



November 2, 2018

Mr. Marcel C. Acosta
Executive Director
National Capital Planning Commission
401 9th Street, NW, Suite 500
Washington, DC 20004

RE: Request for Final Review of the Final Master Plan for FDA Headquarters Consolidation

Dear Mr. Acosta:

The U.S. General Services Administration (GSA) is submitting a Final Master Plan and a Final Transportation Management Plan (TMP) for the U.S. Food and Drug Administration (FDA) Headquarters at the Federal Research Center (FRC) at White Oak, located in Silver Spring, MD. We respectfully request a final review by the Commission at its December 6, 2018 meeting.

As part of this Master Plan, the GSA, on behalf of FDA, prepared a Final Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality Regulations (40 CFR 1500-1508). The Final EIS was available for a 30 day public review period September 14, 2018 - October 15, 2018 to regional stakeholders and the public.

Additionally, GSA implemented Section 106 consultation with the Maryland Historical Trust.

In accordance with your submission requirements for review, a hard copy and CD of the submission documents were provided to the NCPC Project Officer by mail. Arrangements have been made to submit the Memorandum of Agreement (MOA) and Final Record of Decision (ROD) within the next few weeks, prior to the December 6, 2018 meeting.

If you have any questions, please contact Ms. Shelly W Jones at (202)-969-5505.

Sincerely,

A handwritten signature in blue ink, appearing to read "Mina Wright".

Mina Wright
Director, Office of Planning and Design Quality



**2018 Master Plan for the Consolidation of the U.S. FDA
Headquarters at the Federal Research Center at White
Oak Located in Silver Spring, Maryland**

September 2018

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PROJECT TEAM

Contract Holder



Client Agency



Project Management



Master Planning



Civil/ Environmental/
Transportation



Historic Preservation



Cost Estimating



NOMENCLATURE

The following terms and abbreviations may be used throughout this report:

• ALC: Adelphi Laboratory Center (Army Research Center)	1	• MRC: Muirkirk Road Campus	21
• AEDC: Arnold Engineering Development Complex (Air Force Wind Tunnel Facility)	2	• NCPC: National Capital Planning Commission	22
• BRT: Bus Rapid Transit	3	• NOL: Naval Ordnance Laboratory	23
• CUP: Central Utility Plant	4	• NSWC: Naval Surface Warfare Center	24
• DUP: District Utility Plant	5	• NSF: Net Square Footage	25
• EIS: Environmental Impact Statement	6	• SF, sf, ft2: Square Feet	26
• FAR: Floor Area Ratio	7	• SQM, m2: Square Meters	27
• FDA: Food and Drug Administration	8	• SP: Parking Spaces	28
• FRC: Federal Research Center	9	• SW: Stormwater	29
• GSA: General Services Administration	10	• SWM: Stormwater Management	30
• GSF: Gross Square Footage	11	• SVB: Stream Valley Buffer	31
• Housing: In the context of FDA, housing refers to provision of employee work location	12		32
• LUFS: Land Use Feasibility Study	13		
• M-NCPPC: Maryland National Capital Park and Planning Commission	14		
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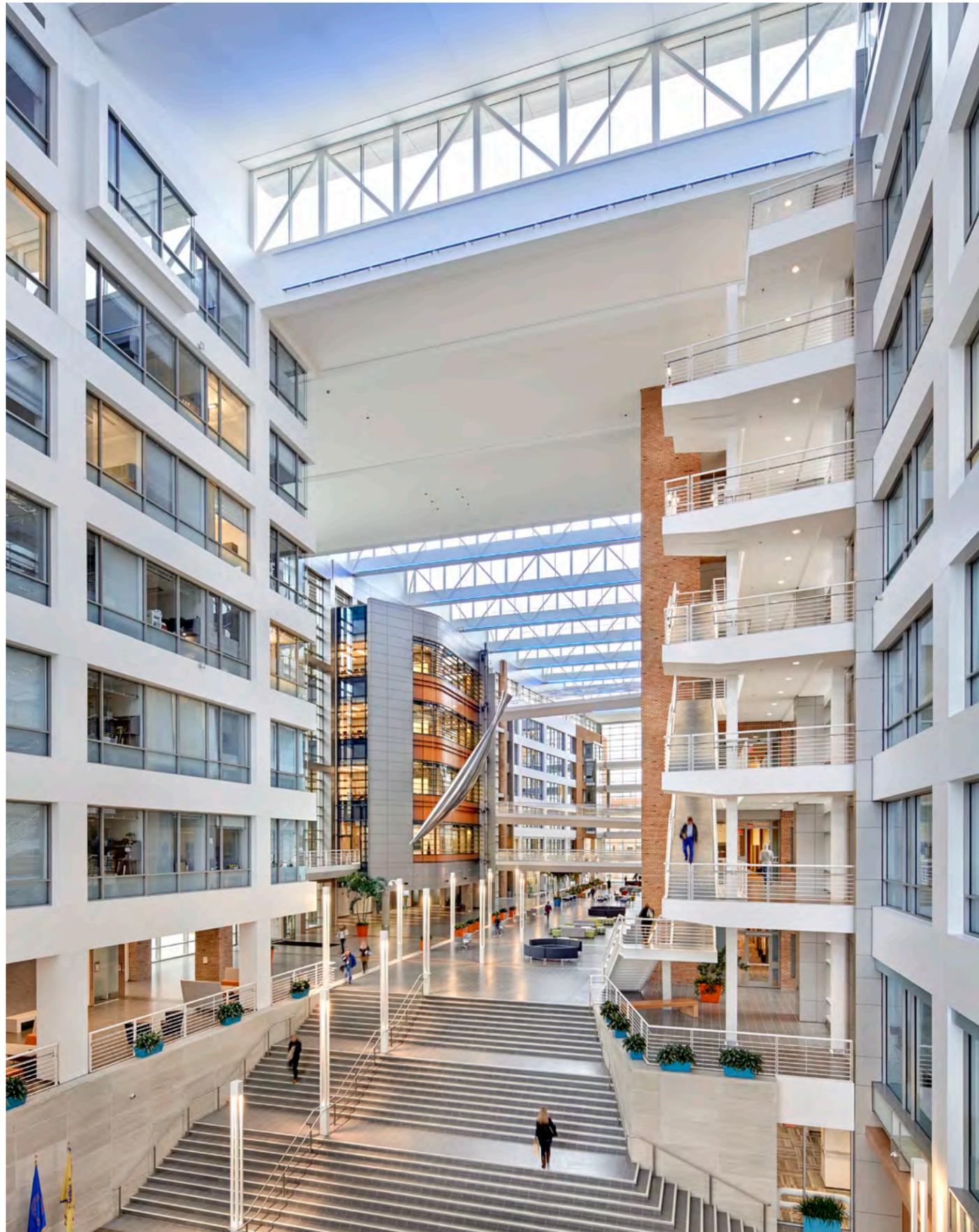


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FDA Mission

The Food and Drug Administration is responsible for protecting the public health by ensuring the safety, efficacy, and security of human and veterinary drugs, biological products, and medical devices; and by ensuring the safety of our nation’s food supply, cosmetics, and products that emit radiation.

FDA also has responsibility for regulating the manufacturing, marketing, and distribution of tobacco products to protect the public health and to reduce tobacco use by minors.

FDA is responsible for advancing the public health by helping to speed innovations that make medical products more effective, safer, and more affordable and by helping the public get the accurate, science-based information they need to use medical products and foods to maintain and improve their health.

FDA also plays a significant role in the Nation’s counterterrorism capability. FDA fulfills this responsibility by ensuring the security of the food supply and by fostering development of medical products to respond to deliberate and naturally emerging public health threats.

FDA Facilities

To effectively support the FDA mission, FDA’s facilities must promote internal collaboration across multiple functional areas and facilitate advanced operational models that spur innovation by interdisciplinary teams. The location and configuration of FDA’s facilities directly affect FDA’s ability to collaborate across scientific disciplines and product

centers and realize the innovation and efficiencies that collaboration spurs. These innovations and efficiencies are particularly important as the products that the FDA regulates are becoming increasingly complex. Strategically locating and configuring facilities to improve opportunities for collaboration supports the function of integrated scientific teams, while, conversely, dispersing scientific expertise reinforces individual silos. Facilities that promote collaboration stimulate innovation and enhance FDA’s ability to tackle critical public health challenges, such as combating the national opioid epidemic and fostering increased medical product choice and competition for patients.

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**OVERVIEW
& EXISTING
CONDITIONS**

1. OVERVIEW & EXISTING CONDITIONS

1.1 Executive Summary

The 2018 Master Plan for the Consolidation of the U.S. FDA Headquarters at the Federal Research Center at White Oak Located in Silver Spring, Maryland is a comprehensive master plan that prepares the FDA Headquarters for additional capacity. The U.S. General Services Administration (GSA) is continuing to consolidate the U.S. Food and Drug Administration (FDA) Headquarters facilities at the Federal Research Center (FRC) in the area of Silver Spring, Maryland known as White Oak. White Oak is a consensus-designated place and unincorporated area in Montgomery County that extends well beyond the FRC. Within White Oak and surrounding the FRC site are a variety of uses, including a suburban shopping center that will eventually be redeveloped; garden apartments; parks; Viva White Oak, a major mixed-use planning initiative; a major army research laboratory; and suburban housing developments.

The FRC is occupied by both the FDA and Air Force's Wind Tunnel. FDA currently encompasses 130 acres of the 662-acre FRC and is the largest tenant. The Air Force's Wind Tunnel occupies approximately 40 acres within the FRC. Except for a few miscellaneous structures, most of which are abandoned, much of the FRC is undeveloped as it is an environmentally sensitive site with steep stream valley buffers that

1 feed into the Paint Branch Creek. 30
31
2 Plans to house FDA at FRC began in the mid-1990's 32
3 after GSA took over what was formerly the Naval 33
4 Ordnance Laboratory through the Base Realignment 34
5 and Closure (BRAC) process. The first Master Plan 35
6 was approved by the National Capital Planning 36
7 Commission (NCPC) in 1997. There have been 3 37
8 updates to that Master Plan. The updates occurred 38
9 in 2002, 2006 and 2009. Currently, there is 10,982 39
10 FDA and GSA support staff assigned to the FDA 40
11 headquarters at the FRC housed in approximately 5.9 41
12 million GSF of offices, labs, parking garages, tunnels 42
13 and pedestrian bridges. 43
14
15 Due to new Congressional mandates, FDA is 44
16 projecting a significant increase in employees and 45
17 campus support staff at the FDA Headquarters. 46
18 Therefore, the 2018 Master Plan's purpose is to 47
19 plan for future growth and further consolidate 48
20 FDA operations. The Master Plan will provide 49
21 a framework for development at the FRC to 50
22 accommodate another 7,018 FDA employees and 51
23 support staff on site for a total population of 52
24 18,000 FDA employees and support staff. Preceding 53
25 the Master Plan, a Land Use Feasibility Study 54
26 was prepared that studied multiple development 55
27 strategies within the FRC and a Draft Master Plan 56
28 that developed three Master Plan Alternatives. 57
29 58



A Master Plan is needed to continue to support the FDA Headquarters consolidation at the FRC and provide the necessary office space to conduct the complex and comprehensive reviews mandated by Congress. To accommodate this increase in personnel, GSA is studying ways to more efficiently use and expand office and related space at the FDA Headquarters. In addition, infrastructure improvements will be needed to serve the increase in office space and campus population.

