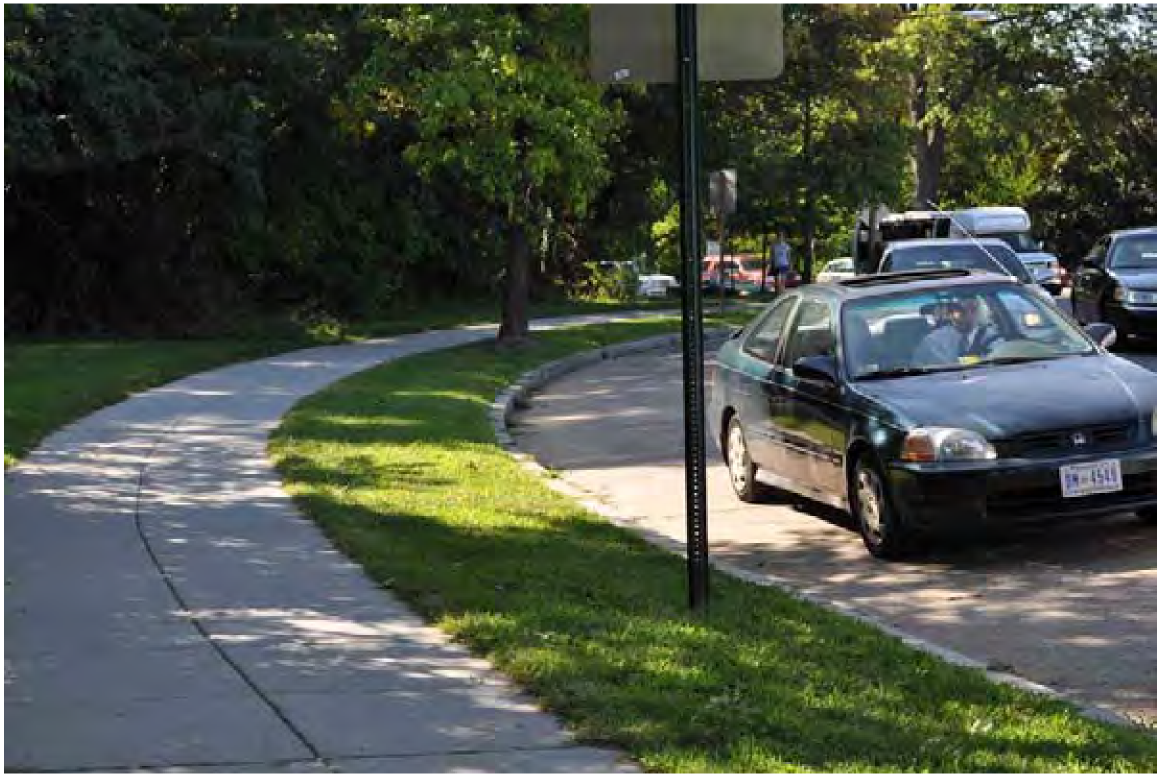
Views are afforded from the site to points around Ward Circle. Across Nebraska Avenue, NW on Ward Circle is AU's Katzen Arts Center (Figure 3-12). It contains a mowed grass strip between the curb and sidewalk, with an expansive lawn between the sidewalk and building. Across Massachusetts Avenue, NW to the southeast is a tree-lined strip between the curb and sidewalk, with additional grass before a line of trees and other plants that screen a parking lot from view (Figure 3-11). The three-story AU building to the southwest of Ward Circle is largely shielded by landscaping at the circle. At the center of Ward Circle is a statue ringed by a grove of trees, which is surrounded by grass.

From the circle, the primary feature of the NAC property is the tall trees and vegetation. Because there are two sections of roadway separated by a grass median, the roadway is a more dominant feature in views northeast toward the site. Conversely, when looking north toward Nebraska Avenue, NW's entrance at Ward Circle, the Katzen Art Center dominates due to its distinct circular shape, multi-story height, and light color building materials.

Figure 3-10 View Northwest on Ward Circle

Source: AECOM 2010

Figure 3-11 View Southeast on Ward Circle



Source: AECOM 2010

Figure 3-12 View West to Northwest Corner of Ward Circle

Source: AECOM 2010

Massachusetts Avenue, NW/ South and Southeast of the Site

Massachusetts Avenue, NW, a four-lane roadway, forms the southern border of the NAC. The views extend from Ward Circle to Embassy Park Drive, NW (Figure 3-13 and Figure 3-14). Mature street trees frame the roadway, which is bordered primarily by multi-family residential buildings. Elevations vary, with slight slopes leading up from Massachusetts Avenue, NW in both directions, providing a less expansive view than Nebraska Avenue, NW. Extending from Ward Circle, both sides of the street have tree-lined landscape strips, a sidewalk, on-street parking, and a grass strip bordered by trees and overgrowth, which shield parking lots (Figure 3-15). Near the eastern edge of the NAC property, the streetscape is interrupted by the main vehicular entrance to the NAC (Figure 3-16). Just behind the sidewalk, a small brick wall to the left of the entrance serves as an identifying sign. The access point is relatively wide, composed of three lanes. Swinging gates, which are set back approximately five feet from the sidewalk, limit access to the site.

Views of the NAC are largely obscured due to the heavy vegetation; the exception is through the main vehicular entrance. From this point, Buildings 18, 19, and 61 are visible, along with the archway connecting Buildings 18 and 19. These wide, multi-story buildings are set far back from the road, separated by a large parking lot at an elevation lower than the roadway.

Moving eastward on Massachusetts Avenue, NW beyond the NAC, several apartment and office buildings line the street. To the right of the vehicular entrance is a driveway, which curves downhill and away from view, leading to a garage for an adjacent residential building. The general streetscape pattern is a tree-lined strip between the curb and sidewalk. This connects to either grassed landscaped private property, or, in the case of the residences directly east of the NAC, a rock retaining wall.

Figure 3-13 View West on Massachusetts Avenue, NW

Source: AECOM 2010

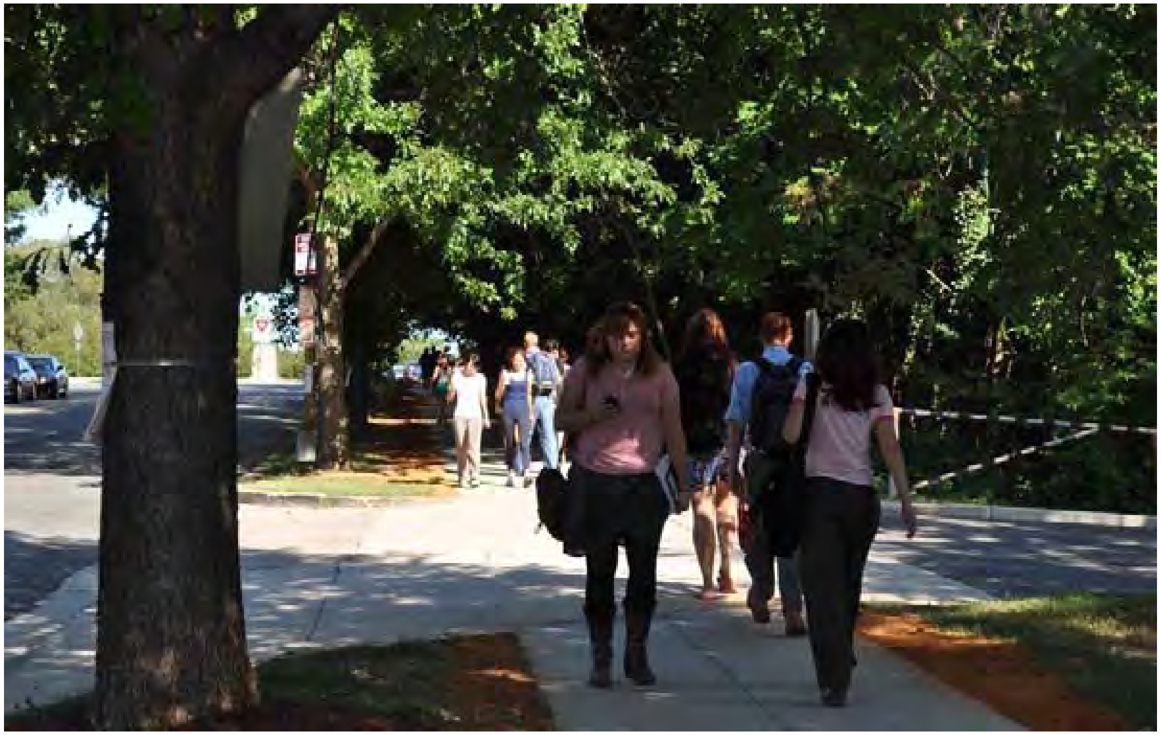
Figure 3-14 View East on Massachusetts Avenue, NW

Source: AECOM 2010

Figure 3-15 View East on Massachusetts Avenue, NW

Source: AECOM 2010

Figure 3-16 View West on Massachusetts Avenue, NW



Source: AECOM 2010

Glover-Archbold Park/West of the Site

Glover-Archbold Park, which is a branch of NPS's Rock Creek Park, lies to the west of the site. The park is a natural wooded area, characterized by mature trees and many plants. A trail, which is approximately three feet wide, runs the entire length of the NAC site (Figure 3-17). The trail is located along the Foundry Branch, crossing the stream at two points. It is at a lower elevation than the NAC, with the trail running primarily through a valley created by steep slopes on either side of the path. The topography slopes dramatically from the NAC to the park trail. The views north and south along the trail are limited by the elevation change, with a wooded landscape on all sides.

When looking up toward the higher elevations, views to the top of the slopes are largely shielded by trees and other vegetation, although some buildings are visible, including portions of the NAC campus. This is true for both the eastern and western slopes. At the NAC to the west, Buildings 132 and 101 can be seen from the trail. Building 101 is an existing two-story building with a gabled roof, while 132 is a smaller one-story building. They are set back approximately 30 feet from the slope's descent. Currently, the existing buildings are visible, at times, from the trail along Glover-Archbold Park, due to breaks in vegetation and their proximity to the cliff's edge (Figure 3-18). This situation would be more pronounced during the winter, when trees and other vegetation are dormant. Additionally, stretches of cloth and metal posts which are designed to mitigate soil erosion are visible along the cliff's edge. To the east, brick, low-rise residential buildings can be seen at times through the vegetation.

Figure 3-17 View South from Trail

Source: AECOM 2010

Figure 3-18 View West toward NAC from Trail

Source: AECOM 2010

3.6.2 How Would Key Viewsheds be Affected by the Project?

No Action Alternative

Under the No Action alternative, the Master Plan would not be adopted nor implemented. As such, no site improvements would be undertaken at the NAC. Therefore, impacts to visual resources would be negligible.

Alternative A

Nebraska Avenue, NW/West of the Site

Under Alternative A, the existing streetscape along Nebraska Avenue, NW would remain largely unchanged. The existing sidewalk, street trees, brick gates, and landscaped strips would be retained, maintaining the north and south view corridors. A line of low-scale plantings would be installed between the fence and the curb to continue to the axis between the main entrance to Building 1 and the plaza, approximately halfway along the site's front to Nebraska Avenue, NW. Building 7, which is the closest building to Nebraska Avenue, NW, would be removed. Building 18, which is not visible from Nebraska Avenue, NW due to its location west of Building 7, would also be demolished.

Viewing the NAC from Nebraska Avenue, NW, the removal of Building 7 would help to reinforce the continuous line of open space at the edge of the campus along Nebraska Avenue, NW. Building E, which would be located approximately where Building 18 stands, would be visible from Nebraska Avenue due to the demolition of Building 7. Its height and setback would be consistent with other structures along the roadway. Additionally, the new plantings between the fence and the curb would improve the connection between the streetscape and the NAC facilities beyond the fence. Therefore, there would be beneficial impacts to views along Nebraska Avenue, NW as a result of Alternative A.

Ward Circle/Southwest of the Site

Under Alternative A, the trees and overgrown vegetation that obstruct views to the NAC would be removed. In their place, a line of large trees and other landscaped materials would be installed, keeping the curvature of Ward Circle. Behind the trees, a parking structure, whose function would largely be masked by its architectural façade, would be built. The existing curb, grass strip, street trees, and sidewalk would remain.

The views northwest and southeast along Ward Circle would be modified by the removal of existing overgrowth. The new trees and landscape design would complement the existing street form, sidewalk, and trees. Although the vegetation would be different (i.e. specifically chosen placement of trees rather than overgrowth), the visual line would be maintained.

The Alternative A design would allow visibility of the parking garage, which would serve to anchor the northwest corner of Ward Circle. The garage would be three levels above ground, generally consistent with the Katzen Arts Center and American University's Ward Circle Building. Although the garage would have a presence on the circle, it would primarily front Massachusetts Avenue, NW. This alignment to Ward Circle would be similar to that of the Katzen Arts Center and the Ward Circle Building. This would alter the view to the north from Nebraska Avenue at Ward Circle, which is currently dominated by trees and brush. A structure consistent with the massing and scale of others on Ward Circle would help define the space, complementing the Katzen Arts Center on its northwest corner. Therefore, there could be beneficial impacts to views at Ward Circle as a result of Alternative A.

Massachusetts Avenue, NW/South and Southeast of the Site

Under Alternative A, the trees and overgrown vegetation that obstruct views to the NAC along Massachusetts Avenue, NW would be removed. In their place, a line of large trees and other landscaped materials would be installed, mirroring the straight line of the roadway. Behind the trees, the parking structure, whose function would largely be masked by its architectural façade, would be built. The building would be designed to create visual interest in the area, rather than appearing as a typical parking garage. The existing curb, grass strip, street trees, and sidewalk would remain.

The existing views east and west along Massachusetts Avenue, NW would be modified by the removal of existing overgrowth. The new trees and landscape design would complement the existing street form, sidewalk, and trees. Although the vegetation would be different (i.e. specifically chosen placement of trees rather than overgrowth), the visual line would be maintained. The parking garage would be set back from Massachusetts Avenue, NW similar to other structures along the street. This would also emphasize a consistent building line.

Additionally, the views into the NAC would be possible via the parking entrance. The construction of a parking garage would eliminate the current view of a parking lot. The building would further focus the view into the Building E, Building 19, and the revitalized connector between them. Therefore, there could be beneficial impacts to views along Massachusetts Avenue, NW as a result of Alternative A.

Glover-Archbold Park/West of the Site

Under Alternative A, several buildings would be removed and others built in the area of NAC adjacent to Glover-Archbold Park. As mentioned earlier, the park is characterized by steep slopes. The eastern slope of the park starts at the NAC, where the wooded area begins, and descends into the park. Adjacent to this area, Buildings 101, 98, 132, and 49 would be demolished. In their place, Alternative A would erect Buildings B, C, and D. They would range from three to five levels above grade, with a maximum of three levels in the area directly adjacent to the park. Buildings B and C would be set back from the slope edge approximately 100 feet, while Building D would be located approximately 150 feet away from the slope. A path connecting the new buildings would be installed between the buildings and the beginning of the slope.

Two factors are most important when assessing the visibility of Alternative A from the trail: location and height. The closer the building is to the edge of the slope, the more likely it is able to be seen along the trail. Similarly, it is more likely that a tall building would be seen from the trail due to the angles of the sight line.

As part of Alternative A, Buildings B and C would be minimally visible from the Glover-Archbold Park, similar to the existing conditions, while Building D would not be visible. Due to their setback from the slope and height, Buildings B and C would be seen from Glover-Archbold Park, although this would be limited to the tops of the buildings. They would be further screened from view due to vegetation, although this screening would not be as effective during the winter. Building D would not be visible from the park, due to its setback. Views to the north and south within the park would not change. Therefore, Alternative A would have a minor adverse impact on views from Glover-Archbold Park.

Under Alternative A, the building setback line of the NAC on Nebraska Avenue, NW would be restored. The overgrowth on the northeast corner of Ward Circle would be removed and replaced by landscaping and a structure whose height and massing are consistent with others on Ward Circle and Massachusetts Avenue. New structures built would be visible at times from Glover-Archbold Park. Overall, Alternative A would have minor adverse impacts on view from Glover-Archbold Park and beneficial impacts on views of Massachusetts and Nebraska Avenues and Ward Circle.

Alternative B

Nebraska Avenue, NW/West of the Site

Under Alternative B, the existing streetscape along Nebraska Avenue, NW would remain largely unchanged. The existing sidewalk, street trees, brick gates, and landscaped strips would be retained, maintaining the north and south view corridors along Nebraska Avenue, NW. A line of low-scale plantings would be installed between the fence and the curb to continue to the axis between the main entrance to Building 1 and the plaza, approximately halfway along the site's front to Nebraska Avenue, NW. Building 7, which is the closest building to Nebraska Avenue, NW, would be removed. Building 18, which is not visible from Nebraska Avenue, NW due to its location west of Building 7, would also be demolished.

Viewing the NAC from Nebraska Avenue, NW, the removal of Building 7 would help to reinforce the continuous line of open space at the edge of the campus along Nebraska Avenue, NW. Building E, which would be located on the former site of Building 18, would be visible from Nebraska Avenue due to the demolition of Building 7. Its height and setback would be consistent with other structures along Nebraska Avenue, NW. Building E would also have a two to three story portion of the building that would have a connection to Building F, a signature building that would anchor Ward Circle. These portions of the building would be minimally visible from the street due to their distant setbacks. The connection would be more visible because it is located in line with an entrance point to the site, although this would largely be hidden by trees and other vegetation throughout the year. Additionally, the new plantings between the fence and the curb would improve the connection between the streetscape and the NAC facilities beyond the fence. Therefore, there would be beneficial impacts to views along Nebraska Avenue, NW as a result of Alternative B.

Ward Circle/Southwest of the Site

Under Alternative B, the trees and overgrown vegetation that obstruct views to the NAC would be removed. In their place, a landscape of large trees, other landscaped material, and a low brick wall or fence would be installed, keeping the curvature of Ward Circle. Behind the trees, a signature building would be built. The building would be stylistically and architecturally differentiated from others at the NAC, creating visual interest at Ward Circle. The existing curb, grass strip, street trees, and sidewalk would remain.

The existing views northwest and southeast along Ward Circle would be modified by the removal of existing overgrowth. The new trees and landscape design would complement the existing street form, sidewalk, and trees. Although the vegetation would be different (i.e. specifically chosen placement of trees rather than overgrowth), the visual line would be maintained.

Views into the NAC would be possible as a result of the vegetation removal. The Alternative B design would allow visibility of Building F (the signature building), which would serve to anchor the northwest corner of Ward Circle. The building may be between one and five stories, but primarily four levels above ground. This would be generally consistent with the Katzen Arts Center and American University's Ward Circle Building. Although the building would have a presence on the circle, it would primarily front Massachusetts Avenue, NW. This alignment to Ward Circle would be similar to that of the Katzen Arts Center and the Ward Circle Building. This would primarily alter the view to the north from Nebraska Avenue at Ward Circle, which is currently dominated by trees and brush. A structure consistent with the massing and scale of others on Ward Circle would help define the space, complementing the Katzen Arts Center on its northwest corner. Therefore, there could be beneficial impacts to views at Ward Circle as a result of Alternative B.

Massachusetts Avenue, NW/South and Southeast of the Site

Under Alternative B, the trees and overgrown vegetation that obstruct views to the NAC along Massachusetts Avenue, NW would be removed. In their place, a line of large trees and other landscaped materials would be installed, keeping the straight line of the roadway. Behind the trees, a building of between one and five levels would be constructed at the site. The existing curb, grass strip, street trees, and sidewalk would remain.

The existing views east and west along Massachusetts Avenue, NW would be modified by the removal of existing overgrowth. The new trees and landscape design would complement the existing street form, sidewalk, and trees. Although the vegetation would be different (i.e. specifically chosen placement of trees rather than overgrowth), the visual line would be maintained. Building F would be set back from Massachusetts Avenue, NW similar to other structures along the street. This would also emphasize a consistent building line along the street.

Additionally, the views into the NAC would be possible via the parking entrance. The construction of Building F would eliminate the current view of a parking lot. The building would further focus the view into the Building E, Building 19, and the revitalized connector between them. Therefore, there could be beneficial impacts to views along Massachusetts Avenue, NW as a result of Alternative B.

Glover-Archbold Park/West of the Site

Under Alternative B, several buildings would be removed and others built in the area of NAC adjacent to Glover-Archbold Park. As mentioned earlier, the park is characterized by steep slopes. The eastern slope of the park starts at the NAC, where the wooded area begins, and descends into the park. Adjacent to this area, Buildings 101, 98, 132, and 49 would be demolished. In their place, Alternative B would erect Buildings B, C, and D, as well as a parking structure. They would range from three to six levels above ground, with the highest portions of the buildings at the rear of the site adjacent to the park. Buildings B, C, and D and the parking garage would each be set back from the slope edge approximately 100 feet. A path connecting the new buildings would be installed between the buildings and the top of the slope.

Two factors are most important when assessing the visibility of Alternative B from the trail: location and height. The closer the building is to the edge of the slope, the more likely it is to be seen along the trail. Similarly, it is more likely that a tall building would be seen from the trail due to the angles of the sight line. As part of Alternative B, Buildings B, C, and D and the parking garage would be minimally visible from the Glover-Archbold Park, similar to the existing conditions. Due to their setback from the slope and height, the views would be limited to the tops of the buildings. They would be further screened from view due to vegetation, although this screening would not be as effective during the winter. Views to the north and south within the park would not change. Therefore, Alternative B would have a minor adverse impact on views from Glover- Archbold Park.

Under Alternative B, the building setback line of the NAC on Nebraska Avenue, NW would be restored. The overgrowth on the northeast corner of Ward Circle would be removed and replaced by landscaping and a structure whose height and massing are consistent with others on Ward Circle and Massachusetts Avenue. New structures built would be visible at times from Glover-Archbold Park. Overall, Alternative B would have minor adverse impacts on view from Glover-Archbold Park and beneficial impacts on views of Massachusetts and Nebraska Avenues and Ward Circle.

Alternative C

Nebraska Avenue, NW/West of the Site

Under Alternative C, the existing streetscape along Nebraska Avenue, NW would remain largely unchanged. The existing sidewalk, street trees, brick gates, and landscaped strips would be retained, maintaining the north and south view corridors along Nebraska Avenue, NW. A line of low-scale plantings would be installed between the fence and the curb to continue to the axis between the main entrance to Building 1 and the plaza, approximately halfway along the site's front to Nebraska Avenue, NW. Building 7, which is the closest building to Nebraska Avenue, NW, would be removed. Building 18, which was not visible from Nebraska Avenue, NW due to its location west of Building 7, would also be demolished.

Viewing the NAC from Nebraska Avenue, NW, the removal of Building 7 would help to reinforce the continuous line of open space at the edge of the campus along Nebraska Avenue, NW. Building E, which would be located on the former site of Building 18, would be visible from Nebraska Avenue due to the demolition of Building 7. Its height and setback would be consistent with other structures along Nebraska Avenue, NW. Additionally, the new plantings between the fence and the curb would improve the connection between the streetscape and the NAC facilities beyond the fence. Therefore, there would be beneficial impacts to views along Nebraska Avenue, NW as a result of Alternative C.

Ward Circle/Southwest of the Site

Under Alternative C, the trees and overgrown vegetation that obstruct views to the NAC would be removed. In their place, a line of large trees and other landscaped materials would be installed, keeping the curvature of Ward Circle. Behind the trees, a parking structure with a green roof would be built. The parking garage would be recessed into the ground so that the vegetated roof, but not the building, would be visible from the street.

The existing views northwest and southeast along Ward Circle would be modified by the removal of existing overgrowth. The new trees and landscape design would complement the existing street form, sidewalk, and trees. Although the vegetation would be different (i.e. specifically chosen placement of trees rather than overgrowth), the visual line would be maintained.

Because the overgrowth would be removed, views into the NAC would be possible from Ward Circle. The design of Alternative C would allow visibility of the parking garage. Due to the two-levels of parking above ground, only the roof of the garage would be visible from Ward Circle. Alternative C would minimize the urban presence of the campus from this corner, instead focusing on creating a natural area transitioning from the urban Ward Circle to NAC's campus setting. Due to its low elevation, it could also allow visibility of Buildings D and 19 of the campus, which are now screened. Although the garage would have a presence on the circle, it would primarily front Massachusetts Avenue, NW. This alignment to Ward Circle would be similar to that of the Katzen Arts Center and the Ward Circle Building. This would primarily alter the view to the north from Nebraska Avenue at Ward Circle, which is currently dominated by trees and brush. Therefore, Alternative C would have a beneficial impact on views at Ward Circle.

Massachusetts Avenue, NW/South and Southeast of the Site

Under Alternative C, the trees and overgrown vegetation that obstruct views to the NAC along Massachusetts Avenue, NW would be removed. In their place, a line of large trees and other landscaped materials would be installed, keeping the straight line of the roadway. Behind the trees, a parking structure with two levels above ground and a green roof would be constructed. The existing curb, grass strip, street trees, and sidewalk would remain.

The existing views east and west along Massachusetts Avenue, NW would be modified by the removal of existing overgrowth. The new trees and landscape design would complement the existing street form, sidewalk, and trees. Although the vegetation would be different (i.e. specifically chosen placement of trees rather than overgrowth), the visual line would be maintained. The parking garage would be set back from Massachusetts Avenue, NW similar to other structures along the street. Due to the elevation and the green roof, the building would have a minimal presence along Massachusetts Avenue, NW, instead appearing as simply a landscaped area.

Additionally, the views into the NAC would be possible via the parking entrance. The parking garage would eliminate the current view of a parking lot. The building would further focus the view of Buildings E and 19 and the revitalized connector between them. Therefore, there would be beneficial impacts to views along Massachusetts Avenue, NW as a result of Alternative C.

Glover-Archbold Park/West of the Site

Under Alternative C, several buildings would be removed and others built in the area of NAC adjacent to Glover-Archbold Park. As mentioned earlier, the park is characterized by steep slopes. The eastern slope of the park starts at the NAC, where the wooded area begins, and descends into the park. Adjacent to this area, Buildings 101, 98, 132, and 49 would be demolished. In their place, Alternative C would erect Buildings B and C. They would range from four to six levels above ground, with the highest portions of the buildings at the rear of the site adjacent to the park. Combined, they would span approximately 550 feet along the rear of the site. Building B would be set back from the slope edge approximately 100 feet, while Building C would be set back approximately 150 feet. A path connecting the new buildings would be installed between the buildings and the beginning of the slope.

Two factors are most important when assessing the visibility of Alternative C from the trail: location and height. The closer the building is to the edge of the slope, the more likely it is to be seen along the trail. Similarly, it is more likely that a tall building would be seen from the trail due to the angles of the sight line. As part of Alternative C, Buildings B and C would be visible from Glover-Archbold Park. Due to their setback from the slope and height, the views would be limited to the upper portion of the buildings. Because of the extensive frontage along the site, the viewing opportunities of the buildings increase. They would be screened from view due to vegetation, although this screening would not be as effective during the winter. Views to the north and south within the park would not change. Therefore, Alternative C would have a minor to moderate adverse impact on views from Glover-Archbold Park.

Under Alternative C, the building setback line of the NAC on Nebraska Avenue, NW would be restored. The overgrowth on the northeast corner of Ward Circle would be removed and replaced by landscaping and a structure whose height and massing are consistent with others on Ward Circle and Massachusetts Avenue. New structures built would be visible at times from Glover-Archbold Park. Overall, Alternative C would have minor adverse impacts on view from Glover-Archbold Park and beneficial impacts on views of Massachusetts and Nebraska Avenues and Ward Circle.

3.6.3 What Measures Should Be Undertaken to Reduce Visual Impacts?

For all action alternatives, to the extent possible, the physical features along Nebraska Avenue and Massachusetts Avenue, NW and Ward Circle should be similar to the surrounding area. In order to maximize the beneficial visual impact of a structure at the northwest corner Ward Circle, the massing and height of the building should be consistent with others at the circle. Additionally, the siting of structures should be in line with existing buildings on the circle and along Massachusetts Avenue, NW in order to reinforce the continuous setback line. Landscaping should be used to reinforce the streetscape lines consistent with those elsewhere along Massachusetts Avenue and Nebraska Avenue, NW and Ward Circle. Landscaping should also be used to minimize the visual impacts of new construction, particularly to the western portion of the NAC near Glover-Archbold Park.

3.7 CULTURAL AND HISTORIC RESOURCES

3.7.1 How are Impacts to Cultural Resources Evaluated?

The White House Council on Environmental Quality (CEQ) regulations for implementing NEPA require an evaluation of impacts on historic resources as part of an EIS (40 CFR § 1502). Potential impacts to historic resources include direct and indirect impacts. The alteration, physical displacement, or demolition of a resource is a direct impact; changes in the use, operation or character of a resource can be either a direct or indirect impact; and changes to the visual context are considered indirect impacts.

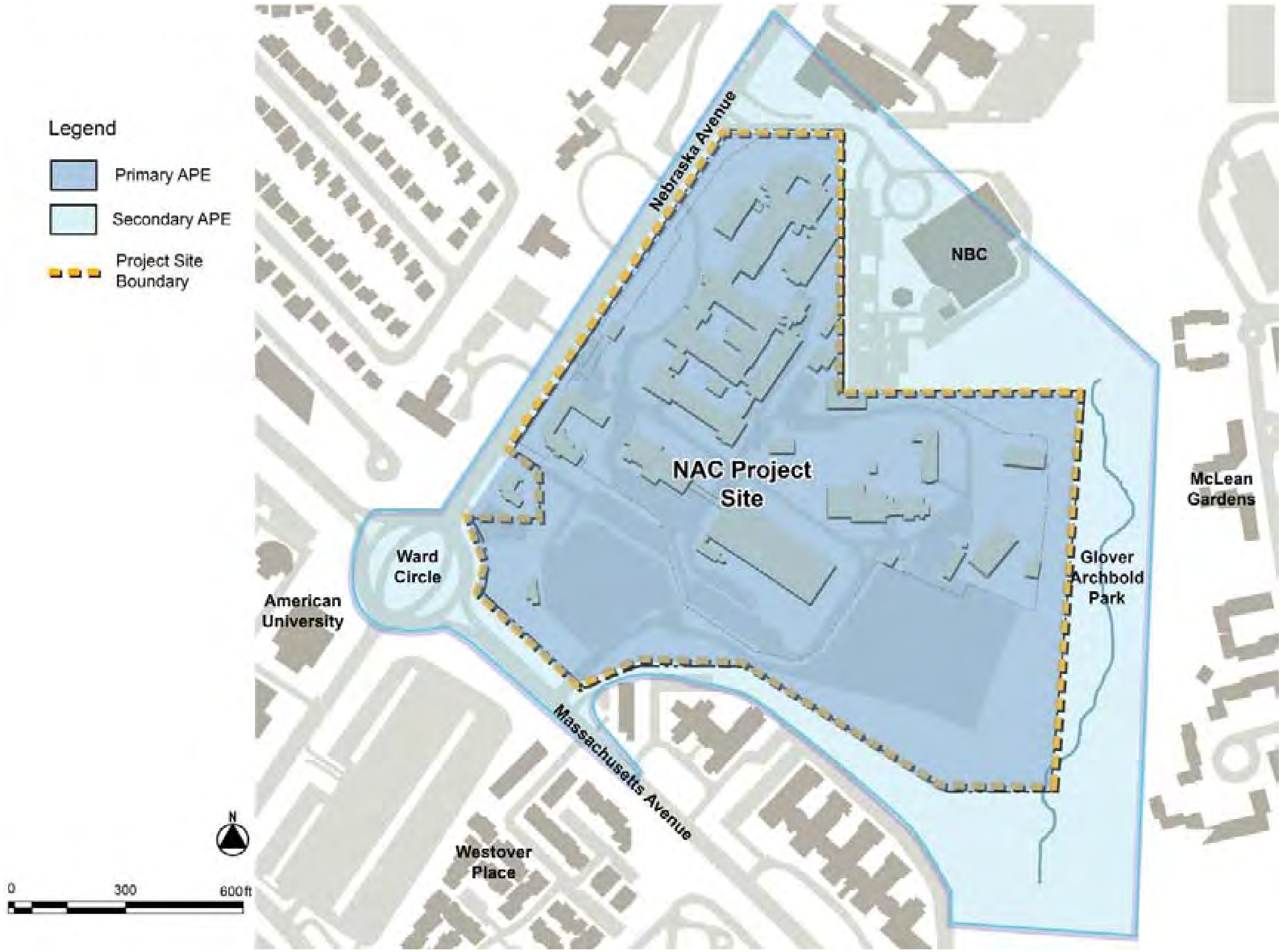
In addition to CEQ regulations implementing NEPA, the Advisory Council on Historic Preservation's regulations for the Protection of Historic Properties establishes standards for evaluating potential effects to historic resources. The Advisory Council regulations define "effect" as an "alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register" (36 CFR § 800.16) and requires that the lead agency, in consultation with the SHPO, determine whether the effect is adverse. An adverse effect occurs "when an undertaking may alter, directly or indirectly, any of the characteristics of the historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association" (36 CFR 800.5).

In accordance with the Advisory Council on Historic Preservation (ACHP) regulations for the Protection of Historic Properties, effects on cultural resources are identified and evaluated by (1) determining the area of potential effects (APE), (2) identifying cultural resources present in the area of potential effects that are either listed in, or eligible to be listed in, the National Register of Historic Places, (3) applying the criteria of adverse effect to affected resources, and (4) considering ways to avoid, minimize, or mitigate adverse effects. As recommended by CEQ and the *Code of Federal Regulations* Title 36 “Protection of Historic Properties”, the Section 106 process is being undertaken concurrent with the environmental review process mandated by NEPA (36 § CFR 800.8). The discussion that follows is based largely on the Cultural Landscape Report (CLR) for the Nebraska Avenue Complex, completed in August 2010 (see Appendix A).

3.7.2 What is the Area of Potential Effects for the Proposed Action?

The Area of Potential Effects, or APE, is the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The primary APE, where the action could result in direct effects, is the NAC property itself. The secondary APE is the area within which there could be indirect effects from the undertaking. Both the primary and secondary APEs are shown in Figure 3-19.

Figure 3-19 Area of Potential Effects



3.7.3 What is the History of the Site?

The Nebraska Avenue Complex site was originally developed as the Mount Vernon Seminary for Girls in the early part of the twentieth century when this part of the District of Columbia was largely rural in nature. The main school building (Building 1), which is attributed to architect Wesley Sherwood Bessell, was built in 1916 in the Colonial Revival style and set the tone for much of the later development on the campus (Figure 3-20 and Figure 3-21). Set back from, but facing directly onto Nebraska Avenue, it still presents the predominant visual image of this complex to the street and the public. All of the subsequent major buildings built as part of Mount Vernon Seminary's academic campus were designed by Mr. Bessell.

The U.S. Navy took ownership of this property in 1943 for the U.S. Naval Cryptanalysis operations during World War II. The first five major buildings built for the U. S. Navy were also designed by Wesley Sherwood Bessell in the same design vocabulary and oriented to the same campus grid as first set by the Mount Vernon Seminary for Girls. The consistent influence of one designer creates the effect of a cohesive ensemble or academic village even though constructed during two separate time periods. Even with the construction of many additional buildings since the late 1940's, the most intrusive element today is not so much the newer buildings as the presence of many parked vehicles all over the interior circulation arteries throughout the campus.

Figure 3-20 Building 1 circa 1930s

Source: Mount Vernon Seminary and College Archives

Figure 3-21 North Wing of Building 1 in 1942

Source: GSA NAC Archives

3.7.4 What is the Significance of the Site?

The NAC has been determined eligible as a historic district, and a National Register nomination is under development for the property. The information provided in this section of the Draft EIS is based on extensive research conducted by GSA for the National Register nomination under development. Encompassing two distinct periods of significance, from 1916 to 1942 as the Mount Vernon Seminary for Girls and then from 1943 to 1952 as the Naval Communications Annex; this property is significant according to National Register Criteria A and C.

Criterion A – Associated with events that have made a significant contribution to the broad patterns of our history:

Association with Education: As the first non-sectarian private school for women in Washington D.C., Mount Vernon Seminary for Girls was a leader in promoting the education of women in the community and went on to see many of its graduates take leadership jobs in other institutions of higher education for women across the Eastern Seaboard.

Association with the WWII effort: After the bombing of Pearl Harbor, the U. S. Government exercised its powers of eminent domain and took over the Mount Vernon Seminary for Girls property for the Naval Cryptanalysis mission which contributed to U.S. and Allies success in WWII. The U.S. Navy moved its Communications and Security Section to 3801 Nebraska Avenue in February of 1943; which became known as the Naval Communication Annex. During the ensuing years of World War II, this facility was largely staffed by women originally recruited through the Women Accepted for Voluntary Emergency Service (WAVES) who worked in the cryptanalysis offices and labs. Here they worked to break the coded messages and bombes of enemy forces in Japan and Germany; historic photographs identify the labs and offices of Building 4 as the location of this work.

Criterion C – Embody distinctive characteristics of a type, period, or method of construction; or that represent the work of a master; or that possess high artistic values; or that represent a significant and distinguishable entity whose components may lack individual distinction.

The Campus Plan and layout and most major buildings (from both periods of significance) were designed by architect Wesley Bessell in a coherent Colonial Revival Style. Bessell was interested in buildings for education as is evidenced from his design of both the original (at Nebraska Ave.) and the subsequent (on Foxhall Rd. after the original campus was commandeered by the US Government for the War effort) Mount Vernon Seminary for Girls campuses as well as several other of his works such as the Kensington School in Connecticut.

In several articles or pamphlets written either by or about him, it is clear that Bessell had strong opinions about the necessity of designing educational buildings which both worked well for their purpose and exhibited the grace and Classical presence appropriate to the function they served. Bessell was one of the pioneers in the concept of campus layout where educational buildings related to one another both by proximity and by their adherence to a coherent stylistic vocabulary carried out in dignified materials, details and proportions.

All of the buildings built for the Mount Vernon Seminary for Girls and many of the major buildings built for the Naval Communications Annex were designed by Mr. Bessell (Figure 3-22). All but the two recreational buildings (12 and 14) were designed in the Colonial Revival style and built of dark red brick; mostly with slate-covered, gabled roofs punctuated with dormers. Two subsequent major buildings, Building 19 designed by the Navy and Building 20, designed by architect Leon Chatelain, Jr., were also built in the Colonial Revival style of materials and proportions compatible with the predominant visual atmosphere originally created by Bessell (Figure 3-23).

Figure 3-22 Building 1 and Building 6 circa 1930s

Source: Mount Vernon Seminary and College Archives

Figure 3-23 Building 19 circa 1946

Source: GSA NAC Archives

The Historic District is based on the original campus layout of the Mount Vernon Seminary for Girls. With academic buildings located at the high point of the property facing Nebraska Avenue an implied grid was created which parallels Nebraska Avenue and Massachusetts Avenue at their intersection on Ward Circle in northwest Washington D.C. The former school's athletic components, located in the interior portion of the site, are skewed from the academic grid responding more to the natural topography.

Most of the contributing cultural features extant today survive from the early to mid-twentieth century, and thus contribute to the significance of the district. The strong connections between the siting of buildings and structures and the natural character of the site, the historic use of the property as a campus, retention of historic circulation features, and the continued reference to Colonial Revival architecture used for the Mount Vernon Seminary for Girls in many of the Navy buildings continue to be expressed in the surviving fabric of the campus.

3.7.5 What Historic Buildings are located within the Primary APE?

Thirty-three buildings are located in the primary APE. Of these, seven date to the Mount Vernon Seminary for Girls, twelve to the cryptanalysis period, and fourteen were built between 1953 and 1997 in association with the U.S. Naval Security Station. Based on ongoing research conducted for the development of the National Register nomination, fourteen of the buildings are considered contributing resources: five because of their association with the Mount Vernon Seminary for Girls (1916-1942) and nine for their association with WWII US Naval cryptanalysis (1943-1952). Fifteen are considered non-contributing either because of loss of integrity (Buildings 7) or date of construction. The National Register nomination is under development and ongoing consultation regarding contributing buildings is occurring. Due to the ongoing consultation and continued development of the nomination, a final determination on the status of four buildings (Buildings 8, 11, 15, and 18) within the proposed Historic District is unresolved. Building 8, which dates to the Mount Vernon Seminary for Girls, is outside of the NAC site boundary.

Contributing and unresolved buildings are listed in Table 3-2 and Table 3-3 and are shown in Figure 3-24.