The implementation of the Master Plan for the FDA Headquarters includes the following:

- Development of an additional 1,550,000 GSF of office space and 280,000 to 350,000 GSF of special use space to support FDA's mission;
- Anticipating the implementation of bus-rapid-transit (BRT), parking would be provided at a ratio of 1 space for every 1.8 employees (1:1.8) for a total of 10,000 parking spaces for FDA employees and campus support staff; Visitor parking would be increased from 1,000 to 1,615 parking spaces; and

- East Loop Road would be configured to allow for ease of access into and out of the FDA Headquarters. In addition there will be off-site road improvements required.
- The proposed staff at the headquarters will result in increased demand for electrical, water, sewer, and HVAC services. As a result:
- New feeder lines will be required from PEPCO;
 - Incoming water lines are adequate to support the population;
 - New sewer service truck will be required and mitigation maybe required downstream; and
 - To support HVAC systems, either the Central Utility Plant will need to be expanded, or a new satellite facility will be required in the basement of one of the new buildings, or each individual building will need its own independent HVAC system.
- The expanded FDA Headquarters will be compatible with the architectural character and setting of the historic Naval Ordnance Laboratory through the

1 continuation of the massing and material strategy
2 established under previous Master Plans. The
3 Preferred Development Alternative for this master
4 plan features one 14-story and one 16-story office
5 building located on the eastern end of the FDA
6 Headquarters. In addition, mid-rise buildings,
7 infrastructure, and parking are added. The master
8 plan's extension of the campus frames the view to
9 the east and further activates the public greens, also
10 known as the Commons.

11
12 No historic resources will be physically affected by
13 the implementation of the Master Plan. However,
14 construction of high-rise towers under the Preferred
15 Development Alternative will create an adverse
16 effect to the historic visual setting of Building 1.
17 This will be mitigated through a Memorandum of
18 Agreement executed by GSA with the Maryland
19 State Historic Preservation Office.

20
21 Like many great campuses, FDA has a large
22 Commons that serves as both as the backbone and
23 focal point for the headquarters. Collaboration
24 and interaction is a core value within FDA, the
25 Commons serves an important role in promoting
26 these values within FDA. To accommodate the
27 growth of the headquarters, the majority of the new
28 development is on the eastern end of the Commons.
29 The development will both extend the Commons,
30 but also create a strong anchor while still framing
31 a view to the natural part of the FRC beyond. The
32 architecture and landscape have an important role
33 in making the space successful. As the architecture
34 define space, it needs to be compatible with the
35 existing buildings, reinforce FDA's image as a leading
36 institution, and embody design excellence. The
37 landscape is what will make the space habitual and
38 inviting to be in, as such it needs carefully executed
39 and ecologically responsive.
40



41
42 *Figure 1-1: Preferred Development Alternative. Refer to Chapter 3 for additional information.*

 New Development  Existing Buildings

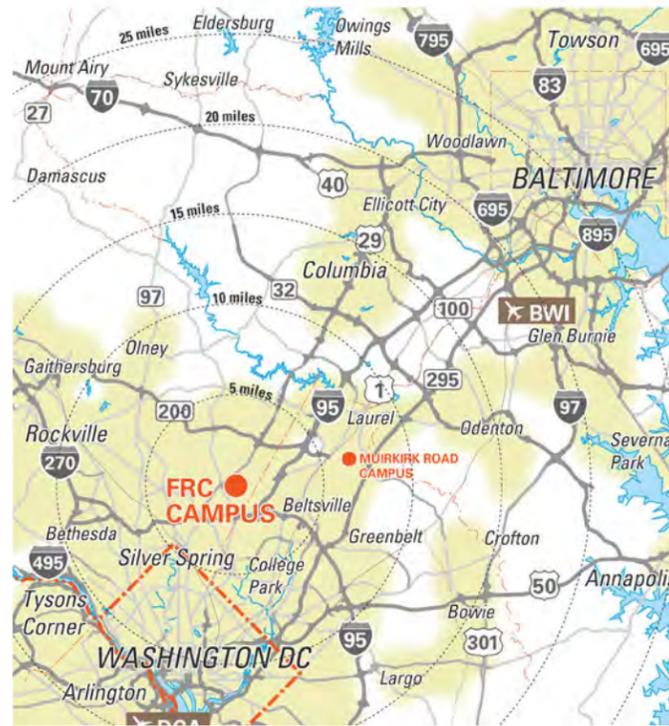


Figure 1-2: FRC Campus Location, housing the FDA Headquarters

WHAT IS THE DIFFERENCE BETWEEN THE FRC AND THE FDA HEADQUARTERS?

The FRC at White Oak is comprised of 662 acres of the former Navel Surface Warfare Center. The NSWC was transferred to GSA in 1996 and was renamed the Federal Research Center at White Oak.

The FDA Headquarters comprised the approximate 130-acre parcel within the FRC that Congress mandated FDA/GSA use to construct a new FDA Headquarters.

In this Master Plan, use of the term “FRC” refers to the entire 662-acre parcel and “FDA Headquarters” refers to the part of the FRC being used for the FDA Headquarters.

Please see Figure 1-10 for a graphic illustration.

1.2 Introduction

The purpose of the proposed action is to provide a Master Plan for the FDA Headquarters at the Federal Research Center (FRC) to support further consolidation of FDA employees and projected growth. Since the 2006 Master Plan was completed, additional authorities have been added to, and original authorities have expanded the FDA’s mission. The result is a significant increase in the personnel projected for the FDA Headquarters Program. Currently FDA has 10,987 assigned personnel to the FDA Headquarters with a peak daily population of 7,793. The current projected growth for FDA at the FRC site is approximately 7,018 additional employees and support staff, which includes funded staff vacancies, existing employees currently in leased space in Montgomery and Prince George’s counties, FDA support staff, and future growth projected by 2022. The Master Plan is being prepared to guide the development to accommodate a total of 18,000 FDA employees and support staff at the FDA Headquarters. The Master Plan will steer the planning, design, and construction of new buildings; improvements to roadways, utilities, and other infrastructure; and the protection of natural areas.

In fiscal year 2016, Congress provided funding “for FDA to complete a feasibility study and Master Plan for land inside and contiguous to the White Oak campus to address its expanded workforce and the facilities needed to accommodate them.” On August 3, 2017, Congress passed the FDA Reauthorization Act (FDARA) of 2017. This new legislation reauthorized the user fee programs necessary for continued support of the agency’s pre-market evaluation of prescription drugs, medical devices, generic drugs, and biosimilar products. Due to these Congressional mandates, FDA is projecting that there would need to be an increase in employees and campus support staff at the FDA Headquarters.



1997 Master Plan (NCPA Approval - June 26, 1997)



2002 Master Plan (NCPA Approval - July 7, 2002)



2006 Master Plan (NCPA Approval - July 6, 2006)



2009 Master Plan (NCPA Approval - December 3, 2009)

1.2.1 Project and Surrounding Areas

The FRC at White Oak is located at 10903 New Hampshire Avenue, Silver Spring, Maryland. The FRC is located east of New Hampshire Avenue (MD 650) and west of Cherry Hill Road in Montgomery and Prince George’s counties. The site is bounded to the north by commercial and residential properties, the Paint Branch Stream Valley Park, and the Percontee Quarry. To the south of the FRC lie the U.S. Army’s Adelphi Laboratory, residential properties, and the Powder Mill Community Park.

The 130-acre FDA Headquarters is located at the west end of the FRC. Figure 1-2 shows the location of the FRC location and the FDA Headquarters.

1.2.2 FDA Headquarters History

Master Plan History & Evolution

GSA helps Federal agencies build and acquire office space, products and other workspace services, and oversees the preservation of historic Federal properties. In this role, GSA has been consolidating the FDA Headquarters at the FRC at White Oak since 1997. The FDA Headquarters at the FRC currently



Figure 1-3: 2009 Master Plan

consists of the following components:

- Office of the Commissioner (OC)
- Center for Biologics Evaluation and Research (CBER)
- Center for Drug Evaluation and Research (CDER)
- Center for Devices and Radiological Health (CDRH)
- Center for Tobacco Products (CTP)

The 2018 Master Plan is the fifth iteration of the Master Plan for the Food and Drug Administration Consolidation at White Oak, Maryland. Outlined

below is brief history of the site.

Original Site - 1948: Acquired by the Navy in 1944, White Oak became the new home of the expanded Naval Ordnance Laboratory. The original campus was planned and designed for the site in 1946 and construction of the laboratory was completed in 1949. During the 1950s, 60s, and 70s, the campus population reached 4,000 employees before slowly declining in the 1980s and early 90s. In 1993, the site was transferred to GSA and the Navy research facility was reorganized and moved to another site.

1997: After site and building analysis, the former Naval Ordnance Laboratory site in White Oak, Maryland was selected to be the new home for the United States Food and Drug Administration. The original 1997 Master Plan outlined the consolidation of five FDA departments, 5,947 employees, which occupied forty-eight leased buildings in twenty various locations across the Washington metropolitan area to the White Oak site.

2002: The Master Plan of the FDA consolidation adapted the original NOL main building, Building One, as the FDA Office of Commissioner and the original fire station building as part of the new Central Utility Plant. All the other office and laboratory buildings were planned as new construction projects. The population was established at 6,256.

2006: By 2006, construction for phases I, II, and IIIA of the implementation plan had been completed. During these phases CDER I office building, Life Science Laboratory, and Central Shared Use building were completed and occupied by 1,896 employees. The North Garage with 831 parking spaces was also completed.

CDRH laboratory and CDER II office building were under construction.

The 2006 Master Plan Update increased the population from 6,256 to 7,719 and set new building footprints for office and laboratory.

2008: Prior to the 2009 Master Plan Update, the CDRH Laboratory, CDER II office building, CDRH office building, and Building One renovation were completed and over 4,300 employees worked on the headquarters. The Southwest Garage with 1,229 parking spaces was also completed. The OC/ORR office building was under construction along with the Northeast Garage that provides 1,158 parking spaces.

2009: The 2009 Master Plan Update included the following:

- A population increase from 7,719 to 8,889 FDA employees
- Updated phasing/implementation plans including updated building footprints and locations, status of occupancy, and revised future phases
- An updated Transportation Management Plan, including public transit approach and increased parking requirements because of the population increase and the NCPD required employee parking ratio of 1 parking space for every 1.5 employees
- An updated headquarters-wide security plan, including revised Truck Screening Facility and Distribution Center
- Relocation of the Child Care Center and Fitness Center to the SW quadrant
- A revised Landscape Master Plan
- An updated utility distribution concept due to the status of utility capacities and future capacity requirements.
- An updated approach to environmental issues, including energy efficiency, sustainability, stormwater management, and tree/forest conservation
- Increased visitor parking from 500 spaces to 1,000 spaces based on updated demand projections and increased density

The 2009 Master Plan Update maintained the vision of the original Master Plan and previous updates in terms of overall campus design and architectural character and served to guide the project toward its final completion within the established framework. Since the 2009 Update, driven by a Presidential Directive, the population of the headquarters has increased to 10,987. This figure includes not only FDA employees, but also GSA support staff. The increase in density has been accomplished not by adding buildings but lowering the utilization rate to 170 net square footage per person for office

space only. In fact, several buildings approved in the 2009 Master Plan Update have not been built. See figure 1-9. While the overall employee count is higher than the 2009 Master Plan Update, the peak population on campus is below 8,000. This has been accomplished through FDA's TMP that includes robust telecommuting.

1.2.3 Planning Process

The planning process resulting in this Master Plan for the FDA Headquarters at the FRC began in early 2017. The development of the Master Plan was supported by three major project components:

1. The Land Use Feasibility Study (LUFS) was completed in Spring 2017 and provided a high level assessment on the feasibility of the FRC site and infrastructure to accommodate additional FDA staff. It put forward a series of development options and identified related costs.
2. Through the National Environmental Policy Act (NEPA) compliance process, development of the master plan in relation to environmental considerations occurred. A public scoping period occurred in the Fall of 2017. Scoping helped to identify issues that should be addressed in the Environmental Impact Statement (EIS). At the same time, technical studies were conducted. The technical studies were used to help assess the impacts that would occur from implementation of the Master Plan. A Draft EIS was issued in March 2018 and a Final EIS will be issued in August 2018.
3. Compliance with Section 106 of the National Historic Preservation Act (NHPA) was coordinated with the NEPA compliance process to identify, assess and resolve potential adverse effects to historic structures or landscapes. A Memorandum of Agreement (MOA) among the GSA, Maryland State Historic Preservation Office, with input from other Consulting Parties, was executed in advance of the Final Master Plan. The Advisory Council on Historic Preservation participated in consultations, but is not a

1 signatory.
 2 The planning process considered a range of
 3 options for proposed development at the FRC
 4 leading to four Draft Development Alternatives
 5 presented in the Master Plan. Other options for
 6 development have not been further studied due to
 7 various environmental constraints, loss of collegial
 8 atmosphere, and connectivity to the existing
 9 headquarters.
 10

11 Comments received on the draft Master Plan and
 12 through consultation with Federal, state, and county
 13 agencies informed the GSA planning process. In
 14 compliance with NEPA, at the conclusion of the
 15 Final Environmental Impact Statement, a Record
 16 of Decision (ROD) outlined the selected alternative
 17 for the Master Plan and described measures to
 18 mitigate any potential environmental impacts from
 19 implementation of the Master Plan.
 20

1.2.4 Related Studies

- 21 • Phase 1 Archaeological investigations Associated
 22 with the U.S. Food and Drug Administration
 23 Federal Research Center Master Plan,
 24 Montgomery County Maryland, September 2017
- 25 • Wetland Investigation Report, Fall 2017
- 26 • Forest Stand Delineation Report, Fall 2017
- 27 • Water System Capacity Evaluation, Stantec,
 28 January 2018
- 29 • Draft 2018 FDA Federal Research Center Master
 30 Plan, March 2, 2018
- 31 • Transportation Management Plan (TMP), June 2018
- 32 • Traffic Technical Report, June 2018
- 33 • FDA White Oak Campus Visitor Parking Demand
 34 Memo from Stantec to GSA, July 2018
- 35 • Final Environmental Impact Statement (EIS),
 36 August 2018
- 37 • Final Land Use Feasibility Study (LUFS), August
 38 2018
- 39 • Air Quality Technical Report, Winter 2018
- 40 • Traffic Technical Report, Winter 2018
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- ### 1.3 Master Plan Goals & Objectives
- Image & Mission.** Reinforce FDA's image as a leading scientific institution, foster retention and attraction by:
- Creating a compact walkable campus
 - Adding places for creative interchange & collaboration to spur administrative and scientific innovation
 - Creating architecture that is both compatible and iconic
 - Reinforcing and extending the campus/courtyard concept
 - Creating state-of-art-work spaces that attract world-class scientists and stimulate public confidence in FDA's operations and science
 - Providing barrier free accessibility to campus facilities for persons with disabilities

- Economics.** Create a more efficient and cost-effective agency by:
- Maximizing on site population to streamline operations
 - Reducing dependencies on leased facilities
 - Utilization of shared facilities
 - Reducing travel times to and from meetings and conferences

- Environmental Stewardship.** Protect the site's tree canopy, maintain bio-diversity, minimize runoff, and create sustainable campus by:
- Maintaining the historic green buffer along New Hampshire Avenue
 - Minimizing land coverage
 - Converting surface parking lots into building pads
 - Creating both zero net energy & zero net water facilities

86 • Utilizing innovative stormwater practices 125
 87 **Transportation.** Foster effective transportation 126
 88 solutions to minimize traffic and parking problems. 127
 89 Reinforce the innovative existing policies, and 128
 90 respond to potential benefits of autonomous 129
 91 vehicles by: 130
 92

- 93 • Welcoming bus-rapid-transit on site 132
- 94 • Creating an on site transit hub 133
- 95 • Continuing to subsidize van and car pools 134
- 96 • Phasing future parking based on the impact of 135
 97 autonomous vehicles 136

1.4 Master Plan Compliance 138

1.4.1 Overview 139

100 The Master Plan for the Consolidation of the U.S. 140
 101 Food and Drug Administration Headquarters 141
 102 is subject to review by the National Capital 142
 103 Planning Commission (NCPC) to ensure the plan is 143
 104 consistent with the Federal Elements of the NCPC 144
 105 Comprehensive Plan for the National Capital. The 145
 106 Federal Elements related to the FDA Master Plan 146
 107 include: 147
 108
 109

- 110 • **Federal Workplace** – The Federal Workplace 149
 111 Element aims to strategically locate the Federal 150
 112 workforce in a consolidated, efficient manner 151
 113 that encourages higher productivity and 152
 114 collaboration while emphasizing the National 153
 115 Capital Region's importance in the federal 154
 116 workforce. 155
- 117 • **Transportation** – The Transportation Element 156
 118 promotes a diverse transportation network that 157
 119 meets the needs of commuters while protecting 158
 120 and preventing environmental degradation. The 159
 121 element encourages the use of public transit 160
 122 and other alternative modes of transportation to 161
 123 improve traffic and air quality conditions in the 162
 124 region. 163
- **Federal Environment** – The Federal Environment 164
 Element encourages the federal government to 165

The Enclave Apartments
19 Floors R-H ZONING

White Oak Shopping Center
CR ZONING 200' Height

White Oak Tower
23 Floors

Hillandale Gateway

Viva White Oak
CR ZONING 220' Height

Hillandale Shopping Center



Figure 1-4: SURROUNDING COMMUNITY & CONTEXT

be a leader in environmental stewardship and sustainability (NCPC, 2016).

The consolidated expansion of the headquarters will encourage efficiency, higher productivity, and collaboration, which is consistent with the goals outlined in the Federal Workplace Federal Element. As part of the expansion, a Transportation Management Plan (TMP) would be developed and would encourage employees to use alternative means of transportation to commute to the headquarters such as car-pooling or public transit. This would help alleviate congestion on area roadways and improve air quality which is consistent with both the Transportation and Federal Environment Federal Elements.

Additionally, all Action Alternatives would be constructed and operated in an energy efficient and sustainable manner, meeting LEED® Gold certification and net zero energy and water usage, which is consistent with the Federal Environment Element.

The Preferred Development Alternative, developed for the 2018 Final Master Plan, maintains and enhances these guiding principles.

On June 7, 2018, the National Capital Planning Commission (NCPC) approved Draft Master Plan comments in the Executive Director’s Recommendation report. The report confirmed that the Master Plan is consistent with the Comprehensive Plan for the National Capital (p.7-8 Executive Director’s Recommendation, NCPC June 7, 2018).

1.5 Regional Context

The FDA Headquarters’ context is a clustering of structures to inspire employees to continually innovate while serving the public. The previous Master Plans and the proposed 2018 Master Plan support the goal of creating timeless and enduring

structures and spaces. For the existing headquarters context, refer to figures 1-4 & 1-5 and section 1.6.

The surrounding community and context includes the White Oak Shopping Center and White Oak Tower, the Enclave Apartments, Viva White Oak, Hillandale Shopping Center and Hillandale Gateway.

1.5.1 Local Plans and Requirements

Development areas are defined by the following man-made and natural boundaries:

- Site boundary,
- Stream Valley Buffer,
- The flood plane,
- Paint Branch Creek and its tributaries,
- Security setbacks, and
- Other non-buildable areas.

Refer to figure 1-6.

1.5.2 Land Use and Development

Montgomery County Land Use Planning

The FRC is primarily located within Montgomery County’s White Oak Master Plan area. The White Oak Master Plan, adopted in 1997, was developed to guide future growth of the area. The White Oak Master Plan area is bordered by the Capital Beltway (I-495) to the south, the Northwest Branch Anacostia River to the west, the Paint Branch to the east, and the ICC (MD 200) to the north. Development zones in Montgomery County are single-family residential, multi-family residential, commercial-retail, and industrial. Current land use within the planning area is predominately residential (Montgomery County, 2017b).