Table 3-2 Potentially Contributing Buildings from the Mount Vernon Seminary Period of Significance (1916-1942)

Building Number	Building Name	Date	Architect	Status
1	Main School Building	1916	Wesley Sherwood Bessell	Contributing
2	Class and Recreation Building	1940	Wesley Sherwood Bessell	Contributing
6	Elizabeth J. Somers Memorial Chapel	1924	Wesley Sherwood Bessell	Contributing
8	Gatesly (located outside NAC site boundary)	1922	Wesley Sherwood Bessell	Unresolved
12	Gymnasium	1929	Wesley Sherwood Bessell	Contributing
14	Cafeteria	1929	Wesley Sherwood Bessell	Contributing
15	Powerhouse	1916	Wesley Sherwood Bessell	Unresolved

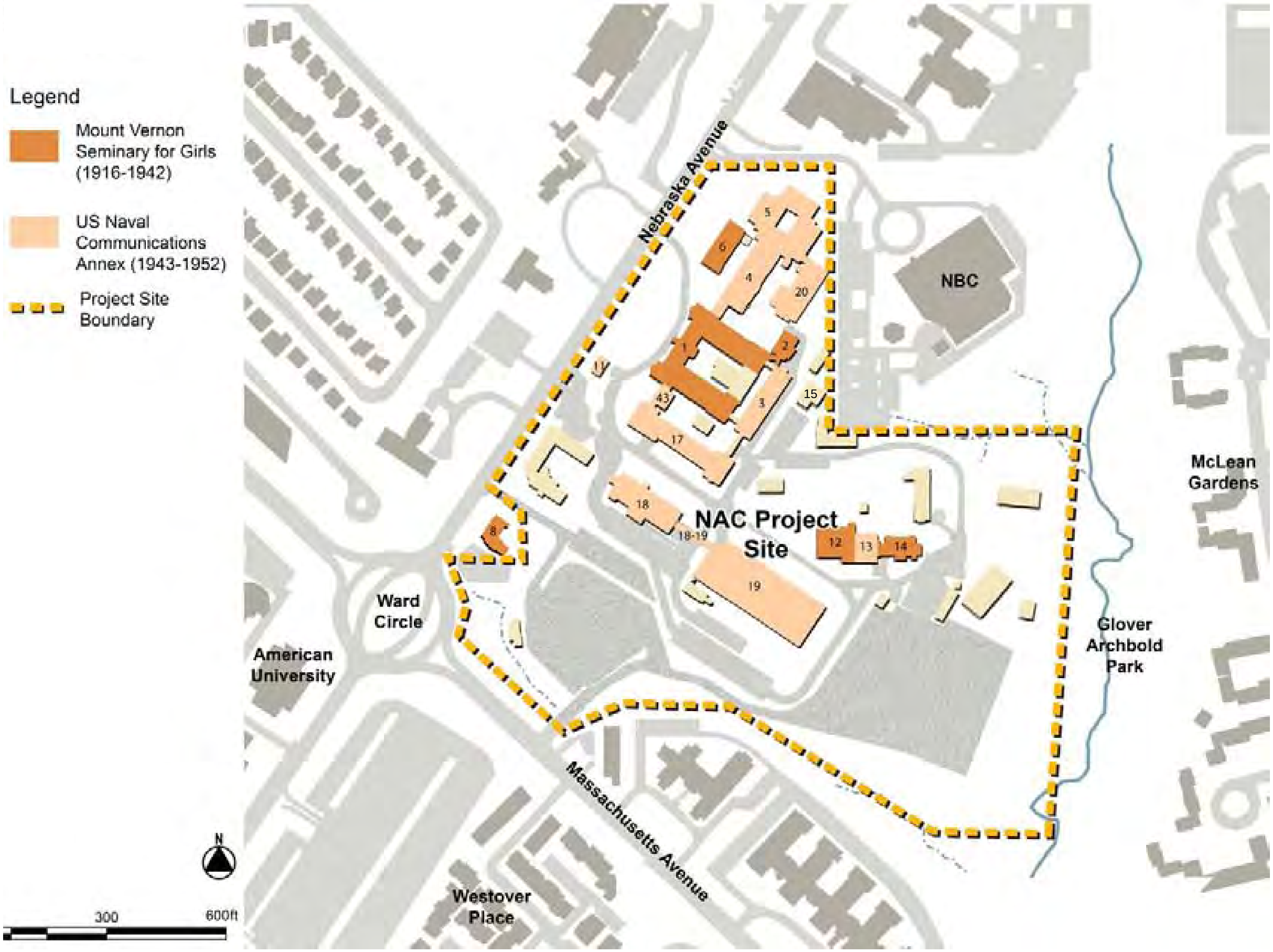
Source: JMA 2010

Table 3-3 Potentially Contributing Buildings from the US Naval Period of Significance (1943-1952)

Building Number	Building Name	Date	Architect	Status
3	Office Building	1943	Wesley Sherwood Bessell	Contributing
4	Laboratory Building	1943	Wesley Sherwood Bessell	Contributing
5	Addition to the Laboratory Building	1944	Unknown	Contributing
11	Gatehouse/Visitor's Center	1943	Wesley Sherwood Bessell	Unresolved
13	Recreational Services	1943	Wesley Sherwood Bessell	Contributing
17	Office Building	1944	Unknown	Contributing
18	Code and Signal Laboratory	1944	Unknown	Unresolved
18-19	Connector Building	1946	Unknown	Contributing
19	Office Building	1946	Unknown	Contributing
20	Operations Building	1946	Leo Chatelain Jr.	Contributing
43	Administrative Building	1944	Unknown	Contributing

Source: JMA 2010

Figure 3-24 Map of Potentially Contributing Buildings



Most of the historic buildings are constructed of brick with slate roofs and have been generally well maintained over the years. With the exception of a major "weatherization" campaign in the 1980s, the exteriors of most of the contributing buildings have not been significantly altered (Figure 3-25 and Figure 3-26). In the 1980's almost all of the original wood double hung windows were removed - both frames and sash – and were replaced with aluminum windows of similar but not matching configuration. The aluminum frames are thicker than the original wood frames and they extend over the sills, obscuring the limestone or cast stone sills. The replacement sash emulates the historic lite configuration, but because of the increase in the thickness of the frames the actual glazed viewing area of the sash is smaller than as historically designed.

Figure 3-25 Building 19 in 2009

Source: JMA

Figure 3-26 Building 20 in 2010

Source: JMA

All of the Colonial Revival buildings have been significantly altered on the interior. The Main School Building (Building 1) which once included classrooms, a library, a refectory and formal reception areas on the lower floors and dormitories, practice rooms and wash rooms on the upper floors has long since been further subdivided into smaller rooms for offices and meeting rooms. In Building 1 some remnants of the formal entrance, main and reception areas still remain, and one very large conference room still occupies a large percentage of the original refectory. The original central stairway still remains as a signature piece of the once grand entry to this esteemed seminary for young women.

Buildings 12, 13 and 14 are an exception to the Colonial Revival design vocabulary, built out of brick. These structures originally designed for recreational uses and still used as gathering spaces today, retain a high level of original fabric on the interior, but have been modified on the exterior more than once. The exterior changes are reversible and there are historic photographs which could be used to restore them to the appearance during one or the other of the periods of significance (Figure 3-27).

Figure 3-27 Historic Photo of Building 12 circa 1930s

Source: GSA NAC Archives

3.7.6 What Contributing Landscape Features are Located within the Primary APE?

Spatial Organization

The overall spatial organization of the NAC was influenced by the natural topography of the site as well as its proximity to Nebraska Avenue. Today, the three-dimensional organization of the site is shaped primarily by the plateau and rolling topography, large-scale vegetative patterns, building forms and cluster arrangements, and circulation patterns. The oldest developed areas maximize frontage along Nebraska Avenue, making Buildings 1 (main school building) and 6 (chapel) prominent features along the roadway. This portion of the site is generally organized by axes related to the alignment of Nebraska Avenue. While the western-most portion of the property has subtle topographic variation, the site slopes gradually down, trending to the east and southeast towards the Foundry Branch stream. Sport courts near Buildings 12-14, originally constructed for the Mount Vernon Seminary for Girls, take advantage of the gradual slope of the site, with low terraces providing the necessary topographic adjustments for a flat surface. Less subtle topographic modifications along the eastern property line provide for large flat parking areas associated with post period-of significance construction.

Topography

The natural hill and ravine topography of the NAC has been highly modified to support uses and structures including building pads, drives, parking lots, and sport courts. These topographic modifications were primarily in the form of earthen terraces, sometimes supplemented by retaining walls.

Circulation

When it was established, circulation at Mount Vernon Seminary for Girls was dominated by the circular drive in front of Building 1. Today, circulation patterns within the NAC are dominated by the roads, sidewalks, and parking areas of the modern era. Circulation features survive from both periods of significance, but most of these are associated with the US Naval occupation from 1943-1952. Construction projects associated with this period of significance obliterated much of the circulation system associated with Mount Vernon Seminary for Girls. Most of the existing features were installed during the construction of the US Navy cryptanalysis facilities or afterwards, including internal drives, parking lots, and sidewalks. The majority of roadways onsite are asphalt paved although some gravel service roads are located in the northern and eastern portions of the site. Most sidewalks are poured concrete, although around Building 1 some are brick.

Figure 3-28 Aerial view looking east across Nebraska Avenue, 1929

Source: Mount Vernon Seminary and College Archives

Figure 3-29 Aerial view looking east across Nebraska Avenue, Date Unknown

Source: Joseph A. Glockner, CTTCS, USN Retired

Heritage Vegetation

Current vegetation consists primarily of cultivated landscape plantings associated with current site occupation and include species such as walnut (*Juglans sp.*), cherry (*Prunus sp.*), and pin oak (*Quercus palustris*). The CLR identifies a number of existing “notable” trees which may date to one or both of the periods of historic significance because of their size and age (see Appendix A). Only a handful of existing trees can be specifically documented as probably those evident in historic photographs. There are a few trees associated with the first period of significance including Eastern Red cedars, little leaf linden, arborvitae, deciduous street trees, and the woodland edge. There are also a few larger trees at various locations throughout the site associated with the second period of significance. These trees include large oaks and Norfolk Island pines. Additionally, ornamental landscaping patterns consistent with images from the first period of significance can be found in front of Building 1 and along Nebraska Avenue.

Small-Scale Features

Most of the small-scale features within the NAC site have been installed after the period of significance. However, remaining small-scale features associated with the periods of significance include the Hensley Memorial Gate, the Seminary flagpole, a concrete bench now located on the porch of Building 6, some original signage and other features. The retention of such features helps to contribute to the overall integrity of the site as a former academic campus turned military complex.

Views and Vistas

The views within the NAC have changed considerably since the first period of significance. Once offering views of Washington D.C., the surrounding landscape, the National Cathedral, and views framed by Seminary buildings, most of the historic views and vistas of the Mount Vernon Seminary for Girls structures and fields have been obscured by the numerous buildings and parking lots that were constructed by the US Navy and cover almost the entire site.

Figure 3-30 NAC Campus circa 1930s

Source: Mount Vernon Seminary and College Archives

Figure 3-31 Rear of Building 1 circa 1930s

Source: GSA NAC Archives

Long views within the Mount Vernon Seminary unit are limited by vegetation and building mass. Views into the courtyard of Building 1 and other views within the Mount Vernon Unit that were possible during the first period of significance have been almost entirely eliminated due to the construction of other buildings, particularly Building 100. It is possible that the connector between Buildings 3 and 17 was also constructed to frame view to the east, but this view is now blocked by Building 10. Vistas created by the arches in Building 18-19 Connector have been blocked due to the filling in of some of the arches but views are still possible through the one remaining open archway.

From many areas of the site one can see the numerous antennae and satellite dishes set up by the adjacent television station (Figure 3-32). Views of this equipment negatively affect the character of the site. Also negatively affecting the site's character are the two large parking lots on the southeast and southwest corners of the site. Of particular concern is the view down Mount Vernon Drive that is terminated by the southeastern parking lot.

Figure 3-32 View of Antennae from Nebraska Avenue in 2009

Source: JMA 2010

Table 3-4 Contributing Landscape Features from the Mount Vernon Seminary Period of Significance (1916-1942)

Spatial Organization
Axial and Symmetrical Organization
Orientation to Nebraska Avenue
Front Lawn
Building 1 Courtyard
Athletic Complex Open Space
Topography
Earthen Terraces in Building 1 Courtyard
Circulation
Front Semi-circular Drive
Historic Sidewalks and Paths
Eastern End of Service Road
Heritage Vegetation
Eastern Red Cedar Throughout Site
Woodland Edge
Pattern Of Ornamental Shrubs, Front of Building 1
Little Leaf Linden (40” Cal.) from Allée
Yew Along Axial Path
Arborvitae at Entrance
Deciduous Street Trees
Eastern Red Cedar at Sports Courts
Views and Vistas
View from Nebraska Avenue to Building 1
Views from Building 1 out towards Nebraska Ave

Source: JMA 2010

Table 3-4, Figure 3-33, Table 3-5, and Figure 3-34 display the contributing landscape features during each period of significance. See the Cultural Landscape Report for more information about the features displayed (Appendix A).

Figure 3-33 Contributing Landscape Features from the Mount Vernon Seminary Period of Significance (1916-1942)

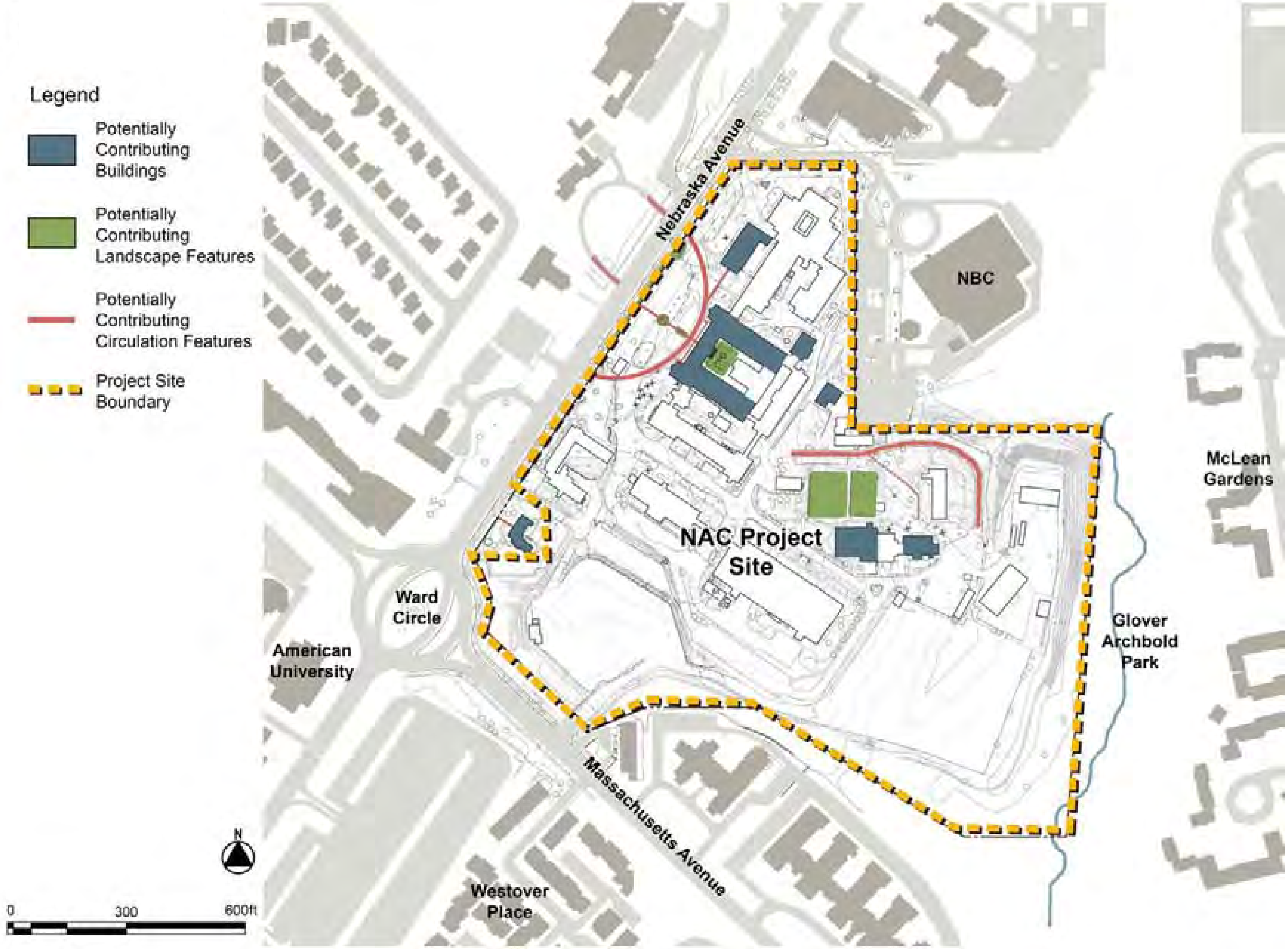
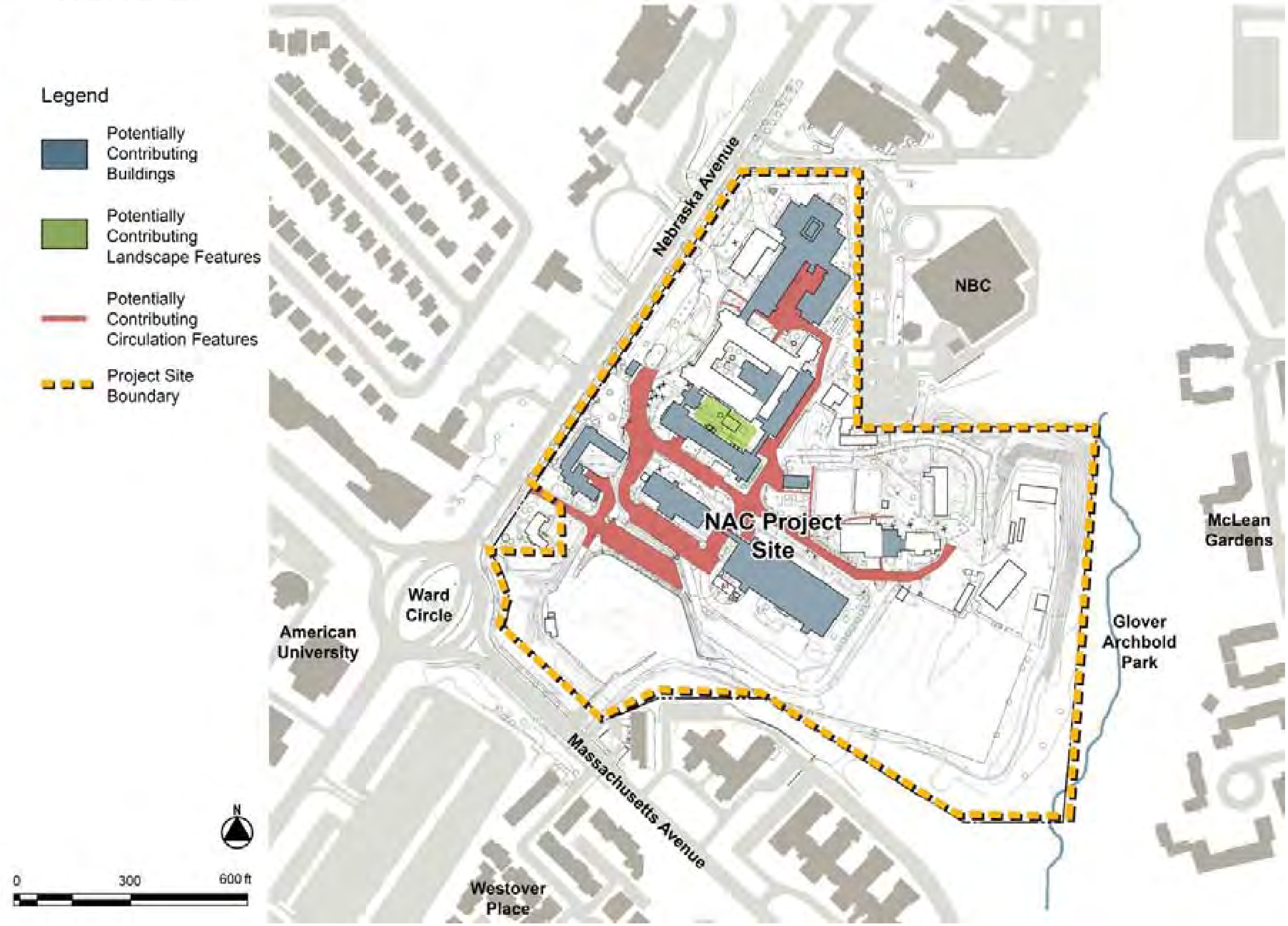


Table 3-5 Contributing Landscape Features from the US Naval Period of Significance (1943-1952)

Spatial Organization
Entry Court at Nebraska Avenue
Strong Axis of Mount Vernon Drive
Streetscape of Mount Vernon Drive
Open Spatial Relationship of Building 19 and the Sports Court Area
Topography
Earthen Terracing for Building 19
Circulation
Mount Vernon Drive
Enigma Way
Intelligence Way
Historic Sidewalks
Historic Service Drives
Heritage Vegetation
Large Oaks
Norfolk Island Pines
Small-Scale Features
Flagpole
Views and Vistas
Framed Vistas Through Arched Passageways (Building 18-19)
Views from Mount Vernon Drive out towards Washington, D.C.

Source: JMA 2010

Figure 3-34 Contributing Landscape Features from the US Naval Period of Significance (1943-1952)



3.7.7 What Historic Resources Lie Outside the NAC Site, but Within the Secondary APE?

There are two historic resources that lie outside of the NAC site, but within the secondary APE. Glover-Archbold Park which abuts the NAC site is comprised of 221.62 acres, stretching between Van Ness Street and Canal Road in northwest Washington, D.C. along the path of Foundry Branch. The park was donated by Charles Carroll Glover and Anne Archbold to the city in the 1920s. Today it is an urban forest and an important component of the park system for the nation's capital. Glover-Archbold Park is significant as an example of planning and development in DC, as well as for its association with Charles Carroll Glover. It was listed in the DC Inventory of Historic Sites in 1964 and in the National Register of Historic Places in 2007.

The Artemas Ward Statue is located at the intersection of Massachusetts and Nebraska Avenues, NW. The statue is a memorial to Major General Artemas Ward, governor of Massachusetts Colony and first commander of the Massachusetts military forces before George Washington. It is listed in the DC Inventory of Historic Sites.

3.7.8 How Would Historic Resources be Affected?

No Action Alternative

Under the No Action Alternative, a Master Plan would not be implemented on the NAC site and therefore no construction or demolition of facilities would take place in conjunction with a Master Plan. Utility work currently underway that is not associated with a Master Plan would remove the historic spruce tree near Building 14. Building 11 would be demolished as part of the planned perimeter security project. If Building 11 is identified as a contributing resource to the National Register-eligible historic district in the National Register nomination, its demolition would diminish the integrity of the National Register-eligible historic district. However, the National Register nomination is under development and ongoing consultation regarding contributing buildings is occurring. Due to the ongoing consultation and continued development of the National Register Nomination, a final determination on the status of several buildings within the proposed Historic District is unresolved. While the removal of a contributing building would adversely impact the National Register-eligible historic district, the removal of non-contributing buildings would have no adverse impact on historic resources.

No preservation plan or guidelines would be put into place under the No Action Alternative which could cause the site to lose further integrity over time. Overall, long-term minor to moderate adverse impacts to potential historic properties, cultural resources and visual resources would occur.

Impacts Common to All Action Alternatives

It is the intent of all of the action alternatives to identify, protect and emulate the positive historic design precedents and natural features of the existing NAC site. The alternatives presented in the master planning process attempt to balance the historic design and the natural characteristics of this site with the proposed development.

All proposed treatment of the site would seek to retain and/or recapture as much of the historic landscape as possible. For example, the main circular drive and green space between the Chapel (Building 6) and the original main building (Building 1) would remain free of additional development in order to preserve historic views into the campus.

All alternatives seek to restore and perpetuate the creation of courtyards and interior green space within the campus and maintain the main axes of the original campus. Most importantly, each of the alternatives seeks to consolidate provisions for parking vehicles outside the central campus so that parking no longer dominates the overall feel and look of the original campus concept.

The general strategy for demolition of existing buildings at the NAC is to eliminate miscellaneous, historically non-contributing buildings that do not support the historically rich fabric of the existing campus. In the historic core of the site, there are buildings that have in filled historic courtyard spaces. These buildings are proposed for demolition.

All concepts include demolition of Buildings 5, 7, 10, 15, 18, 19A, 21, 49, 59/94, 60, 81, 88, 98, 100, 101, and 132. Building 5 is a flat-roofed single-story structure constructed by the Navy as an addition to Building 4. Under each of the action alternatives, Building 5 is proposed for demolition, as it lies within the 100-foot security setback and hardening of the building would be cost prohibitive. The demolition of Building 5 would adversely impact the historic district.

The National Register nomination is under development and ongoing consultation regarding contributing buildings is occurring; a final determination on the status of Buildings 15 and 18 within the proposed Historic District is undetermined. Buildings 15 and 18 have both been altered on the exterior and 18 has been changed on the interior as well; therefore, whether these buildings contain sufficient integrity to contribute to the historic district is unresolved. If Buildings 15 and 18 are determined to be contributing resources in the final National Register nomination, their removal would adversely impact the historic district. While the removal of contributing buildings would adversely impact the National Register-eligible historic district, the removal of non-contributing buildings would have no adverse impact on historic resources.

Adverse impacts from the removal of contributing resources could be partially mitigated by the rehabilitation and/or restoration of other currently missing or significantly altered important historic resources and/or landscape features of the campus.

There would be beneficial impacts to contributing landscape features in each of the alternatives due to the removal of parking from the entry court at Nebraska Avenue, by improving the streetscape of Mount Vernon Drive, and by removing the blind arches from Building 18-19 Connector to open views through Enigma Way. Beneficial impacts would also occur in each of the action alternatives from the renovation of historic buildings, the reestablishment of historic courtyards and interior green spaces, by maintaining the main axes of the original campus, and by consolidating parking outside of the central campus.

Alternative A

Under Alternative A, Buildings 5, 15, and 18 would be demolished. As Building 5 is a contributing building, its demolition would diminish the integrity of the National Register-eligible historic district. If Buildings 15 and 18 are also determined to be contributing, their removal would further diminish the integrity of the historic district.

The construction of Building A would eliminate the central historic open lawn and recreational space and the historic relationship between Buildings 12/13/14 and Building 19. The construction of new buildings on the site would also result in some loss of building and spatial relationships in the central athletic/recreational historic area due to the large massing of the proposed buildings. The construction of Building A would result in the loss of one historic willow oak tree. In addition, as discussed in the No Action Alternative, the utility work currently underway would remove the historic spruce tree near Building 14.

Overall, long-term direct adverse impacts to historic resources would be moderate due to the removal of one contributing building with beneficial impacts from the preservation and rehabilitation of some contributing landscape features. Short and long-term impacts to historic resources within the secondary APE are anticipated to be minor due to the construction and partial visibility of Buildings B and C from Glover-Archbold Park, which would cause a minor change in the view from the park to the NAC site.

Alternative B

Under Alternative B, Buildings 5, 15, and 18 would be demolished. As Building 5 is a contributing building, its demolition would diminish the integrity of the National Register-eligible historic district. If Buildings 15 and 18 are also determined to be contributing, their removal would further diminish the integrity of the historic district.

Building and spatial relationships in the central athletic/recreational historic area would be maintained under this alternative due to the preservation of the historic openness of the athletic/recreational historic area in the vicinity of Building A and the relationship between Buildings 12/13/14 and Building 19. As discussed in the No Action Alternative, the utility work currently underway would remove the historic spruce tree near Building 14.

Overall, long-term direct adverse impacts to historic resources would be moderate due to the removal of one contributing building with beneficial impacts from maintaining building and spatial relationships and from the preservation and rehabilitation of some contributing landscape features. Short and long-term impacts to historic resources within the secondary APE are anticipated to be minor due to the construction and partial visibility of Buildings B, C, D and the parking garage from Glover-Archbold Park, which would cause a minor change in the view from the park to the NAC site.

Alternative C

Under Alternative C, Buildings 5, 15, and 18 would be demolished. As Building 5 is a contributing building, its demolition would diminish the integrity of the National Register-eligible historic district. If Buildings 15 and 18 are also determined to be contributing, their removal would further diminish the integrity of the historic district.

The construction of Building A would eliminate the central historic open lawn and recreational space and the historic relationship between Buildings 12/13/14 and Building 19. The construction of new buildings close to Buildings 12, 13, and 14 would adversely impact these resources by their oversized scale and massing and would eliminate the historic green space and recreational space. The construction of Building A would result in the loss of one historic willow oak tree. In addition, as discussed in the No Action Alternative, the utility work currently underway would remove the historic spruce tree near Building 14.

Overall, long-term direct adverse impacts to historic resources would be moderate due to the removal of one contributing building with beneficial impacts from the preservation and rehabilitation of some contributing landscape features. Short and long-term impacts to historic resources within the secondary APE are anticipated to be minor due to the construction and partial visibility of Buildings B and C from Glover-Archbold Park, which would cause a minor change in the view from the park to the NAC site.

3.7.9 What Efforts Would be Taken to Minimize the Effects on Cultural and Historic Resources?

The siting and size, as well as the massing, proportions and materials of any new buildings should be compatible with the predominant historic precedents. The design details on the building facades of any new buildings should also be compatible with the historic building facades and building articulation. Courtyards, open green spaces and vistas were important design features of the historic campus developed by Wesley Sherwood Bessell and every effort should be made to maintain, restore or replicate these features.

Prior to the demolition of any contributing buildings, the structures should be documented in accordance with the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation. The rehabilitation and/or restoration of other currently missing or significantly altered important historic resources and/or landscape features of the campus should occur in order to help mitigate the impact of the removal of contributing buildings on the National Register-eligible historic district. GSA shall ensure that the measures identified during the Section 106 process and documented during the drafting of the MOA are carried out to avoid, minimize, and mitigate adverse effects.

3.8 ARCHEAOLOGICAL RESOURCES

3.8.1 What Archaeological Resources are Located Within the APE?

Most of the NAC campus has been disturbed by development. One archeological site and an area that yielded prehistoric and historic resources have been discovered during site investigations. The site investigations found that there are surviving resources with integrity. No other archeological sites with integrity and significance have been discovered on the site during site investigations.

Isolated, small areas may be undisturbed, primarily in the northeastern portion of the campus. This undisturbed area may include prehistoric resources or resources associated with the seminary or Navy use of the property. However, the potential for resources with integrity and significance is low.

3.8.2 How Could Archaeological Resources be Affected?

No Action Alternative

Under the No Action Alternative, a Master Plan would not be implemented on the NAC site, no construction or demolition of facilities would take place and the site would continue to operate under current conditions. Impacts to potential archaeological resources would be negligible.

Alternatives A, B, and C

Construction would require excavation and grading of portions of the site. Due to the fact that the area was previously disturbed during the construction of the building and the installation of site utilities, it is unlikely that intact archaeological resources would be disturbed in these locations. However, locations where previous construction activities may not have involved substantial excavation could disturb potential archaeological resources.

Construction of Buildings A and B may disturb areas around extant Buildings 81 and 101; however, archeological potential in this area is low. There is the potential for minor adverse impacts to archaeological resources as a result of the action alternatives.

3.8.3 What Efforts Would be Taken to Minimize the Effects on Archaeological Resources?

A flexible, phased approach to the identification and evaluation of archaeological resources should be taken. All such work should follow the "Guidelines for Archaeological Investigations in the District of Columbia" (1998, as amended). In the event of an unanticipated archaeological discovery, the D.C. State Archaeologist should be notified to determine the level and type of recording or recovery if warranted. GSA shall ensure that the measures identified during the Section 106 process and documented during the drafting of the MOA are carried out to avoid, minimize, and mitigate adverse effects.

3.9 GEOLOGIC RESOURCES

3.9.1 What are the Geology Conditions on the Project Site?

The NAC site is located in a portion of the District of Columbia which is northwest of the Fall Line. This section of D.C. lies in the Piedmont province, whereas the southeastern portion of the city lies in the Coastal Plain physiographic province (Froelich and Hack 1975). The Piedmont province is generally underlain by "hard igneous rocks and metamorphic rocks derived from sedimentary and older igneous rocks by dynamic and contact metamorphism" (Tetra Tech 2004).

The Fall Line marks the transition from Piedmont to Coastal Plain as the hard rock passes under the sediments (clay, sand, gravel). For the most part, the sediments of the Coastal Plain lie upon the bedrock surface when east of the Fall Line or in those cases where isolated outliers occur to the west, which is the case at the NAC (Tetra Tech 2004). The bedrock beneath the site consists of schist rock belonging to the Mather Gorge Formation from the Lower Cambrian geologic period. The transition from soil into bedrock is gradual and in some instances a layer of disintegrated rock, derived from the physical weathering of parent bedrock, may be of substantial thickness (GeoConcepts Engineering 2007). Test borings completed at the site by GeoConcepts Engineering (2007) encountered this layer of very compact disintegrated bedrock between 32 feet and 38 feet below the existing ground surface, depending on the location of the boring. Borings were only completed in the vicinity of Building 61 and are not representative of the entire site.

3.9.2 How Would Geology Conditions on the Project Site be Affected?

Direct impacts to geology occur when construction activities, such as clearing, excavation and grading, take place on a site.

No Action Alternative

Under the No Action Alternative, conditions on the site would not change. There would be no clearing, grading or construction activities beyond those projects currently scheduled and considered a part of the existing conditions, such as the planned perimeter security improvements project. The site would continue to feature 653,400 GSF of office space, with 14 percent of the site being covered by buildings. Therefore, due to the lack of changes, there would be no direct or indirect adverse impacts on geology.

Alternative A

Under Alternative A, excavation would occur for the proposed parking structure that would be two levels below ground and for numerous other buildings that would be one level below ground. A typical floor to floor height of a building is 11 to 12 feet. If a depth to bedrock of 32 to 38 feet is accurate across the NAC site, under Alternative A excavation could potentially occur without encountering bedrock. However, test borings have only been conducted in limited locations within the site, and the depth to bedrock is largely unknown. Further studies would need to be conducted prior to construction. Overall, there would be long-term minor adverse impacts to geologic resources.

Alternative B

Under Alternative B, excavation would occur for the proposed parking structure that would be three levels below ground and for numerous other buildings that would be one level below ground. A typical floor to floor height of a building is 11 to 12 feet. Therefore, if a depth to bedrock of 32 to 38 feet is accurate across the NAC site, bedrock may be encountered when building the parking garage in Alternative B. However, the depth to bedrock is largely unknown as test borings have only been conducted in limited locations within the site. Further studies would need to be conducted prior to construction. Overall, there would be long-term minor adverse impacts to geologic resources.

Alternative C

Under Alternative C, excavation would occur for the proposed parking structure that would be three levels below ground and for numerous other buildings that would be one level below ground. A typical floor to floor height of a building is 11 to 12 feet. Therefore, if a depth to bedrock of 32 to 38 feet is accurate across the NAC site, bedrock may be encountered when building the parking garage in Alternative C. However, the depth to bedrock is largely unknown as test borings have only been conducted in limited locations within the site. Further studies would need to be conducted prior to construction. Overall, there would be long-term minor adverse impacts to geologic resources.

3.9.3 What Measures Would be Taken to Reduce Impacts to Geology?

Soil/Slope stabilization measures, such as closely spaced drilled piers, could be used if development on steep slopes or the use of retaining walls is ultimately proposed. Construction equipment should also be confined to areas away from steep slopes to greatest extent possible where potentially unstable geologic resources could exist. Detailed geotechnical studies should be completed for specific locations prior to construction.

3.10 SOIL RESOURCES

3.10.1 What are the Soil Conditions on the Project Site?

There are nine general soil map units or soil associations (see Table 3-6) within the NAC site. The majority of the soil within this area consists of Urban Land and Urban land-Sassafras complex. Soils on the site feature 0 to 8 percent slopes (UbB, UxB, U1B) followed by 8 to 15 percent slopes (UxC, NuC, SgC, GhC, AsC) and greater than 15 percent slopes (AsD, GgD, NeD). The location of the soil types is illustrated in Figure 3-35.

Table 3-6 Nebraska Avenue Complex Soils

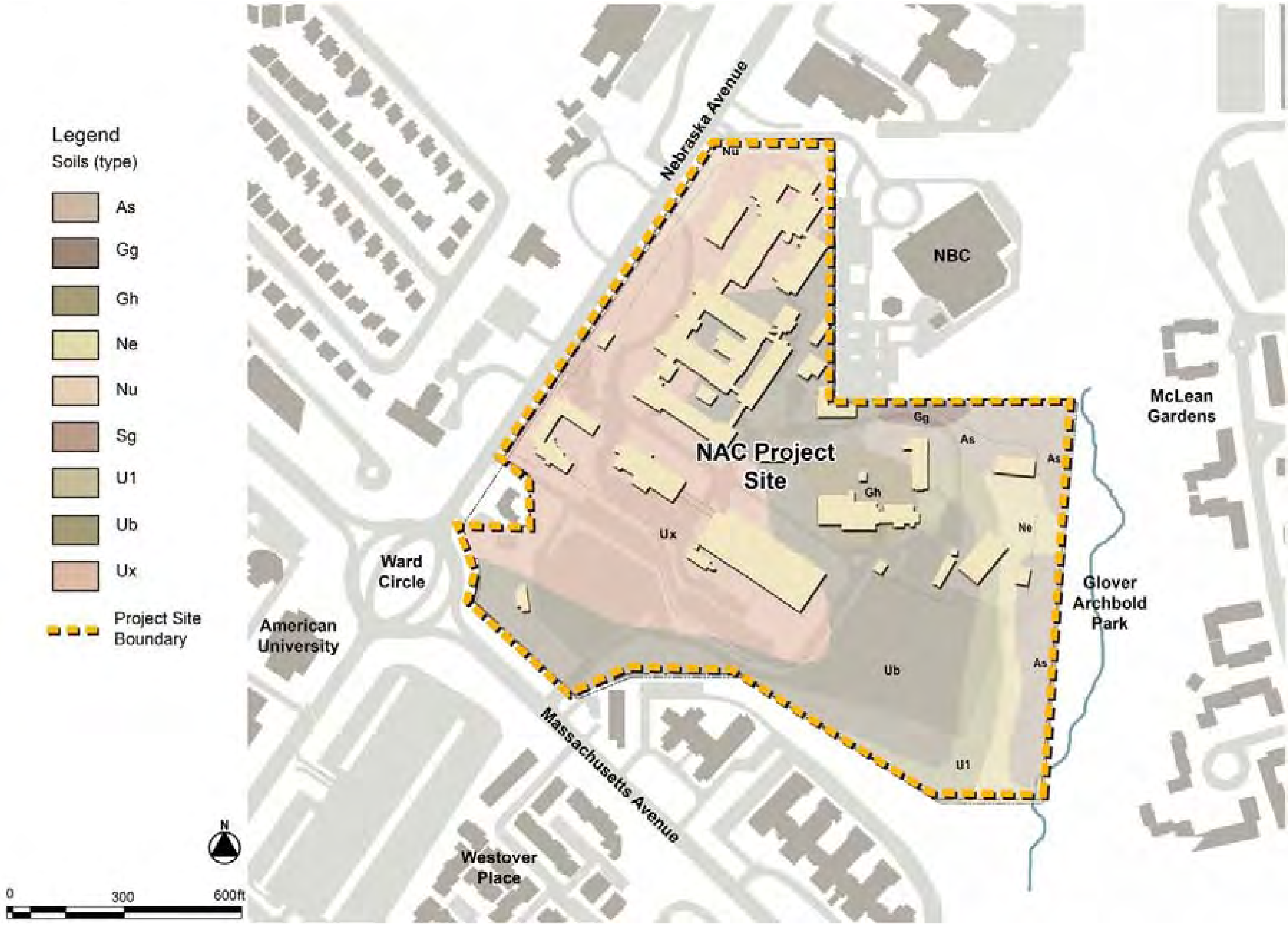
Soil Unit	Full Name & Slope	Description
AsC, AsD	Ashe loam, 8 to 15 percent slopes, 15 to 40 percent slopes	AsC: This moderately-sloping, somewhat excessively drained soil is on ridgetops and side slopes in strongly dissected areas of the Piedmont Plateau. Permeability is moderately rapid, runoff is medium and the hazard of erosion is moderate. The available water capacity is low and internal drainage is good. This soil is generally well-suited to foundations and footings. AsD: This strongly-sloping, somewhat excessively drained soil is similar to AsC, but exhibits runoff that is rapid, and hazard of erosion that is moderate to severe. Permeability is moderately rapid. The available water capacity is low and internal drainage is good. The soil is poorly-suited for building sites due to slopes but excellent habitat for certain species of wildlife.
GgD	Glenelg loam, 15 to 40 percent slopes	This strongly sloping, well drained soil is on ridgetops and side slopes of strongly dissected areas of the Piedmont Plateau. Permeability is moderate, and runoff is rapid. The hazard of erosion is severe and the available water capacity is high. Due to the slope, this soil has poor potential for use as building sites; same for lawn grasses, vegetation and most recreational uses.
GhC	Glenelg-Urban land complex, 8 to 15 percent slopes	This complex consists of moderately-sloping, well-drained soils of the Glenelg series, most areas of which have been graded, cut, filled or disturbed during urbanization. This complex is on ridgetops or urbanized areas of the Piedmont Plateau. Permeability is moderate in relatively undisturbed areas, and variable in areas dominated by cuts, fills and Urban land. Runoff is rapid and the hazard of erosion is severe. The available water capacity is high in undisturbed areas and variable in urbanized areas. Due to the slope, the soils and fill material have fair potential for lawn grasses, shade trees, vegetation, etc. An onsite investigation is needed to determine the potential and limitation of the complex for any proposed land use.
NeD	Neshaminy silt loam, 15 to 40 percent slopes	This strongly sloping, to steep, well-drained soil is on side slopes of strongly dissected areas. Permeability is moderately slow and runoff is rapid. The available water capacity is high and the hazard of erosion is severe. Internal drainage is good. Due to the slope, the soil has poor potential for use as a building site, for lawns or shade trees, etc. It has good potential for use as parkland or as habitat for some kinds of wildlife.