In July 2014, M-NCPPC adopted the White Oak Science Gateway (WOSG) Master Plan which amends portions of the 1997 White Oak Master Plan in the area immediately adjacent to and including the FRC. The WOSG Master Plan area spans nearly

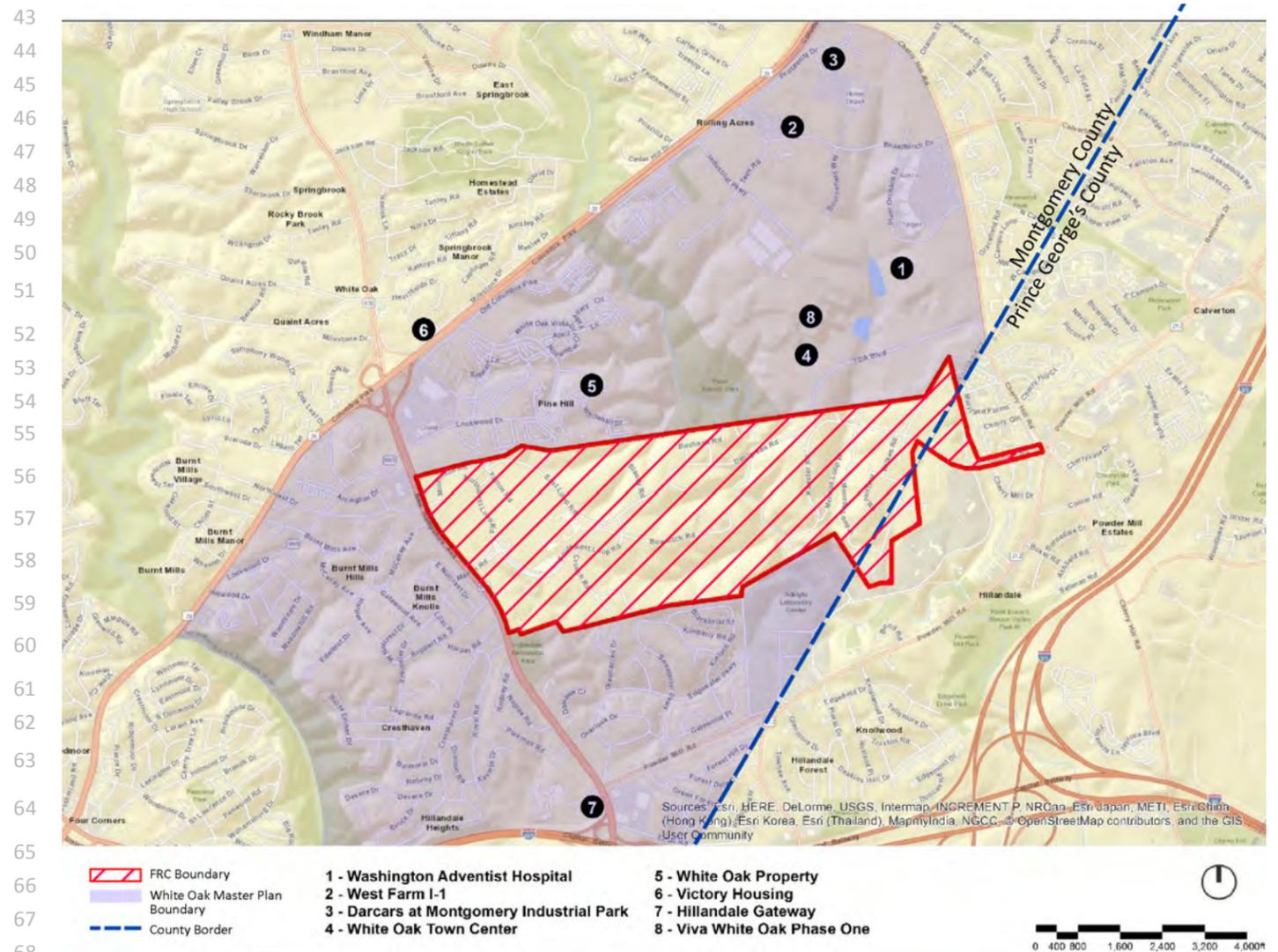


Figure 1-5: Planned Developments Near FRC

3,000 acres and is bordered by I-495 to the south, Northwest Branch Anacostia River to the west, US 29 and Cherry Hill Road to the north and the Montgomery County/Prince George’s County boundary to the east. The FDA Headquarters is the centerpiece of the WOSG Master Plan, viewed as a gateway and opportunity to attract employers in the health care, pharmaceuticals, life sciences, and other advanced technology fields. Existing land use within the WOSG Master Plan area include single and multi-family residential, commercial, parkland, and industrial.

Currently, a 300-acre parcel of land located northeast of the FRC is in the planning phase of being developed (see Figure 1-4). The development, named Viva White Oak, would consist of mixed uses featuring office space, residences, and retail businesses. Developers of this property would like to attract life science businesses that would benefit from close proximity to the FDA Headquarters. Also in the planning phase are several bus rapid transit (BRT) routes along U.S. Route 29 and New Hampshire Avenue which would improve public transit connections to the FDA Headquarters and the surrounding area. The WOSG Master Plan has

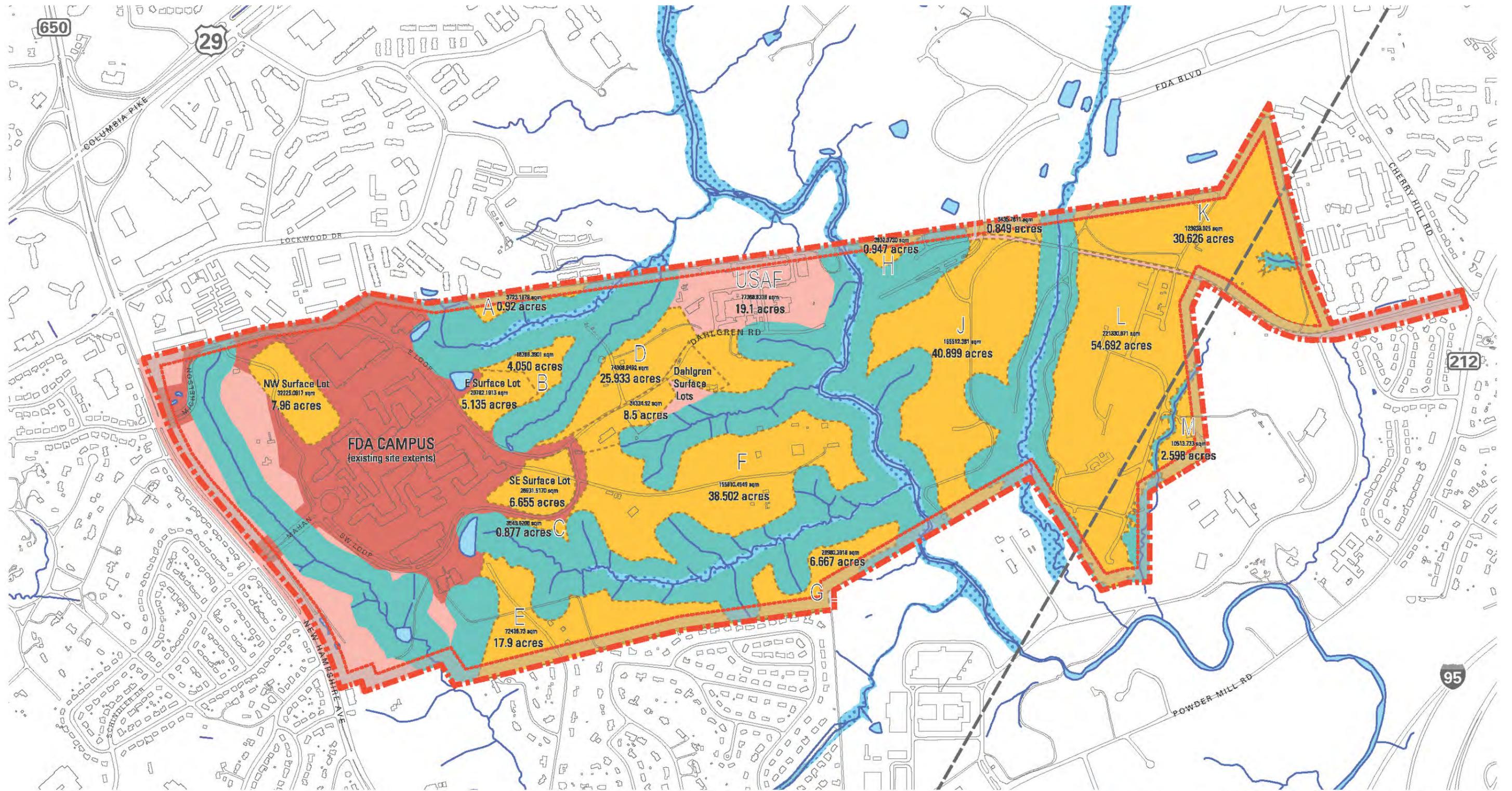


Figure 1-6: FRC Buildable Area



also identified the White Oak Shopping Center as a location for potential redevelopment.

Prince George’s County Land Use Planning

Approximately 40 acres of the FRC lies within Prince George’s County Planning Area 61, which is located in the southwestern corner of Subregion 1, and mainly covers the areas of Beltsville and North Beltsville. The Master Plan for Subregion 1 was adopted in 1990 and revised in 2010. The Planning Area is bordered by the Montgomery County Line to the west, the MARC and CSX railway tracts to the east, Paint Branch and I-495/95 to the south, and Indian Creek and the ICC to the north. Much of Planning Area 61 is characterized by residential and commercial uses (Prince George’s County, 2017). The portion of the FRC that is located within Prince George’s County is surrounded by residential development. The Master Plan for Subregion 1 of Prince George’s County does not identify the FRC or these neighborhoods as a specific area for strategic development (Prince George’s County, 2017).

1.5.3 Natural Features

The natural features of the 660-acres of the FRC include built-up land at the FDA Headquarters, large wooded land areas and aquatic features including the Paint Branch. The rolling topography, water resources, and the wildlife habitats enhance the FDA’s employee and guest experience. Refer to section 1.7 Natural Resources for additional information.

1.5.4 Coordination

Consultation with Federal, state, and local agencies has been conducted throughout the Master Plan process. See Section 2.2 for a detailed explanation.

1.5.5 Major Property Owners

Figures 1-4 and 1-7 depicts property boundaries as well as major property owners.