Soil Unit	Full Name & Slope	Description
NuC	Neshaminy-Urban land complex, 8 to 15 percent slopes	This complex consists of moderately sloping, well drained soils of the Neshaminy series, most areas of which have been graded, cut, filled, or otherwise disturbed during urbanization. This complex is on ridgetops and side slopes. Permeability is moderately slow in relatively undisturbed areas, and variable in areas dominated by cuts, fills, and Urban land. Runoff is rapid and the hazard of erosion is severe. The available water capacity is high in the relatively undisturbed areas, and moderate to very low in areas dominated by cuts, fills and Urban land.
SgC	Sassafras-Urban land complex, 8 to 15 percent slopes	This complex consists of moderately sloping, well-drained soils of the Sassafras series, most areas of which have been altered by grading for development. Permeability is moderate in areas of this complex where the soils are relatively undisturbed, and variable in areas dominated by cuts, fills, and Urban land. Runoff is rapid, and the hazard of erosion is severe. The available water capacity is moderate to high in fairly undisturbed areas, and low to very low in areas dominated by cuts, fills, and Urban land. This complex has only fair potential for most building purposes because of the slope.
U1B	Udorthents, 0 to 8 percent slopes	This mapping unit is made up of very heterogeneous, earthy fill material that has been placed on poorly drained to somewhat excessively drained soils to provide sites for buildings, roads, etc. The source of fill material used is variable. Permeability is variable in this unit as is the available water capacity. Runoff and internal drainage are variable. In areas of this unit not covered with buildings (and which contain small amounts of coarse fragments), the area is generally high in fertility and available water capacity and thus, have good potential for lawns, trees, etc. Most areas of this unit are subject to subsidence, making building siting a challenge. Detailed onsite investigation is needed for these areas.
UbB	Urban Land, 0 to 8 percent slopes	This mapping unit consists of areas where more than 80 percent of the surface is covered by asphalt, concrete, buildings, or other impervious surfaces. On-site investigation is needed to determine the potential and limitations for any proposed use.

Soil Unit	Full Name & Slope	Description
UxB, UxC	Urban land-Sassafras complex, 0 to 8 percent slopes and 8 to 15 percent slopes	UxB: This complex consists of areas of Urban land and well-drained Sassafras soils. The Sassafras soils have been altered by grading for development. Permeability is moderate in areas of this complex and variable in areas dominated by cuts, fills, and Urban land. Runoff is medium to rapid, and the hazard of erosion is moderate to severe. The available water capacity is moderate to high in the relatively undisturbed areas, and low to very low in areas dominated by cuts, fills, and Urban land. UxC: Similar to UxB, except runoff is rapid, and the hazard of erosion is severe. On-site investigation is needed to determine the potential and limitations of this complex for any proposed use.

Source: GIS Data, USDA Web Soil Survey Website and USDA-NRCS 1974 Soils Survey for Washington D.C.

Figure 3-35 NAC Site Soils by Type



3.10.2 How Would the Soil Conditions on the Project Site be Affected?

Construction on steep slopes and highly erodible soils could cause soil erosion at rates greater than what would typically occur under natural conditions. Slopes greater than 15 percent are considered to have severe erosion potential. Direct impacts to soils occur when construction activities, such as clearing and grading, take place on a site; indirect impacts occur to these resources when the erosion of soils and other ground disturbing construction activities results in sedimentation in local streams.

No Action Alternative

Under the No Action Alternative, conditions on the site would not change. There would be no clearing, grading or construction activities beyond those projects currently scheduled and considered a part of the existing conditions, such as the planned perimeter security improvements project. The site would continue to feature 653,400 GSF of office space, with 14 percent of the site being covered by buildings and 55 percent of the site being developed with impervious surfaces. Therefore, due to the lack of changes, there would be no direct or indirect adverse impacts on soil conditions.

Alternative A

Alternative A would introduce changes to the NAC site from clearing, grading and construction activities for new buildings. Under Alternative A, 567,720 GSF of new office space would be added, resulting in 22 percent site coverage by buildings (including a parking structure). Although the building square footage would increase, the overall impervious area of the NAC site would decrease by 18 percent due to an increase in vegetation and other pervious surfaces.

The majority of new buildings developed onsite would have at least one level underground and excavation would be necessary. However, the site is already highly urbanized due to past development featuring impermeable surfaces such as buildings, sidewalks, and parking lots. Most of the site consists of soils classified as Urban Land or Urban Land mix, a classification that indicates these soils have previously been highly disturbed, cut or filled through past construction activities.

Alternative A would have a minor, adverse, direct, site-specific, short-term impact on soils due to site construction activities.

Overall, Alternative A would result in minor, adverse, direct, site-specific impact to soils. Impacts are minor as the majority of soils on-site have been previously disturbed, and steep slopes would be avoided. Development on steep slopes would increase erosion and sedimentation within the Foundry Branch. Also, as the soils have been previously altered, soil stability is largely unknown. Onsite investigation would need to occur prior to construction. Beneficial impacts to soils could occur due to a decrease in impervious surfaces and additional vegetative cover.

Alternative B

Alternative B would introduce changes to the NAC site from clearing, grading and construction activities for new buildings. Under Alternative B, 715,000 GSF of additional office space would be added, resulting in 23 percent site coverage by buildings (including a parking structure). Although the building square footage would increase, the overall impervious area of the NAC site would decrease by 17 percent due to an increase in vegetation and other pervious surfaces.

The majority of new buildings onsite would have at least one level underground. The proposed parking structure in Alternative B would be three levels below grade. Therefore, extensive excavation would be necessary. However, the site is already highly urbanized due to past development featuring impermeable surfaces such as buildings, sidewalks, and parking lots. Most of the site consists of soils classified as Urban Land or Urban Land mix, a classification that indicates these soils have previously been highly disturbed, cut or filled through past construction activities.

Alternative B would have a minor to moderate, adverse, direct, site-specific, short-term impact on soils due to site construction and excavation activities.

Overall, Alternative B would result in minor, adverse, direct, site-specific impact to soils. Impacts are minor as the majority of soils on-site have been previously disturbed, and steep slopes would be avoided. Development on steep slopes would increase erosion and sedimentation within the Foundry Branch. Also, as the soils have been previously altered, soil stability is largely unknown. Onsite investigation would need to occur prior to construction. Beneficial impacts to soils could occur due to a decrease in impervious surfaces and additional vegetative cover.

Alternative C

Alternative C would introduce changes to the NAC site from clearing, grading and construction activities for new buildings and would install 803,640 GSF of new office space on the site, resulting in 23 percent site coverage by buildings (including a parking structure). Although the building square footage would increase, the overall impervious area of the NAC site would decrease by 18 percent due to an increase in vegetation and other pervious surfaces.

The majority of new buildings onsite would have at least one level underground. The proposed parking structure in Alternative C would be three levels below grade. Therefore, extensive excavation would be necessary. However, the site is already highly urbanized due to past development featuring impermeable surfaces such as buildings, sidewalks, and parking lots. Most of the site consists of soils classified as Urban Land or Urban Land mix, a classification that indicates these soils have previously been highly disturbed, cut or filled through past construction activities.

Alternative C would have a minor to moderate, adverse, direct, site-specific, short-term impact on soils due to site construction and excavation activities.

Overall, Alternative C would result in minor, adverse, direct, site-specific impact to soils. Impacts are minor as the majority of soils on-site have been previously disturbed, and steep slopes would be avoided. Development on steep slopes increases erosion and sedimentation within the Foundry Branch. Also, as the soils have been previously altered, soil stability is largely unknown. Onsite investigation would need to occur prior to construction. Beneficial impacts to soils could occur due to a decrease in impervious surfaces and additional vegetative cover.

3.10.3 What Measures Would be Taken to Reduce Impacts to Soils?

Soil and slope stabilization measures, such as closely spaced drilled piers, could be used if development on steep slopes or the use of retaining walls is ultimately proposed. Construction equipment should also be confined to areas away from steep slopes to greatest extent possible. Finally, if trees near steep slopes are removed, these areas should be re-vegetated to reduce stormwater runoff.

An erosion and sedimentation plan would be implemented to control and reduce sediments from entering storm drains and/or adjacent streams during construction. Any grading activities would follow this plan to ensure soil stability and minimize sediments from entering storm drains and streams.

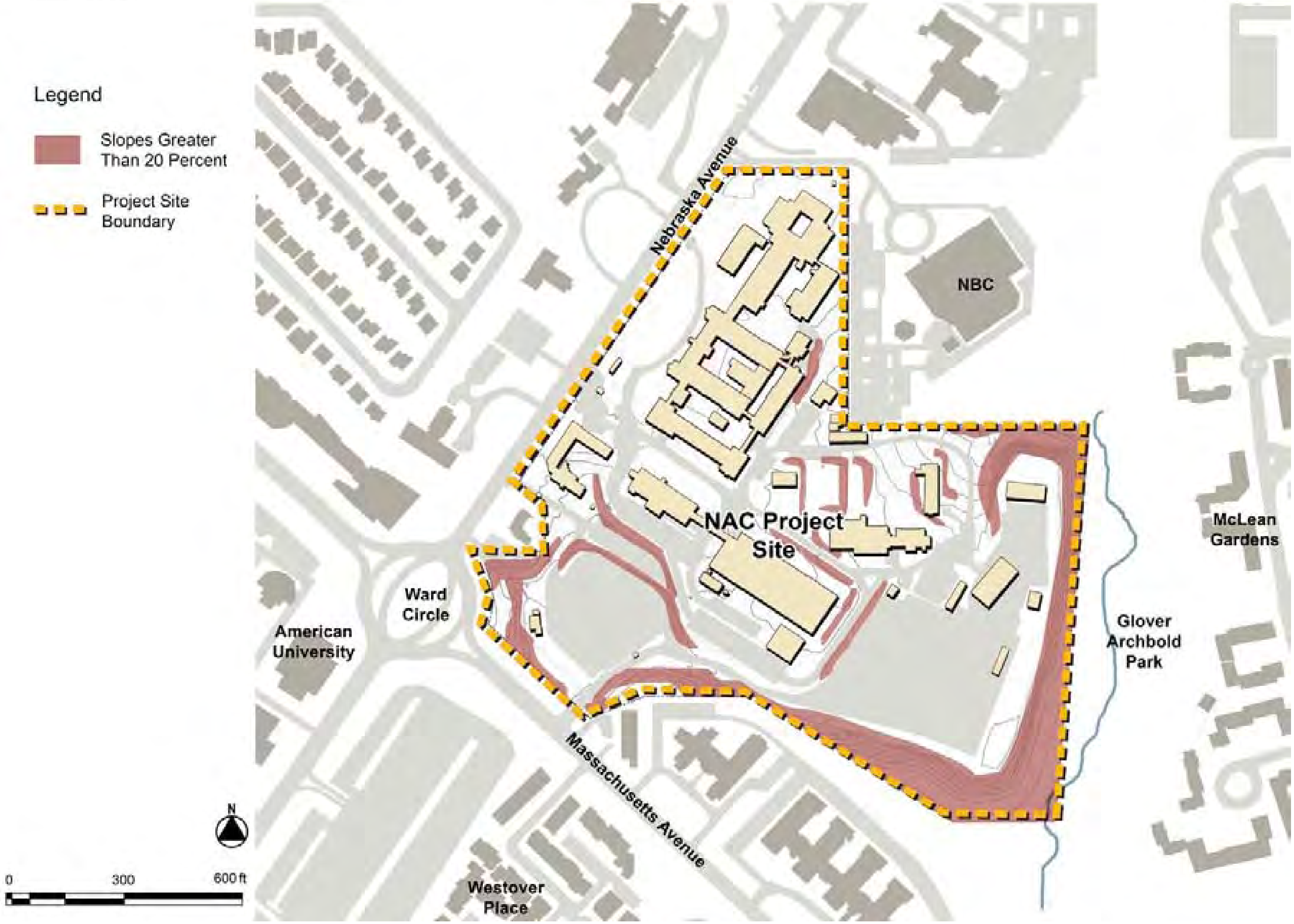
3.11 TOPOGRAPHIC CONDITIONS

3.11.1 What are the Topography Conditions on the Project Site?

The majority of the project site—27 acres—features a slope of less than 10 percent. Six acres of the site contain slopes greater than 20 percent; these areas mostly line the southern and eastern perimeter of the NAC, particularly along its border with Glover-Archbold Park. Additionally, small isolated areas with slopes greater than 20 percent are located throughout the project site (Figure 3-36).

Elevations on the NAC range from just under 300 feet above the mean sea level (msl) at the southeast portion of the site, to approximately 400 feet above msl at the northwest portion of site. Some of the most dramatic topographic changes occur on the eastern and southeastern borders of the NAC. For example, slopes fall from approximately 360 feet above msl near the edge of the south parking lot to 300 feet above msl near the Foundry Branch channel (Tetra Tech 2004).

Figure 3-36 NAC Slopes Greater Than 20 Percent



3.11.2 How Would Topography Conditions on the Project Site be Affected?

Construction on steep slopes and highly erodible soils could cause soil erosion at rates greater than what would typically occur under natural conditions. Slopes greater than 15 percent are considered to have severe erosion potential. Direct impacts to topography occur when construction activities, such as clearing and grading, take place on a site; indirect impacts occur to these resources when the erosion of soils and other ground disturbing construction activities results in sedimentation in local streams.

No Action Alternative

Under the No Action Alternative, conditions on the site would not change. There would be no clearing, grading or construction activities beyond those projects currently scheduled and considered a part of the existing conditions, such as the planned perimeter security improvements project. The site would continue to feature 653,400 GSF of office space, with 14 percent of the site being covered by buildings. Therefore, due to the lack of changes, there would be no direct or indirect adverse impacts on topography.

Impacts Common to All Action Alternatives

Topography would be impacted by implementation of each of the action alternatives. The areas which feature the steepest slopes mostly line the southern and eastern perimeter of the NAC, particularly along its border with Glover-Archbold Park. Development would largely avoid these areas, and primarily be situated within previously disturbed areas. Most buildings would be set back from the property line by approximately 100 feet due to security requirements; however, part of the site near Glover-Archbold Park would feature a 50-foot setback due to the steep terrain and the inaccessibility of the area to a serious outside threat.

Alternative A

Under Alternative A, the most substantial impact to topography on the site would occur near Ward Circle in the southwest corner of the site. This particular area, which currently features a surface parking lot, dense brush and steep slopes close to Ward Circle, would be redeveloped to accommodate a multi-level parking structure. More specifically, Alternative A would develop an architectural, 5-level parking structure with three levels above ground and two levels below. This particular alternative would likely require development that extends beyond the footprint of the current parking lot, as well as excavation below the existing surface lot. In the long-term, this alternative would result in minor to moderate, adverse, direct impacts on topography.

Alternative B

Under Alternative B, the most substantial impacts to topography on the site would occur near Ward Circle in the southwest corner of the site and in the vicinity of new Building B in the northeast area of the site. Under Alternative B, the area by Ward Circle would be redeveloped to accommodate a new building with four levels above ground and one level below that would require excavation. However, this structure would largely remain within the confines of the current surface parking lot meaning the steep slopes near Ward Circle would largely be avoided, requiring little to no cutting and fill outside previously disturbed areas. A portion of the area in which the new Building B would be sited in the northeast area of the site features a significant slope change; this area would likely require alteration such as filling for construction. This alternative would result in minor to moderate, adverse, long-term, direct impacts on topography.

Alternative C

Under Alternative C, the most substantial impacts to topography on the site would occur near Ward Circle in the southwest corner of the site and in the vicinity of new Building B in the northeast area of the site. The area by Ward Circle currently features a surface parking lot, dense brush and steep slopes on the perimeter of the property close to the traffic circle. This area would be redeveloped to accommodate a 5-level parking structure (and feature a green roof) with two levels above ground and three levels below that would likely require excavation. This particular alternative would likely extend beyond the footprint of the current parking lot, probably requiring cutting and filling outside the previously disturbed area. A portion of the area in which the new Building B would be sited in the northeast area of the site features a significant slope change; this area would likely require alteration such as filling for construction. This alternative would result in minor to moderate, adverse, long-term, direct impacts on topography.

3.11.3 What Measures Would be Taken to Reduce Impacts to Topography?

Soil/slope stabilization measures, such as closely spaced drilled piers, could be used if development on steep slopes or the use of retaining walls is ultimately proposed. Construction equipment should also be confined to areas away from steep slopes to greatest extent possible.

3.12 WATER RESOURCES AND WATER QUALITY

3.12.1 What are the Water Resources and Water Quality Conditions on the Project Site?

Surface Water

The NAC site is located within the Potomac River watershed which covers 14,679 square miles of land across four states (Maryland, Virginia, West Virginia and Pennsylvania) and the District of Columbia. All surface waters in the District flow to the Potomac River either directly or indirectly, through tributaries including Rock Creek and the Anacostia River (DC DOH July 2004). The water quality of the Potomac River and its tributaries is affected by the activities that take place in the watershed. Water pollution is generated from stormwater runoff and point source pollutants such as wastewater treatment discharges, industrial discharges and combined sewer overflows.

The Foundry Branch is a stream that passes through a small portion of the southeast section of the site as it flows south through Glover-Archbold Park and discharges from the storm system into the Potomac River. The stream is a tributary of the Potomac River and is now largely enclosed in a storm water pipe. The surface portion of the stream flows through a forested section of Glover-Archbold Park for about 2,050 feet and the park serves as a stream buffer (EPA 2004). The Foundry Branch originates above ground at a storm drain outfall in a forested stream valley northeast of the NAC site and just south of Van Ness Street, NW. It flows through Glover-Archbold Park and re-enters the storm system via a storm drain at the southern end of the park and just north of Massachusetts Avenue, NW (DDOE 2008). The stream's water level can vary depending on the amount of precipitation received and ranges from a dry bed to an overflowing stream. Previous studies indicated that polychlorinated biphenyl (PCB) contamination was detected in the 1990s and was remediated by the U.S. Navy through excavation and backfill (HOK

2009). The hazardous material was removed and the stream and surrounding site are currently being restored (DDOE 2008).

The Foundry Branch is on the District's Section 303(d) list of impaired waters for metals, bacteria, and dissolved oxygen. It was first listed on the 303(d) list for metals and bacteria in 1998 and for dissolved oxygen in 2002 (DDOE 2008). The Section 303(d) list is one of two basic approaches the Clean Water Act uses to protect and restore water bodies. Under Section 303(d), the Clean Water Act requires states to identify waters that do not or are not expected to meet applicable water quality standards and report their findings to the EPA every two years. Once a water body has been identified on the Section 303(d) list, a Total Maximum Daily Load (TMDL) must be developed for each pollutant that is impairing the water body. The TMDL is a written plan and analysis that is used to ensure the water body will meet and continue to meet the water quality standards for each pollutant (EPA 2010). TMDLs were established and approved for the Foundry Branch for bacteria (fecal coliform) in 2004 and for metals (arsenic, copper, zinc and lead) in 2005. A TMDL for dissolved oxygen has not been established yet and is planned for 2013 (DDOE 2008). In order to meet the water quality standards, reductions in the pollutants are required.

Clean Water Act: The goal of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (33 U.S.C §1251(a)) (EPA 2010).

Total Maximum Daily Load (TMDL): A calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards (EPA 2010).

During storm events, stormwater runoff from lawns, rooftops, streets, and parking lots discharge into the Foundry Branch stream from the District's separate storm sewer system outfalls and from direct runoff. The trace quantities of sediment, organic matter, toxic chemicals, and bacteria carried by this water are believed to be the primary cause of the impairments in the Foundry Branch stream (DC DOH 2003). As the area around the NAC is served by the separate storm sewer system, the Foundry Branch does not receive overflow from the sanitary sewer system during storm events and any discharges from the sanitary sewer system would be limited to anomalies such as leaks in sanitary sewer pipes.

The northern drainage roughly follows the northeastern perimeter of the site. It is an intermittent drainage way that originates as a storm drain outfall east of Building 15 and flows approximately 600 feet to discharge into the Foundry Branch. It is a steeply incised channel that crosses back and forth between the sloping forest land in the northeastern portion of the NAC site and the sloping forest land on the southern edge of the adjoining NBC property (Tetra Tech 2004).

The southern drainage is an urbanized and intermittent stream that serves as a drainage way for the NAC site and surrounding properties. The stream flows both above ground and through storm sewer pipes before discharging into the Foundry Branch. The stream is fed from a storm pipe located at the southwestern edge of the site near Ward Circle and Building 60. The source of the storm pipe outfall is assumed to come from Ward Circle and other offsite areas to the west of the NAC site. The stream runs along the outside edge of the existing parking lot on the southwest corner of the site. Behind Building 60 it flows through a narrow concrete channel that almost directly abuts the building (Figure 3-37). The stream re-enters the storm sewer system through a culvert under the entrance road of the NAC site at Massachusetts Avenue. The stream continues offsite to an adjacent residential apartment complex where it is captured by the storm drainage system of that complex. The stream reemerges from the storm sewer system via an outfall on the property line between the NAC site and The Berkshire apartment complex site to the south of the NAC (Figure 3-38). This portion of the stream appears to be highly degraded as it has become channelized with steep banks due to erosion. The stream meanders on and off of both properties until it ties into the Foundry Branch stream near the southeast corner of the NAC site.

Figure 3-37 Southern Drainage Behind Building 60

Source: AECOM 2010

Figure 3-38 Southern Drainage between the NAC site and The Berkshire

Source: AECOM 2010

Wetlands

Activities affecting Waters of the United States are regulated by the Army Corps of Engineers under Section 404 of the Clean Water Act of 1977. Waters of the United States are defined in the Code of Federal Regulations (33 CFR Part 328). Wetlands are a subset of Waters of the United States and are defined in 33 CFR Part 328.3(a) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

The National Wetlands Inventory does not identify any wetlands within the site boundary. However, linear wetlands are not available on the National Wetlands Inventory 'Wetlands Mapper' (USFWS 2010). According to the map of "Known Wetlands within the District of Columbia" from the 1997 D.C. Wetland Conservation Plan, there are no known wetlands on the NAC site.

The majority of the stream channels and areas that may have the potential to be wetland areas are located outside of developable areas due to their location near the edges of the site on steep slopes or in ravines and due to required security setbacks. In 1995, a wetlands delineation was performed for the northern drainage area, near the northeastern perimeter of the NAC, and the Foundry Branch. The delineation determined that wetlands did not extend outside of the stream channels. The wetland delineation did not address the remainder of the NAC site (Tetra Tech 2004).

During site visits, the area near the storm pipe outfall for the southern drainage at Ward Circle was observed to be a slightly depressed area that may retain water after a storm event (Figure 3-39). The stream that runs through this area is an intermittent drainage stream, indicating that water is not consistently present.

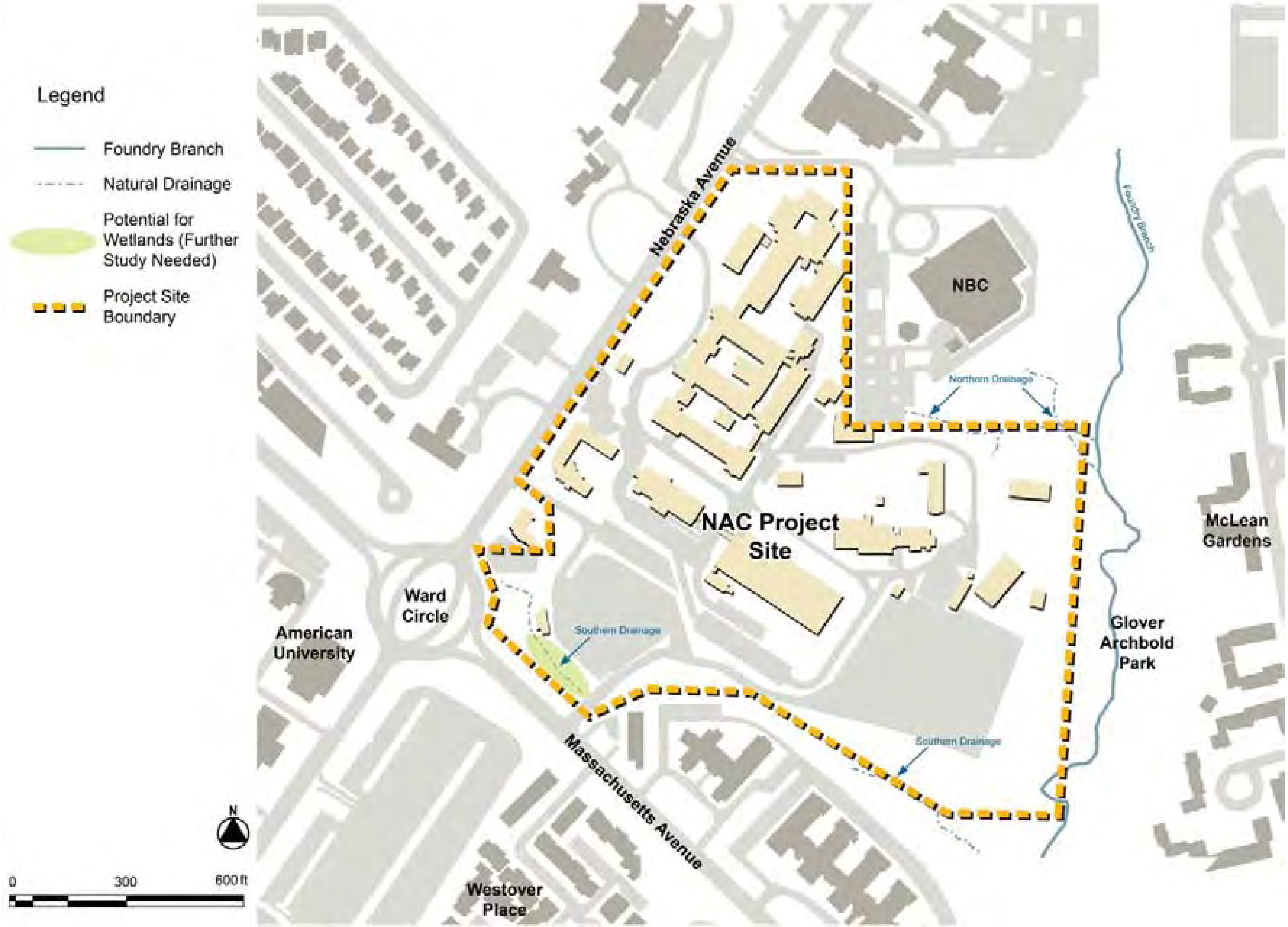
Figure 3-39 Southern Drainage Area

Source: AECOM 2010

Given the low-lying topography of this portion of the site, the area could have the potential to be a wetland area. The presence of a wetland in this area is considered highly unlikely but would have to be confirmed through further study. This area is indicated on Figure 3-40.

A letter was also sent to the U.S. Army Corps of Engineers, Baltimore District, in June 2010 to request information regarding any potential wetlands present on the site. At the publication of the Draft EIS, no additional information had been received.

Figure 3-40 Water Resources at the NAC Site



Groundwater

The NAC facility is situated above the Patuxent Formation, one of the two principal deep aquifers that occur in sediments in the Washington, D.C. area. The Patuxent Formation is the basal formation of the Coastal Plain and lies directly upon the crystalline basement. The portion of the Patuxent Formation below the NAC site is an outlier that is separated from the main body at Tenleytown and Cleveland Park in the District of Columbia (Johnston 1964). Because the formation is an erosional outlier that is not laterally continuous, deeper unconsolidated aquifers are not present beneath the NAC. The formation overlies the bedrock and is approximately 10 feet thick, a thickness that cannot store a sufficient amount of groundwater for drinking purposes. For these reasons, the aquifer is not an important water-bearing unit in the vicinity of the NAC (Tetra Tech 2004).

GeoConcepts Engineering observed groundwater levels near Building 61 in 2007. Groundwater was encountered through test borings at depths of about 10 to 13 feet below the ground surface. Groundwater moves through residual soils (present on the NAC site) in an irregular fashion. Therefore, the presence of groundwater on site is dictated by the presence of relic fractures and pervious zones, rather than the vertical depth below the ground surface. Furthermore, fluctuations in groundwater levels occur due to the seasons of the year, changes to surface grades, precipitation, or other similar factors.

3.12.2 How Would Water Resources and Water Quality Conditions be Affected?

No Action Alternative

Under the No Action Alternative, the GSA would not implement a Master Plan on the NAC site and therefore no construction or demolition of facilities would take place. The site would continue to operate under current conditions and no stormwater management practices would be implemented. There would be long-term minor to moderate adverse impacts to water resources and water quality due to the lack of stormwater management practices on the NAC site.

Alternative A

Under Alternative A, the total footprint of all buildings on the site would cover approximately 22% of the site. The total impervious surface area of the site, including surfaces such as surface parking and other paved impervious surfaces would be approximately 37%. This would be an 18% decrease in impervious surfaces over the existing conditions.

Surface Water

There would be short-term moderate adverse construction-related impacts to surface water due to site construction activities and excavation under Alternative A. Development on steep slopes would be avoided whenever possible to reduce erosion and sedimentation within the Foundry Branch.

Under Alternative A, grading and construction of the parking structure would occur on the location of the southern drainage stream located near Ward Circle on the southwestern portion of the site. The stream runs behind Building 60, which would be demolished. Grading and construction would occur at the location of the stream. As the parking structure would be positioned on top of the existing stream, storm pipes should be designed to bypass the stream around the parking structure and outfall back into the natural channel just past the parking structure. The by-pass storm system should be designed to handle flooding storm events and provide overland relief to prevent flooding in the garage. The storm system and existing natural channel should be analyzed to show that there is adequate outfall and that no downstream structures would be affected by the storm by-pass line. There would be long-term direct minor to moderate adverse impacts to surface water.

The Foundry Branch stream and the drainage streams that feed it, both on and off the NAC site, would be affected by a change in stormwater management on the site in Alternative A. The stormwater management system discussed in Section 3.13 of this report would help to treat and reduce runoff from the site. These low impact development (LID) stormwater management practices could include rain gardens, bio-retention, and infiltration planters; porous pavements; vegetated swales and bio-swales; green roofs; trees and tree boxes; and rainwater harvesting for re-use on site. Detention ponds or underground detention vaults could also be utilized. These LID measures would help to reduce the velocity and quantity of stormwater runoff and improve stormwater quality by promoting infiltration on site and treating stormwater before it leaves the site. The stormwater management practices and increased pervious surfaces that would be implemented under Alternative A would have a long-term indirect beneficial impact on surface water, both to resources on the site and to the Foundry Branch stream, by reducing stormwater runoff, improving water quality, and helping to comply with the TMDLs established for metals and bacteria.

Low impact development (LID): an approach to land development (or re-development) that works with nature to manage stormwater as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, and minimizing effective imperviousness to create functional and appealing site drainage that treats stormwater as a resource rather than a waste product (EPA 2010).

Groundwater

Under Alternative A, there would be short-term moderate adverse construction-related impacts to groundwater due to site construction activities and excavation. Due to the irregular movement of groundwater on the NAC site, it is likely temporary construction dewatering using pumps and sumps would be necessary during site excavation and building construction under Alternative A.

The decrease in impervious surfaces and the implementation of stormwater management and LID measures would help to promote stormwater infiltration on site. The stormwater management practices and increased pervious surfaces that would be implemented under Alternative A would have a long-term direct beneficial impact on groundwater by promoting groundwater recharge and improving water quality.

Wetlands

Wetlands that were identified on the site are located within the stream channels at the perimeter of the site. The stream channels and any potential wetlands on the north, northeastern and southeastern perimeters of the site would not be directly impacted due to their location on steep slopes and due to security setbacks. Construction-related activities and excavation could have a short-term minor indirect adverse impact on wetlands in the vicinity of the NAC site due to soil erosion. These impacts would be minimized by implementing best management practices described in Section 3.12.3.

On the southwestern portion of the site, grading and construction of the parking structure would occur at the location of the southern drainage stream located near Ward Circle. The parking structure would be positioned on top of part of the existing stream and a portion of the adjacent low-lying area that could have the potential to be a wetland area. The stream and surrounding area are outside of the portion of the site included in the 1995 wetlands delineation. Therefore, prior to construction of the parking garage, a preliminary assessment of the area would have to occur and a wetlands delineation would be required if the area were determined to have the potential to be a wetland. If the area is determined to be a wetland, long-term direct adverse impacts to wetlands would be moderate. There could be long-term direct beneficial impacts to wetlands in the vicinity of the NAC site due to improved water quality from improved stormwater management.

Overall, long-term direct adverse impacts to water resources under Alternative A would be minor to moderate and long-term direct beneficial impacts to streams, groundwater and wetlands could occur due to improved stormwater management on-site.

Alternative B

Under Alternative B, the total footprint of all buildings on the site would cover approximately 23% of the site. The total impervious surface area of the site, including surfaces such as surface parking and other paved impervious surfaces would be approximately 38%. This would be a 17% decrease in impervious surfaces over the existing conditions.

Surface Water

There would be short-term moderate adverse construction-related impacts to surface water due to site construction activities and excavation under Alternative B. Development on steep slopes would be avoided whenever possible to reduce erosion and sedimentation within the Foundry Branch.

Under Alternative B grading and construction of Building F would occur in the vicinity of the southern drainage stream located near Ward Circle on the southwestern portion of the site. The stream runs behind Building 60, which would be demolished and grading would occur in the vicinity of the stream. This grading should be restricted to outside of the flood limits of the stream. However as the stream directly abuts Building 60, this may not be feasible and then retaining walls should be employed. If retaining walls are also not feasible, a by-pass storm drainage line should be installed that would be designed to handle flooding storm events and provide overland relief to prevent flooding in Building F. The storm system and existing natural channel should be analyzed to show that there would be adequate outfall and that no downstream structures would be affected by the storm by-pass line. There would be long-term direct minor adverse impacts to surface water.

The Foundry Branch stream, both on and off the NAC site, would be affected by a change in stormwater management on the site under Alternative B. The stormwater management discussed in Section 3.13 of this report would help to treat and reduce runoff from the site. These LID measures could include rain gardens, bio-retention, and infiltration planters; porous pavements; vegetated swales and bio-swales; green roofs; trees and tree boxes; and rainwater harvesting for re-use on site. Detention ponds or underground detention vaults could also be utilized. These LID measures would help to reduce the velocity and quantity of stormwater runoff and improve stormwater quality by promoting infiltration on site and treating stormwater before it leaves the site. The stormwater management practices and increased pervious surfaces that would be implemented under Alternative B would have a long-term indirect beneficial impact on surface water, both to resources on the site and to the Foundry Branch stream, by reducing stormwater runoff, improving water quality, and helping to comply with the TMDLs established for metals and bacteria.

Groundwater

Under Alternative B, there would be short-term moderate adverse construction-related impacts to groundwater due to site construction activities and excavation. Due to the irregular movement of groundwater on the NAC site, it is likely temporary construction dewatering using pumps and sumps would be necessary during site excavation and building construction under Alternative B.

The decrease in impervious surfaces and the implementation of stormwater management and LID measures would help to promote stormwater infiltration on site. The stormwater management practices and increased pervious surfaces that would be implemented under Alternative B would have a long-term direct beneficial impact on groundwater by promoting groundwater recharge and improving water quality.

Wetlands

Wetlands were identified on the site within the stream channels located at the perimeter of the site. The stream channels and any potential wetlands on the north, northeastern and southeastern perimeters of the site would not be directly impacted due to their location on steep slopes and due to security setbacks. Construction-related activities and excavation could have a short-term minor indirect adverse impact on wetlands in the vicinity of the NAC site due to soil erosion. These impacts would be minimized by implementing best management practices described in Section 3.12.3.

On the southwestern portion of the site, grading and the construction of Building F would occur in the vicinity of the southern drainage stream located near Ward Circle. Building F would be positioned on the location of the existing surface parking lot and would not further encroach on the stream or the portion of the adjacent low-lying area that could be a wetland area. The stream and surrounding area are outside of the portion of the site included in the 1995 wetlands delineation. Therefore, prior to construction of Building F, a preliminary assessment of the area would have to occur and a wetlands delineation would be required if the area were determined to have the potential to be a wetland. If the area is determined to be a wetland, long-term direct adverse impacts to wetlands would be minor. There could be long-term direct beneficial impacts to wetlands in the vicinity of the NAC site due to improved water quality from improved stormwater management.

Overall, long-term direct adverse impacts to water resources under Alternative B would be minor and long-term direct beneficial impacts to streams, groundwater and wetlands could occur due to improved stormwater management on-site.

Alternative C

Under Alternative C, the total footprint of all buildings on the site would cover approximately 23% of the site. The total impervious surface area of the site, including surfaces such as surface parking and other paved impervious surfaces would be approximately 37%. This is an 18% decrease in impervious surfaces over the existing conditions.

Surface Water

There would be short-term moderate adverse construction-related impacts to surface water under Alternative C due to site construction activities and excavation. Development on steep slopes would be avoided whenever possible to reduce erosion and sedimentation within the Foundry Branch.

Under Alternative C, grading and construction of the parking structure would occur on the location of the southern drainage stream located near Ward Circle on the southwestern portion of the site. The stream runs behind Building 60, which would be demolished. Grading and construction would occur at the location of the stream. As the parking structure would be positioned on top of the existing stream, storm pipes should be designed to bypass the stream around the parking structure and outfall back into the natural channel just past the parking structure. The by-pass storm system should be designed to handle flooding storm events and provide overland relief to prevent flooding in the garage. The storm system and existing natural channel should be analyzed to show that there is adequate outfall and that no downstream structures would be affected by the storm by-pass line. There would be long-term direct minor to moderate adverse impacts to surface water.

The Foundry Branch stream, both on and off the NAC site, would be affected by a change in stormwater management on the site under Alternative C. The stormwater management discussed in Section 3.13 of this report would help to treat and reduce runoff from the site. These LID measures could include rain gardens, bio-retention, and infiltration planters; porous pavements; vegetated swales and bio-swales; green roofs; trees and tree boxes; and rainwater harvesting for re-use on site. Detention ponds or underground detention vaults could also be utilized. These LID techniques would help to reduce the velocity and quantity of stormwater runoff and improve stormwater quality by promoting infiltration on site and treating stormwater before it leaves the site. The stormwater management practices and increased pervious surfaces that would be implemented under Alternative C would have a long-term indirect beneficial impact on surface water, both to resources on the site and to the Foundry Branch stream, by reducing stormwater runoff, improving water quality, and helping to comply with the TMDLs established for metals and bacteria.

Groundwater

Under Alternative C, there would be short-term moderate adverse construction-related impacts to groundwater due to site construction activities and excavation. Due to the irregular movement of groundwater on the NAC site, it is likely temporary construction dewatering using pumps and sumps would be necessary during site excavation and building construction under Alternative C.

The decrease in impervious surfaces and the implementation of stormwater management and LID measures would help to promote stormwater infiltration on site. The stormwater management practices and increased pervious surfaces that would be implemented under Alternative C would have a long-term direct beneficial impact on groundwater by promoting groundwater recharge and improving water quality.

Wetlands

Wetlands that were identified on the site are located within the stream channels at the perimeter of the site. The stream channels and any potential wetlands on the north, northeastern and southeastern perimeters of the site would not be directly impacted due to their location on steep slopes and due to security setbacks. Construction-related activities and excavation could have a short-term minor indirect adverse impact on wetlands in the vicinity of the NAC site due to soil erosion. These impacts would be minimized by implementing best management practices described in Section 3.12.3.

On the southwestern portion of the site, grading and construction of the parking structure would occur at the location of the drainage stream located near Ward Circle. The parking structure would be positioned on top of part of the existing stream and a portion of the adjacent low-lying area that could be a wetland area. The stream and surrounding area are outside of the portion of the site included in the 1995 wetlands delineation. Therefore, prior to construction of the parking garage, a preliminary assessment of the area would have to occur and a wetlands delineation would be required if the area were determined to have the potential to be a wetland. If the area is determined to be a wetland, long-term direct adverse impacts to wetlands would be moderate. There could be long-term direct beneficial impacts to wetlands in the vicinity of the NAC site due to improved water quality from improved stormwater management.

Overall, long-term direct adverse impacts to water resources under Alternative C would be minor to moderate and long-term direct beneficial impacts to streams, groundwater and wetlands could occur due to improved stormwater management on-site.

3.12.3 What Measures Would be Taken to Protect Water Resources and Water Quality?

Potential adverse impacts to water quality generated during construction or following permanent implementation of the Master Plan on site would be mitigated through the use of the following BMPs:

- Application of grass seed or mulch to exposed soils for stabilization and to reduce erosion;
- Use of silt fencing to remove sediment from stormwater prior to leaving the construction site;
- Use of sediment basins or traps to detain stormwater and allow for the settling of sediments;
- Use of free-draining gravel material at site access points to reduce the amount of soil leaving the site on vehicle tires; and
- Coordination of regular inspections to ensure BMPs are in working order.

As part of the construction permit process, submission of a stormwater management plan and an erosion and sediment control plan for review by the Watershed Protection Division of the District Department of the Environment is required (Title 21 DCMR Chapter 5). Implementation of erosion and sediment control plans, as directed by the District of Columbia's Erosion and Sediment Control Act of 1977, would minimize erosion of exposed soils, slow the rate at which water leaves the site, and capture eroded soils before they enter the downstream water flow.

Proposed impacts to streams and their associated buffers would be subject to federal and District review and approvals. GSA would continue to work with federal and District agencies to obtain proper permit authorizations for any alteration of wetlands, waterways, and/or the associated buffers on the site. Prior to construction, a preliminary assessment of wetlands potential would have to occur for the area near the southern drainage stream located near Ward Circle on the southwestern portion of the site. A wetlands delineation would be required if the area were determined to have the potential to be a wetland. If any wetlands are delineated on the site and if these wetlands would be altered by development, a permit would have to be obtained under Section 404 of the Clean Water Act. The Army Corps of Engineers issues the permit, which is also reviewed by the U.S. EPA.