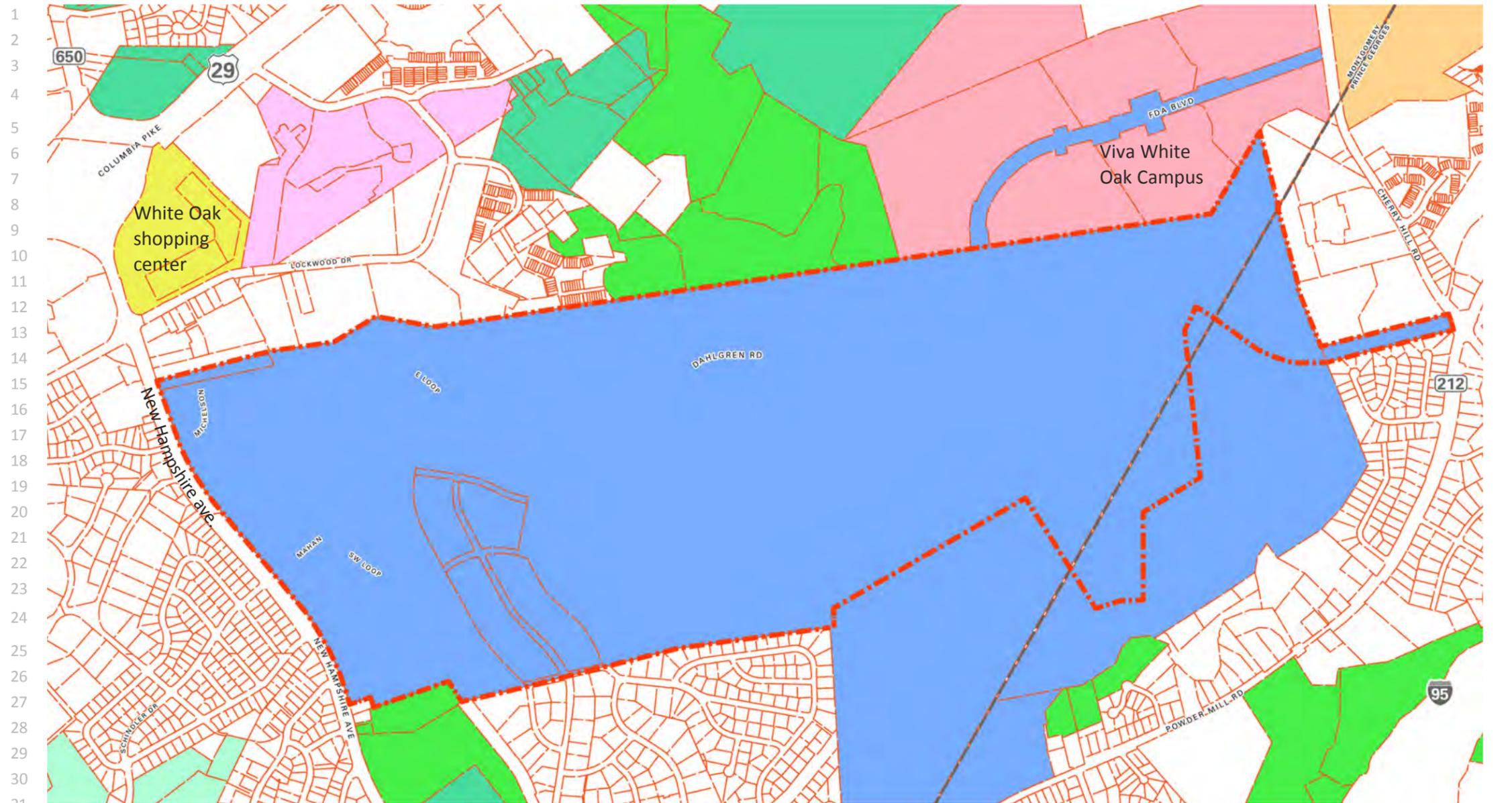


Figure 1-7: Major Property Owners



Federally Owned: The FDA Headquarters, as well as the Army's Adelphi Research Laboratory to the south, are owned by the US Government, with frontages mainly on New Hampshire Avenue, Cherry Hill Road, and Powder Mill Road. The Federal Government maintains an easement along FDA Boulevard on the future Viva White Oak development.

M-NCPPC: The Maryland-National Capital Park and Planning Commission is a public agency that administers parks in Montgomery and Prince George's County. The agency owns parcels to the north (within the Paint Branch stream valley) and to the south of New Hampshire Avenue (Hillandale Park) and to the southeast of Paint Branch Park.

Montgomery County: North of the headquarters, the County owns a community center, several undeveloped properties in the Paint Branch stream valley, and a composting facility.

Percontee: This private developer owns the land making up the future Viva White Oak campus (identified as Global Lifesci Development Corporation) as well several multifamily properties near the New Hampshire Avenue/US 29 interchange.

Saul Centers: This private developer (identified by Saul Subsidiary LTD Partnership) owns the White Oak shopping center, which may be redeveloped in the future.

Other Parcels: Much of the smaller parcels, especially to the east, west, and south of the FRC Campus, are privately owned and most are residences.

1.5.6 Zoning

The FRC is located in two Maryland county jurisdictions: Montgomery County and Prince George's County, with the majority of the 662 acres being within Montgomery County. Adjacent zoning to the property in Montgomery County include:

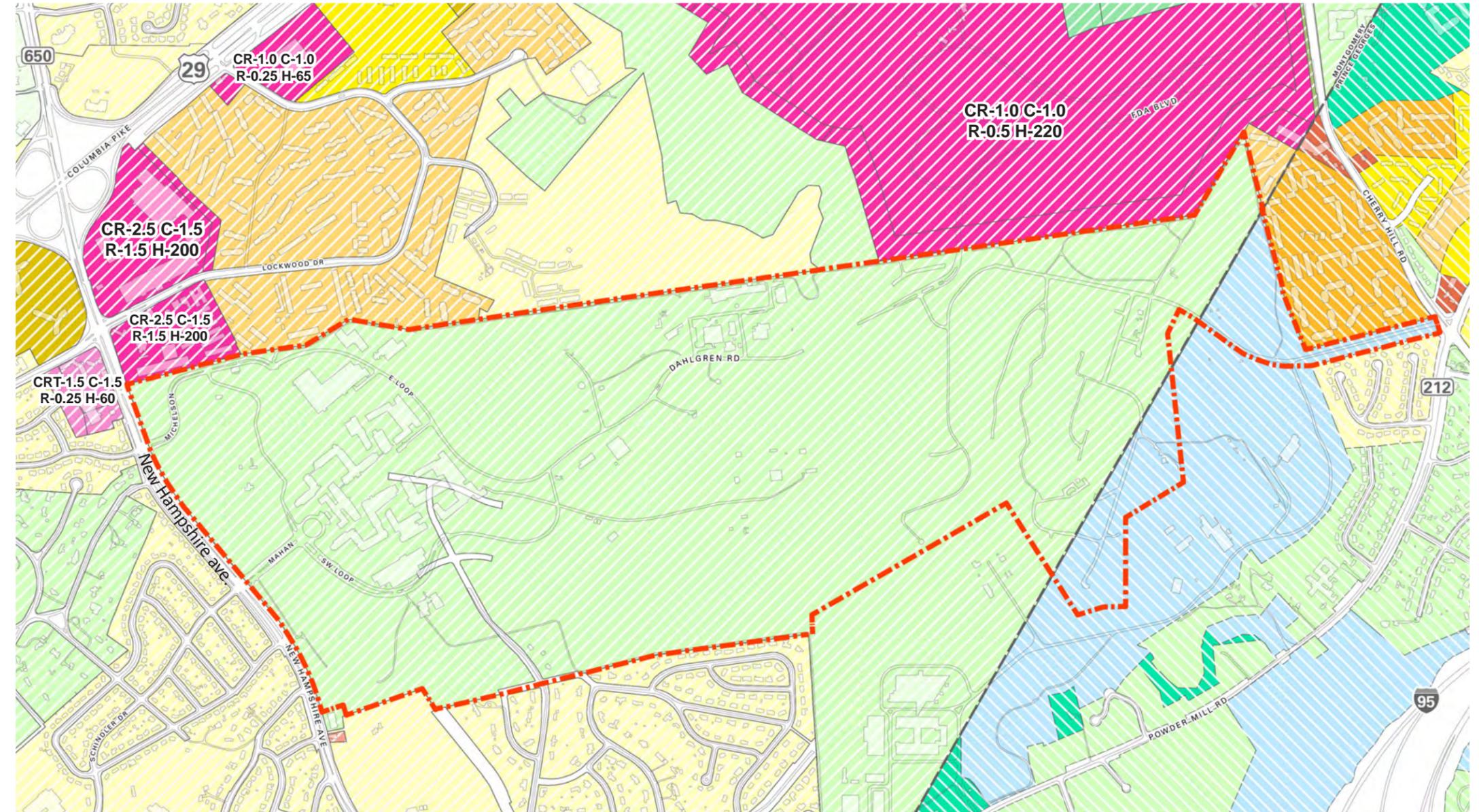


Figure 1-8: Zoning

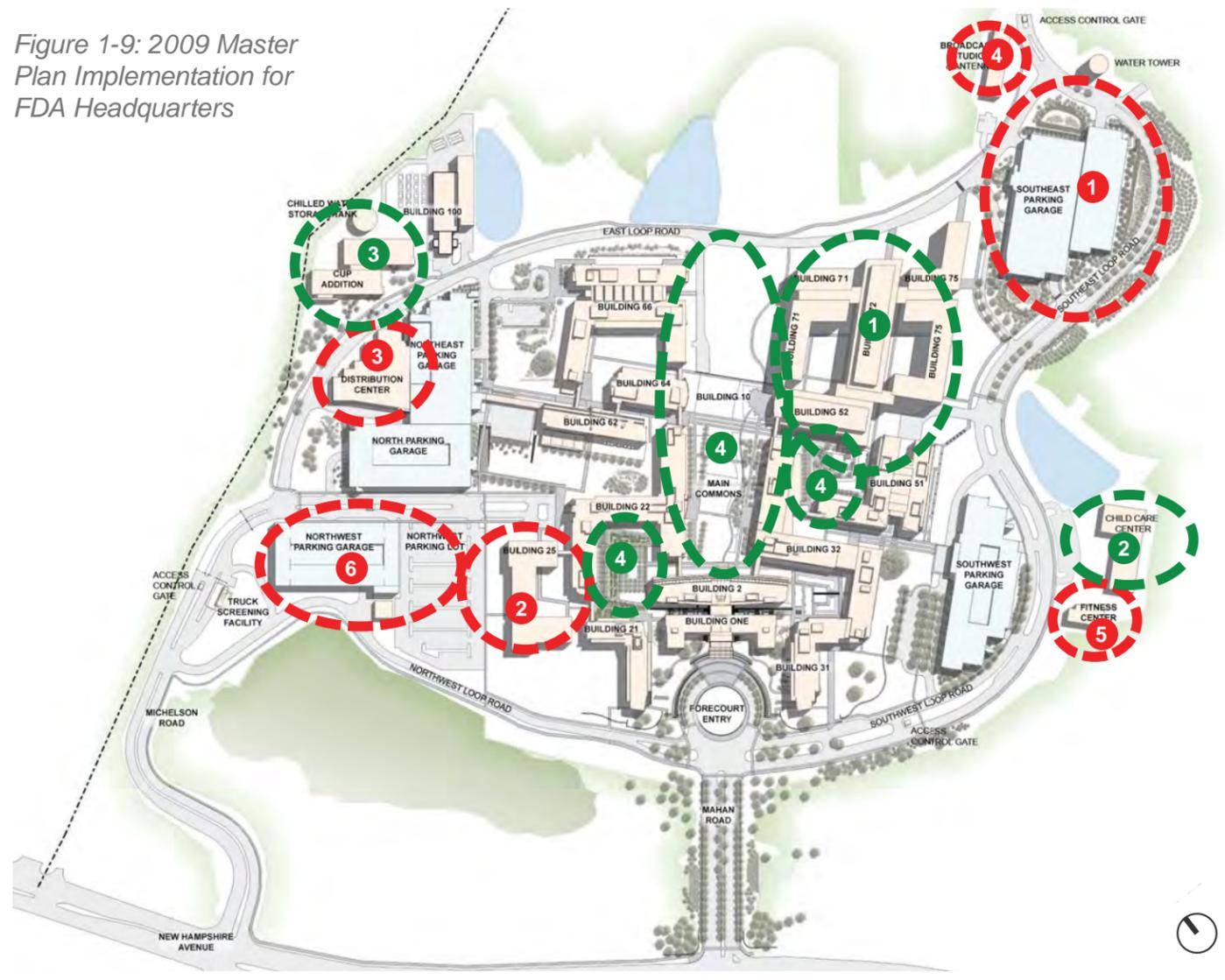
- R-90: Moderate Density Single Family
 - R-20: Multifamily Med Density Residential
 - RE-2: Residential Estate (FRC is zoned as such)
 - C-2.5, C-1.5, R-1.5, H-200: Shopping Center
- Adjacent Zoning in Prince George's County include:
- ROS: Reserved Open Space (FRC is zoned as such)
 - RR: Rural Residential
 - R18: Multifamily Medium Density Residential

Montgomery County		RT-6.0 (Residential Townhouse)
RE-1 (Residential Estate)		R-H (High-Rise Residential)
RE-2 (Residential Estate)		CRT (Commercial Residential Town)
R-90 (Moderate Density Single Family)		CR (Commercial Residential)
R-20 (Multifamily Med Density Residential)		
Prince Georges County		O-S (Open Space)
ROS (Reserved Open Space)		R-R (Rural Residential)
R-80 (One-Family Detached Residential)		R-S (Residential Suburban Development)
R-30 (Multifamily Low Density Residential)		R-T (Residential Townhouse)
R-18 (Multifamily Med Density Residential)		CSC (Commercial Shopping Center)



Site Boundary

Figure 1-9: 2009 Master Plan Implementation for FDA Headquarters



Projects completed since 2009 Master Plan:

- 1 SE Quad 1,230,000 GSF
- 2 Child Care Center
- 3 CUP Expansion
- 4 Landscaping of the Commons & 2 courtyards
- Perimeter Security (Not Keyed to plan)
- Five Major Art Installations (Not Keyed to plan)

Projects that have not been completed:

- 1 Southeast Garage - 2,700 spaces
- 2 Building 25 – 180,000 SF
- 3 Distribution Center – 97,000 SF
- 4 Broadcast Studio
- 5 Fitness Center
- 6 Northwest Garage

- R80: One Family Detached Residential
- O-S: Open Space

The most significant zoning features near the FRC are the new Commercial Residential and Commercial Residential Town zones, established by Montgomery County in 2010. As part of the White Oak Science Gateway Master Plan, the parcels indicated in Figure 1-8 were rezoned in 2014.

Both zones encourage a flexible range of densities and heights, which allow a mix of commercial and residential uses, as well encouraging well-designed streets and public spaces. As shown figure 1-3, there currently are several tall residential buildings in the immediate vicinity. The Enclave Apartments is 19 floors and White Oak Towers is 23 floors. In addition, the White Oak Shopping Center immediately to the north is zoned to permit construction up to 200 feet tall and Viva White on northeastern corner of the FRC is zoned to permit buildings up 220 feet tall. Commercial Residential and Commercial Residential Town zones are further classified by combined maximum FAR (Floor Area Ratio), a maximum non-residential FAR, a maximum residential FAR, and a maximum height limit in feet. For example, the White Oak Shopping Center, at the intersection of US 29 and New Hampshire Avenue, has a maximum FAR of 2.5, a maximum non-residential FAR of 1.5, a maximum residential FAR of 1.5, and a maximum height of 200 feet.

1.6 The FRC Campus

Figure 1-10 shows the FRC property boundary, the FDA Headquarters within the FRC, and major features on the site, as well as significant places of interest. The approximately 660-acre FRC campus is roughly 10,000 feet east-west by 3,300 feet north-south. The areas of development are separated by eight wooded stream courses. The largest of which is Paint Branch, bisecting the site from north to south.

The FRC campus is divided into several large numbered zones that were used during the days

of the Naval Ordnance Laboratory for building identification purposes. These areas also roughly corresponded to the type of research that was conducted. Areas include:

100 Area: This area, served as the core of the former laboratory, now the FDA Headquarters, featuring building numbers over and under 100. In addition, the 100 area features a handful of former laboratory facilities as well as several support facilities, some of which remain in use to this day.

200 Area: The former magnetics testing area was designed to be isolated from the remainder of the property in order to minimize electromagnetic interference. The main laboratory buildings were built with wooden pegs instead of nails.

300 Area: This steeply sloping area was the site of the lab's explosives research, and featured over 150 buildings and explosives magazines prior to the closure of the NOL. Most facilities have been removed, but several structures and concrete pads remain.

400 Area: The former ballistics area includes several large technical facilities, a handful of which remain in use to this day. Several wind tunnels are currently in use by the Air Force, as part of the Arnold Engineering Development Center (AEDC). The first of these, the Supersonic Wind Tunnel, was captured from Germany after the Second World War.

500 and 700 Area: These consist of small clusters of buildings that were once used to store or dispose hazardous materials. At the extreme eastern edge of the campus was a gated connection to Cherry Hill Road, now permanently closed.

600 Area: This area, located along Paint Branch, was involved in the testing of weaponry.

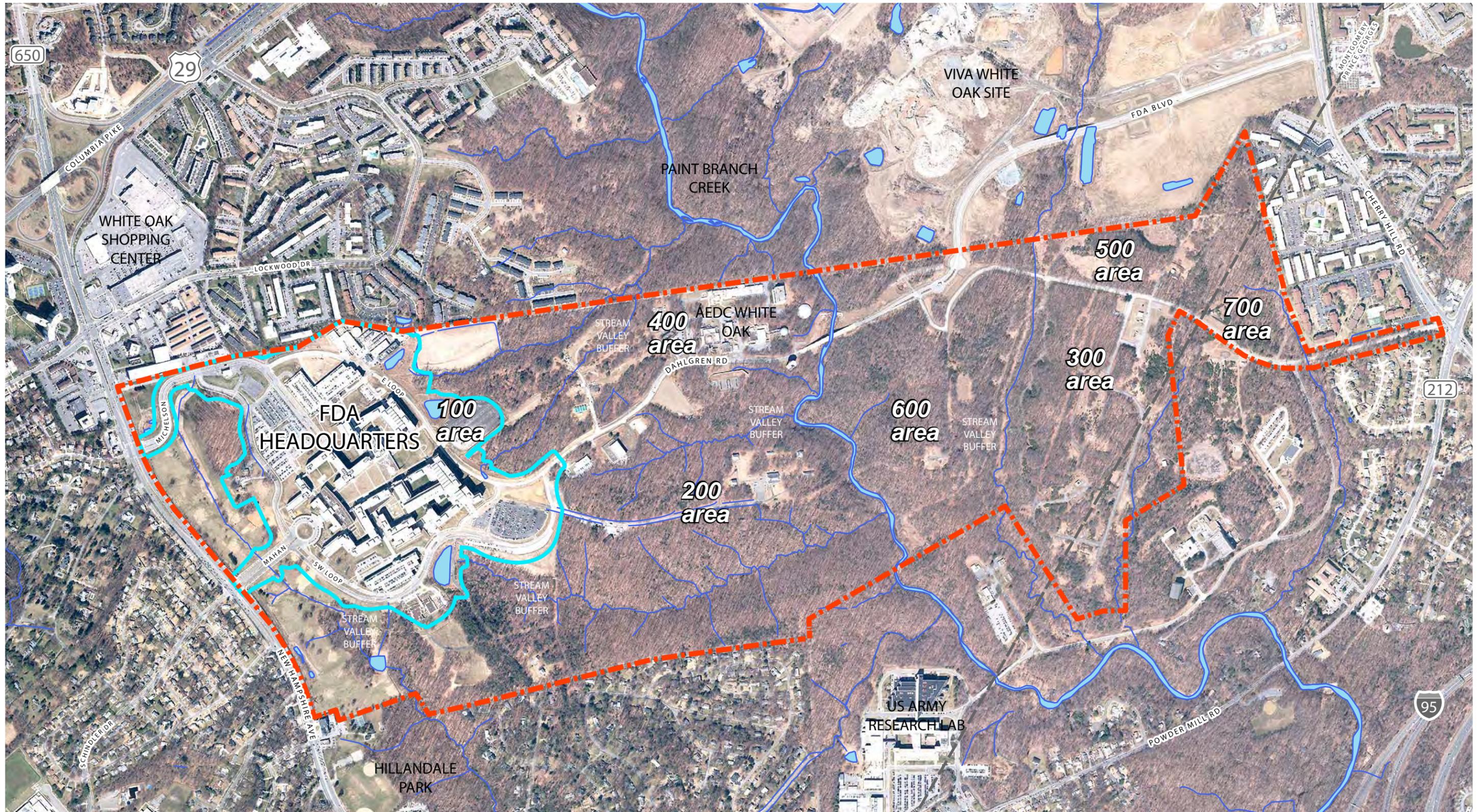


Figure 1-10: Property Boundary, Areas & Places of Interest

- - - - - FEDERAL RESEARCH CENTER
 ————— FDA HEADQUARTERS



1.6.1 FRC West Campus

The western portion of the FRC (most of Area 100) is dominated by the current FDA Headquarters. Only one significant building of the former Naval Ordnance Laboratory remains- the central Administration Building (Building 1), though some smaller outbuildings remain, including the memorial flagpole fronting. The construction of the new FDA Headquarters began concurrent with the demolition of the former laboratory in 2002. Other features of the site include the front lawn, which was originally a nine hole golf course but has been environmentally remediated and replanted. South of the FDA Child Care Center is a flat open space, which is intended to serve as a fitness trail. The following images and key plan (Figure 1-11) provide some context.