Dewatering practices would be in compliance with local and federal permits, and DC Water permitting processes. DC Water allows for the discharge of construction/ dewatering projects to the public sewer system on a case-by-case basis. However, prior to discharge, the contractor must submit a Temporary Discharge Authorization (TDA) Permit Application.

Effluent created by dewatering practices associated with construction of the proposed facility would also be managed in a way that minimizes the potential impacts to water quality within the Potomac River Watershed. Dewatering practices are used to remove groundwater or accumulated rain water from excavated areas. The muddy water pumped from these excavations would be diverted to an on-site temporary sedimentation basin or to an area completely enclosed by silt fence in a flat vegetated area where discharges can infiltrate into the ground. Effluent would never be discharged directly into storm drains unless the sediment has been removed before discharge.

The water quantity controls for each alternative would have to be in accordance with the District of Columbia Stormwater Management Guidelines and with Section 438 of the Energy Independence and Security Act of 2007, as discussed in Section 3.13, Stormwater Management.

3.13 STORMWATER MANAGEMENT

3.13.1 What are the Current Stormwater Management Conditions on the Project Site?

There are currently no known storm water management control measures on site. Under existing conditions, 55 percent of the 37.39-acre NAC site is impervious. This includes surfaces such as roads, sidewalks, rooftops and parking lots without any stormwater management controls. Based on a 15-year storm event, this would result in a flow of approximately 152 cubic feet per second exiting the site uncontrolled and unregulated (PHR&A 2010). The NAC Complex generally drains to the eastern property line of the site at the southeastern corner. There are multiple outfalls along this border ranging in size from 18" to 42" inch diameter pipes. The outfalls drain into the existing Foundry Branch stream within Glover-Archbold Park. This stream flows to the south and discharges in the Potomac River (PHR&A 2010).

3.13.2 How Would Stormwater Management Conditions on the Project Site be Affected?

A discussion of stormwater management and its impact on water quantity conditions on the project site under the proposed alternatives is found below. As part of the discussion of stormwater management, information about the relationship of stormwater management to water quality is contained in this chapter. However, the direct and indirect impacts of stormwater management on water quality on the site and in the local area are evaluated under Section 3.12 Water Resources and Water Quality.

No Action Alternative

Under the No Action Alternative, 55 percent of the site is developed (this includes impervious surfaces such as roads, sidewalks, rooftops and parking lots) and no stormwater management controls are present for quantity or quality. Given the fact that no additional development on the site would occur under this alternative, no additional stormwater management controls would be proposed, and runoff would continue to flow uncontrolled into the Foundry Branch stream within neighboring Glover-Archbold Park. There would be long-term minor to moderate adverse impacts to water resources and water quality both locally and regionally due to the lack of stormwater management.

Impacts Common to All Action Alternatives

Since each of the action alternative propose new development, water quantity controls would have to be in full accordance with District of Columbia Stormwater Management Guidelines and with Section 438 of the Energy Independence and Security Act of 2007 (EISA).

Quantity control requirements for the District of Columbia require that the 2-year and 15-year post-development storm events peak discharge rates be released at the pre-development rate (both storm events are 24-hour events). In this case, the site's pre-development condition shall be assumed to be woods in good condition. The Federal (EISA) requirements do not require any additional quantity control above the 95th percentile storm event which is equivalent to a slightly less than a 2-year storm event in the District of Columbia (PHR&A 2010). Thus, the D.C. requirements for stormwater detention and discharge are more rigorous.

The 95th percentile storm event (equivalent to slightly less than a 2-year storm event) would be detained in the Low Impact Development (LID) water quality devices or "green infrastructure" within the site. For example, LID practices include reducing impervious surfaces, using vegetative practices, porous pavements, cisterns and green roofs. Some of the LID practices that would be employed are found in Table 3-7.

Table 3-7 Low Impact Development Practices

Low Impact Development Practices	Uses for Practices
Rain gardens, bio-retention, and infiltration planters	Promote infiltration of stormwater, and allow for evapo-transpiration to occur.
Porous pavements	Allow stormwater to infiltrate where traditional impervious pavement would otherwise be used.
Vegetated swales and bio-swales	Treat stormwater runoff as it flows through these channels.
Green roofs	Absorb and store rainfall, thereby reducing runoff volume. Green roofs also help reduce energy costs.
Trees and tree boxes	Help break up the landscape of impervious surfaces and absorb stormwater runoff.
Rainwater harvesting	Uses cisterns and rain barrels to capture and use stormwater (e.g., irrigation, air conditioning cooling water, non-potable indoor uses such as watering plants)

Source: PHR&A 2010

The remainder quantity control for the 2-year and 15-year storm events—the difference between Federal quantity requirements and District requirements—would be accommodated through the use of a dry or wet pond or underground detention using vaults, pipes or chambers with or without gravel beds. The stormwater management could be broken up into multiple areas but according to the existing site topography should be mainly located at the southeast corner of the site since most of the runoff is directed to this area. It can be assumed that a combination of underground detention vaults sized to accommodate a total of approximately 200,000 cubic-feet of storage would need to be provided on site to accommodate all three alternative layouts (PHR&A 2010).

As for water quality, there are currently no known water quality controls on site. Therefore, D.C. requires that the site's pre-development condition shall be assumed to be woods in good condition. Water quality requirements in D.C. require that .50 inches of runoff be captured and treated for impervious areas that include parking lots and roadways. Furthermore, .30 inches of runoff is required for rooftops, sidewalks, and pedestrian plaza areas.

The Federal (EISA) would require this initial water quality requirement to be retained to the maximum extent possible to restore the site to a pre-development hydrological state. The Federal (EISA) requirements state that the site must maintain or restore pre-development hydrology by the use of retaining rainfall on-site through infiltration, evaporation/transpiration, and re-use to the same extent as occurred prior to development (woods in good condition). This could be accomplished by managing on-site the total volume of rainfall from the 95th percentile storm (1.7 inch 24-hour storm event) or by managing on-site total volume of rainfall based on a site-specific hydrologic analysis.

Both water quality methods, D.C. and Federal requirements have been calculated for each Alternative layout and are shown in the table below:

Table 3-8 Water Quality Regulations

Layout Option	D.C. Water Quality Volume to be treated (cubic feet)	Federal Water Quality Volume to be treated (cubic feet)
No-Action	0	0
Alternative A	17,700	15,000
Alternative B	18,500	15,600
Alternative C	18,000	14,900

Source: PHR&A 2010

The larger water quality volume (D.C. Water Quality Volume to be treated) would be used to establish the requirements for the site for each alternative. But the methods for treating the water quality volume would follow Federal requirements since they exclusively require the use of LIDs.

Alternative A

Under Alternative A the impervious area of the site would be reduced from 55 percent to 37 percent, leaving 63 percent of the area pervious. This is an 18 percent reduction in the amount of impervious surface present on the site compared to the existing conditions. This reduction would be achieved through the introduction of more open space and landscaping, the consolidation of surface parking into a parking structure, the installation of green roofs on four buildings and the use of pervious materials for pathways. Furthermore, the installation of detention devices and LIDs for stormwater quantity and quality control, would introduce a new level of stormwater management currently non-existent on the site. This would result in long-term, beneficial impacts on stormwater quality and quantity control on the site and within the local area and region.

Alternative B

Under Alternative B the impervious area of the site would be reduced from 55 percent to 38 percent, leaving 62 percent of the area pervious. This is a 17 percent reduction in the amount of impervious surface present on the site compared to the existing conditions. This reduction would be accomplished through the introduction of more open space and landscaping, the consolidation of surface parking into a parking structure, the installation of green roofs on six buildings and a parking structure, and the use of pervious materials for pathways. Furthermore, the installation of detention devices and LIDs for stormwater quantity and quality control, would introduce a new level of stormwater management currently non-existent on the site. This would result in long-term, beneficial impacts on stormwater quality and quantity control on the site and within the local area and region.

Alternative C

Under Alternative C the impervious area of the site would be reduced from 55 percent to 37 percent, leaving 63 percent of the area pervious. This is an 18 percent reduction in the amount of impervious surface present on the site compared to the existing conditions. This reduction would be accomplished through the introduction of more open space and landscaping, the consolidation of surface parking into a parking structure, installation of green roofs on three buildings and a parking structure, and the use of pervious materials for pathways. Furthermore, the installation of detention devices and LIDs for stormwater quantity and quality control, would introduce a new level of stormwater management currently non-existent on the site. This would result in long-term, beneficial impacts on stormwater quality and quantity control on the site and within the local area and region.

3.13.3 What Measures Would be Put into Place to Mitigate Impacts on Stormwater Management?

Increases in surface stormwater runoff during construction would be controlled by stormwater Best Management Practices (BMPs) as well as erosion and sedimentation controls to reduce potential impacts to adjacent land and waters.

Through the design process, alternatives to the use of dry or wet ponds would be further evaluated and LID measures would be emphasized to the extent feasible, including rain gardens, vegetated swales and bio-swales, in order to minimize any potential negative visual impacts from stormwater ponds.

3.14 VEGETATION

3.14.1 What Vegetation Exists on the Project Site?

There are currently 17.9 acres of vegetated area on the site and an existing tree canopy that covers approximately 30% of the site. Most of the vegetation on the site is cultivated landscaping, however there are some areas of mature vegetation located at the eastern and southeastern edges of the site. This perimeter vegetation consists of small strips of deciduous forest, a portion of which borders Glover-Archbold Park. The remaining site vegetation exists around the buildings, structures, roads, and surface parking lots. This vegetation includes landscaping such as street tree plantings, lawns, ornamental trees, and shrubs. In addition, several large shade trees are located proximate to the buildings (HOK 2009).

On the northern portion of the site, the vegetation includes maintained turf areas, shade and ornamental trees, and ornamental shrubs and groundcovers. Species frequently observed on this portion of the site include spruce (*Picea sp.),* linden (*Tilia sp*.), magnolia (*Magnolia sp.*), walnut (*Juglans sp.*), cherry (*Prunus sp.*), and pin oak (*Quercus palustris*). Turf, shrubs and perennial plantings are used as borders along fences and sidewalks on this portion of the site. There is a large Southern magnolia (*Magnolia grandiflora*) and an American holly (*Ilex opaca*) located at the southwest corner of Building 1. There are also several large trees located near the Chapel and Building 5. These trees include spruces, elms (*Ulmus sp.*), maples (*Acer sp.*), and lindens. There are also some evergreens located around the Hensley gate and a line of hemlocks to the west of Building 5 (JMA 2010). There are significant open spaces on the site that appear to be retained from the site's original landscape design. These spaces include a central tree-lined corridor, a landscaped area in front of Building 1, and other open areas that provide for on-site gathering spaces. The tree-lined corridor ties the core of the campus together and the area in front of Building 1 lends a sense of importance and formality to the entrance (HOK 2009).

On the north-central portion of the site, the vegetation includes a number of ornamental trees as well as a small grove of what is possibly remnant forest. There are several large trees on this portion of the site including a spruce at the northern corner of Building 14, a grove of large tulip poplars (*Liriodendron tulipifera*) located to the east of Building 81, a large willow oak (*Quercus phellos*) in front of Building 81, and an Eastern red cedar (*Juniperus virginiana*) at the edge of the tennis courts. The spruce (*Picea sp.)* near Building 14 is proposed for removal due to proposed utility line work.

On the eastern portion of the site, most of the vegetation was cleared during construction of the parking lot and utility buildings. There are large turf areas to the north and southwest of Building 101 and a few ornamental trees and turf patches within parking area islands. Woodland fringe areas exist around the perimeter of the eastern portion of the site.

Vegetation on the southern portion of the site includes turf areas, shrub borders, ornamental trees, a woodland fringe along Massachusetts Avenue and a large oak (*Quercus phellos*), known as the Darlington Oak, located north of Building 18 (JMA 2010).

3.14.2 How Would Vegetation be Affected?

No Action Alternative

Under the No Action Alternative, a Master Plan would not be implemented on the NAC site and therefore no construction or demolition of facilities would take place in conjunction with a Master Plan. Utility work currently underway that is not associated with a Master Plan would remove the historic spruce tree near Building 14. Impacts to vegetation would be negligible to minor.

Impacts Common to All Action Alternatives

In each of the action alternatives, a portion of the site vegetation would be removed and replaced during construction, while other vegetation would be retained and incorporated into the proposed design. The existing wooded buffers at the site edges would be retained. Each of the alternatives would include landscaped courtyards and open green spaces that were important design features of the historic campus developed by Wesley Sherwood Bessell.

The site vegetation that would be removed during construction includes trees, shrubs and other landscaping where new buildings are proposed. Removal of vegetation would also occur to facilitate the reestablishment of historically open green spaces and courtyards. In each of the alternatives, 39 trees would be removed that range in size from 4 inch caliper trees to 33 inch caliper trees, with the majority around 12 inch caliper. None of the trees that would be removed have a circumference of more than 55 inches and therefore would not require a Special Tree Removal Permit through the Urban Forestry Administration. New trees and site landscaping would be added surrounding the new buildings, in the open spaces created by building demolition, within the courtyards, and along the site circulation routes. A total of 101 new trees would be added to the site. This would increase the tree canopy from the existing tree canopy of approximately 30% to a tree canopy that covers approximately 40% of the site, a net increase of 10%.

The Cultural Landscape Report written for the NAC provides landscape recommendations to ensure the historic character of the NAC would be both preserved and enhanced during any future development (see Appendix A). In each of the alternatives, these recommendations were incorporated wherever possible and would include features such as: preserving potentially historic trees; preserving large oaks and Norfolk Island pine; preserving and enhancing the woodland edge of the perimeter of the site; and using plant materials that evoke the historic periods of the campus (yew, boxwood, roses, English ivy, Pfitzer juniper, hemlock, white pine, Eastern red cedar, and arborvitae).

Alternative A

Short-term adverse impacts to vegetation would be minor due to the removal of a portion of the vegetation during construction. However, the site would be re-landscaped once construction is complete.

The removal of one heritage tree, a willow oak tree, would be required due to the construction of Building A. In addition, as discussed in the No Action Alternative, the utility work currently underway would remove the historic spruce tree near Building 14. All other heritage trees on the site would be preserved. Therefore, long-term adverse impacts to vegetation would be minor. Long-term beneficial impacts would also occur due to the reestablishment of historic landscape features and at least a 10% net increase in the tree canopy.

Alternative B

Short-term adverse impacts to vegetation would be minor due to the removal of a portion of the vegetation during construction. However, the site would be re-landscaped once construction is complete.

No heritage trees would be removed under Alternative B. However, as discussed in the No Action Alternative, the utility work currently underway would remove the historic spruce tree near Building 14. All other heritage trees on the site would be preserved. Therefore, long-term adverse impacts to vegetation would be negligible to minor. Long-term beneficial impacts would also occur due to the reestablishment of historic landscape features and at least a 10% net increase in the tree canopy.

Alternative C

Short-term adverse impacts to vegetation would be minor due to the removal of a portion of the vegetation during construction. However, the site would be re-landscaped once construction is complete.

The removal of one heritage tree, a willow oak tree, would be required due to the construction of Building A. In addition, as discussed in the No Action Alternative, the utility work currently underway would remove the historic spruce tree near Building 14. All other heritage trees on the site would be preserved. Therefore, long-term adverse impacts to vegetation would be minor. Long-term beneficial impacts would also occur due to the reestablishment of historic landscape features and at least a 10% net increase in the tree canopy.

3.14.3 What Measures Should be Undertaken to Reduce Impacts to Vegetation and Wildlife?

Although none of the trees that would be removed have a circumference of more than 55 inches and therefore would not require a Special Tree Removal Permit through the Urban Forestry Administration, coordination should occur with the Urban Forestry Administration and achieve compliance with the Urban Forestry Administration’s Special Tree Removal Permit should it become necessary. The Urban Forestry Administration’s “Construction Guidelines for Tree Protection” should also be followed to prevent damage to existing trees during construction.

In each alternative, where feasible, mature trees should be preserved and native vegetation should be specified as the detailed design progresses.

3.15 HAZARDOUS MATERIALS, WASTE AND CONTAMINATION

3.15.1 What are the Existing Hazardous Materials, Waste and Contamination Conditions of the Site?

Contamination Conditions and Locations on the Site

In 1988, the potential for hazardous waste at the NAC site was brought to the attention of the EPA and was listed in the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database, a database managed under the US EPA Superfund program which was established to address hazardous waste sites. A Preliminary Assessment of the site was completed in 1992. Community relations and EPA oversight activities required for Federal facilities occurred from 1995 to 1998 (EPA 2010). Investigations into the potential site contamination occurred in accordance with the U.S. Navy's Installation Restoration Program because the NAC site was owned and operated by the U.S. Navy until 2005 when the NAC was transferred to the GSA.

Environmental hazards were identified on the site during the 2004 *Environmental Condition Property Survey for Nebraska Avenue Complex, Washington, D.C.*, completed by Tetra Tech NUS, Inc. and are categorized by Environmental Condition of Property (ECP) Area Types. The survey was completed in order to facilitate a transfer of the NAC property from U.S. Navy ownership to the GSA. Five different ECP Area Types exist on the site (Figure 3-41; Table 3-9).

ECP Area Types are used to classify portions of a property when hazardous substances or petroleum products may have been stored on the site, allowing for the possibility that a release, disposal, or migration of a hazardous substance or petroleum product could have occurred in an environmental medium where humans or environmental receptors could have inadvertently become exposed. The

American Standard for Testing and Materials (ASTM) Standard D 5746-98 provides the seven ECP Area Type descriptions, listed below:

ECP Area Type 1: An area or parcel of real property where no release, or disposal of hazardous substances or petroleum products or their derivatives has occurred (including no migration of these substances from adjacent properties);

ECP Area Type 2: An area or parcel of real property where only the release or disposal of petroleum products or their derivatives has occurred;

ECP Area Type 3: An area or parcel of real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred, but at concentrations that do not require a removal or remedial action;

ECP Area Type 4: An area or parcel of real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred, and all remedial actions necessary to protect human health and the environment have been taken;

ECP Area Type 5: An area or parcel of real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred and removal or remedial actions, or both, are under way, but all required actions have not yet been taken;

ECP Area Type 6: An area or parcel of real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred, but required response actions have not yet been initiated;

ECP Area Type 7: An area or parcel of real property that is unevaluated or requires additional evaluation (Tetra Tech 2004).

According to the Environmental Condition Property Survey for the NAC, there are two locations designated as ECP Area Type 5, two locations designated as ECP Area Type 4, approximately five locations designated as ECP Type 3, and two locations designated as ECP Area Type 2. On the NAC site, ECP Area Type 5 was assigned when the cleanup action was not approved as complete in writing at the time of the study. The remaining portions of the site are designated as ECP Area Type 1, meaning that the information reviewed for the ECP survey did not indicate that these areas had been affected by the release or disposal of hazardous substances, however there may have been hazardous substances or petroleum products stored there. A majority of the NAC site is classified as ECP Area Type 1(See Figure 3-41).

The Tetra Tech study notes that at the time of the study little environmental information was available regarding the site's operation prior to 1980 and that it is possible that environmental records that were not available for the study could provide information that would alter the ECP Area Type designations on the site.

Figure 3-41 ECP Area Map

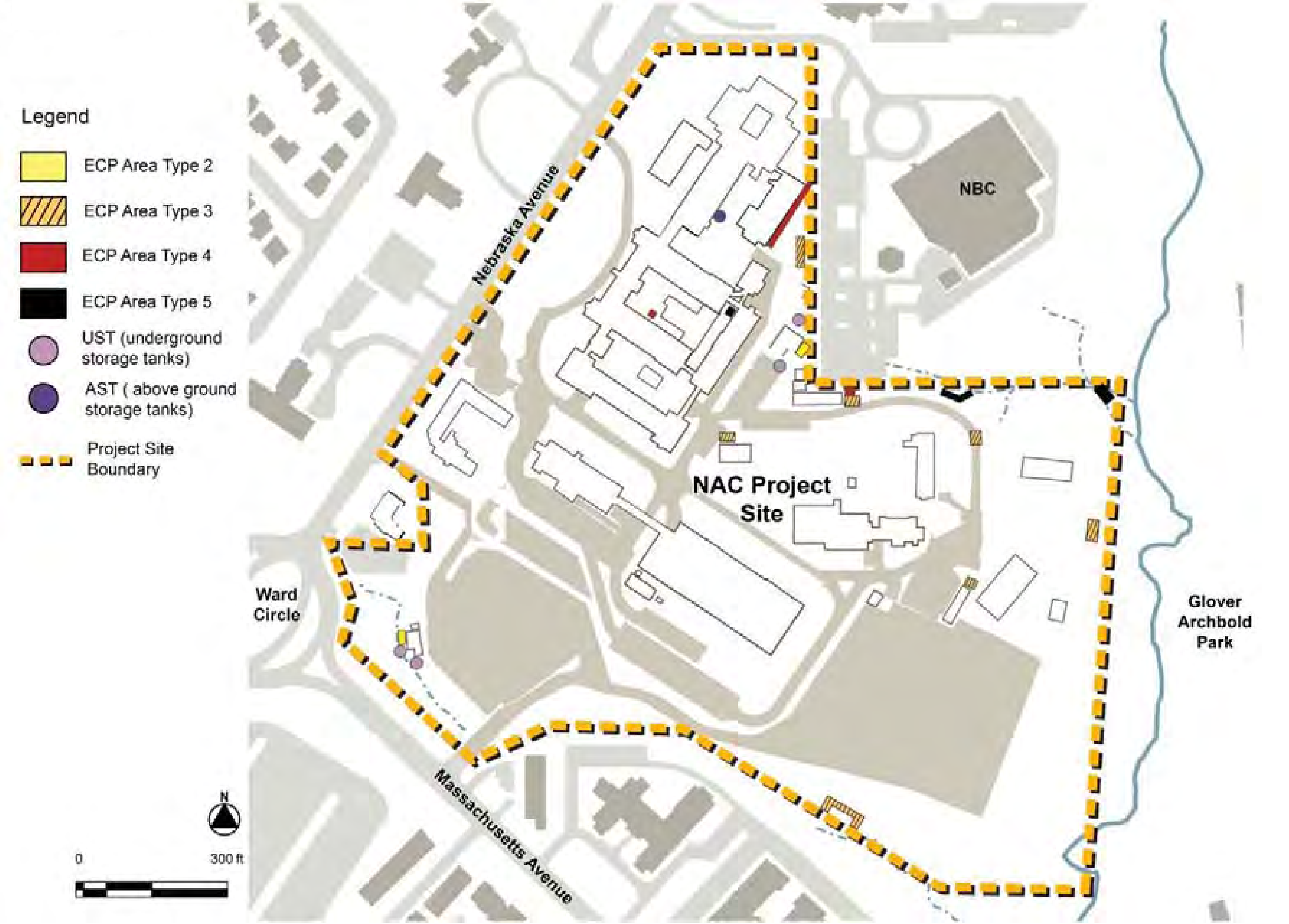


Table 3-9 ECP Area Types

ECP Area Type	ECP Area Location	ECP Area Type Description
ECP Area Type 5	Area Between Building 3 and 100	A catch basin found to contain PCBs resulting in a TSCA soil removal by the Navy in 1989
	North Drainage	An intermittent stream on the northeastern perimeter had PCB contaminated soils and sediment; removal action in the late 1990s
ECP Area Type 4	Area on east side of Building 20	Lead contaminated soils were excavated in the late 1990s
	North side of Building 17	In the location of a former transformer, PCB contaminated soils were excavated in March 1992
ECP Area Type 3	North of Building 21	Location of historic paint operations
	East of Building 20	Location of metal model shop (formerly Building 22 which as razed in 1975)
	North of Building 49	Past hazardous waste storage activities occurred
	Southeast of Building 59	Historic operations included a pesticide shop and document incineration
	Northeastern and eastern perimeter (formerly North and East Outfalls)	Stormwater outfalls
ECP Area Type 2	East of Building 15	Location of a subsurface oil spill containment vault
	Ditch segment west of Building 60	Historic operations included a filling station and an auto hobby shop

Source: Tetra Tech 2004

There are two locations designated as ECP Area Type 5 on the NAC site. ECP Area Type 5 was assigned to areas of the NAC site where a cleanup action was designed, approved by all applicable regulatory agencies, and implemented but the cleanup action has not been approved as complete in writing. A catch basin that was found to contain PCBs is located on a portion of the paved alley between Buildings 3 and 100. A Toxic Substances Control Act (TSCA) cleanup was performed by the Navy in 1989 and the contaminated soil was removed. PCBs were also found in segments of the North Drainage, an intermittent stream in a forested area on the northeastern perimeter of the NAC. Surface soils and sediment were excavated during a removal action in the late 1990s.

After performing a Remedial Investigation/Feasibility Study, the Navy determined that no further action was necessary for either area designated as ECP Area Type 5 in the Tetra Tech study. This was based on a determination that no human or ecological risk was identified. However, at the time of the Tetra Tech study, the Navy was still waiting for written concurrence from the EPA and the DC Department of Health (DCDOH) and without written concurrence the areas remained classified as ECP Area Type 5.

There are two areas on the NAC site that are designated ECP Area Type 4, indicating that the contamination has been successfully addressed by a cleanup action that has been deemed as satisfactory in writing by all applicable regulatory agencies. On the east side of Building 20, soils contaminated by lead were excavated as part of a removal action under the Navy's Installation Restoration Program in the late 1990s. A PCB transformer was previously located on the north side of Building 17 and soils contaminated by PCBs were excavated on March 21, 1992.

There are several areas on the site that are designated as ECP Area Type 3: an area north of Building 21 where a soil sample was analyzed to determine whether past paint operations in the building had impacted the environment; a grassy area east of

Building 20 where Building 22 housed a metal model shop before it was razed in 1975; an area north of Building 49 where a soil sample was analyzed to determine whether past hazardous waste storage activities in the building had impacted the environment; an area southeast of the southeast corner of Building 59 where a soil sample was analyzed to determine whether past activities in the building, including incineration of classified documents and use as a pesticide shop, had affected surface soils; and two stormwater outfalls near the northeastern and eastern perimeter of the NAC site. Data regarding these areas was collected during a Site Inspection that was completed as part of the Installation Restoration Program in 1993. The data indicated that no further environmental investigation or action was necessary.

There are two areas on the NAC site that are designated as ECP Area Type 2: an area immediately east of Building 15, which is the location of a subsurface oil spill containment vault (oil-water separator); and an area west of Building 60 in a segment of a ditch where a soil sample was analyzed to determine whether contamination had resulted from past operation of the building as a filling station and auto hobby shop. According to the 1993 Site Inspection no further environmental investigation or action is necessary.

A diesel fuel spill occurred on the site on December 31, 1997 that could warrant an ECP Area Type 2 designation. However, as the precise area of the diesel fuel leak could not be determined, the ECP Area Type designation was not assigned. The spill likely occurred near the rear gate house (Building 88). The diesel fuel leaked from a fuel tank on a truck that was punctured when the driver hit a concrete barricade. There is no information on the quantity of diesel fuel leaked. The initial response consisted of isolating the affected area and deploying absorbents to clean up the spill. Documentation regarding the cleanup indicates that ten 55-gallon drums and two 85-gallon drums of contaminated soil were removed from the storm drain system in January 1998. Documentation formally closing out the spill is not available from Navy files. However, according to the *Environmental Condition Property Survey for Nebraska Avenue Complex*, the existing documentation suggests that the Navy properly addressed the spill and therefore the impact of the leak on the future environmental condition of the leak location is not substantial (Tetra Tech 2004).

Another area that does not have an ECP Area Type designation but may have been previously contaminated is an area northwest of Building 3. According to the Preliminary Assessment, a dip tank measuring 24 by 2 by 3 feet and contained pentachlorophenol (PCP) was located in the alley on the northwest side of Building 3 from approximately 1963 to 1966. It was used to treat lumber that was immersed in the PCP and then laid in the alley to air dry. The tank was removed in 1966. The Preliminary Assessment notes that because the tank was located in close proximity to the catch basin that was removed during the TSCA removal action in 1989, any soil potentially contaminated with PCPs would have been excavated and disposed of as part of that action (Tetra Tech 2004).

According to the District of Columbia's "Closed Leaking Underground Storage Tank (LUST) Cases" records, there was a leaking underground storage tank at Building 4 in 1991. District of Columbia records indicate that soil and groundwater contamination occurred and that the LUST case was closed with the District in 1997 (DDOE 2010). Leaks from USTs, both at the NAC site and in the greater vicinity, can contaminate the groundwater below the NAC site and in the larger area. LUST cases have also been reported on surrounding properties (Tetra Tech 2004).

Underground Storage Tanks (USTs)

There are four (4) active double-walled fiberglass underground fuel oil storage tanks installed on the site: two (2) 20,000 gallon tanks and two (2) 10,000 gallon tanks. All four of the tanks were installed in 1997 and have electronic leak detection and overfill protection. No. 2 fuel oil that is used to fire the boilers in Building 15 is stored in these tanks. Two of the USTs are located to the north of Building 15 and two are located to the south. According to a 1989 hazardous waste management plan, the used oil is accumulated and recycled by a private contractor at the Auto Hobby Shop in Building 60.

There are two inactive USTs near Building 60 dating from the U.S. Navy's ownership of the site that were utilized when Building 60 was operated as a gas station until 1977. These tanks are believed to have been abandoned in place by filling them with pea gravel. At the time these tanks were abandoned, closure records were not required and the Navy does not have documentation on the abandonment of the two tanks (Tetra Tech 2004). According to the "Draft Limited UST Site Investigation" report for Building 60 conducted in 2005, no indications of abandoned USTs were encountered during site probing, however it is possible that buried metal objects could exist and therefore could be encountered during any future site excavation in the vicinity. The report also noted that no significant environmental concerns were identified during the Limited UST Site Investigation, which included limited soil sampling near Building 60 (SCS Engineers 2005).

Four underground storage tanks have been removed from the NAC: one (1) 2,000 gallon diesel fuel tank near Building 4; one (1) 500 gallon diesel fuel tank near Building 17; one (1) 4,000 gallon gasoline tank near Building 49; one (1) 2,000 gallon tank near Building 100. No closure records exist for a 275 gallon UST that is shown on a map in a 1997 Emergency Planning and Community Right to Know Act report, however it is suspected that the tank was an above ground storage tank (Tetra Tech 2004).

Above Ground Storage Tanks (ASTs)

There are three active aboveground storage tanks (ASTs) on the site that all contain diesel fuel. There is a 2,000-gallon tank located southeast of Building 4 that is used as an emergency generator supply tank. It is a double-walled steel and concrete tank that was installed in the early 1990s with high-level alarm overfill prevention device, a spill catchment basin and electronic leak detection. There is also a 20-gallon day tank located near Building 4. The third tank is located inside Building 99. It is a 500-gallon double-walled steel tank that was installed in 2000 to fuel the fire suppression system. It does not have overfill prevention devices, a spill catchment basin or electronic leak detection. However, it is inspected monthly and spill kits are readily accessible.

Two 20-gallon ASTs that were used as day tanks for emergency generators when the NAC was owned by the U.S. Navy were removed from the basement of Building 4 in 2003. Due to the capacity of the tanks (less than 55 gallons), they were exempt from reporting requirements under the Naval District Washington's Spill Prevention, Control, and Countermeasures Plan (Tetra Tech 2004).

Oil-Water Separators (OWSs)

An OWS is located in an oil spill containment vault on the east side of Building 15. Several storm drain catch basins discharge to this OWS where the water passes through a series of three concrete chambers before being discharged past a valve to the storm drain system. This valve can reportedly be closed in order to control any potential spills. The soils and groundwater near the OWS were tested as part of the 1993 Site Inspection. The Site Inspection identified releases to the soil and groundwater but concluded that the releases were not a concern due to the types of metals and organic compounds found in the subsurface soil and groundwater. According to the Preliminary Assessment, an OWS that discharged into the sanitary sewer system was located in Building 60. Its removal was not documented as closure documentation was not required (Tetra Tech 2004).

Sumps

The Preliminary Assessment states that a sump may have been present in the basement of Building 18. The drains and sump that discharged to the sanitary sewer system were sealed in the 1980s. During the 2004 visual site inspection by Tetra Tech, several small floor sumps and pumps were observed in building basements. These sumps collect rinsate water from the floor and discharge to the sanitary sewer. They did not appear to be a source of releases to the exterior environment (Tetra Tech 2004).

Asbestos Containing Materials (ACM)

Asbestos is a hazardous air pollutant that is regulated under the National Emission Standards for Hazardous Air Pollutants. Asbestos fibers can become airborne and inhaled into the lungs if asbestos containing materials (ACM) are damaged or disturbed during repair, renovation or demolition. Once airborne, if inhaled into the lungs it can cause significant health problems that can vary depending on many factors including the amount of asbestos and length of exposure. These health problems include difficulty breathing and increased chances of certain types of cancer (ATSDR 2001).

Based on the EPA definition, a material is considered to be an ACM if it contains greater than one percent (1%) asbestos as determined by using the method specified in "Protection of the Environment," Title 40 *Code of Federal Regulations* (appendix E, subpart E, 40 CFR part 763, section 1, Polarized light Microscopy). ACM is categorized as either friable or non-friable. ACM that is friable is capable of being crumbled, pulverized, or reduced to powder by hand pressure and has a greater potential for the release of fibers into the atmosphere. Non-friable ACM cannot be reduced to powder by hand pressure. There are two categories of non-friable ACM: Category I and Category II. The two categories are distinguished from each other by their potential to release fibers when damaged. Generally, Category II ACM is more likely to become friable when damaged. The ACM classification determines how it is regulated and handled (40 CFR 2003). If disturbed, ACM must be handled according to OSHA and US EPA regulations (Tidewater 2005).

Because friable ACMs have a greater potential to release fibers into the atmosphere if the materials are disturbed or dislodged during renovation, they must be properly handled and removed prior to renovation activity. Non-friable ACM can be disposed of as non-hazardous material unless they are made friable which could occur if they are sanded, ground, cut or abraded during renovations.

ACMs have been removed or abated from some of the buildings on the NAC site during renovations. In the 2005 Hazardous Materials Survey conducted by Tidewater, both friable and non-friable ACMs were detected in 23 of the buildings. Table 3-10 lists all of the types of ACMs encountered at the NAC by building.

The roofs of the buildings were not accessible for surveying during the 2005 NAC Hazardous Materials Survey conducted by Tidewater. Roofing products such as built-up tar and felt roofing are assumed to contain asbestos. Other areas of some of the buildings were also unavailable for surveying for various reasons including: occupied areas where surveying was limited to visual inspection, high security areas, locked rooms, and inaccessible crawlspaces. Where inaccessible rooms were known to be similar to accessible rooms, the study assumes the presence of hazardous materials in the inaccessible rooms would be similar to those found in the accessible rooms. The study also assumes that residue from previous ACM caulking may exist in brick structures where windows and doors have been replaced.

Table 3-10 Asbestos-Containing Materials

Building Name/Number	Building Status in All Alternatives	ACM Inspection Dates	ACMs Encountered
Building 001 – Main School Building	To be renovated under all action alternatives	September 2004 – December 2004	Air cell pipe insulation; MAG pipe insulation; mudded joints, TSI debris, transite panel below window; 1 to 3 layers of floor tile (9x9 and 1x1 floor tile); mastic under floor tile; leveling compound/cement
Building 002 – Class and Recreation Building	To be renovated under all action alternatives	October 2004 – February 2005	Air cell pipe insulation; mudded joints; 1 to 4 layers of floor tile (12x12 floor tile); mastic under floor tile; old white window caulking
Building 003 – Office Building East	To be renovated under all action alternatives	October 2004 – February 2005	Mastic under linoleum and floor tiles
Building 004 – Lab Building	To be renovated under all action alternatives	October 2004 – November 2004	Mudded joints, 9x9 floor tile; mastic under floor tile
Building 005 – Lab Extension	To be demolished under all action alternatives	October 2004 – November 2004	Mudded joints and pipe insulation (assumed ACM)
Building 006 – Memorial Chapel	To be renovated under all action alternatives	October 2004 – November 2004	TSI debris; pipe insulation; fittings (mudded joints); plaster wall; 9x9 floor tile; mastic under floor tile; window glazing
Building 007 – Dispensary	To be demolished under all action alternatives	October 2004 – November 2004	TSI debris; pipe insulation; fittings (mudded joints); 1 to 3 layers of floor tile (9x9 and 12x12 floor tile); mastic under floor tile; transite wall
Building 011 – Visitors Gate House	To be demolished under all action alternatives	October 2004 – November 2004	Mastic under linoleum floor

Building Name/Number	Building Status in All Alternatives	ACM Inspection Dates	ACMs Encountered
Building 013 – Field House	Renovation under the No Action Alternative	October 2004 – November 2004	Residual pipe insulation; duct seam sealant; expansion joints
Building 014 – Cafeteria	Renovation under the No Action Alternative	October 2004 – January 2005	Pipe insulation; mudded joints; 12x12 floor tile; mastic under floor tile; carpet mastic; door and window caulking; transite panes; fire doors (assumed ACM)
Building 015 – Boiler Room	To be demolished under all action alternatives	October 2004 – January 2005	1 to 2 layers of floor tile (9x9 floor tile); mastic under floor tile; expansion joints (assumed ACM)
Building 017 – Office Building South	To be renovated under all action alternatives	October 2004 – February 2005	Pipe insulation; pipe fitting insulation; 9x9 floor tile; mastic under floor tile; vibration dampers; exterior door caulking
Building 018 – Code and Signal Laboratory	To be demolished under all action alternatives	October 2004 – November 2004	1 to 3 layers of floor tile (9x9 floor tile); mastic under floor tile; transite board wall panels
Building 019 – Office Building	Renovation under the No Action Alternative	October 2004 – February 2005	Air cell pipe insulation; mudded joints; transite wall board; glue dots;1 to 4 layers of floor tile (9x9 and 1x1 floor tile); mastic under floor tile; adhesive behind wood wainscoting; TSI wrap on pipe; fire doors (assumed ACM)
Building 020 – Operations Building	To be renovated under all action alternatives	October 2004 – December 2004	Mudded joints; pipe insulation; 1 to 4 layers of floor tile (9x9 floor tile); mastic under floor tile; pipe exit sealant; fire doors (assumed ACM)
Building 021 – Public Works Maintenance	To be demolished under all action alternatives	October 2004 – November 2004	Mudded joint; exterior door caulking; old exterior window and door caulking; fire door (assumed ACM)
Building 043 – Administration Building	To be renovated under all action alternatives	September 2004 – January 2005	Pipe insulation; mudded fittings; 1 to 3 layers of floor tile (12x12 and 9x9 floor tile); mastic under floor tile; fire doors (assumed ACM)

Building Name/Number	Building Status in All Alternatives	ACM Inspection Dates	ACMs Encountered
Building 049 – Public Works Storage	To be demolished under all action alternatives	October 2004 – November 2004	Window glazing and caulking
Building 059 – Classified Waste	To be demolished under all action alternatives	October 2004 – November 2004	12x12 floor tile; mastic under floor tile
Building 060 – Auto Hobby Shop	To be demolished under all action alternatives	October 2004 – November 2004	Window glazing and caulking; vent caulking
Building 061 – Mechanical Equipment	Renovation under the No Action Alternative	December 2004 – January 2005	Mudded fittings
Building 081 – Bachelor Enlisted Quarters	To be demolished under all action alternatives	October 2004 – November 2004	Mudded joints; 1 to 2 layers of floor tile (9x9 and 12x12 floor tile); mastic under floor tile
Building 088 – Visitors Gate House (Rear)	To be demolished under all action alternatives	October 2004 – December 2004	Window and door caulking

Source: Tidewater 2005

Polychlorinated biphenyls (PCBs)

PCBs are man-made organic chemicals that were used in industrial and commercial applications until their manufacture was banned in 1979 due to the variety of adverse health effects they have been demonstrated to cause. Exposure to PCBs comes primarily from eating contaminated fish or other animals or by breathing contaminated air. Exposure can also come from contaminated soil and water and from repairing or removing PCB-containing materials. PCB exposure can cause adverse health effects on the immune system, the reproductive system, the nervous system and the endocrine system. PCB exposure also has the potential to cause certain kinds of cancer (EPA 2008).

The NAC Hazardous Materials Survey visually inspected accessible fluorescent light ballasts, small capacitors, and transformers to determine whether or not labeling indicated that they were manufactured without PCBs. All small capacitors and fluorescent light ballasts manufactured after PCBs were banned are labeled "No PCBs" by manufacturers. Therefore, all capacitors and fluorescent light ballasts observed during the study that did not have a label were assumed to contain PCBs. PCB-containing equipment was assumed to be present in seven of the buildings at the NAC and are listed in Table 3-11. All of the equipment assumed to contain PCBs was found to be intact and none of it was leaking. These components should be handled as PCB containing units during disposal unless documentation can confirm otherwise in order to prevent PCBs from entering the environment (Tidewater 2005).

Table 3-11 PCB Containing Units

Building Name/Number	Building Status in All Alternatives	Inspection Dates	PCB Equipment[1]
Building 007 – Dispensary	To be demolished under all action alternatives	October 2004 – November 2004	One (1) transformer
Building 013 – Field House	Renovation under the No Action Alternative	October 2004 – November 2004	Approximately twenty (20) light ballasts, one (1) transformer, and possible floor contamination near transformer
Building 014 – Cafeteria	Renovation under the No Action Alternative	October 2004 – January 2005	Approximately fifty (50) light ballasts
Building 015 – Boiler Room	To be demolished under all action alternatives	October 2004 – January 2005	Florescent light ballasts and capacitors
Building 020 – Operations Building	To be renovated under all action alternatives	October 2004 – December 2004	Approximately one hundred (100) light ballasts
Building 049 – Public Works Storage	To be demolished under all action alternatives	October 2004 – November 2004	Approximately twenty-five (25) light ballasts
Building 081 – Bachelor Enlisted Quarters	To be demolished under all action alternatives	October 2004 – November 2004	One (1) transformer

Source: Tidewater 2005

[1] Assumed PCBs

Lead-Based Paint (LBP)

Lead exposure can occur when lead-containing particles are inhaled or ingested. In adults long-term exposure to lead (lead poisoning) can cause reproductive problems, high blood pressure, nerve disorders, memory and concentration problems, and muscle and joint pain. Children with high levels of lead in their bodies can suffer from damage to the brain and nervous system, behavior and learning problems, slowed growth, hearing problems and headaches (EPA 2010). Lead exposure from lead-based paint (LBP) can occur if the LBP surface is subject to abrasion or otherwise deteriorates or becomes damaged.

LBP was detected on surfaces in 22 of the buildings on the NAC site and those surfaces are listed in Table 3-12. The LBP containing surfaces and components in all of the buildings were judged to be intact and in good condition during the survey. Surfaces that are intact do not pose an immediate health risk. LBP surfaces could become a LBP hazard if LBP located on friction surfaces are subject to abrasion or if LBP is damaged or deteriorated. If LBP becomes a hazard, it should be eliminated in accordance with federal, state and local regulations. Building renovation or demolition activities may produce hazardous wastes and LBP debris should be handled according to all applicable federal, state and local regulations (Tidewater 2005).

Table 3-12 Lead-Based Paint

Building Name/Number	Building Status in All Alternatives	Inspection Dates	Lead-Based Paint Encountered
Building 001 – Main School Building	To be renovated under all action alternatives	September 2004 – December 2004	Wooden windowsills, door frames, skylight circles, corridor archways, shelves, window panels, a riser, a stringer, and a baluster; ceiling plaster; wall plaster; metal stringers
Building 002 – Class and Recreation Building	To be renovated under all action alternatives	October 2004 – February 2005	Wooden window frames; painted wood window sills; painted stringers in the stairwells
Building 003 – Office Building East	To be renovated under all action alternatives	October 2004 – February 2005	Painted wood window sills; painted window and door casings
Building 004 – Lab Building	To be renovated under all action alternatives	October 2004 – November 2004	Painted wood window frames; freight elevator frames
Building 005 – Lab Extension	To be demolished under all action alternatives	October 2004 – November 2004	Painted wood window and door frames; metal pole, stair and door on loading dock (outside)
Building 006 – Memorial Chapel	To be renovated under all action alternatives	October 2004 – November 2004	Painted wood doors and door frames (interior and exterior); painted wood windows, frames and column bases (interior and exterior); painted balustrade
Building 007 – Dispensary	To be demolished under all action alternatives	October 2004 – November 2004	Painted wood windows, window sills, window frames and door frames; paint strip on concrete floor
Building 011 – Visitors Gate House	To be demolished under all action alternatives	October 2004 – November 2004	Painted plaster walls; painted metal window frame

Building Name/Number	Building Status in All Alternatives	Inspection Dates	Lead-Based Paint Encountered
Building 012 – Gymnasium	Renovation under the No Action Alternative	October 2004 – November 2004	Painted wood window casing; painted brick column
Building 014 – Cafeteria	Renovation under the No Action Alternative	October 2004 – January 2005	Painted wood and metal door frames; painted wood window frame and sash; painted plaster and transite ceilings; painted concrete wall; painted metal pipe and radiator; painted wood walk-in refrigerator door; Outside painted metal door frames and painted wood door casing
Building 015 – Boiler Room	To be demolished under all action alternatives	October 2004 – January 2005	Painted cinderblock walls, concrete platform, metal pipes, wood doors and wood window sill
Building 017 – Office Building South	To be renovated under all action alternatives	October 2004 – February 2005	Painted wood window frames, window sills, window strips, doors, frames and baseboards; painted metal radiators and metal wall ladder
Building 018 – Code and Signal Laboratory	To be demolished under all action alternatives	October 2004 – November 2004	Painted wood window frames and sills; painted door frames, metal ducts and metal sink
Building 019 – Office Building	Renovation under the No Action Alternative	October 2004 – February 2005	Painted metal I-beams and support columns; painted wood and plaster window sills and frames; painted elevator door frames; painted metal windows and frames, doors and door frames; painted wood doors and door frames; painted concrete door frame; paint strips on the floor; painted handrails
Building 020 – Operations Building	To be renovated under all action alternatives	October 2004 – December 2004	Painted wood doors, door frames, window sills and window aprons; painted metal I-beams; painted metal door frame

Building Name/Number	Building Status in All Alternatives	Inspection Dates	Lead-Based Paint Encountered
Building 021 – Public Works Maintenance	To be demolished under all action alternatives	October 2004 – November 2004	Painted metal doors and frames; painted concrete block walls; painted brick window sills
Building 043 – Administration Building	To be renovated under all action alternatives	September 2004 – January 2005	Painted wood window sills and door frames; painted radiators; painted baseboards
Building 049 – Public Works Storage	To be demolished under all action alternatives	October 2004 – November 2004	Window frames and soffit
Building 059 – Classified Waste	To be demolished under all action alternatives	October 2004 – November 2004	Metal door frame
Building 060 – Auto Hobby Shop	To be demolished under all action alternatives	October 2004 – November 2004	Floor plates; painted brick walls; painted pipes
Building 081 – Bachelor Enlisted Quarters	To be demolished under all action alternatives	October 2004 – November 2004	Painted metal ladder; painted handrail
Building 100 – Communications and ADP	To be demolished under all action alternatives	October 2004 – December 2004	Elevator doors and frames

Source: Tidewater 2005

Mercury

When a mercury-containing device breaks, elemental mercury is released and can become an invisible, odorless toxic vapor that can be absorbed through the lungs. Depending on the level and duration of exposure, symptoms can vary and can include: tremors, emotional changes, insomnia, neuromuscular changes, headaches, disturbances in sensations, changes in nerve responses, and performance deficits on tests of cognitive function (EPA 2010).

Mercury-containing equipment was observed in eight buildings, listed in Table 3-13. The mercury in the mercury-containing devices on the site is contained within each device. To prevent breakage, during disposal of the equipment it must be stored, transported and disposed of in accordance with EPA regulations listed in 40 CFR Part 273 because mercury-containing wastes are considered universal wastes (Tidewater 2005).

Pesticides

Historically, pesticides were stored at the NAC for use in landscape maintenance and grounds keeping. From the early 1950s until 1970 they were stored at Building 13, at which time the storage was moved to Building 59 for five years. After that, pesticide work on the site was contracted out and pesticide storage was eliminated. Pesticides previously used on the site are thought to have included DDT and chlordane as well as other pesticides. The Preliminary Assessment did not report spills or releases associated with pesticides. Testing done for the 1993 Site Inspection indicated that a few of the pesticide detections on the site qualified as releases of pesticides, however they were not classified as hazardous waste releases because the Site Inspection attributed the presence of the pesticides to proper use in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act (Tetra Tech 2004). Under GSA ownership of the NAC, no pesticides are being used at the site.

Hazardous Waste Generation

The Navy held a Resource Conservation and Recovery Act (RCRA) permit to operate the NAC as a small quantity generator (SQG) of hazardous waste, indicating that the site generated more than 100 kilograms but less than 1,000 kilograms of hazardous waste per month. Previously, hazardous waste was accumulated in Building 49. During the Site Inspection, a soil sample from the north side of Building 49 was collected and analyzed. Because the concentrations of contaminants detected were low, no further action was taken at Building 49. At the time of the Tetra Tech report in 2004, all hazardous waste generated at the NAC facility was being accumulated in Building 102. The building includes a secondary containment basin in the lowest part of the building and appeared to be in good condition (Tetra Tech 2004). The NAC facility was a small quantity generator of hazardous waste from the late 1980s until the GSA took ownership of the site in 2005. After GSA took ownership of the site, the Navy's SQG permit for hazardous waste was discontinued and GSA obtained a permit to operate the NAC as a conditionally exempt small quantity generator (CESQG) of hazardous waste, indicating that the site generates 100 kilograms or less of hazardous waste per month.

Table 3-13 Mercury

Building Name/Number	Building Status in All Alternatives	Inspection Dates	Mercury Components
Building 005 – Lab Extension	To be demolished under all action alternatives	October 2004 – November 2004	Ten (10) mercury containing switches
Building 015 – Boiler Room	To be demolished under all action alternatives	October 2004 – January 2005	Nine (9) thermostats and one (1) regulator
Building 020 – Operations Building	To be renovated under all action alternatives	October 2004 – December 2004	Approximately fifty (50) thermostats
Building 043 – Administration Building	To be renovated under all action alternatives	September 2004 – January 2005	Two (2) thermostats
Building 059 – Classified Waste	To be demolished under all action alternatives	October 2004 – November 2004	Approximately two (2) thermostats
Building 060 – Auto Hobby Shop	To be demolished under all action alternatives	October 2004 – November 2004	One (1) mercury containing natural gas regulator
Building 081 – Bachelor Enlisted Quarters	To be demolished under all action alternatives	October 2004 – November 2004	Approximately one (1) thermostat
Building 099 – Fire Pump House	No change	October 2004 – November 2004	One (1) thermostat

Source: Tidewater 2005

3.15.2 How Would Hazardous Materials, Waste, and Contamination Conditions on the Project Site be Affected?

No Action Alternative

Under the No Action Alternative, the GSA would not implement a Master Plan on the NAC site; no construction or demolition of facilities would take place in conjunction with a Master Plan and therefore the site would continue to operate under current conditions. Any hazardous materials encountered during routine maintenance work or renovation work would require remediation. Impacts to hazardous materials, waste, and contamination conditions would be negligible. Any renovation work or maintenance activities would comply with all applicable regulations and would be coordinated with GSA's Safety, Environment and Fire Protection Branch.

Alternatives A, B, and C

Contamination Conditions and Locations on the Site

Under each of the action alternatives several locations that have been designated as ECP Area Types 2 and 3 would be disturbed during demolition of existing buildings and construction of new buildings (Table 3-14). The locations on the site designated as ECP Area Types 4 and 5 would not be directly disturbed by construction or demolition. While these areas are in the vicinity of proposed construction and demolition, it is not anticipated that the areas would be greatly disturbed by adjacent construction activity. It has been previously determined that no further environmental action would be necessary for each of the ECP Area Types on the site. Therefore impacts to site contamination conditions would likely be negligible. However, as discussed under mitigation measures in Section 3.15.3, it is recommended that current soil conditions be evaluated prior to any disturbance to determine proper waste management and maintain worker safety, in the event that undocumented hazardous substances are present on the site.

Groundwater in the general vicinity of the NAC may have been contaminated by leaking underground storage tanks. However, drinking water at the NAC site and in the surrounding area is supplied by DC Water. As groundwater is not utilized for human consumption in the direct vicinity of the site, impacts to employees working on-site are anticipated to be negligible.

Table 3-14 ECP Area Type Disturbance

ECP Area Type	ECP Area Location	Alternative A	Alternative B	Alternative C
ECP Area Type 5	Area Between Building 3 and 100	Not disturbed	Not disturbed	Not disturbed
	North Drainage	Not disturbed	Not disturbed	Not disturbed
ECP Area Type 4	Area on east side of Building 20	Not disturbed	Not disturbed	Not disturbed
	North side of Building 17	Not disturbed	Not disturbed	Not disturbed
ECP Area Type 3	North of Building 21	Building A	Building A	Building A
	East of Building 20	Surface parking	Surface parking	Surface parking
	North of Building 49	Building B	Site circulation	Site circulation
	Southeast of Building 59	Surface parking	Surface parking	Surface parking
	Near northeastern perimeter (formerly North Outfall)	Site circulation	Building B	Building B
	Eastern perimeter (formerly East Outfall)	Not disturbed	Not disturbed	Not disturbed
ECP Area Type 2	East of Building 15	Surface parking	Surface parking	Surface parking
	Ditch segment west of Building 60	Parking structure	Building F	Parking structure
ECP Area Type unknown	Diesel fuel spill thought to be in the vicinity of Building 88	Site circulation	Site circulation	Site circulation

Source: Tetra Tech 2004; MTFA 2010

USTs, ASTs, OWSs, and Sumps

Under each of the action alternatives, the active USTs near Building 15 that are used to fire the boilers for the High Temperature Hot Water (HTHW) plant in Building 15 would be closed or removed as Building 15 would be demolished and the HTHW plant would be replaced with an individual low temperature hot water plant located in Building A. The oil-water separator located in Building 15 would also be removed during the demolition of Building 15. Construction activity would occur in the vicinity of the two USTs that have been abandoned in place near Building 60. Under Alternatives A and C, a parking structure would be constructed in the vicinity of Building 60 and under Alternative B, Building F would be constructed. The two active ASTs near Building 4 would not be disturbed by the demolition or new construction. The AST located in Building 99 would be removed as Building 99 would be demolished and replaced by Building E under Alternatives A and B and by Building D under Alternative C (Table 3-15). The closure and removal of the USTs on site would follow the provisions of the District of Columbia Underground Storage Tank Regulations, Title 20 DCMR Chapters 55-70. Chapter 61, *Out-of-Service and Closure of UST Systems*, provides guidance on the closure and removal of USTs. The closure and removal of USTs and ASTs is regulated by the DC Fire and Emergency Medical Services Department, Fire Prevention Division and all regulations would be followed during closure or removal of ASTs. Impacts due to the closure or removal of USTs and ASTs would be short-term, negligible, and direct with potential long-term, indirect, beneficial impacts resulting from fewer older storage tanks in use on the site. However, it should be noted that if contamination is detected during a UST excavation, the contaminated soil/groundwater would need to be disposed of and managed appropriately. Depending on the extent of contamination, the regulatory agency (DC Department of Environment) may require the installation of monitoring wells to evaluate the groundwater. Frequency and length of monitoring would be dependent upon the severity of groundwater contamination, if present.

Construction and demolition activities proposed under each action alternative would occur around the various locations of previously removed above and underground storage tanks on the site. However as these tanks have been removed, impacts are not anticipated. The sumps located in Building 18 would be removed during the demolition of Building 18. According to the Tetra Tech study, these sumps did not appear to be a source of releases into the environment and therefore no impacts are anticipated.

Table 3-15 Storage Tank Locations and Disturbance

Tank Type	Location	Alternative A	Alternative B	Alternative C
2 active USTs	North of Building 15	Removed	Removed	Removed
2 active USTs	South of Building 15	Removed	Removed	Removed
2 inactive USTs (abandoned in place)	Near Building 60	Parking structure	Building F	Parking structure
1 removed UST	Near Building 4	Not disturbed	Not disturbed	Not disturbed
1 removed UST	Near Building 17	Near demolition of Building 10	Near demolition of Building 10	Near demolition of Building 10
1 removed UST	Near Building 49	Building B	Site circulation	Building B/site circulation
1 removed UST	Near Building 100	Near demolition of Building 100	Near demolition of Building 100	Near demolition of Building 100
1 active AST	Southeast of Building 4	Not disturbed	Not disturbed	Not disturbed
1 active AST	Near Building 4	Not disturbed	Not disturbed	Not disturbed
1 active AST	Inside Building 99	Removed – replaced by Building E	Removed – replaced by Building E	Removed – replaced by Building D
2 removed ASTs	Basement of Building 4	Not disturbed	Not disturbed	Not disturbed

Source: Tetra Tech 2004; MTFA 2010

Hazardous Building Materials

The 2005 Hazardous Materials Survey conducted by Tidewater identified asbestos containing material, lead based paint, mercury, and PCB containing units in a number of buildings on the NAC site. Under each of the action alternatives all of the buildings on the site are either being renovated or demolished except for Buildings 12, 13, 14, 19, and 61 which are either currently undergoing or will undergo renovations.

During renovation and demolition any asbestos containing materials, lead based paint, mercury or PCB containing units would be identified, handled, and disposed of according to the appropriate regulations, as discussed in the mitigation section. As all regulations and necessary precautions would be used on the NAC site when handling potentially hazardous material, short-term impacts from construction activities would be adverse, minor, and direct and long-term adverse impacts would be negligible.

3.15.3 What Measures Would be Put into Place to Mitigate Hazardous Materials, Waste and Contamination Conditions?

Contamination Conditions and Locations on the Site

As the NAC site has a history of contamination, it is recommended that current soil conditions be evaluated prior to any disturbance to determine proper waste management and ensure worker safety. If necessary, pending current conditions, isolated excavation of impacted materials may be justified to appropriately manage impacted soils. If impacted groundwater is discovered, potential impacts to dewatering efforts or vapor intrusion should be evaluated. Mitigation measures for groundwater from dewatering efforts would include filtration or carbon treatment prior to discharge. Additionally, if any dewatering efforts are required during construction, proper characterization of the groundwater would be needed to likely comply with National Pollutant Discharge Elimination System (NPDES) construction permits. Mitigation measures to eliminate potential vapor intrusion would include installation of a vapor barrier, positive pressure building systems, or a sub-slab vapor extraction system.

Hazardous Building Materials

According to Federal and State regulations, all regulated ACM must be removed from a facility if demolition or renovation activity would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal. PCB containing units would be handled in accordance with federal regulation 40 CFR Part 761.60 in order to ensure proper use, storage and disposal. Lead-based paint surfaces could become a LBP hazard if LBP located on friction surfaces are subject to abrasion or if LBP is damaged or deteriorated. Surfaces that are intact or in fair condition, as defined by HUD Guidelines, do not pose an immediate health risk, regardless of the lead content. However, these surfaces should be monitored and repaired as necessary. If LBP becomes a hazard, it should be eliminated in accordance with federal, state and local regulations. Building renovation or demolition activities may produce hazardous wastes and LBP debris should be handled according to all applicable federal, state and local regulations. Mercury containing wastes are considered universal wastes and have to be stored, transported and disposed of in accordance with EPA regulations listed in 40 CFR Part 273 (Tidewater 2005). Finally, vapor barriers may need to be installed under new buildings to eliminate potential vapor intrusion.

3.16 TRANSPORTATION

3.16.1 What are the Current Vehicular Traffic Conditions on and near the Project Site?

The street network surrounding the NAC site is in a general grid pattern. There are multiple entrance and exit points to the area, resulting in an effective dispersal of traffic. The transportation study area, as defined by the area that includes the study intersections, is generally bounded by Albemarle Street to the north, Cathedral Avenue to the south, Wisconsin Avenue to the east, and 49th Street to the west. The major streets considered in this study are Nebraska Avenue, Massachusetts Avenue, and Wisconsin Avenue. Other streets that intersect these major streets are included in this study. They include Cathedral Avenue, Idaho Avenue, 39th Street, Westover Place, New Mexico Avenue, Van Ness Street, 40th Street, 45th Street, Yuma Street, Albemarle Street, Fort Drive, and 49th Street.

There are two traffic circles in the transportation study area. Ward Circle is located adjacent to the NAC and serves as the junction of Nebraska Avenue and Massachusetts Avenue. The Nebraska Avenue through lanes cut through the circle. The two junctions of Nebraska Avenue with Ward Circle are signalized and the junctions of Massachusetts Avenue with Ward Circle are unsignalized. Tenley Circle is located approximately 0.75 miles northeast of the NAC. It serves as the junction of Nebraska Avenue, Wisconsin Avenue, and Yuma Street. The Wisconsin Avenue through lanes cut through the circle. The junctions of Nebraska Avenue and Wisconsin Avenue with Tenley Circle are signalized and the junctions of Yuma Street with Tenley Circle are unsignalized.

Study intersections were agreed upon during the study scoping discussions with District Department of Transportation (DDOT) and National Capital Planning

Commission (NCPC) staffs during a meeting held on February 8, 2010, and through subsequent correspondence.

Traffic Volume and Intersection Capacity

The NAC site is adjacent to Ward Circle at the intersection of Nebraska Avenue and Massachusetts Avenue, NW. Intersection capacity analyses were conducted for existing peak hour traffic volumes for intersections in the transportation study area using Synchro 7 Software Package, which utilizes methodologies in the *Highway Capacity Manual, 2000 Edition* (HCM) for signalized and unsignalized intersections. The study intersections, determined through scoping discussions with DDOT and NCPC staff, are depicted in Figure 3-42 and are also studied in more detail in the Nebraska Avenue Complex Master Plan Transportation Study report by Kimley-Horn and Associates in Appendix B of this Draft EIS. The analyses were based on the existing land designations, traffic operations, and signal timings obtained from DDOT files. Existing peak hour factors were determined from the traffic data to be 7:45 to 8:45 AM and 5:15 to 6:15 PM.

Peak Hours: As part of the Transportation Study, peak hours were established by identifying the peak 60 minutes of traffic during the weekday AM and PM peak hours for all study area intersections. From these traffic counts, the network peak hours were determined to be 7:45 to 8:45 AM and 5:15 to 6:15 PM.

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a fixed duration of time. The operating conditions are described by Level of Service (LOS), which is defined as a qualitative measure that describes operational conditions and motorist perceptions with a traffic stream. The *Highway Capacity Manual, 2000 Edition* defines six levels of service, LOS A through F, with A being the best and F the worst. Levels of Service are based on estimated delay per vehicle in the intersection.

Figure 3-42 Study Area Intersections *(See Appendix B for additional diagrams)*

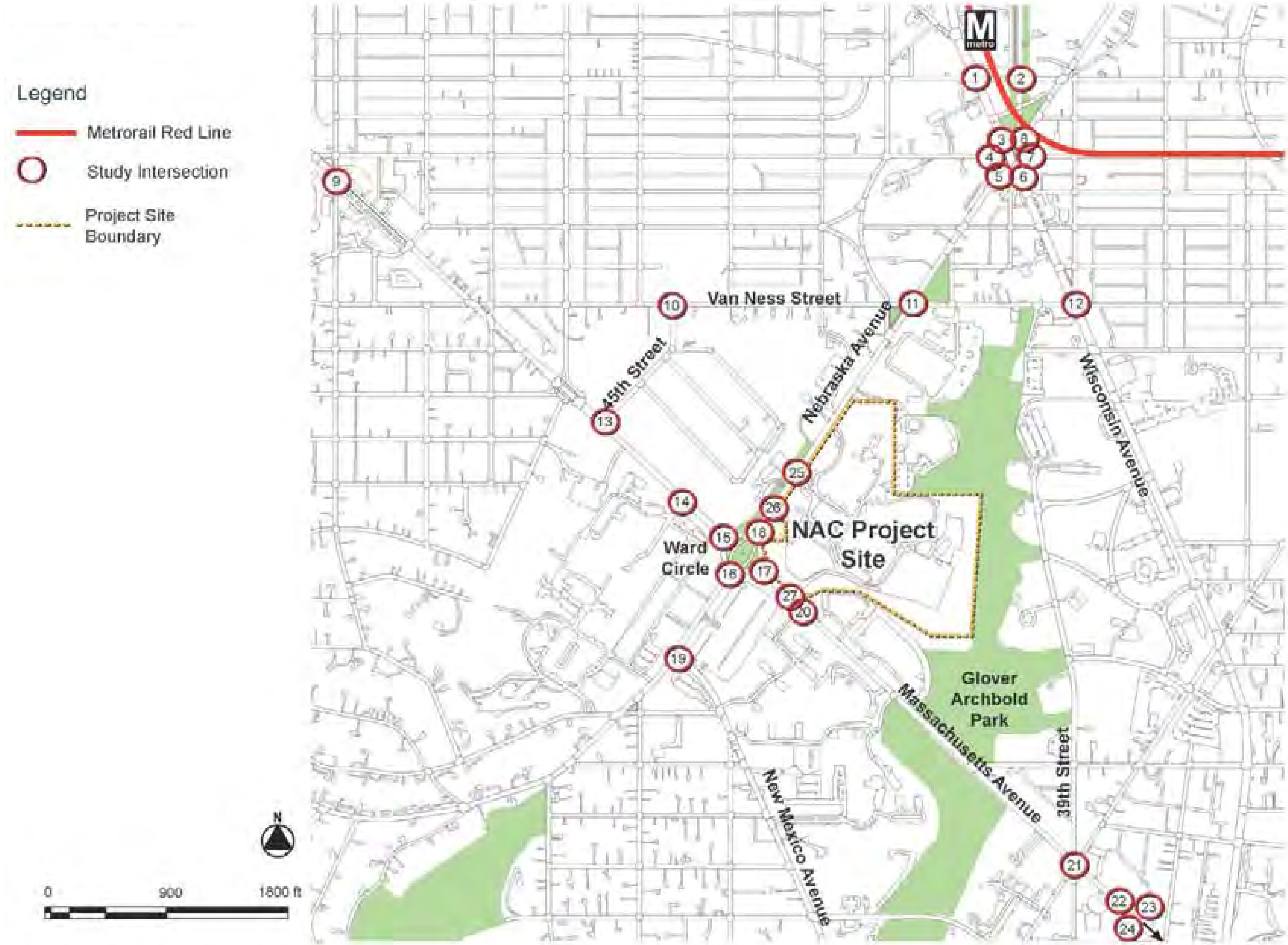


Table 3-16 shows the levels of service and the ranges of delay per vehicle for both signalized and unsignalized intersections. DDOT attempts to maintain an overall intersection LOS D, or better, during peak traffic hours, LOS D is the minimum acceptable level of service in D.C. (Kimley-Horn and Associates 2010). Therefore, this is the LOS standard used to determine the intensity of impact under each alternative.

Table 3-16 Levels of Service and Ranges of Delay

LOS	Delay per Vehicle (seconds per vehicle)	
	Signalized	Unsignalized
A	≤ 10	≤ 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	>80	>50

Source: Highway Capacity Manual, 2000 Edition as cited by Kimley-Horn and Associates, 2010

The results of the existing capacity analyses are summarized in Table 3-17 for the study intersections. Analysis results show the LOS and delay for the overall intersection. As the table below indicates, all study intersections operate at LOS D or better during the AM and PM peak hours under existing conditions, except the intersection of Albemarle Street and Fort Drive/40th Street (Kimley-Horn and Associates 2010).

Table 3-17 Existing Levels of Service at the Study Intersections, Level of Service (Delay, Seconds per Vehicle)

Intersection	AM	PM
1. Wisconsin Avenue and Albemarle Street	C (23.7)	B (14.5)
2. Albemarle Street and Fort Drive/40th Street*	F (51.6)	F (76.0)
3. Tenley Circle and Wisconsin Avenue (North)	B (11.4)	B (13.6)
4. Tenley Circle and Yuma Street (West)*	A (3.3)	A (1.9)
5. Tenley Circle and Nebraska Avenue (South)	C (27.5)	B (16.6)
6. Tenley Circle and Wisconsin Avenue (South)	A (8.4)	A (9.4)
7. Tenley Circle and Yuma Street (East)*	A (1.1)	A (1.5)
8. Tenley Circle and Nebraska Avenue (North)	C (29.6)	B (16.3)
9. Massachusetts Avenue and 49th Street	C (21.9)	B (17.7)
10. Van Ness Street and 45th Street*	A (8.1)	A (8.4)
11. Nebraska Avenue and Van Ness Street	C (21.2)	B (19.2)
12. Wisconsin Avenue and Van Ness Street	C (22.7)	C (20.9)
13. Massachusetts Avenue and 45th Street*	A (1.8)	A (1.7)

Intersection	AM	PM
14. Massachusetts Ave and Glover Gate/Katzen Arts Center	B (15.4)	C (29.2)
15. Ward Circle and Massachusetts Avenue (West)*	D (31.9)	C (22.4)
16. Ward Circle and Nebraska Avenue (South)	C (29.6)	C (28.8)
17. Ward Circle and Massachusetts Avenue (East)*	B (10.1)	C (21.8)
18. Ward Circle and Nebraska Avenue (North)	C (24.6)	C (35.0)
19. Nebraska Avenue and New Mexico Avenue	C (28.6)	B (19.9)
20. Massachusetts Avenue and Westover Place*	A (0.4)	A (0.7)
21. Massachusetts Avenue and Idaho Avenue/39th Street	B (19.7)	B (13.3)
22. Massachusetts Avenue and Cathedral Avenue	B (11.1)	B (12.2)
23. Wisconsin Avenue and Cathedral Avenue	A (0.1)	A (0.1)
24. Massachusetts Avenue and Wisconsin Avenue	C (21.8)	C (20.8)

*Unsignalized intersection

Source: Kimley-Horn and Associates, 2010

In addition to measuring the surrounding road network's intersection capacity, analyses of the NAC access points (driveways) were conducted. Driveway locations are shown in Figure 3-43.

Table 3-18 summarizes the intersection capacity analyses at these driveways and the impacts on the public streets at these intersections. This analysis conservatively assumes that the peak hour traffic on the surrounding street network and at the driveways coincide.

Figure 3-43 NAC Driveway Locations

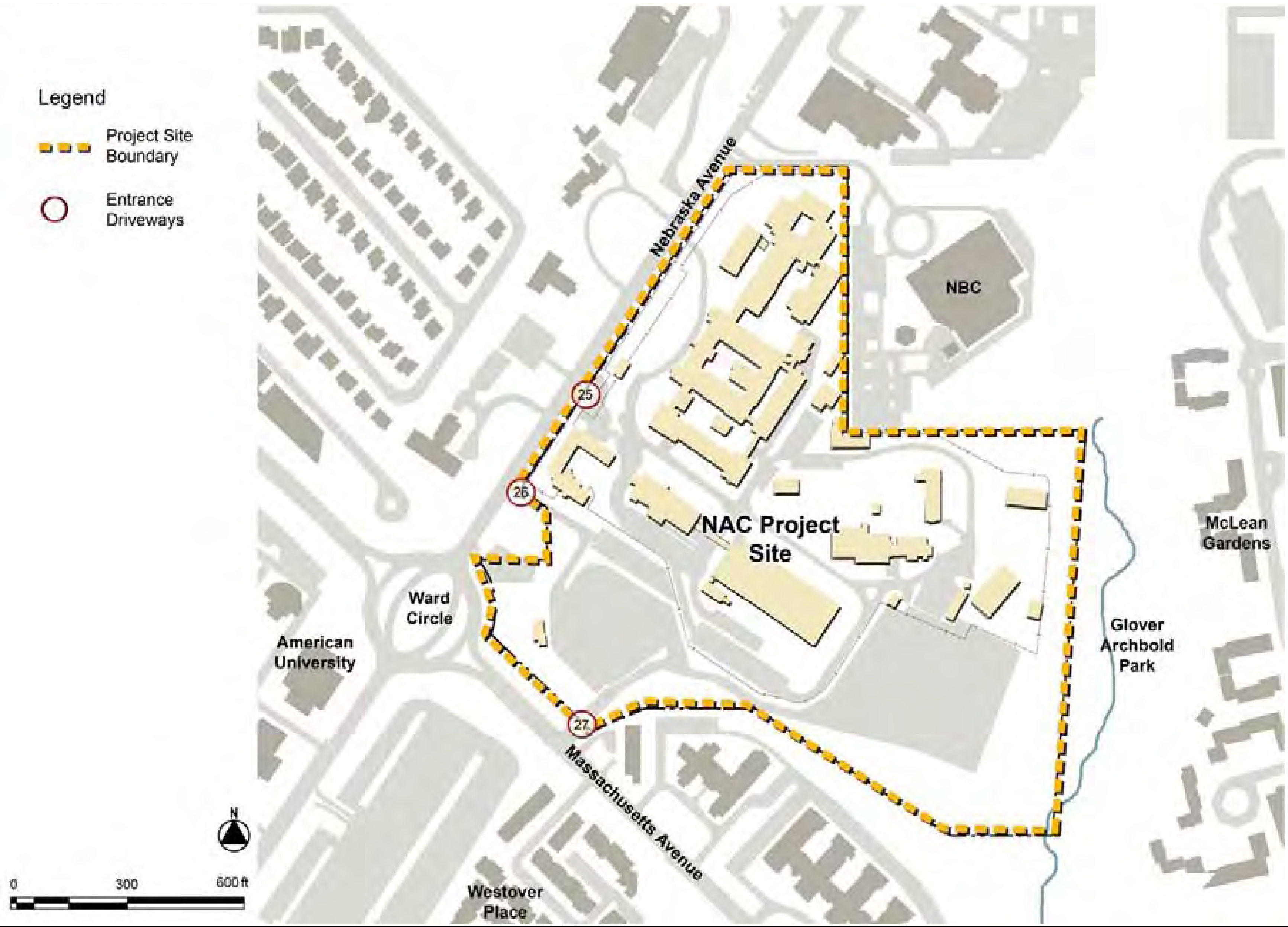


Table 3-18 Existing Levels of Service at the Nebraska Avenue Complex Driveways, Level of Service (Delay, Seconds per Vehicle)

Intersection		Existing AM	Existing PM
25. Nebraska Avenue and North NAC Driveway *		A (0.3)	A (0.3)
Northbound (Nebraska Avenue)	Left-Through	A (0.2)	A (0.2)
	Through-Right	A (0.0)	A (0.0)
Southbound (Nebraska Avenue)	Left-Through	A (0.3)	A (0.3)
	Through-Right	A (0.0)	A (0.0)
Eastbound (Parking Lot Driveway)	Left-Through-Right	D (29.8)	D (26.8)
Westbound (North NAC Driveway)	Left-Through	E (45.8)	E (48.0)
	Right	A (9.3)	A (9.3)
26. Nebraska Avenue and South NAC Driveway*		A (0.2)	A (0.0)
Northbound (Nebraska Avenue)	Through-Right	A (0.0)	A (0.0)
Southbound (Nebraska Avenue)	Left-Through	A (1.3)	A (0.1)
Westbound (South NAC Driveway)	Left-Right	A (0.0)	B (10.0)
27. Massachusetts Avenue and NAC Driveway*		A (1.0)	A (3.3)
Southbound (NAC Driveway)	Left	F (54.9)	F (166.0)
	Right	B (11.7)	C (22.9)
Eastbound (Massachusetts Avenue)	Left-Through	A (3.0)	A (1.0)
Westbound (Massachusetts Avenue)	Through-Right	A (0.0)	A (0.0)

*Unsignalized intersection

Source: Kimley-Horn and Associates, 2010

Table 3-18 demonstrates that, under existing conditions, all site driveways operate at an overall intersection LOS A. All lane groups along Nebraska Avenue and Massachusetts Avenue (the public streets) also operate at LOS A. The only lane groups to operate below the D.C. LOS standard (LOS D) are the left-through and left turn lanes exiting the NAC, which are stop sign controlled (Kimley-Horn and Associates 2010).

Driveway counts were obtained to collect existing entering and exiting volumes at the NAC. Total volume counts for all driveways show a consistent daily count range between 2,946 and 3,173 vehicles per day. Based on the existing seat count of 2,390, this represents a daily two-way trip rate of approximately 1.3 daily vehicle trips per seat. The absolute peak hour occurs during the mid-afternoon hour of 2:00 p.m. to 3:00 p.m. This peak hour count is 250 vehicles (Kimley-Horn and Associates 2010).

Queuing along Public Streets

A queue analysis was performed at the existing NAC driveways using Synchro 7 software package to evaluate the maximum queue length with the 95th percentile of traffic volumes. Queue analyses are performed to calculate the queue, or number of vehicles stacked waiting to turn into or out of a side street. The results of the queue analysis show that during the AM and PM peak hours, the queues that occur along the public streets at the NAC driveways are minimal (Kimley-Horn and Associates 2010). Parking is restricted along Nebraska Avenue during the weekday AM (7:00 AM to 9:30 AM) and PM (4:00 PM to 6:30 PM) peak periods and along Massachusetts Avenue at all times near the driveways. As a result, through traffic can typically bypass any NAC employee vehicles waiting to turn into the NAC. It should be noted that the longest queue on the public streets occurs along Massachusetts Avenue where vehicles currently disobey the existing left-turn prohibition during the AM and PM peak periods.

More detailed information is available in the Transportation Study and Transportation Management Plan documents found in Appendices B and C.

3.16.2 What are the Current Public Transportation Access Conditions Near the Project Site?

The NAC site is well served by public transit modes that include Metrorail, Metrobus and DHS shuttles. Figure 3-44 depicts the NAC site in relation to Metrorail access and Metrobus routes.

Metrorail stations in the vicinity of the NAC site include Tenleytown-AU Metrorail station located at the intersection of Wisconsin Avenue, NW, and Albemarle Street, NW (approximately .75 miles from the NAC site) and the Van Ness-UDC Metrorail station located at the intersection of Van Ness Street, NW, and Connecticut Avenue, NW (approximately 1.10 miles from the NAC site). Both stations are located on the Metrorail system's Red Line (WMATA). The NAC site is easily accessible from the Tenleytown-AU Metrorail station by walking or by shuttle (Kimley-Horn and Associates 2010).

Several Metrobus routes service the NAC site and surrounding neighborhoods. Route M4, the Nebraska Avenue bus line, provides access from the Pinehurst Circle to Sibley Memorial Hospital. It passes the NAC site, traveling through Ward Circle. The bus operates from 6:00 a.m. to 9:30 p.m. on weekdays. The stop located closest to the NAC facility is found along Nebraska Avenue, north of Ward Circle (WMATA and Kimley-Horn and Associates 2010).

Figure 3-44 Metrorail and Metrobus Routes Near the NAC

Routes N2, N3, N4 and N6, the Massachusetts Avenue Line, provides access from the Friendship Heights Metrorail station to the Federal Triangle Metrorail Station. The bus stops at five additional Metrorail stations on its route: Dupont, Foggy Bottom-GWU, Farragut North, Farragut West and Federal Triangle. The line operates from 5:30 a.m. to midnight on weekdays and Saturdays, and 6:00 a.m. to 11:00 p.m. on Sundays (NAC Land Use Feasibility Study 2009 and WMATA). The stops along Route N2 closest to the NAC are located along Nebraska Avenue, north of Ward Circle. The stops along Routes N3, N4, and N6 closest to the NAC are located along Massachusetts Avenue, east of Ward Circle (Kimley-Horn and Associate 2010).

Route N8, the Van Ness-Wesley Heights Loop Line, provides access to the NAC site from the Van Ness-UDC Metrorail station to Glover Park. The bus also stops at Tenleytown-AU Metrorail station. The N8 runs along Massachusetts Avenue, NW, through Ward Circle and stops at two locations in the vicinity of the NAC facility along Massachusetts Avenue, east of Ward Circle. The route operates from 6:00 a.m. to midnight on weekdays (Kimley-Horn and Associates 2010).

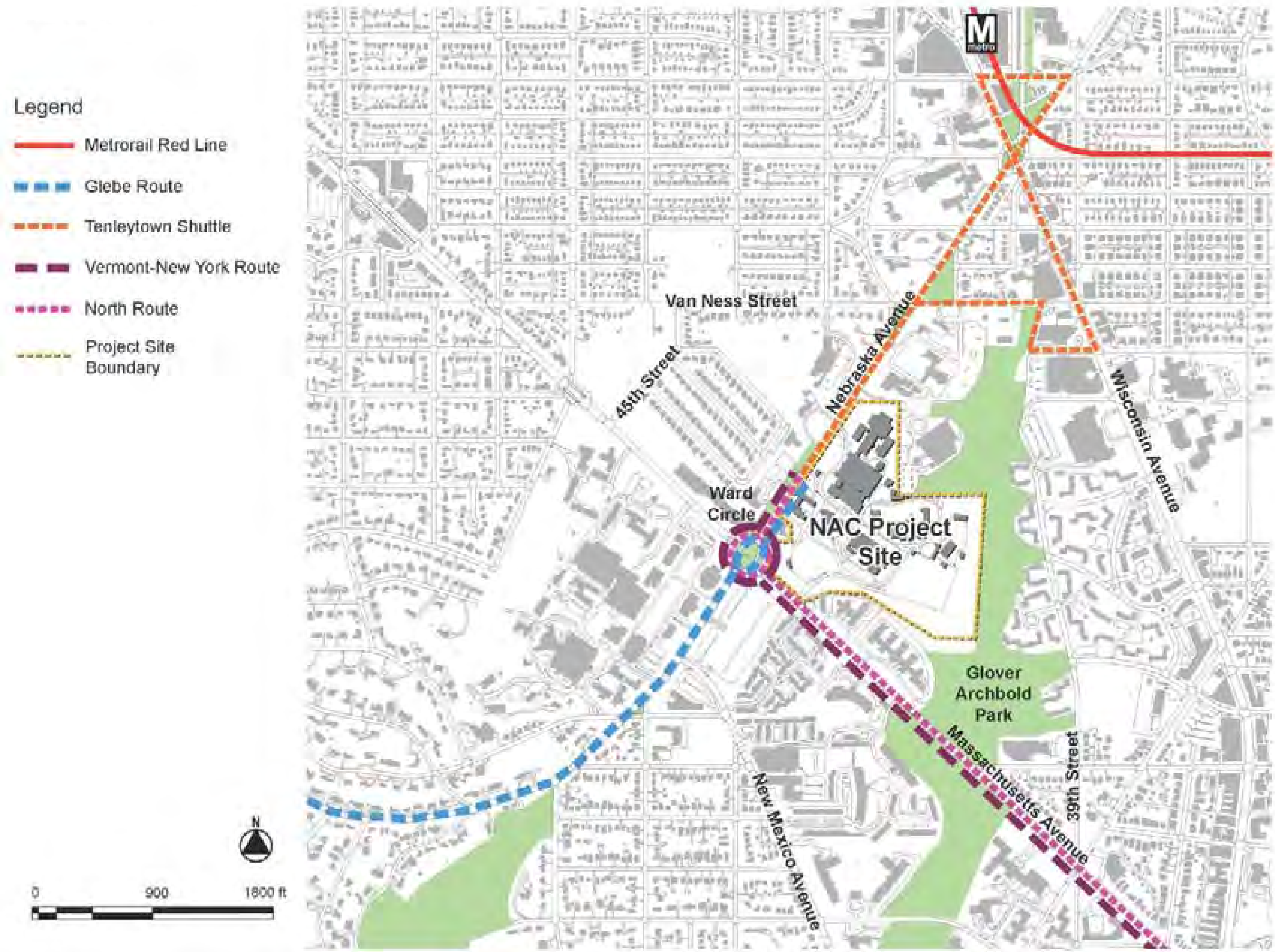
The Department of Homeland Security also operates a number of shuttles for its facilities in the Washington Capital Region. Four of the DHS shuttle routes provide direct access to the NAC site near Building 11 where employees and/or contractors are picked up or dropped off. Each shuttle has the capacity to hold 20-24 people (Kimley-Horn and Associates 2010). Table 3-19 displays NAC shuttle ridership totals for the four shuttle routes: North Route, Tenleytown Shuttle, Vermont-New York Route, and the Glebe Road Route. Figure 3-45 displays the NAC shuttle routes. More information about the NAC shuttles is provided in the Transportation Study and in the Transportation Management Plan located in Appendices B and C.