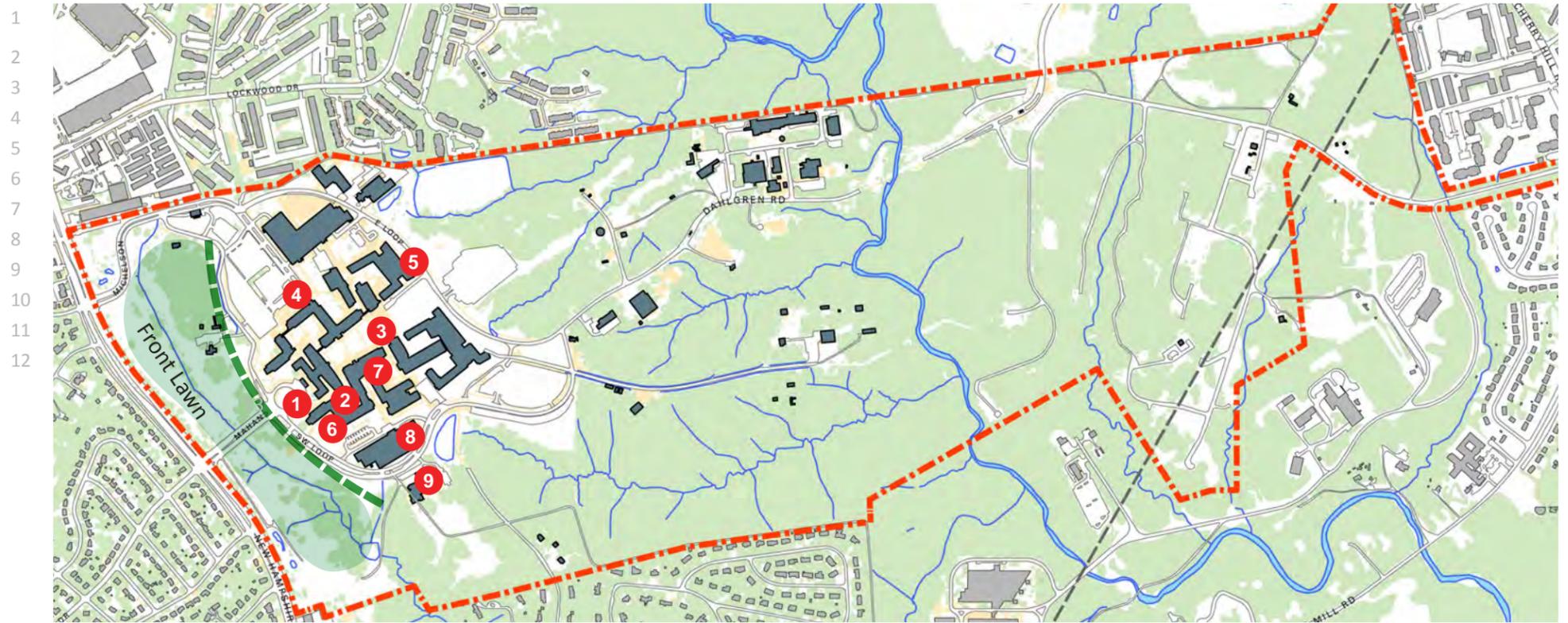
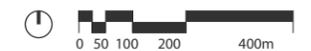


Figure 1-11: FRC West Campus Key Plan, including FDA Headquarters



1 Entry roundabout, Front Lawn, Buildings 21 and Building 1



2 Buildings 2 and 32



3 Commons Area, Building 71, and Building 52/72



4 Building 22



5 Building 66



6 Building 31



7 Outdoor Dining terrace at Building 32



8 Southwest Parking Garage



9 FDA Child Care Center

1.6.2 FRC Central Campus

The central portion of the FRC Campus (areas 100, 200, and 400) is characterized by two smaller clusters of military research facilities, with one being still operational while the other has been deactivated. The Arnold Engineering Development Complex (AEDC), operated by the Air Force, maintains a handful of operational wind tunnels, with the oldest taken from Germany after the Second World War. Some of the AEDC complex is unoccupied, including the original facility that housed the German wind tunnel. The other complex is the former Magnetics Testing facility, which is part of the Naval Ordnance Laboratory. Most of the larger structures remain unoccupied to this day. The following images and key plan (Figure 1-12) provide some context.

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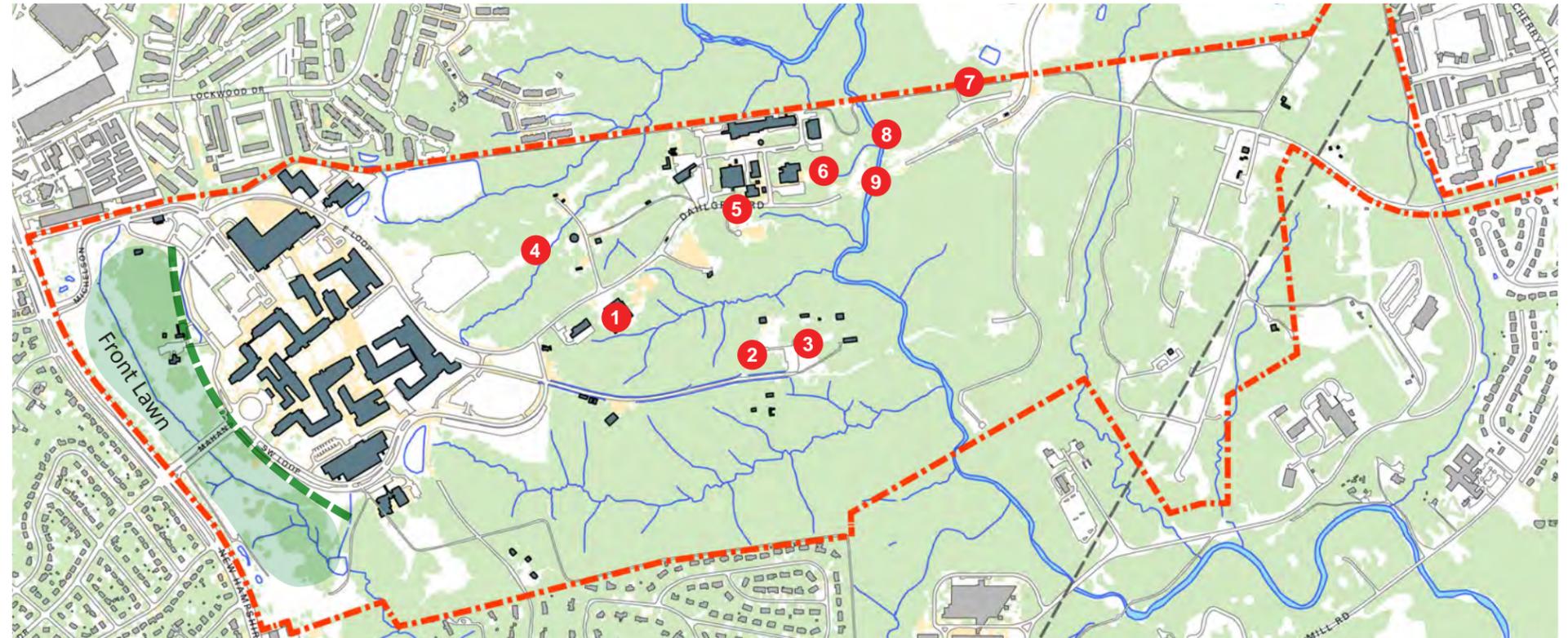
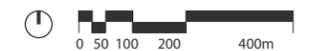


Figure 1-12: FRC Central Campus Key Plan



1 Former Defense Nuclear Agency Casino Facility



2 Former Operations Lab in Magnetics Area



3 Former Large Projects Laboratory and Model Laboratory



4 Berm east of East Loop surface parking lot



5 Supersonic Wind Tunnel Building



6 Vacuum Sphere and Hydroballistics Tank Building



7 Northern Perimeter Road



8 Ruins of wooden bridge over Paint Branch



9 Paint Branch, new Dahlgren Road Bridge, and Undersea Weapons Tank

1.6.3 FRC Eastern Campus & Viva White Oak

The eastern portions of the FRC Campus (areas 300, 500, 600, and 700) are characterized by the former explosives research area of the Naval Ordnance Laboratory. Most of the facilities have been removed or demolished since the closure of the Laboratory in 1997. Some facilities continue to exist in a decaying state. North of the property is the future home of Viva White Oak. The property is currently vacant but its main feature will be the newly-built FDA Boulevard, which connects Cherry Hill Road to the FRC campus. The following images and key plan (Figure 1-13) provide some context.

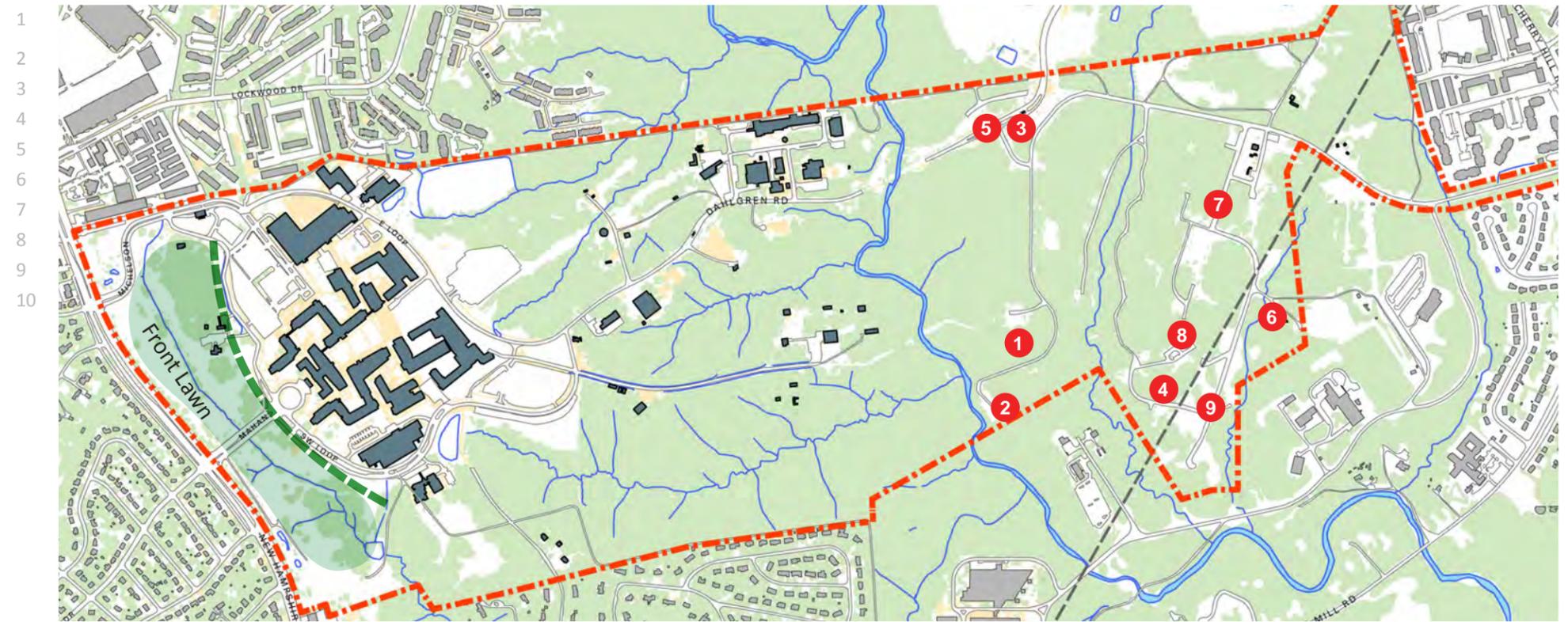
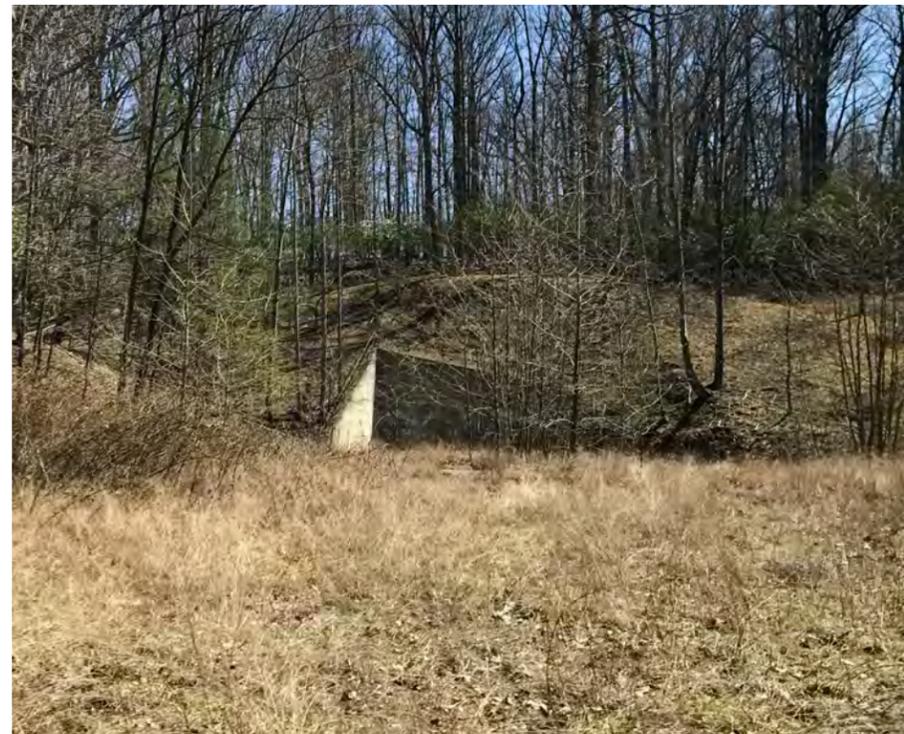