Table 3-19 NAC Shuttle Ridership Totals (Arrivals to NAC and Departures from NAC)

Time	North Route		Tenleytown Shuttle				Vermont- New York Route		Glebe Road Route		Total	
			Vehicle A		Vehicle B							
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
7:00 AM	22	3	26	1	52	0	2	3	8	3	110	10
8:00 AM	24	2	42	2	49	2	8	1	7	N/A	130	7
9:00 AM	2	11	26	1	19	1	8	7	N/A	1	55	21
10:00 AM	4	2	5	4	5	5	0	0	1	1	15	12
11:00 AM	4	6	0	11	3	7	0	0	1	N/A	8	24
12:00 PM	6	3	7	27	25	18	0	5	N/A	0	38	53
1:00 PM	0	7	12	15	8	3	1	5	0	0	21	30
2:00 PM	10	9	5	8	3	2	1	4	0	N/A	19	23
3:00 PM	5	4	17	23	1	15	4	3	N/A	5	27	50
4:00 PM	5	20	3	32	0	32	8	2	3	10	19	96
5:00 PM	1	16	3	30	0	28	3	3	0	N/A	7	77
6:00 PM	3	8	0	19	0	26	1	1	N/A	5	4	59
7:00 PM	N/A	N/A	0	6	N/A	N/A	N/A	N/A	N/A	N/A	0	6

Source: Kimley-Horn and Associates, 2010

Figure 3-45 DHS Shuttle Service Routes



3.16.3 What is the Current Parking Inventory and Utilization Rate on the Project Site?

The NAC site has a total of 1,239 parking spaces. The majority of this parking is provided in two large surface parking lots at the southeast and southwest corners of the site outside the secure perimeter. There are currently 450 parking spaces available within the security perimeter of the NAC. Other smaller parking lots are dispersed throughout the site and can be accessed by the internal drive aisles. Figure 3-46 shows the parking lots and areas at the NAC, and Table 3-20 summarizes the number of parking spaces at each parking lot based on a field review conducted in April 2010 by Kimley-Horn and Associates, Inc. A total of 34 of the parking spaces at the NAC are ADA accessible (Table 3-21).

Table 3-20 Nebraska Avenue Parking Lot Summary

Parking Lot*	Number of Spaces
1	7
2	30
3	20
4	8
5	14
6	12
7	40
8	49
9	245
10	56
11	473
12	18
13	36
14	63
15	9
16	25
17	17
18	12
19	57
20	27
21	21
Total	**1,239**

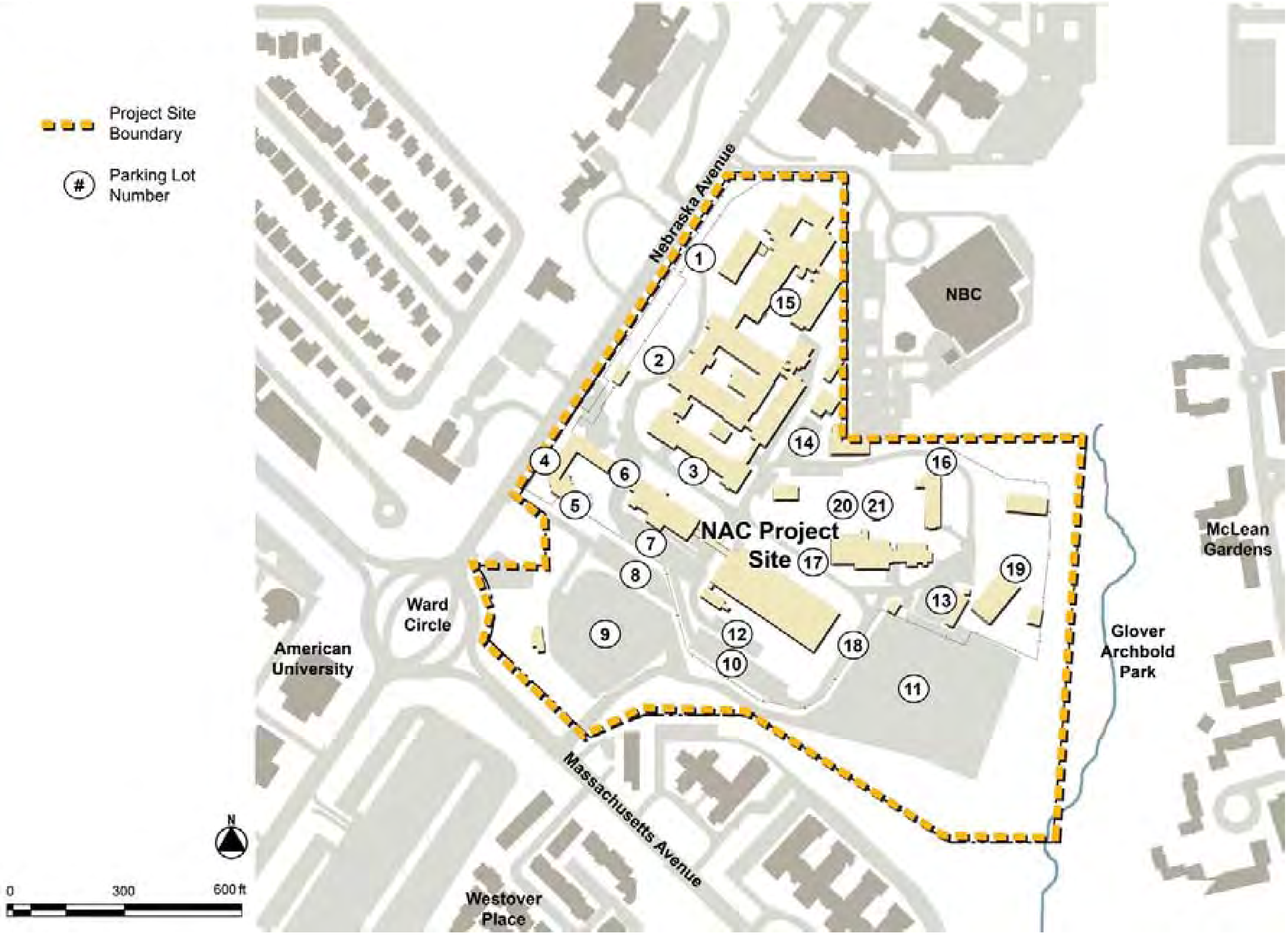
* Lots correspond to Figure 3-46
Source: Kimley-Horn and Associates, 2010

Table 3-21 Number and Location of ADA Parking Spaces

Parking Lot	Number of ADA Accessible Parking Spaces
2	4
3	8
4	2
5	5
8	2
17	4
20	5
21	4
Total	**34**

* Lots correspond to Figure 3-46
Source: Kimley-Horn and Associates, 2010

Figure 3-46 Existing Parking Lots



Counts of parked vehicles were conducted for the parking lots as well as the basketball and tennis courts (parking lots 20 and 21) which are currently used for parking. The counts of parked vehicles were conducted on Wednesday, April 21, 2010 from 5:00 a.m. to 6:00 p.m. The results are depicted below in Table 3-22.

Table 3-22 Nebraska Avenue Parking Lot Counts

Time	Total Vehicles Parked	Occupancy
5 a.m.	156	13%
6 a.m.	242	20%
7 a.m.	422	34%
8 a.m.	616	50%
9 a.m.	770	62%
10 a.m.	842	68%
11 a.m.	869	70%
12 p.m.	847	68%
1 p.m.	834	67%
2 p.m.	811	66%
3 p.m.	775	63%
4 p.m.	657	53%
5 p.m.	480	39%
6 p.m.	385	31%

Source: Kimley-Horn and Associates, Inc.

The parking count data showed that the maximum number of vehicles parked on site was 869 (70 percent occupancy) at 11:00 AM (Table 3-22). This demonstrates that there is sufficient on-site parking available to accommodate existing demand (Kimley-Horn and Associates 2010). The NCPC parking standard for facilities within the historic boundaries of Washington D.C. is 1:4 (or one parking space for every four employees). The existing ratio is 1:1.4, indicating there is one parking space per 1.4 employees (NAC currently features 1,239 parking spaces and 2,390 employee seats on site).

It should also be noted that there is on-street parking, with restrictions, available in the vicinity of the Nebraska Avenue Complex as well as parking at the American University surface lot across Massachusetts Avenue for a fee. Along Nebraska Avenue, parking is generally allowed with a two-hour parking limit from 7:00 AM to 4:00 PM. However, parking is generally prohibited on both sides of the street from 7:00 AM to 9:30 AM and from 4:00 PM to 6:30 PM.

3.16.4 What are the Current Pedestrian and Bicycle Infrastructure Conditions Near the Project Site?

Sidewalks are generally provided along both sides of all study area streets with curb ramps and crosswalks provided at intersections. Pedestrians can access the NAC from both Nebraska Avenue and Massachusetts Avenue. A continuous pedestrian network made up of sidewalks and crosswalks exists to provide pedestrian access from the NAC to the adjacent Metrobus stops along Nebraska Avenue and Massachusetts Avenue as well as the Tenleytown-AU Metrorail station. Sidewalk widths are generally six feet along Nebraska Avenue between the NAC and the Tenleytown-AU Metrorail station. Crosswalks, curb ramps, and pedestrian countdown signals are generally provided at the signalized intersection crossings.

There are no separate bicycle facilities in the vicinity of the NAC. Bicyclists share the street with motorized vehicles. According to the 2005 District of Columbia Bicycle Master Plan, Nebraska Avenue, Massachusetts Avenue, Albemarle Street, New Mexico Avenue, and 49th Street are currently signed as bicycle routes. In the Bicycle Master Plan, Nebraska Avenue and Massachusetts Avenue are shown to include proposed multiuse trails, though the date of completion of these improvements is currently unknown. As part of the Capital Bikeshare program, DDOT recently added bicycle sharing stations along Massachusetts Avenue, northwest of Ward Circle and at the Tenleytown-AU Metrorail station near Albemarle Street.

3.16.5 What is the Current Travel Mode Split for Users who Access the Project Site?

The travel mode split for the NAC site was estimated and is shown in Table 3-23. This data also represents the current travel mode shares for DHS employees and contractors throughout the metropolitan Washington region and were obtained from an e-mail questionnaire survey conducted in October 2005 and April 2007. A survey specific to the NAC was unable to be conducted.

Table 3-23 Existing Travel Mode Split

Travel Mode	Existing Percent
Drive Alone (SOV)	31%
Carpool with non-DHS passengers (arriving/departing worksite alone)	4%
Metrorail	30%
Carpool/Vanpool with DHS passengers	10%
Park and Ride (Commuter Bus)	4%
Commuter Rail (VRE/MARC)	7%
Metrobus from work to home	1%
Bicycle	1%
Drop-off	2%
Walk	1%
Work from home or alternate work schedule	3%
Did not work today	1%
Other	5%

Source: DHS Headquarters Consolidation at St. Elizabeth's Transportation Management Plan, 2008

3.16.6 What are the Existing Transportation Management Measures being Employed on the Project Site?

The NAC has several transportation management measures and strategies in place. The measures include:

- Shuttle Service: The Department of Homeland Security runs several shuttle routes throughout the D.C. region. The shuttles all pick up/drop off passengers on site near the north driveway between Buildings 11 and 7 along Nebraska Avenue. The shuttles connect NAC employees to the Tenleytown-AU Metrorail station, the GSA Regional Office Building at 7th Street and D Street, SW, downtown Washington along Vermont and New York Avenues, and Arlington, Virginia along N. Glebe Road. The shuttle services are available Monday – Friday 6:30 a.m. to 7:45 p.m., excluding Federal holidays and other days when the Federal Government is closed. Headway times between shuttle services depend on the route.
- Carpool Program: The NAC currently has seven parking spaces designated for carpool vehicles to encourage employees to ride share.
- Parking Management: The NAC maintains an active and enforced parking Standard Operating Procedure (SOP). In general, only Federal employees, security personnel, and regular maintenance personnel have full-time parking permits. Contractors are not allowed to park at NAC unless they are deemed mission critical and have a policy waiver letter from their organization.
- Transit Subsidy: Federal employees at the NAC are eligible for the federal transit subsidy program if they do not enroll in the parking permit program. This program allows participants to be reimbursed for their commute to and from work.
- Bicycle Facilities: The NAC will soon have new bicycle racks at three locations (Nebraska Avenue entrance, next to Building 88, and at the fitness

center) that will be installed as part of the security perimeter improvement project. Employees who bicycle to the NAC are allowed to shower at the fitness center if they wish to do so.

3.16.7 How Would Transportation Within and Around the Project Site be Affected?

For this analysis, the action alternatives will be compared to the No Action Alternative (referred to in the Transportation Study as the No Build Alternative) as well as existing conditions. The No Action Alternative traffic volumes represent future traffic that would travel through the area in the year 2020 without implementation of the NAC Master Plan. GSA anticipates that the facilities programmed in the NAC Master Plan would be completed and occupied by 2020; therefore, 2020 serves as the design year for the transportation analysis.

The No Action Alternative volumes were developed by applying a growth factor to the existing traffic volumes and adding traffic generated by nearby approved and unbuilt developments. This growth factor was determined by reviewing the Metropolitan Washington Council of Governments (MWCOG) regional travel demand model forecasts contained in the 2009 Constrained Long Range Plan Version 2.2 for years 2010, 2020, and 2030 for streets in the vicinity of the NAC. As a result of this review, the traffic volumes in the vicinity of the NAC are expected to remain stable over the 20-year period with an estimated increase of 1 percent from 2010 to 2030. This stable level of traffic volumes can be attributed to the established nature of the surrounding neighborhoods and land uses and the presence of transit service, pedestrian, and bicycle facilities in the area. The traffic growth rate of 1 percent was agreed to by DDOT staff.

The transportation analysis for the action alternatives assumed a Transportation Management Plan (TMP) by DHS would be implemented (see Appendix C). TMPs

Transportation Management Plan (TMP): an employer's active program to foster more efficient employee commuting patterns. A TMP includes specific strategies to encourage changes in travel modes, trip-timing, frequency and length, and travel routes in an effort to reduce traffic congestion and improve regional air quality.

include Single Occupancy Vehicle (SOV) disincentives like limited parking, Metrorail incentives, carpooling incentives, agency shuttle, telecommuting, alternative work schedule program, and bicycling/walk-to-work incentives and facilities, transit promotion, guaranteed ride home, vanpooling, park and ride lots, commuter connections, information kiosks, flex car, and bicycle facilities. The purpose of a TMP is to reduce vehicle trips and influence mode split changes (away from single occupancy vehicle use) in order to reduce congestion and air pollution levels. An effective TMP can also offer the following benefits to a federal employer (GSA, MWCOG, NCPC; 2008):

- Reduced tardiness and absenteeism.
- Expanded regional area from which to draw more qualified candidates.
- Low preparation and implementation costs - most of the activities focus on low-cost marketing efforts and training.
- Reduced traffic congestion in the vicinity of the facility.
- Provides alternatives and assists employees who must make longer commutes or switch travel modes, when relocating to a new or existing work site.
- Reduced both on-site and off-site parking demand.
- Demonstrated concern about reducing traffic and parking impacts to local and adjacent communities.
- Improved local/regional air quality and overall quality of life for the region's workers, residents, and visitors.
- Energy conservation, which contributes to a more sustainable society and reduces national dependence upon foreign energy sources.

Table 3-24 displays the travel mode split goals of the NAC TMP.

Table 3-24 Goal Travel Mode Split

Travel Mode	Existing Percent	Goal
Drive Alone (SOV)	31%	16%
Carpool with non-DHS passengers (arriving/departing worksite alone)	4%	4%
Metrorail	30%	38%
Carpool/Vanpool with DHS passengers	10%	16%
Park and Ride (Commuter Bus)	4%	4%
Commuter Rail (VRE/MARC)	7%	7%
Metrobus from work to home	1%	1%
Bicycle	1%	1%
Drop-off	2%	2%
Motorcycle	0%	0%
Walk	1%	1%
Work from home or alternate work schedule	3%	9%
Did not work today	1%	1%
Other	5%	-
Total	100%	100%

Source: Kimley-Horn and Associates, 2010.

In order to meet the TMP goals, DHS would commit to the following with the NAC Master Plan:

- Appoint an Employee Transportation Coordinator (ETC) for the NAC;
- Maintain or enhance existing transportation management measures currently in place (DHS shuttles, parking management, transit subsidies, etc.);
- Review, develop, and implement TDM strategies identified to achieve a parking ratio of one parking space for every four employees by the completion of the NAC redevelopment in 2020;

- Meet with the Community Transportation Working Group no less than once a year (or more frequently as determined by the ETC and the Community Transportation Working Group) to maintain an open dialogue with the key stakeholders in the community; and
- Update the TMP with interim goals and TDM strategy commitments for key construction phases during NAC's redevelopment.

The ETC would be especially vital in the TDM implementation process and appointing an ETC should be the first step in the TMP implementation. The ETC should continually work to strategically select and update TDM strategies to successfully meet the goals designated in the TMP. As stated in NCPC's and GSA's 2008 TMP Handbook, specific responsibilities of the ETC include:

- Investigate the existing transportation situation and determine potential for change;
- Actively solicit support from agency management, other departments, and key personnel;
- Create conditions and incentives to encourage employee/visitor changes in travel mode;
- Personally facilitate the formation and utilization of travel options; and
- Track and report changes in site-related travel behavior.

The ETC would have a known office at the NAC and would be responsible for administering the TMP and facilitating the implementation of strategies. The duties of the ETC would include parking management programs, development of a TDM policy at the NAC, preparation of promotional and informational materials for employees and visitors, coordination with the DHS shuttle operator, carpool and vanpool programs, coordination with the AU ETC, coordination with the surrounding community, and coordination with local and regional transportation agencies.

No Action Alternative

Under the No Action alternative, the current facility would maintain its current number of seats, square footage of building floor area and number of parking spaces (1,239). Various programmed transportation improvements to the surrounding area, as well as trips generated by approved and un-built developments, and growth in existing traffic volumes are considered a part of this alternative. Improvements are discussed further within the Transportation Study found in the Appendix B.

Traffic Volume and Intersection Capacity

Under the No Action Alternative, the impact to vehicular traffic would be negligible. No changes would occur to the roadway network surrounding the site. As mentioned previously, growth in vehicular traffic in the study area resulting from traffic generated by adjacent approved and unbuilt developments as well as yearly traffic growth would be one percent by the horizon year of 2030. Many street segments are forecasted to have less traffic in 2030 than in 2020. There is virtually no forecasted traffic growth in the vicinity of the NAC between 2010 and 2020.

Under the No Action Alternative, all study intersections would operate at LOS D or better during the AM and PM peak hours with the exception of Albemarle Street and Fort Drive/40th Street during the AM and PM peak hours and Ward Circle and Massachusetts Avenue (West) during the AM peak hour. Therefore, impacts on study intersections would be negligible in the short- and long-term, including Albemarle Street and Fort Drive/40th Street which already operates at a LOS F. The intersection of Ward Circle and Massachusetts Avenue (West) during the AM peak hour is projected to decline from LOS C to LOS E in 2020.

Table 3-25 2020 No Action Alternative Levels of Service at the Study Intersections, Level of Service (Delay, Seconds per Vehicle)

Intersection	Existing		No Action	
	AM	PM	AM	PM
1. Wisconsin Avenue and Albemarle Street	C (23.7)	B (14.5)	C (25.2)	B (14.6)
2. Albemarle Street and Fort Drive/40th Street*	F (51.6)	F (76.0)	F (55.4)	F (79.5)
3. Tenley Circle and Wisconsin Avenue (North)	B (11.4)	B (13.6)	B (18.0)	B (14.0)
4. Tenley Circle and Yuma Street (West)*	A (3.3)	A (1.9)	A (3.6)	A (5.1)
5. Tenley Circle and Nebraska Avenue (South)	C (27.5)	B (16.6)	C (26.8)	B (17.0)
6. Tenley Circle and Wisconsin Avenue (South)	A (8.4)	A (9.4)	A (8.3)	B (10.3)
7. Tenley Circle and Yuma Street (East)*	A (1.1)	A (1.5)	A (1.1)	A (1.5)
8. Tenley Circle and Nebraska Avenue (North)	C (29.6)	B (16.3)	D (44.2)	B (15.6)
9. Massachusetts Avenue and 49th Street	C (21.9)	B (17.7)	C (24.0)	B (18.1)
10. Van Ness Street and 45th Street*	A (8.1)	A (8.4)	A (8.1)	A (8.4)
11. Nebraska Avenue and Van Ness Street	C (21.2)	B (19.2)	C (21.9)	B (19.7)
12. Wisconsin Avenue and Van Ness Street	C (22.7)	C (20.9)	C (23.9)	C (22.0)
13. Massachusetts Avenue and 45th Street*	A (1.8)	A (1.7)	A (1.9)	A (1.7)
14. Massachusetts Ave and Glover Gate/Katzen Arts Center	B (15.4)	C (29.2)	B (16.1)	C (30.4)
15. Ward Circle and Massachusetts Avenue (West)*	C (31.9)	C (22.4)	E (47.8)	C (24.5)
16. Ward Circle and Nebraska Avenue (South)	C (29.6)	C (28.8)	D (37.4)	D (36.5)
17. Ward Circle and Massachusetts Avenue (East)*	B (10.1)	C (21.8)	B (10.8)	D (26.6)

Intersection	Existing		No Action	
	AM	PM	AM	PM
18. Ward Circle and Nebraska Avenue (North)	C (24.6)	D (35.0)	C (26.2)	D (39.7)
19. Nebraska Avenue and New Mexico Avenue	C (28.6)	B (19.9)	C (30.4)	C (21.7)
20. Massachusetts Avenue and Westover Place*	A (0.4)	A (0.7)	A (0.5)	A (0.7)
21. Massachusetts Avenue and Idaho Avenue/39th Street	B (19.7)	B (13.3)	B (20.0)	B (13.9)
22. Massachusetts Avenue and Cathedral Avenue	B (11.1)	B (12.2)	B (11.1)	B (12.0)
23. Wisconsin Avenue and Cathedral Avenue	A (0.1)	A (0.1)	A (0.1)	A (0.1)
24. Massachusetts Avenue and Wisconsin Avenue	C (21.8)	C (20.8)	C (21.9)	C (23.4)

Source: Kimley-Horn and Associates, Inc.

Intersection Capacity at NAC Driveways

Under the No Action Alternative, all site driveways would continue to operate at an overall intersection LOS A, with all lane groups along Nebraska Avenue and Massachusetts Avenue at LOS A (Table 3-26). The only lane group that would continue to operate below LOS D would be the left turn lane and left through lane exiting the NAC, which are stop sign controlled. As the LOS of site driveways remains largely unchanged from existing conditions, the impact on NAC driveways under the No Action Alternative would be negligible.

Table 3-26 2020 No Action Alternative Levels of Service at the Nebraska Avenue Complex Driveways, Level of Service (Delay, Seconds per Vehicle)

Intersection		Existing		No Action	
		AM	PM	AM	PM
25. Nebraska Avenue and North NAC Driveway *		**A (0.3)**	**A (0.3)**	**A (0.3)**	**A (0.4)**
Northbound (Nebraska Avenue)	Left-Through	A (0.2)	A (0.2)	A (0.2)	A (0.2)
	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Southbound (Nebraska Avenue)	Left-Through	A (0.3)	A (0.3)	A (0.3)	A (0.3)
	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Eastbound (Parking Lot Driveway)	Left-Through-Right	D (29.8)	D (26.8)	D (31.8)	D (29.0)
Westbound (North NAC Driveway)	Left-Through	E (45.8)	E (48.0)	E (49.5)	F (53.3)
	Right	A (9.3)	A (9.3)	A (9.3)	A (9.4)
26. Nebraska Avenue and South NAC Driveway*		**A (0.2)**	**A (0.0)**	**A (0.2)**	**A (0.0)**
Northbound (Nebraska Avenue)	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Southbound (Nebraska Avenue)	Left-Through	A (1.3)	A (0.1)	A (1.3)	A (0.1)
Westbound (South NAC Driveway)	Left-Right	A (0.0)	B (10.0)	A (0.0)	B (10.2)
27. Massachusetts Avenue and NAC Driveway*		**A (1.0)**	**A (3.3)**	**A (1.0)**	**A (3.9)**
Southbound (NAC Driveway)	Left	F (54.9)	F (166.0)	F (62.0)	F (216.9)
	Right	B (11.7)	C (22.9)	B (12.0)	C (24.6)
Eastbound (Massachusetts Avenue)	Left-Through	A (3.0)	A (1.0)	A (3.2)	A (1.1)
Westbound (Massachusetts Avenue)	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)

*Unsignalized intersection

Source: Kimley-Horn and Associates, 2010

Queuing along Public Streets

Under the 2020 No Action Alternative, impacts on queues along public streets would be negligible (Kimley-Horn and Associates, 2010). Queue analyses performed for the Transportation Study (found in the Appendix B) calculated no increase from existing conditions. If vehicles continue to disregard the left turn prohibition during AM and PM peak hours, the largest queue would continue to occur along eastbound Massachusetts Avenue.

Public Transportation

Access to/from public transportation to the site would remain the same under this alternative. Therefore, there would be no impact on public transportation.

Parking

Parking conditions would also remain the same under this alternative and would continue to exceed the 1:4 ratio. Therefore, there would be no impact on parking.

Pedestrian and Bicycle Conditions

There would be a negligible impact to the pedestrian and bicycle conditions in the study area under this alternative as pedestrian and bicycle conditions would remain the same. The existing continuous network of sidewalks would continue to provide access to the site and adjacent Metrobus stops. Bicycle paths do not currently exist along Nebraska Avenue or Massachusetts Avenue or within the NAC site. Planned multi-use trails along Nebraska Avenue and Massachusetts Avenue, as identified in the 2005 District of Columbia Bicycle Master Plan, would eventually improve bicycle access, though the date of completion of these improvements is currently unknown. The recently added bicycle sharing stations along Massachusetts Avenue, northwest of Ward Circle, and at the Tenleytown-AU Metrorail station near Albemarle Street should increase bicycle access to the site, particularly from the Metrorail station.

Alternative A

Alternative A would add 1,920 seats to the facility, for a total of 3,700 seats, and add approximately 567,270 gross square feet of building floor area to create a total of approximately 1,072,720 gross square feet. The number of parking spaces in this alternative would be consolidated into 1,025 spaces.

Circulation and access to the site would remain similar to existing conditions, with the exception of the north Nebraska Avenue driveway, which would be restricted to VIP, emergency vehicle and pedestrian and bicycle access. The south Nebraska Avenue driveway and access from Massachusetts Avenue would provide the primary vehicular access to the site, in particular to a new parking structure located on the existing surface parking lot adjacent to Ward Circle.

Traffic Volume and Intersection Capacity

An analysis of intersection capacity by 2020 was conducted for all intersections for Alternative C, as this alternative would produce the most traffic and represents a worst case scenario. The traffic analysis of the study intersections are based on the net increase of NAC traffic; therefore, minor differences in egress movements between Alternatives A, B, and C would have a negligible effect on the results of the traffic analysis of study intersections. The intersection capacity analysis for Alternative C determined that, under the worst case scenario, two intersections would operate at a LOS below D: Albemarle Street and Fort Drive/40th Street and Massachusetts Avenue and Ward Circle (West). Therefore, only these two intersections were analyzed in detail for Alternatives A and B; all other study intersections would operate at LOS D or better during the AM and PM peak. Table 3-27 displays the LOS of the two intersections with LOS worse than D under Alternative A.

Under Alternative A, impacts on study intersections would be negligible in the short- and long-term, including Albemarle Street and Fort Drive/40th Street which currently operates at a LOS F. The intersection of Ward Circle and Massachusetts Avenue (West), which is projected to decline to LOS E by 2020 under the No Action Alternative, would remain LOS E under Alternative A.

Table 3-27 2020 Alternative A Intersections with LOS worse than D, Level of Service (Delay, Seconds per Vehicle)

Intersection	Existing		No Action		Alternative A	
	AM	PM	AM	PM	AM	PM
2. Albemarle Street and Fort Drive/40th Street*	F (51.6)	F (76.0)	F (55.4)	F (79.5)	F (55.4)	F (79.5)
15. Massachusetts Avenue and Ward Circle (West)*	C (31.9)	C (22.4)	E (47.8)	C (24.5)	E (48.9)	D (25.1)

Source: Kimley-Horn and Associates, 2010.

Intersection Capacity at NAC Driveways

Vehicular trips generated by this alternative, when assigned to the driveways associated with this site plan, would result in a slight increase in the delay, as measured in seconds per vehicle, at two intersections. Table 3-28 lists the existing LOS for the Nebraska Avenue Complex driveways, and the potential new level of service for this alternative and the no action alternative. This analysis examines impacts at these intersections internal to the site and along public streets at these intersections.

The Nebraska Avenue and North NAC Driveway eastbound intersection would see a decrease in LOS from D to E in both the morning and afternoon peak periods. The Nebraska Avenue and South NAC Driveway westbound movement would see a substantial decrease in LOS, from A in the morning and B afternoon peaks to E and F respectively. This is due to the increased use of this driveway as a primary vehicular access point to and from the new parking structure in this alternative. A third intersection, the Massachusetts Avenue and NAC driveway, would see a slight improvement in LOS for its southbound left-hand turn movement, though still receiving a "failing" grade in the peak periods. All other site driveways would operate at an overall intersection LOS A with the public streets (Nebraska Avenue and Massachusetts Avenue) operating at LOS A. Therefore, impacts on intersection capacity at NAC driveways would be negligible in the short-term and negligible to minor in the long-term.

Table 3-28 2020 Alternative A Levels of Service at the Nebraska Avenue Complex Driveways, Level of Service (Delay, Seconds per Vehicle)

Intersection		Existing		No Action		Alternative A	
		AM	PM	AM	PM	AM	PM
25. Nebraska Avenue and North NAC Driveway*		A (0.3)	A (0.3)	A (0.3)	A (0.4)	A (0.1)	A (0.1)
Northbound (Nebraska Avenue)	Left-Through	A (0.2)	A (0.2)	A (0.2)	A (0.2)	A (0.2)	A (0.2)
	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Southbound (Nebraska Avenue)	Left-Through	A (0.3)	A (0.3)	A (0.3)	A (0.3)	A (0.0)	A (0.0)
	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Eastbound (Parking Lot Driveway)	Left-Through-Right	D (29.8)	D (26.8)	D (31.8)	D (29.0)	E (43.5)	E (37.0)
Westbound (North NAC Driveway)	Left-Through	E (45.8)	E (48.0)	E (49.5)	F (53.3)	--	--
	Right	A (9.3)	A (9.3)	A (9.3)	A (9.4)	--	--
	Left-Through-Right	--	--	--	--	A (0.0)	A (0.0)
26. Nebraska Avenue and South NAC Driveway*		A (0.2)	A (0.0)	A (0.2)	A (0.0)	A (0.9)	A (2.0)
Northbound (Nebraska Avenue)	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Southbound (Nebraska Avenue)	Left-Through	A (1.3)	A (0.1)	A (1.3)	A (0.1)	A (3.4)	A (0.8)
Westbound (South NAC Driveway)	Left-Right	A (0.0)	B (10.0)	A (0.0)	B (10.2)	E (49.9)	F (67.8)
27. Massachusetts Avenue and NAC Driveway*		A (1.0)	A (3.3)	A (1.0)	A (3.9)	A (0.3)	A (2.2)
Southbound (NAC Driveway)	Left	F (54.9)	F (166.0)	F (62.0)	F (216.9)	E (41.6)	F (151.7)
	Right	B (11.7)	C (22.9)	B (12.0)	C (24.6)	B (11.9)	C (23.0)
Eastbound (Massachusetts Avenue)	Left-Through	A (3.0)	A (1.0)	A (3.2)	A (1.1)	A (0.0)	A (0.0)
Westbound (Massachusetts Avenue)	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)

*Unsignalized intersection

Source: Kimley-Horn and Associates, 2010

Queuing along Public Streets

Under Alternative A, impacts on queues along public streets would be negligible (Kimley-Horn and Associates, 2010). Queue analyses performed for the Transportation Study (found in the Appendix B) calculated queues along public streets to range from 0 to 12 feet, or less than one vehicle. If vehicles continue to disregard the left turn prohibition during AM and PM peak hours, the largest queue would continue to occur along eastbound Massachusetts Avenue.

Public Transportation

Access from public transportation to the site would have a long term beneficial impact under Alternative A. Improvements to the site create a pedestrian-centered campus, which minimizes walking distances and would contribute to improved access to the site for public transportation users.

Parking

For Alternative A, as well as for all of the action alternatives, the number of employee parking spaces would be reduced from the existing number of parking spaces consistent with NCPC's guidance of 1 parking space per 4 employee parking ratio. For this alternative, this 1:4 parking ratio would result in 925 parking spaces, a reduction in employee parking from what is currently contained at the site. There would also be 80 parking spaces for 24/7 employees and 20 authorized visitor parking spaces. Alternative A would be in compliance with the NCPC parking ratio. Due to the permanent reduction of parking spaces (from existing conditions), long-term, adverse impacts on public parking outside the NAC site would occur under each of the action alternatives; as the TMP would be implemented, impacts would be negligible.

There would be short term, moderate adverse impacts to parking on-street and outside of NAC due to increased demand during the temporary elimination of the

245 surface lot spaces during the construction of the parking structure, as well the 473 surface spaces in the location of Building D at the rear of the site.

Pedestrian and Bicycle Conditions

There would be a long term beneficial impact to the pedestrian and bicycle conditions in the study area in this alternative. The existing continuous network of sidewalks along public streets would continue to provide pedestrian access to the site and adjacent Metrobus stops. Improvements to the site create a pedestrian-centered campus which minimizes walking distances would also contribute to the improved pedestrian conditions. Bicycle amenities, including bicycle racks and showers for bicyclists, would also be provided on-site, and bicycle lanes, where feasible, would be installed on streets within the campus. As with the no-action alternative, bicycle sharing stations on Massachusetts Avenue and at the Tenleytown-AU Metrorail station provide another travel choice for users to access the site, particularly from the Metrorail station.

There would be a short term, minor adverse impact to bicycle and pedestrian circulation due to construction of the new buildings and parking structure, as paths and roads may be temporarily blocked or rerouted during construction.

Transportation Management Plan (TMP)

Implementation of the transportation demand management strategies identified in the TMP would facilitate meeting the goal for recommended travel mode splits at this site (see Appendix C). In addition, as previously stated, the implementation of TMP would be essential in order to avoid spillover parking in the surrounding residential neighborhoods due to the reduction of parking under this alternative.

Alternative B

Alternative B, the preferred alternative, would add 2,420 seats to the facility, for a total of 4,200 seats, and add approximately 715,000 gross square feet of building floor area to create at total of approximately 1,220,450 gross square feet. The number of parking spaces in this alternative would be consolidated into 1,150 spaces.

Circulation and access to or from the site would occur along Nebraska Avenue in two locations: the restored historic entrance into the site and an exit from the site further south on Nebraska Avenue adjacent to the Navy House building. At the historic entrance to the site, vehicles would enter and turn right, queuing along a road internal to the site, parallel to Nebraska Avenue; this would potentially reduce vehicle traffic along Nebraska Avenue at this entry point. Another primary entrance and exit would occur off of Massachusetts Avenue and provide direct access to the new parking structure at the back of the site.

Traffic Volume and Intersection Capacity

As discussed under Alternative A, an analysis of intersection capacity by 2020 for Alternative C, the worst case scenario, determined that only two intersections would operate at a LOS below D: Albemarle Street and Fort Drive/40th Street and Massachusetts Avenue and Ward Circle (West). Therefore, only these two intersections were analyzed in detail for Alternative B; all other study intersections would operate at LOS D or better during the AM and PM peak. Table 3-29 displays the LOS of the two intersections with LOS worse than D under Alternative B.

Under Alternative B, impacts on study intersections would be negligible in the short- and long-term, including Albemarle Street and Fort Drive/40th Street which currently operates at a LOS F. The intersection of Ward Circle and Massachusetts

Avenue (West), which is projected to decline to LOS E by 2020 under the No Action Alternative, would remain LOS E under Alternative B.

Table 3-29 2020 Alternative B Intersections with LOS worse than D, Level of Service (Delay, Seconds per Vehicle)

Intersection	Existing		No Action		Alternative B	
	AM	PM	AM	PM	AM	PM
2. Albemarle Street and Fort Drive/40th Street*	F (51.6)	F (76.0)	F (55.4)	F (79.5)	F (55.4)	F (79.5)
15. Massachusetts Avenue and Ward Circle (West)*	C (31.9)	C (22.4)	E (47.8)	C (24.5)	E (49.6)	D (25.6)

Source: Kimley-Horn and Associates, 2010.

Intersection Capacity at NAC Driveways

Vehicular trips generated by this alternative, when assigned to the driveways associated with this site plan, would result in a slight increase in the delay, as measured in seconds per vehicle, at multiple intersections. Therefore, impacts on intersection capacity at NAC driveways would be negligible in the short-term and negligible to minor in the long-term. Table 3-30 lists the existing level of service (LOS) for the Nebraska Avenue Complex driveways, and the potential new level of service for this alternative and the no action alternative. This analysis examines impacts at these intersections internal to the site and along public streets at these intersections.

The Nebraska Avenue and North NAC Driveway eastbound intersection would see a decrease in LOS from D to F in the morning and D to E in the afternoon peak periods. The Nebraska Avenue and South NAC Driveway westbound movement would see a substantial decrease in LOS, from A in the morning and B afternoon peaks to D and E respectively. A third intersection, the Massachusetts Avenue and NAC driveway, would see a slight improvement in LOS for its southbound left-hand turn movement, though still receiving a “failing” grade in the peak periods. All other site driveways would operate at an overall intersection LOS A with the public streets (Nebraska Avenue and Massachusetts Avenue) operating at LOS A. Therefore, impacts on intersection capacity at NAC driveways would be negligible in the short-term and negligible to minor in the long-term.

Table 3-30 2020 Alternative B Levels of Service at the Nebraska Avenue Complex Driveways, Level of Service (Delay, Seconds per Vehicle)

Intersection		Existing		No Action		Alternative B	
		AM	PM	AM	PM	AM	PM
25. Nebraska Avenue and North NAC Driveway *		A (0.3)	A (0.3)	A (0.3)	A (0.4)	A (0.9)	A (0.3)
Northbound (Nebraska Avenue)	Left-Through	A (0.2)	A (0.2)	A (0.2)	A (0.2)	A (0.2)	A (0.2)
	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Southbound (Nebraska Avenue)	Left-Through	A (0.3)	A (0.3)	A (0.3)	A (0.3)	A (3.3)	A (0.7)
	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Eastbound (Parking Lot Driveway)	Left-Through-Right	D (29.8)	D (26.8)	D (31.8)	D (29.0)	F (52.0)	E (38.5)
Westbound (North NAC Driveway)	Left-Through	E (45.8)	E (48.0)	E (49.5)	F (53.3)	--	--
	Right	A (9.3)	A (9.3)	A (9.3)	A (9.4)	--	--
	Left-Through-Right	--	--	--	--	A (0.0)	A (0.0)
26. Nebraska Avenue and South NAC Driveway*		A (0.2)	A (0.0)	A (0.2)	A (0.0)	A (0.2)	A (1.0)
Northbound (Nebraska Avenue)	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Southbound (Nebraska Avenue)	Left-Through	A (1.3)	A (0.1)	A (1.3)	A (0.1)	A (0.0)	A (0.0)
Westbound (South NAC Driveway)	Left-Right	A (0.0)	B (10.0)	A (0.0)	B (10.2)	D (33.3)	E (48.5)
27. Massachusetts Avenue and NAC Driveway*		A (1.0)	A (3.3)	A (1.0)	A (3.9)	A (0.3)	A (3.0)
Southbound (NAC Driveway)	Left	F (54.9)	F (166.0)	F (62.0)	F (216.9)	E (41.7)	F (165.8)
	Right	B (11.7)	C (22.9)	B (12.0)	C (24.6)	B (12.1)	D (26.4)
Eastbound (Massachusetts Avenue)	Left-Through	A (3.0)	A (1.0)	A (3.2)	A (1.1)	A (0.0)	A (0.0)
Westbound (Massachusetts Avenue)	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)

*Unsignalized intersection

Source: Kimley-Horn and Associates, 2010

Queuing along Public Streets

Under Alternative B, impacts on queues along public streets would be negligible (Kimley-Horn and Associates, 2010). Queue analyses performed for the Transportation Study and Transportation Management Plan document (found in Appendices B and C) calculated queues along public streets to range from 0 to 12 feet, or less than one vehicle. If vehicles continue to disregard the left turn prohibition during AM and PM peak hours, the largest queue would continue to occur along eastbound Massachusetts Avenue.

Public Transportation

Access from public transportation to the site would have a long term beneficial impact in this alternative. Improvements to the site create a pedestrian-centered campus, which minimizes walking distances and would contribute to improved access to the site for public transportation users.

Parking

As previously discussed, under Alternative B along with the other action alternatives, the number of parking spaces would be reduced from the existing number of parking spaces consistent with NCPC's guidance of 1 parking space per 4 employee parking ratio. For this alternative, this 1:4 parking ratio would result in 1,050 parking spaces, a reduction in employee parking from what is currently contained at the site. There would also be 80 parking spaces for 24/7 employees and 20 authorized visitor parking spaces. Alternative B would be in compliance with the NCPC parking ratio. Long-term, adverse impacts on public parking outside the NAC site would occur under Alternative B due to the permanent reduction of parking spaces (from existing conditions); as the TMP would be implemented, impacts would be negligible.

There would be short term, moderate adverse impacts to parking on-street and outside of NAC due to increased demand during the temporary elimination of the 245 surface lot spaces during the construction of Building F, as well the 473 surface spaces in the location of the new parking structure at the rear of the site.

Pedestrian and Bicycle Conditions

There would be a long term beneficial impact to the pedestrian and bicycle conditions in the study area in this alternative. The existing continuous network of sidewalks along public streets would continue to provide pedestrian access to the site and adjacent Metrobus stops. Improvements to the site create a pedestrian-centered campus which minimizes walking distances would also contribute to the improved pedestrian conditions. Bicycle amenities, including bicycle racks and showers for bicyclists, would also be provided on-site, and bicycle lanes, where feasible, would be installed on streets within the campus. As with the no-action alternative, bicycle sharing stations on Massachusetts Avenue and at the Tenleytown-AU Metrorail station provide another travel choice for users to access the site, particularly from the Metrorail station.

There would be a short term, minor adverse impact to bicycle and pedestrian circulation due to construction of the new buildings and parking structure, as paths and roads may be temporarily blocked or rerouted during construction.

Transportation Management Plan (TMP)

Implementation of the transportation demand management strategies identified in the TMP would facilitate meeting the goal for recommended travel mode splits at this site (see Appendix C). In addition, the implementation of TMP would be essential in order to avoid spillover parking in the surrounding residential neighborhoods due to the reduction of parking under this alternative as to compared to existing conditions.

Alternative C

Alternative C would add 2,720 seats to the facility, for a total of 4,500, and add 803,640 gross square feet of building floor area to create 1,309,090 gross square feet. The number of parking spaces in this alternative would be consolidated into 1,225 spaces.

As with Alternative A, access to the site under Alternative C would remain similar to existing conditions, with the exception of the north Nebraska Avenue driveway, which would be restricted to VIP and emergency vehicle and pedestrian and bicycle access. The south Nebraska Avenue driveway and access from Massachusetts Avenue would provide the primary vehicular access to the site, in particular to a new parking structure located on the existing surface parking lot adjacent to Ward Circle.

Traffic Volume and Intersection Capacity

Under Alternative C, all study intersections were analyzed and were determined to operate at LOS D or better during the AM and PM peak hours, with the exception of Albemarle Street and Fort Drive/40th Street during the AM and PM peak hours and Ward Circle and Massachusetts Avenue (West) during the AM peak hour (Table 3-31). Therefore, impacts on study intersections would be negligible in the short- and long-term, including Albemarle Street and Fort Drive/40th Street which currently operates at a LOS F. There would be a long-term, minor adverse impact on the intersection of Ward Circle and Massachusetts Avenue (West) during the AM peak hour, as this intersection would decline from LOS E (projected under the No Action Alternative) to LOS F during this time.

Table 3-31 2020 Alternative C Intersections with LOS worse than D, Level of Service (Delay, Seconds per Vehicle)

Intersection	Existing		No Action		Alternative C	
	AM	PM	AM	PM	AM	PM
2. Albemarle Street and Fort Drive/40th Street*	F (51.6)	F (76.0)	F (55.4)	F (79.5)	F (55.4)	F (79.5)
15. Massachusetts Avenue and Ward Circle (West)*	C (31.9)	C (22.4)	E (47.8)	C (24.5)	F (50.3)	D (25.9)

Source: Kimley-Horn and Associates, 2010.

Intersection Capacity at NAC Driveways

Vehicular trips generated by this alternative, when assigned to the driveways associated with this site plan, would result in a slight increase in the delay, as measured in seconds per vehicle, at multiple intersections. Table 3-32 lists the existing level of service (LOS) for the Nebraska Avenue Complex driveways, and the potential new level of service for this alternative and the no action alternative.

The Nebraska Avenue and North NAC Driveway eastbound intersection would see a decrease in LOS from “D” to “E” in both the morning and afternoon peak periods. The Nebraska Avenue and South NAC Driveway westbound movement would see a substantial decrease in LOS, from “A” in the morning and “B” afternoon peaks to “F” during both periods. This is due to the increased use of this driveway as a primary vehicular access point to and from the new parking structure in this alternative. A third intersection, the Massachusetts Avenue and NAC driveway, would see a slight improvement in LOS for its southbound left-hand turn movement in the AM period, though still receiving a “failing” grade of “E.” The majority of other site driveways would operate at an overall intersection LOS A with the public streets (Nebraska Avenue and Massachusetts Avenue) operating at LOS A. Therefore, impacts on intersection capacity at NAC driveways would be negligible in the short-term and negligible to minor in the long-term.

Table 3-32 2020 Alternative C Levels of Service at the Nebraska Avenue Complex Driveways, Level of Service (Delay, Seconds per Vehicle)

Intersection		Existing		No Action		Alternative C	
		AM	PM	AM	PM	AM	PM
25. Nebraska Avenue and North NAC Driveway *		**A (0.3)**	**A (0.3)**	**A (0.3)**	**A (0.4)**	**A (0.1)**	**A (0.1)**
Northbound (Nebraska Avenue)	Left-Through	A (0.2)	A (0.2)	A (0.2)	A (0.2)	A (0.2)	A (0.2)
	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Southbound (Nebraska Avenue)	Left-Through	A (0.3)	A (0.3)	A (0.3)	A (0.3)	A (0.0)	A (0.0)
	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Eastbound (Parking Lot Driveway)	Left-Through-Right	D (29.8)	D (26.8)	D (31.8)	D (29.0)	E (44.2)	E (37.4)
Westbound (North NAC Driveway)	Left-Through	E (45.8)	E (48.0)	E (49.5)	F (53.3)	--	--
	Right	A (9.3)	A (9.3)	A (9.3)	A (9.4)	--	--
	Left-Through-Right	--	--	--	--	A (0.0)	A (0.0)
26. Nebraska Avenue and South NAC Driveway*		**A (0.2)**	**A (0.0)**	**A (0.2)**	**A (0.0)**	**A (1.2)**	**A (2.8)**
Northbound (Nebraska Avenue)	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Southbound (Nebraska Avenue)	Left-Through	A (1.3)	A (0.1)	A (1.3)	A (0.1)	A (4.0)	A (1.0)
Westbound (South NAC Driveway)	Left-Right	A (0.0)	B (10.0)	A (0.0)	B (10.2)	F (52.8)	F (82.0)
27. Massachusetts Avenue and NAC Driveway*		**A (1.0)**	**A (3.3)**	**A (1.0)**	**A (3.9)**	**A (0.3)**	**A (3.0)**
Southbound (NAC Driveway)	Left	F (54.9)	F (166.0)	F (62.0)	F (216.9)	E (42.2)	F (175.8)
	Right	B (11.7)	C (22.9)	B (12.0)	C (24.6)	B (12.0)	C (24.4)
Eastbound (Massachusetts Avenue)	Left-Through	A (3.0)	A (1.0)	A (3.2)	A (1.1)	A (0.0)	A (0.0)
Westbound (Massachusetts Avenue)	Through-Right	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)

*Unsignalized intersection

Source: Kimley-Horn and Associates, 2010

Queuing along Public Streets

Under Alternative C, impacts on queues along public streets would be negligible (Kimley-Horn and Associates, 2010). Queue analyses performed for the Transportation Study and Transportation Management Plan document (found in Appendices B and C) calculated queues along public streets to range from 0 to 12 feet, or less than one vehicle. If vehicles continue to disregard the left turn prohibition during AM and PM peak hours, the largest queue would continue to occur along eastbound Massachusetts Avenue.

Public Transportation

Access from public transportation to the site would have a long term beneficial impact in this alternative. Improvements to the site create a pedestrian-centered campus, which minimizes walking distances and would contribute to improved access to the site for public transportation users.

Parking

For Alternative C, as well as for all of the action alternatives, the number of parking spaces would be reduced from the existing number of parking spaces consistent with NCPC's guidance of 1 parking space per 4 employee parking ratio. For this alternative, this 1:4 parking ratio would result in 1,125 parking spaces, a reduction in employee parking from what is currently contained at the site. There would also be 80 parking spaces for 24/7 employees and 20 authorized visitor parking spaces. As Alternative C would be in compliance with the NCPC parking ratio, long term, beneficial impacts would occur under this alternative. Due to the permanent reduction of parking spaces (from existing conditions), long-term, adverse impacts on public parking outside the NAC site would occur under Alternative C; as the TMP would be implemented, impacts would be negligible.

There would be short term, moderate adverse impacts to parking on-street and outside of NAC due to increased demand during the temporary elimination of the 245 surface lot spaces during the construction of the parking structure, as well the 473 surface spaces in the location of Building C at the rear of the site.

Pedestrian and Bicycle Conditions

There would be a long term beneficial impact to the pedestrian and bicycle conditions in the study area in this alternative. The existing continuous network of sidewalks along public streets would continue to provide pedestrian access to the site and adjacent Metrobus stops. Improvements to the site create a pedestrian-centered campus which minimizes walking distances would also contribute to the improved pedestrian conditions. Bicycle amenities, including bicycle racks and showers for bicyclists, would also be provided on-site, and bicycle lanes, where feasible, would be installed on streets within the campus. As with the no-action alternative, bicycle sharing stations on Massachusetts Avenue and at the Tenleytown-AU Metrorail station provide another travel choice for users to access the site, particularly from the Metrorail station.

There would be a short term, minor adverse impact to bicycle and pedestrian circulation due to construction of the new buildings and parking structure, as paths and roads may be temporarily blocked or rerouted during construction.

Transportation Management Plan (TMP)

Implementation of the transportation demand management strategies identified in the TMP would facilitate meeting the goal for recommended travel mode splits at this site (see Appendix C). In addition, the implementation of TMP would be essential in order to avoid spillover parking in the surrounding residential neighborhoods due to the reduction of parking under this alternative as to compared to existing conditions.

3.16.8 What Measures Should be Undertaken to Reduce Impacts to Traffic and Transportation?

Vehicular Traffic

To minimize impacts on area vehicular rights-of-way, construction traffic and equipment should be minimized during AM and PM peak hours, and construction schedules should be coordinated with nearby projects, including the American University. During day-to-day site operations, deliveries should be scheduled during off-peak travel periods to reduce the potential for vehicle queuing at the entrances off of Nebraska Avenue and Massachusetts Avenue.

Parking

As construction of buildings and parking structures could temporarily reduce the availability of a large number of parking spaces within the NAC property, construction should be carefully phased and/or provisional parking locations identified to minimize impacts on street parking and parking lots outside the NAC site during the construction period.

As the implementation of the TMP is a part of each action alternative, no additional mitigation measures to reduce impacts on the availability of parking spaces outside the NAC site are proposed. However, due to the reduction of parking spaces under each of the action alternatives, DHS' implementation of the transportation demand management measures as outlined the TMP would be essential to eliminate spillover parking in the residential neighborhoods.

Public Transportation

To minimize disruptions to public transportation, construction should be timed so that Metrobus service would only need to be re-routed for a minimal amount of time (or not at all) and so that the nearby stops served by these lines would not be impacted.

Pedestrian and Bicycle Circulation

The final design should comply with ADA accessibility requirements and should facilitate circulation to and from the site. During construction, the sidewalks and paths within the campus and adjacent to the campus would remain open to pedestrian traffic, but signage would be used to safely redirect pedestrians away from construction areas.

Signs and road striping should be provided throughout the site in order to prevent pedestrian, bicycle, and vehicle conflicts. Signs and road marking should identify:

- main pedestrian paths as areas where cyclists need to walk their bicycles,
- roads unable to accommodate a bicycle lane as shared roads ("share the road" signs and painted lanes) to alert vehicles of bicyclists, and
- pedestrian crossing areas to alert vehicles and bicyclists of pedestrians.

3.17 INFRASTRUCTURE/UTILITIES

3.17.1 What is the Status and Condition of the Chilled Water System on Site?

The NAC site is currently served by three central refrigeration plants. One plant, located in Building 61, serves Building 18 and 19. The second plant, located in Building 10, is more centrally located and serves the buildings in the historic core of the site. The third plant is located at the north end of the site in Building 5 and serves Buildings 4, 5 and 20. These systems are all operational and vary in age from 15 years-old to recently renovated (MTFA 2010 and Summer Consultants, Inc. 2010).

3.17.2 How Would the Chilled Water System be Affected?

No Action Alternative

Under the No Action Alternative the NAC Master Plan would not be implemented. Therefore, no changes on the site would occur and no impacts on the chilled water system would result.

Alternative A

Under Alternative A, the chiller plant at Building 61 would remain. The plants at Buildings 5 and 10 would be demolished and a new chiller plant would be relocated to the basement of Building A. This plant would be increased in size to provide adequate capacity to serve Building A as well as the buildings in the historic core. A new plant for Buildings B, C, and D would be constructed. Building E would be served by the existing plant in Building 61.

Alternative A would result in minor, short-term, adverse impacts during the construction and demolition of facilities while the chilled water system is re-sited. It would result in beneficial, long-term impacts during operation of the facility due to the energy efficiency associated with consolidation and newer technology to serve the needs of the NAC campus.

Alternative B

Under Alternative B the chiller plant at Building 61 would remain. The plants at Buildings 5 and 10 would be demolished and a new chiller plant would be relocated to the basement of Building A. This plant would be increased in size to provide adequate capacity to serve Building A as well as the buildings in the historic core. A new plant for Buildings B, C, and D would be constructed as would a new plant for Buildings E and F.

Alternative B would result in minor, short-term, adverse impacts during the construction and demolition of facilities while the chilled water system is re-sited. It would result in beneficial, long-term impacts due to the energy efficiency associated with consolidation and newer technology.

Alternative C

Under Alternative C the chiller plant at Building 61 would remain. The plants at Buildings 5 and 10 would be demolished and a new chiller plant would be relocated to the basement of Building A. This plant would be increased in size to provide adequate capacity to serve Building A as well as the buildings served in the historic core. A new plant for Buildings B and C would be constructed. Building D would be served by the existing plant in Building 61.

Alternative C would result in minor, short-term, adverse impacts during the construction and demolition of facilities while the chilled water system is re-sited. It would result in beneficial, long-term impacts due to the energy efficiency associated with consolidation and newer technology.

3.17.3 What is the Status and Condition of the High Temperature Hot Water System on Site?

The site is currently served by a high temperature hot water (HTHW) plant located in Building 15. Most of the buildings on site receive their heat from this plant which is distributed via an underground network. The underground piping was replaced in a multi-phased project completed in 2007. The HTHW generators use natural gas as a primary fuel source with No. 2 oil as a backup (MTFA 2010 and Summer Consultants, Inc. 2010).

3.17.4 How Would the High Temperature Hot Water System be Affected?

No Action Alternative

Under the No Action Alternative the NAC Master Plan would not be implemented. Therefore, no changes on the site would occur and no impacts on the HTHW system would result.

Alternatives A, B, and C

Under Alternatives A, B, and C, Building 15 would be demolished and the HTHW plant housed in the building would be replaced by individual low-temperature hot water plants with condensing boilers in each existing and proposed building.

Alternatives A, B, and C would result in minor, short-term, adverse impacts due to the demolition of Building 15 and the installation of new low-temperature hot water units. It would result in beneficial, long-term impacts due to the greater energy efficiency associated with installation of newer technology. There would also be beneficial impacts on operations as the low-temperature hot water units require less operator oversight than the HTHW system while they are operating.

3.17.5 What is the Status and Condition of the Electrical System on Site?

Electrical service to the NAC is provided by PEPCO. The existing site electric system is served via two shared 13.8 kilovolt (kV) feeders, each of which is able to deliver 3 Megavolt-Amperes (MVA) to the site. Custody transfer of electricity occurs in customer-owned medium voltage switchgear and then customer-owned site cables distribute the power to the buildings, generally in a primary selective arrangement. The site generators also connect to the feeders, and are backfed during an emergency to serve the loads connected directly to the metering switchgear (MTFA 2010).

Individual building transformers on the primary selective system are connected to either the A or B site feeder, and are often clustered with other buildings at the selection point. Individual building transformers have fused switches from the primary selector switch buses. Building transformers serve building switchboards for distribution within the buildings (MTFA 2010).

Building 19, and its accompanying central plant, Building 61, were recently rebuilt and are configured with a three transformer spot network, ready to connect to the future site electrical system (MTFA 2010).

There is a design-build construction project currently underway and scheduled to be complete by late 2011 to replace the site electrical system with a three feeder spot network system, and associated primary distribution system. When complete, each substation will be served from three site feeders. The substations will be located in underground vaults located around the campus and each substation will serve multiple buildings in close proximity to the vault. The system and substations currently being installed on the NAC site have adequate capacity to serve the existing buildings at the power densities required. Based on the modularity of transformer sizes, some extra capacity exists in each vault. The primary distribution system provided by the design-build construction project has adequate capacity to support additional buildings and associated substations (MTFA 2010 and Summer Consultants, Inc. 2010).

Emergency generators also serve the site. Currently, these generators are centrally located and configured to share loads (MTFA 2010).

3.17.6 How Would the Electrical System be Affected?

No Action Alternative

Under the No Action Alternative the NAC Master Plan would not be implemented. Therefore, no changes on the site would occur and no impacts on the electrical system would result beyond those introduced by the 2011 design-build construction project.

Alternatives A, B, and C

Under Alternatives A, B, and C the newly replaced electrical system would be modified to accommodate the additional proposed buildings. The emergency generators would be relocated and installed in the proposed Building A.

Alternatives A, B, and C would result in minor, short-term, adverse impacts due to the construction activities required to modify the electrical system to link the new buildings. Site operations would generate additional power demand due to the increase in the number of buildings and employees, but the demands generated are not expected to impact supply to the local area. New sustainable practices on site such as energy-saving green roofs would help offset the additional demand and result in long-term beneficial impacts.

3.17.7 What is the Status and Condition of the Water Service and Fire Protection System on Site?

The NAC system currently operates as a combined system for water service and fire protection. There is a 16” inch waterline that runs north-south under Nebraska Avenue. Potable water from DC Water is supplied to the NAC facility via six service connections. All the connections are metered. Three of the connections supply individual buildings; and three connections to the 16” inch waterline supply a distribution grid that serves the remainder of the complex. The 16” inch water main along Nebraska Avenue has check valves for the three lines that convey the water to the distribution grid (MTFA 2010).

Currently, the potable water distribution system on the NAC site consists of approximately 8,000 linear feet of cast iron and ductile iron pipe ranging from 3” to 10” inches in diameter. The original water distribution system appears to have been installed between the 1920s and 1940s and historic site reports indicate that a substantial portion was constructed of unlined cast iron pipe. In 1987, approximately 2,300 feet of pipe (25% of the total at the time) were installed or replaced and 3,500 feet of pipe (50% of the total) were cleaned and lined. In the 1990s an additional 1,700 feet of new pipe was installed resulting in only 5 percent of the remaining water distribution piping at NAC being original unlined cast iron pipe (MTFA 2010).

DC Water has plans (although not immediate) to modify the existing water system in the area to achieve more pressure. But these changes would still not be enough to significantly improve the existing water pressure at the site which effects fire protection (MTFA 2010).

A manual fire booster pump and a 10” inch water line serving the pump were installed in 1987 for fire protection; the pump augments system pressure to satisfy sprinkler system flow requirements during a fire. A second booster pump, located in the meter vault next to Building 22, augments domestic service pressure under normal conditions. The existing combined system increases pressure throughout the entire system when the fire pump is activated, resulting in system pressures is excess of the plumbing fixture ratings and over-pressurization of building domestic water systems. However, without the existing fire pump, the existing water supply system is unable to meet the fire demand (MTFA 2010, PHR&A 2010).

Given these deficiencies there are modifications recommended for the existing site, regardless of future potential development. Establishing these changes would require further study and water modeling analysis. However, these changes could involve the following: replacing the existing manual fire booster pump with a new automatic-start pump that is controlled via flow-switches on the sprinkler systems; installing pressure reducing valves on all domestic supply lines to prevent over-pressurization of the domestic water system; installing backflow preventers at all locations; separating the domestic water supply and the fire protection system and providing upgrades to each of the separated systems. Improvements that are implemented would occur within existing structures, in the basements and mechanical area (PHR&A 2010).

3.17.8 How Would the Water Service System and the Fire Protection System on the site be Affected?

No Action Alternative

Under the No Action Alternative the NAC Master Plan would not be implemented. Therefore, no changes on the site would occur and no impacts on the combined water service and fire protection system would result beyond those recommended for the existing site.

Alternatives A, B, and C

Under Alternatives A, B, and C the combined water service system and fire protection system would be separated and modified to accommodate the additional proposed buildings.

The existing combined water service and fire protection system would be utilized as the domestic water distribution system, with improvements and extensions as needed to serve new structures. A new domestic water supply booster pump would be included in the upgrades to the domestic water supply system. The quantity of piping extensions and improvements required to convert the existing combined system to an exclusively-domestic water supply system have not been quantified at this time, but are expected to be far less than the new fire protection network.

A new fire protection loop of 6” to 8” inches in diameter pipe would be installed generally around the perimeter of the site. This piping would follow the existing and proposed roads and sidewalks to minimize any additional site disturbance. Approximately, 7,000 to 8,000 feet of this piping would be required for the fire protection loop with new connections to existing buildings and to new buildings.

Alternatives A, B, and C would result in minor, short-term, adverse impacts due to the construction activities required to separate the water and fire protection system and accommodate the additional proposed buildings. Site operations would likely generate additional water and fire protection system demands due to the increase in buildings and employees, but the demands generated are not expected to impact supply to the local area. New sustainable practices on site such as water recycling would help offset the additional demand for potable water and fire protection features would be incorporated into all new construction of buildings and renovations of existing buildings and would result in long-term beneficial impacts.

3.17.9 What is the Status and Condition of the Wastewater System on Site?

The campus wastewater collection system consists of approximately 11 manholes, two small lift stations and .66 miles of gravity lines of vitrified clay pipe, 4” to 10” inches in diameter. There appear to be no force mains, pump stations or sump/grinder/ejector stations located at the facility. The original collection systems were installed in the 1940s. The gravity system pipe material include approximately 98 percent vitrified clay pipe (VCP) that is at the end of its life and 2 percent polyvinyl chloride (PVC) pipe (MTFA 2010).

Wastewater is discharged into the DC Water collection system at Nebraska Avenue and at a system adjacent to Glover-Archbold Park. DC Water indicated there is existing capacity on the existing trunk lines to support the site (MTFA 2010).

3.17.10 How Would the Wastewater System be Affected?

No Action Alternative

Under the No Action Alternative the NAC Master Plan would not be implemented. Therefore, no changes on the site would occur and no impacts on wastewater system would result.

Alternatives A, B, and C

Under Alternatives A, B, and C the NAC wastewater collection system would be modified to accommodate the additional proposed buildings. Additionally, since the vitrified clay pipe (VCP) is at the end of its life, it may need to undergo in situ pipe lining rehabilitation or be replaced during site construction. Further study that could include remote-video inspection would determine how the VCP would be handled.

Alternatives A, B, and C would result in minor, short-term, adverse impacts due to the construction activities required to modify and replace portions of the wastewater collection system. Site operations would potentially generate additional wastewater collection demand due to the increase in number of buildings and employees, but the demands generated are not expected to cause substantial adverse impacts on the collector, DC Water, or impact capacity in the local area and thus long-term impacts would be negligible.

3.17.11 What is the Status and Condition of the Natural Gas System on Site?

There are two natural gas services for the site, provided by Washington Gas Company. The high pressure gas system serves the boiler plant, Building 15, and a low pressure gas system serves kitchen equipment in Building 14 (Summer Consultants, Inc. 2010).

3.17.12 How Would the Natural Gas System be Affected?

No Action Alternative

Under the No Action Alternative the NAC Master Plan would not be implemented. Therefore, no changes on the site would occur and no impacts on the natural gas distribution system would result.

Alternatives A, B, and C

Under Alternatives A, B, and C the HTHW plant at Building 15 would be demolished and replaced by individual low-temperature hot water plants with condensing boilers combusting natural gas as an uninterruptable fuel in each building. Therefore, the NAC natural gas distribution system would be modified to accommodate the additional proposed buildings. The gas piping would be extended to each new building at either high or low pressure, in coordination with the gas company.

Alternatives A, B, and C would result in minor, short-term, adverse impacts due to the construction activities required to modify and extend portions of the natural gas distribution system. Site operations would potentially generate additional natural gas demand due to the increase in number of buildings and employees, but the demands generated are not expected to cause significant adverse impacts on the supplier, Washington Gas Company, or impact supply capacity in the local area. If anything, each of the action alternatives would likely result in beneficial, long-term, impacts during operation due to the energy efficiency associated with installation of newer technology that uses less fuel to serve the needs of the NAC campus.

3.17.13 What Measures Should be Undertaken to Reduce Impacts to Infrastructure/Utilities?

GSA should coordinate with the appropriate entities, including PEPCO, DC Water, and the Washington Gas Company, on any modifications to the distribution systems contained within the NAC site as well as connections to the entity-owned systems. GSA should coordinate with PEPCO to ensure all electrical lines remain intact and are safe to work around during construction. GSA should coordinate with DC Water to review the project and for potential relocation of storm sewer inlets. GSA should coordinate with the Washington Gas Company to ensure that gas lines remain intact and are safe to work around during construction. GSA should coordinate with the DC Fire Marshall to ensure that access is maintained to fire hydrants and buildings during construction activities.

3.18 AIR QUALITY

3.18.1 What is the Status of National Air Quality Standards Attainment in Washington D.C.?

In response to the Clean Air Act (CAA) of 1970 and the CAA Amendments of 1977 and 1990, the U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for criteria air pollutants including carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), particulate matter equal to or less than 10 microns in size (PM_{10}), and fine particulate matter equal to or less than 2.5 microns in size ($PM_{2.5}$). The NAAQS include primary standards designed to protect human health and secondary standards to protect public welfare (MWCOG 2008). The EPA air quality standards and the air pollution levels in Washington, D.C. in 2008 for each of these criteria pollutants are presented in Table 3-33.

Regions of the country that are currently not meeting the NAAQS are identified as "nonattainment" areas and some nonattainment areas are further classified as "marginal", "moderate", "serious", "severe", or "extreme". The Metropolitan Washington air quality region, which includes Washington, D.C. and ten surrounding counties in Virginia and Maryland, is currently designated as moderate nonattainment for the federal eight-hour ozone standard (O_3) and nonattainment for the $PM_{2.5}$ standard. The Washington D.C. metropolitan area is located within the Ozone Transport Region which encompasses 31 states in the eastern United States (MWCOG 2007; EPA 2010).

The EPA requires that nonattainment regions prepare attainment plans aimed at reducing emissions in order to reach compliance with the NAAQS. The Metropolitan Washington Air Quality Committee (MWAQC) is the region's lead air quality planning agency and has undertaken planning efforts to bring the region into compliance with the NAAQS. MWAQC prepared two State Implementation Plans (SIP), one in May 2007 to attain the federal eight-hour ozone standard and one in March 2008 to meet the NAAQS fine particle ($PM_{2.5}$) standard (MWCOG 2007 and 2008).

Federal actions that take place in a nonattainment area are required to demonstrate compliance with the General Conformity Rule (40 CFR Part 93 Determining Conformity of Federal Actions to State or Federal Implementation Plans). Federal agencies responsible for an action in a nonattainment area are required to determine if the action either conforms to the prepared regional attainment plan or is exempt from conformity. The EPA has determined that federal actions are exempt from conformity determinations where the total of all reasonably foreseeable direct and indirect emissions of nonattainment pollutants: (1) would be less than their specified emission rate thresholds, known as *de minimis* limits, and (2) would be less than 10 percent of the area's annual emission budget. The general conformity *de minimis* limits for ozone nonattainment areas inside an ozone transport region are 50 tons per year for volatile organic compounds (VOC) and 100 tons per year for nitrogen oxides (NOx). The *de minimis* limit for direct emissions of $PM_{2.5}$ is 100 tons per year.

Table 3-33 Air Quality Standards and Air Pollution Levels in Washington, D.C.

Pollutant	EPA Air Quality Primary Standards	EPA Air Quality Secondary Standards	2008 County Air Quality Report (District of Columbia)
Carbon Monoxide (CO) 1-hour average 8-hour average	35 ppm 9 ppm	None	4.0 ppm 2.1 ppm
Nitrogen Dioxide (NO_X) Annual Mean 1-hour	0.053 ppm 0.100 ppm	Same as Primary None	0.018 ppm
Ozone (O_3) 1-hour average 8-hour average	0.12 ppm 0.075 ppm	Same as Primary	0.122 ppm 0.084 ppm
Sulfur Dioxide (SO_2) 24-hour average Annual mean 3 hour	0.14 ppm 0.030 ppm None	None None 0.5 ppm	0.015 ppm 0.006 ppm --
Particulates < 2.5 micrometers diameter (PM 2.5) 24-hour average Annual mean	35 μg/m^3 15 μg/m^3	Same as Primary	44.2 μg/m^3 13.24 μg/m^3
Particulates <10 micrometers diameter (PM 10) 24-hour average Annual mean	150 μg/m^3	Same as Primary	22 μg/m^3 18 μg/m^3
Lead (Pb) Quarterly mean Rolling 3-Month Average	1.5 μg/m^3 0.15 μg/m^3	Same as Primary	Unknown

ppm=parts per million μg/m3 = micrograms per cubic meter

Source: EPA 2008

3.18.2 What Air Emissions are Produced by the Operation of the Project Site?

All of the air emissions sources on the NAC were identified and evaluated for compliance with air quality regulations as part of an Air Emission Source Inventory and Compliance Report completed in 2000. These sources and their potential emissions are listed in Table 3-34. At the time of the survey, none of the sources identified by the survey adversely affected the environmental condition of property at the NAC and air discharges did not require a Title V Permit under the Clean Air Act (Tetra Tech 2004).

The Air Emission Source Inventory and Compliance Report also identified ozone depleting substances at the NAC, all of which are chiller units that provide air conditioning for buildings on site. The chiller units and drums storing chemicals used in the operation of the chillers were generally in good condition during the visual site inspection completed as part of Tetra Tech's 2004 study. The study determined that the chiller units do not adversely affect the environmental condition of the property at the NAC.

The chiller units are located in three central refrigeration plants. The plant in Building 61 has an installed capacity of 960 tons and an effective Firm capacity (loss of a single chiller) of 640 tons. The plant in Building 10 has an installed capacity of 450 tons and an effective Firm capacity of 225 tons. The plant in Building 5 has an installed capacity of 120 tons and an effective Firm capacity of 60 tons. The total capacity of the chiller plants is 1,530 tons.

There is one existing High Temperature Hot Water (HTHW) Plant located in Building 15 that provides heat to the buildings on the NAC campus. The plant consists of two (2) 25 million BTU/hr boiler units which produce high temperature hot water via generators that combust natural gas as a primary fuel and use No. 2 oil as a backup fuel. Under normal site operations, only one boiler is needed to maintain the buildings at their design temperatures. The second boiler is used as a back-up boiler should the primary boiler fail or need to be taken out of service.

The site's electricity supply, including the electricity used to power the chiller units, is purchased from the Potomac Electric Power Company (PEPCO). There are three (3) existing 2 MW (2,682 horsepower) diesel emergency generators that are centrally located and are used to backfeed the site electricity system during emergencies. There is also one (1) 500 kW (670 horsepower) diesel emergency generator located in Building 4 that can start in ten seconds and is used to meet life safety requirements.

According to the EPA Air Facility System, the NAC site is classified as having the potential for uncontrolled emissions of less than 100 tons per year from stationary sources.

Mobile source air emissions at the site are produced from motor vehicles including personal vehicles and delivery vehicles as well as utility vehicles used internally on the site.

Table 3-34 Air Emissions Sources and Ozone Depleting Substances Sources at the NAC, Washington, D.C. in 2000

Building	Emissions Source	Estimated Emissions
4	Katolight Generator 241 BHP Emergency Generator	Potential to emit up to 1.9 tons of nitrogen oxides (NO_X) per year
	Consolidated 134 BHP Emergency Generator	Potential to emit up to 1.04 tons of nitrogen oxides (NO_X) per year
	Chiller (43 lb. R-22)	Emissions unspecified
5	Two chillers (120 lb. R-22 per chiller)	Emissions unspecified
15	FYR-UTILIPAK Packaged Boiler (Boiler #1)	Potential to emit up to 7.8 tons of nitrogen oxides (NO_X) per year
	FYR-UTILIPAK Packaged Boiler (Boiler #2)	Potential to emit up to 7.8 tons of nitrogen oxides (NO_X) per year
	Two 10,000 gallon diesel fuel underground storage tanks (USTs) and two 20,000 gallon diesel fuel USTs	No emissions quantity data provided; Tanks are double-walled fiberglass with electronic leak and overfill protection
17	Detroit Diesel 100 BHP Emergency Generator	Potential to emit up to 0.8 tons of nitrogen oxides (NO_X) per year
	Two chillers (one 56 lb. R-22 and one 142 lb. R-22)	Emissions unspecified
	Two chillers (420 lb. R-123 per chiller)	Emissions unspecified
59	Document Disintegrator Unit No. 1	Emissions unspecified
	Document Disintegrator Unit No. 2	Emissions unspecified
61	Chiller (72 lb. R-22)	Emissions unspecified
	Air Conditioning Unit (72 lb. R-22)	Emissions unspecified
	Chiller (610 lb. R-134A)	Emissions unspecified
99	Caterpillar 83 BHP Centrifugal Fire Pump	Potential to emit up to 0.6 tons of nitrogen oxides (NO_X) per year
100	Onan Genset 235 BHP Emergency Generator	Potential to emit up to 1.8 tons of nitrogen oxides (NO_X) per year
	Three chillers (two 45 lb. R-22 and one 49 lb. R-22)	Emissions unspecified

Source: Tetra Tech 2004

3.18.3 How Would Local and Regional Air Quality be Affected?

Construction and demolition activities at the NAC site would generate short-term air emissions. There would also be a number of long-term emission sources on and around the NAC site related to the operation of the NAC facility under each of the action alternatives. These sources include vehicular traffic emissions, a central refrigeration plant (chiller plant), individual low temperature hot water plants, and emergency generators.

No Action Alternative

Under the No Action Alternative, the GSA would not implement a Master Plan on the NAC site and no construction or demolition of facilities would take place. Therefore the site would continue to operate under current conditions. Impacts to air quality would be negligible.

Alternatives A, B, and C

Under each of the action alternatives, exhaust emissions from construction equipment, construction crews commuting to the site, and fugitive dust emissions from earthmoving and demolition activities would occur at the NAC site during construction activities. Construction emissions are dependent on the number and types of construction equipment used and the duration of construction activities. For smaller sites such as the NAC site, construction emissions are generally well below the general conformity de minimis thresholds and are typically not of major concern due to the short-term nature of construction. In addition, for the NAC site, construction would be phased and the construction schedule and operations would be conducted to ensure annual emissions would be well below the general conformity de minimis thresholds and to ensure the short-term construction emissions would be in conformance with the State Implementation Plans. In order to minimize impacts to air quality, best management practices such as dust control would be implemented. With these mitigation measures in place, there would be a minor adverse short-term impact on air quality associated with construction.

Under each of the action alternatives, mobile source emissions from vehicular traffic would increase due to the increased number of employees accessing the site. The number of seats and the number of parking spaces for each alternative are listed in Table 3-35.

Table 3-35 Seats and Parking Spaces

Alternative	Seats	Parking Spaces
Alternative A	3,700	1,025
Alternative B	4,200	1,150
Alternative C	4,500	1,225

Source: MTFA 2010

Using information from the Draft Transportation Management Plan prepared for the NAC Master Plan, the total daily commute trips generated by each alternative were estimated (Table 3-36)**.** The Draft TMP determined the maximum daily count of vehicles entering the NAC site and the maximum daily parked vehicles on the site. Using these existing conditions, a ratio of 3.65 trips per utilized parking space was calculated. This ratio was applied to the proposed number of parking spaces in each alternative to estimate the daily trips for each alternative.

Table 3-36 Estimated Daily Commute Trips

Alternative	Daily total commute trips
Alternative A	3,800
Alternative B	4,200
Alternative C	4,500

Source: Kimley-Horn 2010

In addition to commuter vehicles, six deliveries by truck per day were estimated. The estimated emissions generated from the vehicles accessing the site are listed by alternative in Table 3-38, Table 3-39, and Table 3-40. The calculations of the mobile source emissions are included in Appendix D. Emissions from vehicular traffic could be reduced over time through transportation demand management strategies.

During the operations of the NAC campus, the majority of the electricity for the NAC would continue to be generated offsite using the current fleet of generating stations within the North American Electric Reliability Corporation (NERC) Reliability First Corporation (RFC) region and would be distributed to the site by PEPCO. Emission factors for the RFC East subregion, to which Washington, D.C., belongs, are provided in the USEPA eGRID report and were used in the emissions calculations in Table 3-38, Table 3-39, and Table 3-40.

Using the standard benchmark for electricity usage per total floor area for an office building in Baltimore, MD (DOE 2010), the NAC electricity usage was calculated to be approximately 10 kilowatt-hours/square foot of building area. The Department of Energy (DOE) provides standard energy benchmarks for representative cities by climate zone. Baltimore was used as a benchmark for this analysis because Baltimore represents the nearest benchmark city to the Washington, D.C. metro area for which data are available. The NAC's current energy usage is approximately 35 kilowatt-hours /GSF, but due to the requirements of EO 13514 and GSA LEED Gold requirements of new construction, the energy use per GSF at the NAC is expected to significantly decrease. Hence, the standard benchmark for electricity use was used in lieu of the current consumption estimate.

The estimated total electricity usage for each of the alternatives was calculated based on the estimated total square footage of all buildings on the site for each alternative (see Appendix D). The estimated total building square footage and megawatt-hours of electricity usage under each alternative are listed in Table 3-37.

Table 3-37 Estimated Electricity Usage

Alternative	Total Building SF	Megawatt-hours
Alternative A	1,072,720	10,683
Alternative B	1,220,450	12,154
Alternative C	1,309,090	13,037

Source: AECOM 2010

The emissions associated with the electricity usage of each alternative are listed in Table 3-38, Table 3-39, and Table 3-40. A portion of the electricity generated offsite would be used to power the refrigeration plants that provide cooling to buildings onsite. The calculations for emissions associated with electricity usage are shown in the Appendix D.

In each of the alternatives, the existing central refrigeration plant in Building 61 would remain in place and the other two existing plants in Building 10 and Building 5 would be removed during demolition of those two buildings. Under Alternative A, two new refrigeration plants would be installed on the site to provide adequate capacity for the existing buildings and new construction. Under Alternatives B and C, three new refrigeration plants would be installed.

Under each action alternative, Building 15 would be demolished and the existing 50 million BTU/hour output HTHW plant would be removed. A new individual low temperature hot water plant of approximately 50 million BTU/hour using condensing boilers fueled by natural gas would be installed. Installation of the new individual low temperature hot water plant would improve efficiency and reduce fuel input and could contribute to a decrease in air emissions due to gains in efficiency and lower fuel consumption. As a new stationary source of emissions, the plant would require a Minor Source Permit from the District Department of the Environment Air Quality Division.

The three existing 2 MW (2,682 horsepower) diesel emergency generators would be relocated to the basement of Building A and collocated with one of the cooling plants. The existing 500 kW (670 horsepower) diesel emergency generator located in Building 4 would remain in place. Each generator would only operate during routine maintenance and testing, and during emergencies, and would have a total of 80 annual operating hours for each generator (one emergency use at 48 hours and testing once every week for 0.5 hours during 40 weeks of the year and once a month for 1 hour during 12 months of the year). As no additional emergency generators would be added to the site, there would be no increase in air emissions over the existing conditions. Due to the limited use of the generators, emissions from the generators would continue to be low and would not substantively impact air quality. The generator emissions calculations are shown in the Appendix D.

Table 3-38 Alternative A Estimated Air Emissions

Emissions Sources	Emissions (tons/year)							
	VOC	CO	NOx	SO_2	$PM_{2.5}$	PM_{10}	CO_2	CO_2 metric tons
Commuting Vehicles and Delivery Trucks	14.8	252.4	14.6	0.2	0.3	0.7	12,275	11,133
Central Heating Plant	0.4	5.4	3.2	0	0.5	0.5	7,729	7,010
Offsite Electricity Generation	n/a	n/a	8.7	41.6	n/a	n/a	6,084	5,518
Emergency Generators	0.3	1.9	8.3	0.1	0.2	0.2	404	367
Total	**15.5**	**259.7**	**34.8**	**41.9**	**1.0**	**1.4**	**26,492**	**24,028**
Nonattainment Thresholds	**50**	**-**	**100**	**-**	**100**	**-**	**-**	**25,000**

Source: AECOM 2010

Table 3-39 Alternative B Estimated Air Emissions

Emissions Sources	Emissions (tons/year)							
	VOC	CO	NOx	SO_2	$PM_{2.5}$	PM_{10}	CO_2	CO_2 metric tons
Commuting Vehicles and Delivery Trucks	16.3	278.9	16.1	0.2	0.4	0.8	13,567	12,305
Central Heating Plant	0.4	5.4	3.2	0	0.5	0.5	7,729	7,010
Offsite Electricity Generation	n/a	n/a	9.9	47.3	n/a	n/a	6,922	6,278
Emergency Generators	0.3	1.9	8.3	0.1	0.2	0.2	404	367
Total	**17.0**	**286.2**	**37.5**	**47.6**	**1.1**	**1.5**	**28,622**	**25,960**
Nonattainment Thresholds	**50**	**-**	**100**	**-**	**100**	**-**	**-**	**25,000**

Source: AECOM 2010

Table 3-40 Alternative C Estimated Air Emissions

Emissions Sources	Emissions (tons/year)							
	VOC	CO	NOx	SO_2	$PM_{2.5}$	PM_{10}	CO_2	CO_2 metric tons
Commuting Vehicles and Delivery Trucks	17.5	298.9	17.3	0.2	0.4	0.8	14,536	13,184
Central Heating Plant	0.4	5.4	3.2	0	0.5	0.5	7,729	7,010
Offsite Electricity Generation	n/a	n/a	10.6	50.8	n/a	n/a	7,424	6,734
Emergency Generators	0.3	1.9	8.3	0.1	0.2	0.2	404	367
Total	**18.2**	**306.2**	**39.4**	**51.1**	**1.1**	**1.5**	**30,093**	**27,295**
Nonattainment Thresholds	**50**	**-**	**100**	**-**	**100**	**-**	**-**	**25,000**

Source: AECOM 2010

The total estimated emissions for each alternative as compared to the NAAQS nonattainment emissions thresholds are shown in Table 3-38, Table 3-39, and Table 3-40. As shown in these tables, expected annual emissions generated by each of the action alternatives would be well below the general conformity de minimis thresholds for VOC, NOx, and PM2.5. As such, each of the action alternatives would be in conformance with the State Implementation Plans and all requirements of the General Conformity Regulations. In addition, the overall emissions of criteria pollutants would be below any applicable emissions thresholds.

Overall, each of the action alternatives would have a minor, long-term impact on local and regional air quality and would not cause or contribute to an exceedance of any NAAQS or interfere with the attainment or maintenance of any NAAQS.

3.18.4 How Would the Project Air Emissions Affect Global Climate Change?

As shown in Table 3-38, Table 3-39, and Table 3-40, the principal emission sources associated with the NAC campus would be commuting vehicles, the central heating plant, and emissions from offsite electric generating stations and onsite emergency generators. Total emissions of greenhouse gases (primarily CO_2) are expected to range from 26,592 to 30,193 short tons/year (Alternatives A to C respectively) or 24,119 to 27,385 metric tons/year. Based on these emission calculations and assumptions, CO_2 emissions from Alternative B (26,051 metric tons/year) and Alternative C (27,385 metric tons/year) would be slightly greater than the 25,000 metric tons/year indicator level as described in the CEQ draft guidance memo (CEQ 2010). CO_2 emissions from Alternative A (24,119 metric tons/year) would be slightly less than the 25,000 metric tons/year CEQ indicator level. As two of the alternatives would have emissions slightly greater than the draft CEQ indicator, greenhouse gas emissions and climate change impacts were considered for each action alternative.

As all new buildings at the NAC site would be constructed to meet LEED Gold standards for energy efficient design and the implementation of the TMP would reduce single-occupancy vehicle trips, no specific additional mitigation measures to reduce greenhouse gas emissions are proposed; however, as discussed in Section 3.20.6, GSA should take every opportunity to minimize greenhouse gas emissions at the NAC site, particularly as the new buildings are designed. Given the expected energy efficient design that would help to reduce greenhouse gas emissions and that calculated greenhouse gas emissions from the development are either just over (in the case of Alternatives B and C) or slightly less than the CEQ indicator level (in the case of Alternative A), the NAC campus emissions would be expected to have a minor adverse impact on global climate change. Climate change and sustainability are discussed further in Section 3.20.

CEQ Draft Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions: The draft guidance proposes that projected annual emissions of 25,000 metric tons of GHG be used as an indicator that a proposed action may warrant NEPA analysis for greenhouse gas emissions and climate change impacts. The draft guidance specifically indicates that this reference point is not an absolute threshold, but a reference point for analysis. The draft guidance also recommends that agencies should seek to include a discussion on measures that would reduce emissions and to discuss the link between the project's emissions and climate change from a qualitative perspective.

3.18.5 What Measures Should be Undertaken to Reduce Impacts to Air Quality?

In order to minimize the short-term impacts to air quality due to construction, best management practices such as dust control and limiting the idling of construction equipment would be implemented.

The necessary Minor Source Permit(s) for stationary sources at the site including the low temperature hot water plant would be obtained through the District of Columbia Department of the Environment as required in the DC Municipal Regulations Title 20.

In the long-term, in order to comply with Executive Order 13514, *Federal Leadership in Environmental, Energy and Economic Performance*, any new buildings at the NAC site would be constructed to meet LEED Gold standards and thus would be more energy efficient than the existing buildings. In the future, energy sources that do not produce greenhouse gases would also be sought and utilized to comply with the net-zero-energy standards for buildings set forth in Executive Order 13514. These measures would reduce the amount of emissions produced on the NAC site.

3.19 NOISE ASSESSMENT

3.19.1 What are the Major Sources of Noise Surrounding the Nebraska Avenue Complex?

Noise is generally defined as unwanted or objectionable sound that alters or disturbs quality of life, communication, or may affect physical health. Most environmental noise, particularly in urban areas, consists of a variety of frequencies of common, distant noises that create relatively steady background noise levels. Periodic loud noises such as horns honking or trucks passing by are easily perceived above background noise levels. Noise levels are usually measured and expressed in decibels (dB) that are weighted to frequencies perceivable by the human ear, known as A-weighted sound levels and expressed as dBA. Noise levels are typically measured over a set period of time (one hour, eight hours, or 24 hours) and commonly expressed as dBA Leq, representing the equivalent or average noise level for a given time period.

Noise experienced by an individual is a function of the noise source and the physical conditions between the source and receptors (e.g., topography/structures, weather, background noise, time of day). Due to the location of the NAC site within the urban area of Washington, D.C., ambient noise levels would generally be higher during the daytime and evening hours and lower during the night. The dominant sources of noise in the project area include local traffic on Nebraska Avenue and Massachusetts Avenue.

Other noises might include bells from the National Presbyterian Church, barking dogs, yard/landscaping equipment, playgrounds, and other sounds associated with a primarily residential area. Helicopter and commercial aircraft flyovers may also occur periodically but are typically of short duration. Noise from operations of the NAC site is limited to the types of noise associated with its primary use as an office facility; the supporting functions including parking, HVAC equipment, and chiller plants; and maintenance equipment operated on the site such as lawn mowers.

3.19.2 How were Noise Impacts Determined?

A qualitative analysis was used to assess noise impacts of the action alternatives. The analysis was conducted by reviewing relevant local and federal policies and regulations, and existing literature relating to the site. A major component of this analysis is the distinction between impacts resulting from construction activities, which are short term in nature, and those that would result from the operation of the site, which are long term.

The geographic area used in the analysis to determine the impacts the action alternatives would have on noise related to construction on the site and long-term site operations is limited to 250 feet around the perimeter of the site. This distance was chosen because at 250 feet the loudest piece of machinery would be approximately 80 dB, the accepted hourly average level per the Washington, D.C. Noise Control Act. The roadways around the site were also included in the analysis due to the potential for increased noise related to an increase in overall traffic volumes and construction vehicles.

The Washington, D.C. Noise Control Act limits weekday construction and demolition noise to 80 dBA (hourly average) from 7:00 a.m. to 7:00 p.m., and 55 dBA from 7:00 p.m. to 7:00 a.m. unless a variance is granted. It is expected that the majority of construction activities would be conducted during daylight hours. Construction equipment commonly used during site preparation and other construction activities is shown in Table 3-41. The noise levels indicated in the table represent equipment operating at full power and are equivalent to noise experienced on a sidewalk next to a busy urban street. Noise decreases with distance at a rate of about 6 dB per doubling of distance from the noise source. Therefore, receptors more than 50 feet from the construction site would experience reduced noise levels from the peak levels shown in Table 3-41. Equipment operating at less than full power would also have lower noise levels.

Table 3-41 Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level, Lmax (dBA2) 50 feet from Source
Air Compressor	81
Backhoe	80
Concrete Mixer	85
Mobile Crane	83
Dozer	85
Grader	85
Pile Driver	96-101
Truck	88
Rotary Drilling Rig[2]	87

Source: USDOT FTA, 2006. Transit Noise and Vibration Impact Assessment. Table 12-1.

As shown in Table 3-41, individual pieces of construction equipment when operated at full power could result in noise levels that would periodically exceed 80 dBA at a distance of 50 feet from the construction site. However, per Section 2704-2 of the Noise Control Act, equipment on the site must be operated so as to comply with the hourly average noise limits established in Section 2802 of the Noise Control Act. Construction equipment can achieve the 80 dBA hourly average noise limit by operating at reduced power settings, by operating at full power for periods of less than one hour continuously, or a combination of both.

[2] Yantak, 2007.

3.19.3 What are the Sensitive Noise Receptors in the Vicinity of the Site?

Noise sensitive receptors are generally considered to be human activities or land uses that may be subject to the stress of significant interference from noise. Land uses associated with sensitive receptors include residential dwellings, parks, hotels, hospitals, nursing homes, education facilities, churches, and libraries. Sensitive receptors may also include threatened or endangered noise-sensitive biological species. Commercial and industrial land uses are not considered “noise sensitive” by most definitions.

The noise receptors in the project area are the neighboring residences and churches, Glover-Archbold Park (administered by the National Park Service as an extension of Rock Creek Park), American University, and National Presbyterian School.

3.19.4 Would the Project Cause an Increase in Noise?

No Action

Under the No Action Alternative, there would be no construction activities on-site, and the use of heavy machinery and other noise generating equipment would not be necessary. Operational activities would continue to generate low levels of noise. As a result, there would be negligible short-and long-term impacts to noise levels.

Alternatives A, B, and C

The effects of the proposed project on ambient noise levels would primarily be associated with construction activities on the site, and subsequent to construction, the operation of the site and the operation of additional motor vehicles in the vicinity of the site.

The action alternatives propose development in different configurations. However, each alternative includes construction of new structures along the eastern and the southern edges of the site at the location of existing surface parking lots and existing buildings. In these locations, the site primarily borders Glover-Archbold Park and residential apartment buildings. At the eastern perimeter of the site, a steep slope separates the NAC site from Glover-Archbold Park. At the southern end of the site, there is a narrow woodland edge that acts as a buffer between the site and the residential apartment buildings located at the southern edge of the site.

The four basic construction activities typically associated with office building development are demolition, excavation and grading, utility construction, and building construction. The specific types of equipment that would be used for demolition, grading, utility, paving, and building construction are not known at this time. Construction activities would normally involve the use of bulldozers and jack hammers during demolition; bulldozers, scrapers, backhoes, and trucks during excavation and grading; backhoes during utility construction; and pile drivers, concrete mixers and pumps, saws, hammers, cranes and forklifts during building construction.

Construction noise is expected to be greatest during the earthmoving and site preparation phases. By operating construction equipment at less than full load, and by limiting continuous simultaneous operation of equipment, construction of the project is not expected to exceed the noise limits established by the Noise Control Act. The construction contractor would be responsible for ensuring compliance with the Noise Control Act, including construction noise near sensitive noise receptors. If the construction contractor determined that it would not be possible to achieve the District's construction noise limits, the contractor would be required to take additional steps to reduce noise or would be required to obtain a variance in accordance with the procedures specified in Section 2706 of the Act.

The movement of heavy trucks transporting construction materials could also cause an adverse noise impact to neighboring residences and other noise sensitive receptors. Noise impacts associated with truck transport of material would be minimized by operating heavy trucks within the daytime construction hours specified in the Noise Control Act. In addition, potential impacts to any given noise sensitive receptor would be limited to the time required for a truck to pass a given point along the route.

Overall, the action alternatives would have moderate, short-term, adverse impacts during the site preparation and construction phases due to the use of heavy construction machinery on the site and from heavy trucks transporting construction materials.

After construction, the primary use of the site would continue to be for office space and supporting functions including parking. Use of site maintenance equipment such as lawn mowers would also continue. The emergency generators, HVAC equipment, and chiller plants would be installed in the basement of buildings on the site, helping to mitigate noise from these sources. New structures would be built along the eastern and the southern edges of the site near sensitive noise receptors. However, as surface parking lots and buildings currently exist in these locations, there would be a negligible increase in noise levels.

There would be a minor increase traffic in the area due to an increase in the number of employees located at the NAC site (see the Transportation Management Plan (TMP) in Appendix C). The AM and PM peak traffic hours for the study area identified by the TMP occur from 7:45 a.m. to 8:45 a.m. and 5:15 p.m. to 6:15 p.m. (Kimley-Horn 2010). The peak traffic hours would also be the peak hours for noise generated from operational traffic. The minor increase in traffic would lead to a negligible to minor increase in noise levels from operational traffic.

Overall, there would be negligible, adverse long-term impacts to noise levels.

3.19.5 What Would be Done During Construction to Prevent Disruption to the Community?

Construction of the new buildings on the site under each alternative would be audible to the surrounding community, particularly to residents and businesses directly next to the site along Massachusetts Avenue and Nebraska Avenue. Therefore, measures should be undertaken to reduce construction noise. All construction equipment powered by an internal combustion engine should be equipped with a properly maintained muffler. Construction activities should also be limited to the daytime hours, ideally between 7am and 7pm. The surrounding community would also be notified when a major construction project is scheduled to begin. Where feasible, portable noise barriers should be established within the equipment area.

3.20 CLIMATE CHANGE AND SUSTAINABILITY

3.20.1 What are Greenhouse Gases and Why is Climate Change Important?

Various gases in the Earth's atmosphere, classified as atmospheric greenhouse gases (GHGs), play a critical role in determining the Earth's surface temperature. Solar radiation enters the Earth's atmosphere from space, and a portion of the radiation is absorbed by the Earth's surface. The Earth emits this radiation back to space, but the properties of the radiation change from high-frequency solar radiation, to lower-frequency infrared radiation. GHGs, which are transparent to solar radiation, are effective in absorbing infrared radiation. This radiation that would have otherwise escaped back to space is now "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Without the Greenhouse Effect, Earth would not be able to support life.

Greenhouse Effect: Trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. Some of the heat flowing back toward space from the Earth's surface is absorbed by water vapor, carbon dioxide, ozone, and several other gases in the atmosphere and then reradiated back toward the Earth's surface. If the atmospheric concentrations of these greenhouse gases rise, the average temperature of the lower atmosphere will gradually increase (EPA 2010).

Prominent GHGs contributing to the Greenhouse Effect include carbon dioxide (CO_2), methane (CH_4), ozone (O_3), water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). Human-caused emissions of these GHGs in excess of natural ambient concentrations are considered to be responsible for an increase in the Greenhouse Effect, which has led to a trend of unnatural warming of the Earth's climate, known global climate change (Intergovernmental Panel on Climate Change, 2007).

Emissions of GHGs contributing to global climate change have been attributed in large part to human activities associated with industrial/manufacturing, utility, transportation, commercial, residential, and agricultural sectors. One of the main sources of CO_2 in the atmosphere is the burning of fossil fuels for transportation and power generation, particularly in urban areas. Methane, a highly potent GHG, results from off-gassing associated with agricultural practices and landfills (EPA, 2010).

Processes that absorb CO_2, often referred to as sinks, include uptake by vegetation and dissolution into the ocean (Intergovernmental Panel on Climate Change, 2007).

Climate change is a global problem, and GHGs are global pollutants, unlike criteria air pollutants, which are pollutants of regional and local concern, respectively. The scientific community generally agrees that climate change will lead to adverse effects around the globe and that the phenomenon is anthropogenic, i.e., caused by humans. Thus, it is the increased accumulation of GHGs in the atmosphere that may result in global climate change that causes adverse environmental impacts.

Various local and federal initiatives to reduce contributions to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way and there is a real potential for severe adverse environmental, social, and economic impacts over the long term. Because every nation is an emitter of GHGs, and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help slow or stop human-caused increase in average global temperatures and associated changes in climatic conditions.

3.20.2 What is Executive Order 13514 and What Does it Require?

The *Executive Order 13514 Federal Leadership in Environmental, Energy, and Economic Performance* was signed on October 5, 2009. The purpose of Executive Order 13514 is to establish an integrated strategy towards sustainability in the Federal government and to make reduction of GHGs a priority for Federal agencies. Executive Order 13514 expands on the energy reduction and environmental performance requirements for Federal agencies identified in *Executive Order 13423 Strengthening Federal Environmental, Energy and Transportation Management*.

Executive Order 13514 lays out the following numerical targets for Federal agencies:

- Reduce petroleum consumption by 2% per year through fiscal year 2020 (applies to agencies with
- fleets of more than 20 vehicles) (assumes a baseline fiscal year 2005).
- Reduce by 2% annually:
    - Potable water intensity by fiscal year 2020 (26% total reduction) (assumes a baseline fiscal year 2007).
    - Industrial, landscaping, and agricultural water intensity by fiscal year 2020 (20% total reduction) (assumes a baseline fiscal year 2010).
- Achieve 50% or higher diversion rate:
    - Non-hazardous solid waste by fiscal year 2015.
    - Construction and demolition materials and debris by fiscal year 2015.
- Ensure at least 15% of existing buildings and leases (>5,000 gross square feet) meet the Guiding Principles by fiscal year 2015, with continued progress towards 100%.
- Ensure 95% of all new contracts, including non-exempt contract modifications, require products and services that are energy-efficient, water-efficient, bio-based, environmentally preferable, non-ozone depleting, contain recycled-content, non-toxic or less-toxic alternatives.

Executive Order 13514 also sets non-numerical targets that Federal agencies must reach, including:

- Increase renewable energy and renewable energy generation on agency property.
- Pursue opportunities with vendors and contractors to reduce GHG emissions (i.e., transportation options and supply chain activities).
- Reduce building energy intensity.

- Ensure all new Federal buildings that enter the planning process in 2020 and thereafter are designed to achieve zero-net-energy standards by 2030.
- Use low GHG emitting vehicles, including alternative fueled vehicles, and optimize the number of vehicles in agency fleets.
- Implement water management strategies including water-efficient and low-flow fixtures.
- Implement source reduction to minimize waste and pollutant generation.
- Decrease use of chemicals directly associated with GHG emissions.
- Participate in transportation planning and recognize existing infrastructure in regions/communities.
- Ensure procurement preference for Electronic Product Environmental Assessment Tool (EPEAT)-registered electronic products.

In addition to these targets, Executive Order 13514 calls for specific management strategies to improve sustainability including:

- Develop and implement innovative, agency-specific policies and practices to reduce scope 3 GHG emissions in agency operations.
- Manage existing buildings to reduce energy, water, and materials consumption.
- Implement and achieve objectives in EPA's Stormwater Management Guidance (§14).
- Reduce paper use and acquire paper containing at least 30% postconsumer fiber.
- Minimize the acquisition, use, and disposal of toxic and hazardous materials.
- Employ environmentally sound practices for the disposition of all agency excess or surplus electronic products.
- Procure Energy Star and Federal Energy Management Program (FEMP)-designated electronic equipment.

- Continue implementation of existing Environmental Management System (EMS) programs.

3.20.3 What are the Sources of Carbon Dioxide and Other Greenhouse Gas on the Project Site?

Sources of carbon dioxide and other heat-trapping gases within the site include lawn mowers and other landscape equipment used to maintain the NAC campus. Additionally, employees and visitors using passenger vehicles to travel to the site, as well as delivery trucks, generate carbon dioxide as their principal waste product. The operation of buildings, through the use of heat in the winter, air conditioning in the summer, and electricity throughout the year, also generates greenhouse gases.

Current Energy Use and Environmental Performance of NAC Buildings

The Nebraska Avenue Complex contains 17 buildings and one gate constructed between 1916 and 1952. The site also contains numerous buildings built between 1953 and 2009 (NAC Land Use Feasibility Study, 2009). Due to their age, the older facilities do not necessarily operate at a high level of energy efficiency, although they have undergone modernization. Major upgrades to the existing buildings occurred in 1995, including the replacement of mechanical systems, refrigeration, air-handling and electrical systems. Still, most of the historic structures on the site lack insulation which could leave the buildings largely ineffective when it comes to heating and cooling the structures. To date, no energy audit is known to have occurred on the site in order to determine areas where energy use may be reduced. Table 3-42 displays annual energy use per GSF at the NAC between 2006 and 2009. The NAC began to house the DHS in April 2005; therefore, annual data is unavailable prior to 2006. Between 2006 and 2009, the NAC used an average of approximately 121,000 BTU/GSF (35 kWh/GSF). This is greater than the benchmark for electricity usage per square foot for a standard office building in the region as provided by the

DOE (DOE 2010), indicating that the current buildings at the NAC are likely inefficient and could benefit from modernization.

Table 3-42 NAC Annual Energy Use per GSF, 2006 - 2009

Year	Annual Energy Use per GSF (BTU/GSF)
2006	94,871
2007	120,308
2008	137,142
2009	131,996
Average	121,079

Source: GSA, 2010.

Potable water use within a building or campus is also an important element of the building or site's environmental performance. Potable water is typically used within a building's plumbing system (toilets, bathroom and kitchen sinks, showers, and dishwashers) and landscape irrigation system. Table 3-43 displays annual water use per GSF at the NAC between 2007 and 2009. Between 2007 and 2009, the NAC used an average of approximately 26 gallons of water per GSF.

Table 3-43 NAC Annual Water Use per GSF, 2007 - 2009

Year	Annual Water Use per GSF (Gal/GSF)
2007	31
2008	23
2009	25
Average	26

Source: GSA, 2010.

3.20.4 What Measures and Policies are Currently in Place at the Project Site that Reduce GHG Emissions and Contribute to Greater Site Sustainability?

There are a number of measures and policies currently in place at the NAC that have an impact on the GHG emissions associated with the NAC. As mentioned in Section 3.12, Transportation, DHS operates four shuttle routes that provide direct access to the NAC site. Each shuttle has the capacity to hold 20-24 people. One of the routes, the Tenleytown Shuttle Route, provides express service between the NAC site and the Tenleytown-AU Metrorail station. This route operates Monday – Friday from 7 a.m. to 7:45 p.m. (Kimley-Horn and Associates 2010). The Tenleytown-AU Metrorail station is located approximately .75 miles from the NAC site. Several Metrobus routes also service the NAC site and surrounding neighborhoods. Each of these options potentially enable NAC employees to travel to work without using a personal automobile, likely reducing the use of fossil fuels associated with their commute trip.

GSA is in the process of improving bicycling facilities at the NAC in order to further enable employees to travel to work without using a personal automobile. Upon completion (tentatively January 2012), there will be three bicycle racks on site. There are also 20 shower facilities, scattered in various buildings throughout the campus.

In terms of climate benefits, waste prevention is generally the best management option. Recycling is the next best approach. The NAC follows the government guidelines for recycling. There are recycling stations within offices, as well as in common areas where feasible in each building. The site custodial contractor is responsible for collecting recycled materials, including aluminum cans, plastic bottles, white paper, shredded classified paper and card board boxes. The recycle vendor picks the materials up once a week; shredded paper is picked up monthly.

Municipal water systems require a lot of energy to purify and distribute water to households and businesses; therefore, saving water, especially hot water, can lower greenhouse gas emissions. The NAC site employs an irrigation system for watering landscaped areas. It is suspected the system uses potable drinking water from D.C. Water, which services the site. However, this information is unconfirmed. In the event the irrigation system does use potable drinking water, it would represent an opportunity area for future resources conservation.

Pumping of storm runoff consumes energy. Where storm and sanitary sewers are combined, sending stormwater into the system may increase the energy needed to pump and treat wastewater. Furthermore, where there is less runoff, less stormwater infrastructure needs to be built. This saves the energy and greenhouse gas emissions that would have been needed for construction. For these reasons, stormwater management techniques are also important in order to reduce GHG emissions. They are also an important component of site sustainability as reducing stormwater runoff can improve the water quality and reduce streambank erosion. The stormwater management techniques employed at the NAC are discussed in Section 3.13.

3.20.5 How Would Global Climate Change and Sustainability Be Affected by the Proposed Action?

No Action Alternative

As the site would remain in its current form, adverse impacts to climate change would occur as a result of the No Action Alternative. The current buildings on site are energy inefficient and these buildings in their current state would persist. The absence of low-impact development practices or green infrastructure on the site to help control stormwater quantity and improve water quality would also persist.

Waste management and recycling strategies would also remain unchanged. Non-hazardous solid waste disposal on the NAC site would continue to be handled according to GSA policies and procedures. Trash would be collected in appropriately-placed receptacles throughout the buildings; rubbish would be removed from the receptacles on a regular basis and transported to dumpsters located outside of each building. The waste would then be picked up and transported by a GSA contractor to an off-site location for proper disposal. The amount of waste generated by the NAC facilities would have no known adverse impact on the waste handled at these disposal facilities. General waste would not be created during construction or demolition since no construction or demolition would take place under this alternative.

Alternatives A, B, and C

In the short-term, construction of new buildings and site amenities in each alternative would have a minor, adverse impact on climate change and site sustainability that would not persist following the completion of construction. Equipment and vehicles used for site preparation, grading, and construction typically burn fossil fuels. Construction materials such as concrete, wood, and steel require the use of fossil fuels for preparation and transportation. Further detail on the type of construction equipment and building materials is unknown at this time.

Under the three action alternatives, emissions of greenhouse gasses (GHG) would have a minor adverse impact on global climate change as estimated emissions would be slightly greater than the 25,000 metric tons/year indicator level as described in the CEQ draft guidance memo (see Air Quality Section 3.18). Long-term, beneficial impacts to sustainability would also occur through increased employment of sustainable practices and techniques.

Despite the increase in total square footage of buildings at the NAC under each alternative, total building energy use could decrease in the long-term. Not only would the existing buildings be reused but they would be revitalized and enhanced in order to improve energy efficiency. New construction would meet GSA's LEED Gold requirement, at a minimum. Furthermore, EO 13514 requires all new Federal buildings that enter the planning process in or after 2020 to be designed to achieve zero-net-energy standards by 2030. Depending on the date of construction, many of the new buildings at the NAC may also meet this requirement, furthering reducing the NAC's energy use and carbon footprint.

The increase in the number of trees on-site and the installation of green roofs would also help reduce the use of building air conditioning and heat. Green roofs also have water quantity control and water quality benefits. Each alternative would utilize green roofs in the building design:

- Under Alternative A, a total of approximately 28,500 GSF of vegetated green roof space would be installed across portions of four buildings.
- Under Alternative B, a total of approximately 133,250 GSF of vegetated green roof space would be installed across portions of six buildings and the site's new multi-level parking deck.
- Under Alternative C, a total of approximately 239,960 GSF of vegetated green roof space would be installed across portions of three buildings and the site's new multi-level parking deck.

As the existing 1,239 parking spaces would be reduced under all alternatives and assuming the TMP would be implemented, the number of single-occupancy vehicle trips to the site could decrease as a result. This would help to lower the site's GHG emissions. Bicycle racks and shower facilities would also be available on campus to

Zero-Net-Energy Building: A building that is designed, constructed, and operated to require a greatly reduced quantity of energy to operate, meet the balance of energy needs from sources of energy that do not produce greenhouse gases, and therefore result in no net emissions of greenhouse gases and be economically viable (EO 13514, Section 19).

Carbon footprint: A measure of the greenhouse gases that are produced by activities of a person, a family, a school or a business that involve burning fossil fuels (EPA Climate Glossary).

encourage alternative modes of transportation to the site. However, the number of truck trips for deliveries would likely remain the same or increase. The use of landscape equipment to maintain the NAC campus would also likely remain the same as the No Action Alternative.

Under the three action alternatives, impacts to waste management would occur primarily through increased waste generation due to additional development and employees on the site. However, the current non-hazardous solid-waste recycling program would be expected to expand in order to meet with EO 13514's target of a 50% or higher non-hazardous solid waste diversion rate by fiscal year 2015.

3.20.6 What Measures Should be Put into Place to Mitigate Impacts on Climate Change and Sustainability?

GSA should take every opportunity to minimize the environmental impacts of construction activities through mitigation measures and promote the long-term sustainability of the site through the incorporation of low-impact development, energy efficiency, renewable energy, and alternative transportation practices to the greatest extent feasible and financially practical. In particular, an energy feasibility study should be completed for the Master Plan, and a thorough energy audit of all existing buildings should be performed and energy efficiency measures identified and implemented under all alternatives, including the No Action Alternative, in order to decrease current energy use on-site. As the new buildings are designed, an emphasis should also be placed on building energy efficiency and energy production through renewable avenues, such as solar panels or geothermal heating and cooling systems. Water should also be captured and reused on-site, wherever feasible, within the landscape and within non-potable water systems (for example, toilets and cooling systems).

3.21 CUMULATIVE IMPACTS

3.21.1 What are the Cumulative Impacts and Why are They Discussed?

Federal agencies are required to assess the cumulative impacts of federal projects during the decision making process. Cumulative impacts are defined as:

> "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7).

This is an important analysis as in many cases the majority of environmental impacts do not result from directly from a single action, but rather they are the result of the combination of multiple actions over time. Therefore, this section of the EIS provides a description of the cumulative impacts that the proposed action, combined with other projects in the area, may have on the human environment.

3.21.2 What Past, Present, and Future Projects Could Contribute to Cumulative Impacts?

American University Master Plan

The American University (AU) campus is located across Nebraska Avenue and Ward Circle from the NAC. In January 2009, the University released its 2010-2011 Strategic Plan, which indicated one of the university's top priorities will be the alignment of the school's comprehensive facilities plan and new campus master plan. This campus master plan is currently under development by the planning and architecture firm, McKissack & McKissack of Washington, D.C., and the draft plan was released for community review in October 2010. The campus plan is scheduled to be filed with the DC Zoning Commission at the end of 2010 for formal review, public hearings, and approval (American University website). A brief, preliminary release of information from the 2011 Campus Plan Community Task Force meeting on May 25, 2010, and the Draft Master Plan released in October 2010 indicate the new American University Master Plan would propose the expansion of facilities on its main campus. The expanded facilities most relevant to the NAC Master Plan would include the addition of 56,000 square feet of building space at Nebraska Hall, a residence hall across Nebraska Avenue from the NAC site. The University is also proposing the construction of a future academic/administrative building with parking below on what is now a large surface parking lot across Massachusetts Avenue from the NAC site, as well as the construction of the "East Campus Residence Halls"—274,600 square feet of new housing, retail, meeting and activity space, and underground parking on the other half of the large surface parking lot across Massachusetts Avenue from the NAC site. The meeting presentation indicated applications for the Nebraska Hall addition and East Campus buildings would be filed at the same time as the 2011 Campus Plan and the future academic/administrative building would be less immediate. The following June 22, 2010, meeting of the same task force group provided an overview of transportation impacts of East Campus development; parking in the area would decrease but pedestrian activity would increase.

DC Neighborhood Sustainability Indicators Project (NSIP)

The District's NSIP is a community initiative that gives residents an opportunity to define sustainability in a way that is meaningful to them and their neighborhoods. Citizens define sustainability, create a vision for their neighborhoods and set goals and objectives in order to achieve that vision. After neighborhood priorities are set, they can be tracked and measured through indicators that relate to their achievement. For example, if a more bicycle-friendly community is desired then indicators might include the number of bike racks or bike lanes available in the area. The pilot project area is adjacent to the Nebraska Avenue Complex site in

Northwest, Washington D.C., and includes the neighborhoods of North Cleveland Park, Van Ness, and Forest Hills. The project began in September 2009 and released its draft reports (vision, goals, objectives, indicators, public process) for public comment in October 2010.

Glover Park Commercial District Study

The DC Office of Planning completed the Glover Park Commercial District Study for the Glover Park community in Ward 3 in October 2006. The plan provides a strategy to create a more vibrant commercial district including improvements to the streetscape, public realm, and parking on Wisconsin Avenue. The study area includes Wisconsin Avenue from Calvert Street down to Whitehaven Parkway to the south and is approximately 1.5 miles from the NAC site.

New Tenleytown Library (4450 Wisconsin Avenue, NW)

The Tenley-Friendship Library is being rebuilt and construction is underway (DCOP 2010). Library services are currently being provided at an interim library at 4200 Wisconsin Avenue, NW. The new two-story library will open in December 2010. The new library will feature:

- Separate spaces for adults, teens, and children
- Space for 80,000 books, CDs, DVDs and other library materials
- Comfortable seating for 200 customers
- 32 public access computers and free Wi-Fi Internet access
- A large programming room for 100 people
- Two conference rooms
- Five quiet study rooms

The library is located near the Tenleytown Metrorail Station, approximately three-quarters of a mile from the NAC site.

3.21.3 What Cumulative Impacts Could Result from the Proposed Action?

Stormwater Management

As new development at AU and the NAC must adhere to stricter environmental regulations, is proposed to occur on existing parking lots, and may include such features as green roofs, new development is likely to increase pervious surfaces and would contribute to a cumulative beneficial impact on stormwater quality in the long-term.

Climate Change

The NAC site improvements and new buildings would enhance overall site sustainability and would potentially positively impact climate change through a reduction of energy use due to efficiency improvements of existing buildings despite the increase in GSF on site. When considered together with NSIPP, there would be a beneficial cumulative impact to global climate change and sustainability within the neighborhood.

Transportation

Depending on the time of improvements to Glover Park and the extent of construction, as well as new development proposed for AU under the Master Plan, new development and site improvement would have a cumulative, adverse impact on road congestion in the short-term due the increase of construction vehicles in the area. In the long-term, improvements to Glover Park and additional buildings at AU may also contribute to a cumulative adverse impact on traffic congestion. However, if the improvements of the Glover Park streetscape include pedestrian and bicycle infrastructure and if the AU campus continues to implement appropriate transportation demand management techniques, these impacts would be reduced. Furthermore, bicycle sharing station at the Tenleytown-AU Metrorail station provide another travel choice for public transportation users to access the site. Planned multi-use trails along Nebraska Avenue and Massachusetts Avenue, as identified in the 2005 District of Columbia Bicycle Master Plan, would also improve bicycle access to the site.

Air Quality

In the short-term, the new development proposed at AU and new improvements to Glover Park would have a cumulative, adverse impact on air quality due the increase of construction vehicles and equipment in the area. In the long-term, improvements to Glover Park and additional buildings at AU may also contribute to a cumulative adverse impact on air quality impacts due to increased vehicles in the areas. As discussed above, appropriate transportation demand management techniques are put into place and alternative forms of transit are encouraged, these impacts would be reduced.

Noise

In the short-term, AU and the NAC should coordinate their improvements to reduce noise impacts on the surrounding community due to construction. If construction of both projects coincides, adverse noise impacts would be accentuated, as construction equipment may be utilized concurrently.

3.22 ARE THERE ANY UNAVOIDABLE ADVERSE IMPACTS ASSOCIATED WITH THIS PROJECT?

Each of the action alternatives would have short-term, adverse impacts on a variety of resources, including the soundscape due to construction noise, air quality, and transportation resources. In addition, the alternatives could have long-term, adverse impacts on historic resources. These impacts are considered unavoidable.

3.23 WHAT RELATIONSHIPS EXIST BETWEEN THE SHORT-TERM USES OF THIS PROJECT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY?

The short-term impacts would occur during the period of project construction and include noise and air pollution, decrease in water quality, loss of vegetation, and traffic delays. These impacts would be largely temporary, and proper controls would be utilized to prevent these impacts from having a lasting effect on the environment.

3.24 ARE THERE ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES ASSOCIATED WITH THIS PROJECT?

Irreversible commitments of resources are actions that result in the permanent loss of resources. Irretrievable commitments of resources are actions that result in the loss of resources for a period of time. Under each of the action alternatives, existing vegetation would be lost. While additional trees and vegetation would also be added to the site, increasing the vegetated cover on-site overall, the loss of specific individual specimens would be permanent. Excavation of soils would occur in each of the action alternatives, resulting in a loss of those soils; however although building square footage would increase, the amount of impervious surfaces would decrease in each action alternative. In addition, the demolition of Building 5, a contributing element to the National Register-eligible historic district, would result in the permanent loss of historic resources. If Buildings 15 and 18 are determined to be contributing in the final National Register nomination, their demolition would also be an irreversible impact.

A commitment of fuel and energy would be required to construct new and renovate existing buildings, as well as upgrade the landscape, under each alternative. Materials would also be committed during the construction period. Each of these resources would be irretrievably committed.

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7.0 ACRONYMS AND ABBREVIATIONS

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7.1 ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ACM	Asbestos Containing Materials
ADA	Americans with Disabilities Act
ANC	Advisory Neighborhood Commission
APE	Area of Potential Effect
AST	Above-ground Storage Tank
ASTM	American Standard for Testing and Materials
AU	American University
BMP	Best Management Practice
BTU	British Thermal Unit
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESQG	Conditionally Exempt Small Quantity Generators
CFA	Commission of Fine Arts
CFC	Chlorofluorocarbons

CFR	Code of Federal Regulations
CLR	Cultural Landscape Report
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CSO	Combined Sewer Outflow
CWA	Clean Water Act
dB	Decibels
DC	District of Columbia
DCDHP	District of Columbia Department of Historic Preservation
DCDOH	District of Columbia Department of Health
DCDPW	District of Columbia Department of Public Works
DCFEMS	District of Columbia Fire and Emergency Medical Services
DCMR	District of Columbia Municipal Regulations
DCOP	District of Columbia Office of Planning
DCRA	Department of Consumer and Regulatory Affairs
DCPS	District of Columbia Public School System
DDOE	District of Columbia Department of Environment

DDOT	District Department of Transportation
DCOZ	District of Columbia Office of Zoning
DHS	Department of Homeland Security
DOD	(US) Department of Defense
DOE	(US) Department of Energy
ECP	Environmental Condition of Property
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act of 2007
EJ	Environmental Justice
EO	Executive Order
ETC	Employee Transportation Coordinator
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
GHG	Greenhouse Gas
GPD	Gallons Per Day
GSA	General Services Administration
GSF	Gross Square Feet
HTHW	High Temperature Hot Water

ISC	Interagency Security Committee
JMA	John Milner Associates
kV	Kilovolt
kW	Kilowatt
LBP	Lead-Based Paint
LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
LOS	Level of Service
LUST	Leaking Underground Storage Tank
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPD	Metropolitan Police Department
MPO	Metropolitan Planning Organization
MSL	Mean Sea Level
MS4	Municipal Separate Storm Sewer System
MTFA	MTFA Architecture, Inc.
MVA	Megavolt-Amperes
MW	Megawatt

MWAQC	Metropolitan Washington Air Quality Committee
MWCOG	Metropolitan Washington Council of Governments
NCR	National Capital Region
NAC	Nebraska Avenue Complex
NAAQS	National Ambient Air Quality Standards
NCPC	National Capital Planning Commission
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NOI	Notice of Intent
N_2O_2	Nitrous Oxide
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxide
NPDES	National Pollution Discharge Elimination System
NPL	National Priority List
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

NSIP	DC Neighborhood Sustainability Indicators Project
NWI	National Wetland Inventory
O_3	Ozone
OP	District of Columbia Office of Planning
OWS	Oil-Water Separator
Pb	Lead
PBS	Public Buildings Service
PCB	Polychlorinated Biphenyls
PCP	Pentachlorophenol
PEPCO	Potomac Electric Power Company
PHR&A	Patton Harris Rust & Associates
PM	Particulate Matter
PVC	Polyvinyl Chloride (pipe)
ROD	Record of Decision
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	Sulfer Dioxide
SOP	Standard Operating Procedure

SOV	Single Occupancy Vehicle
SQG	Small Quantity Generator of hazardous waste
TDA	Temporary Discharge Authorization
TMDL	Total Maximum Daily Loads
TMP	Transportation Management Plan
TSCA	Toxic Substances Control Act
UDC	University of the District of Columbia
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDHHS	United States Department of Health and Human Services
USEPA	United States Environmental Protection Agency
USFWS	United State Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
VCP	Vitrified Clay Pipe
VOC	Volatile Organic Compound
WMATA	Washington Metropolitan Area Transit Authority

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