Figure 1-13: FRC East Campus Key Plan



1 View of existing overhead power lines and clearing



2 Concrete retaining wall near Paint Branch



3 View looking north towards Viva White Oak site



4 Concrete retaining walls for explosives magazines (removed)



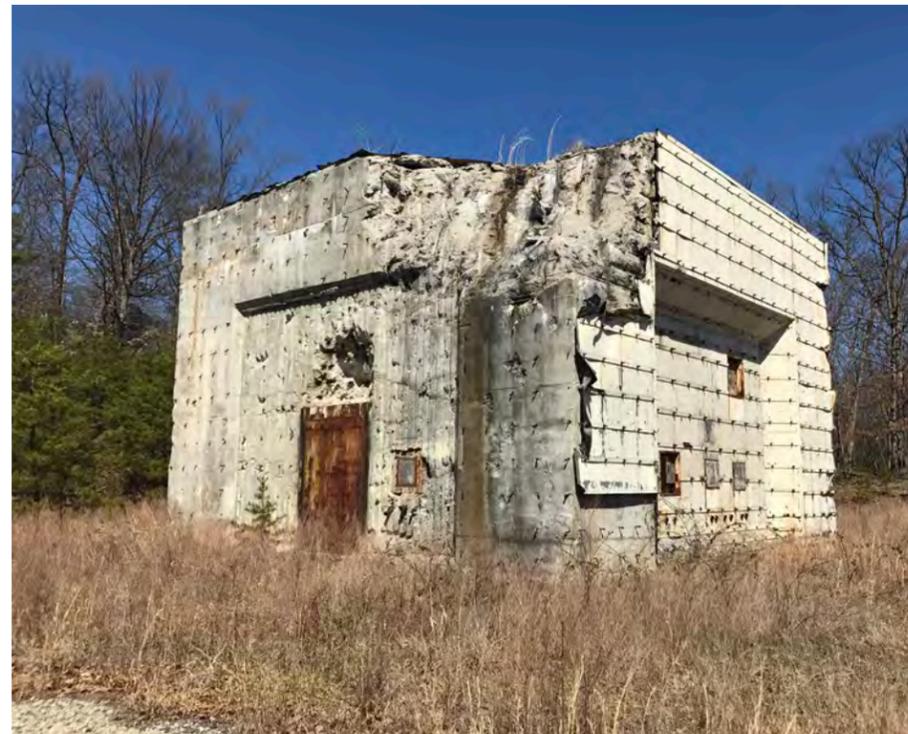
5 FDA Boulevard looking west



6 Former Air Blast Field Lab



7 Service Road in the 300 Area



8 The former 50-Pound Bombproof Facility

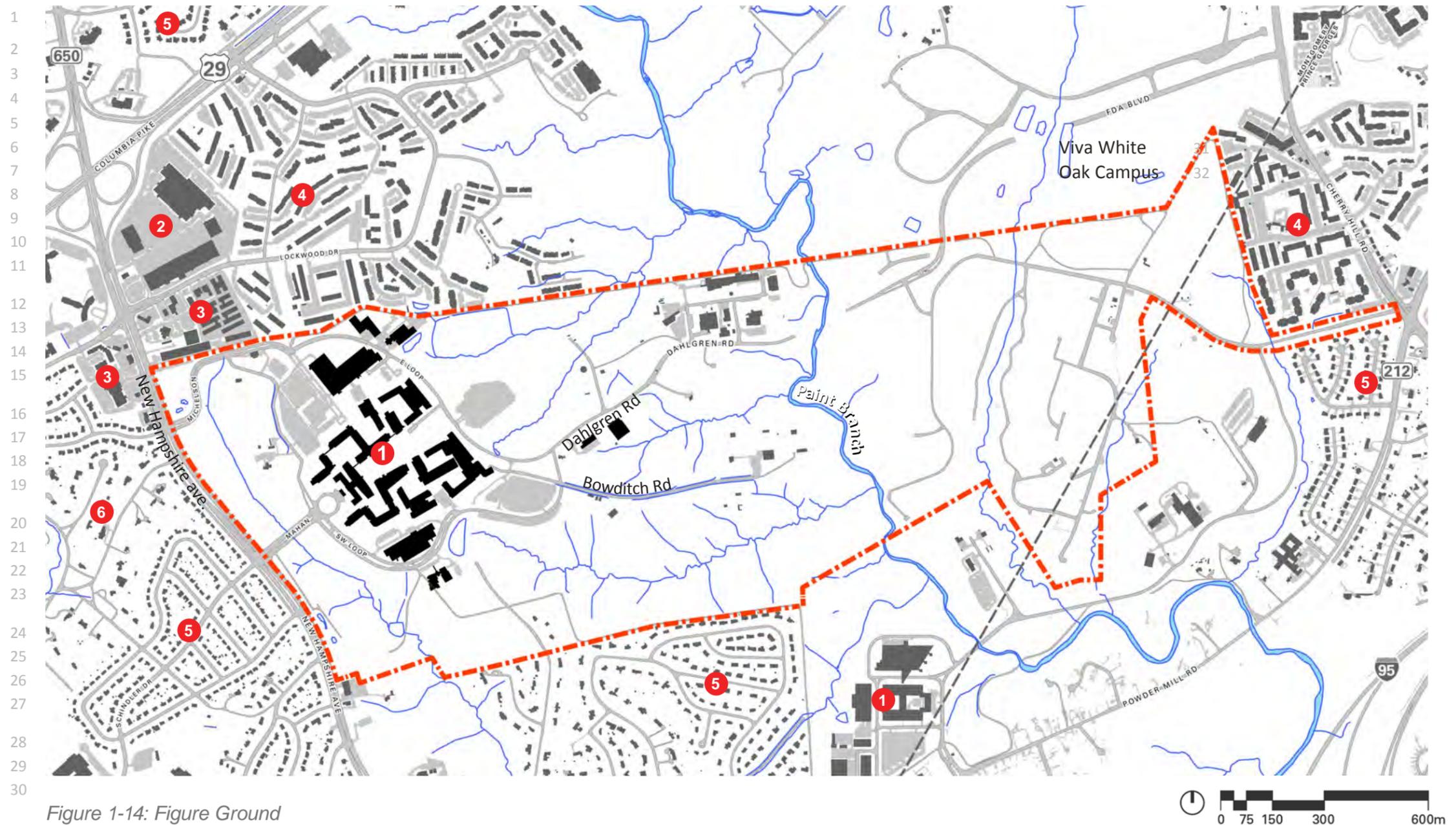


9 The central intersection of the 600 area

1.6.4 Buildings & Hardscape

Through an examination of building footprints and hardscape, one can make broad assumptions on land use. Observations found on Figure 1-14 include:

- 1 Large office and laboratory facilities, supported by structured and/or surface parking lots: The existing FDA Headquarters, formerly the core of the Naval Ordnance Laboratory and Army Adelphi Laboratory Center
- 2 Big box retail surrounded by surface parking: The White Oak shopping center at the US 29 / New Hampshire Avenue interchange
- 3 Smaller buildings surrounded by surface parking: Light commercial and industrial establishments
- 4 Long buildings located parallel to driveways and cul-de-sacs: Garden apartment multifamily developments
- 5 Small buildings spaced evenly along looping roads and cul-de-sacs: Typical single family residential subdivisions
- 6 Small buildings placed along looping roads and cul-de-sacs with large gaps: Large lot single family residential subdivisions



1.7 Natural Resources

1.7.1 Topography

Figure 1-15 depicts the topography found on the FRC Campus and its surrounding context.

The property is located along the Atlantic Coastal Plain, a relatively flat topographical region. The dominant topographical feature on the property itself is the Paint Branch stream valley, creating hills over 100 feet high. The lowest point on the property is located along the Paint Branch. Tributary streams to the Paint Branch create dynamic conditions on the central portions of the property.

The FDA Headquarters itself lies on a generally flat area at approximately 360' above sea level. The highest point on the property (approximately 390') is the northwest corner of the site, adjacent to the US 29 / New Hampshire Avenue interchange.

East of Paint Branch is another stream valley belonging to the West Branch that creates dynamic topographical conditions on the far east of the FRC.

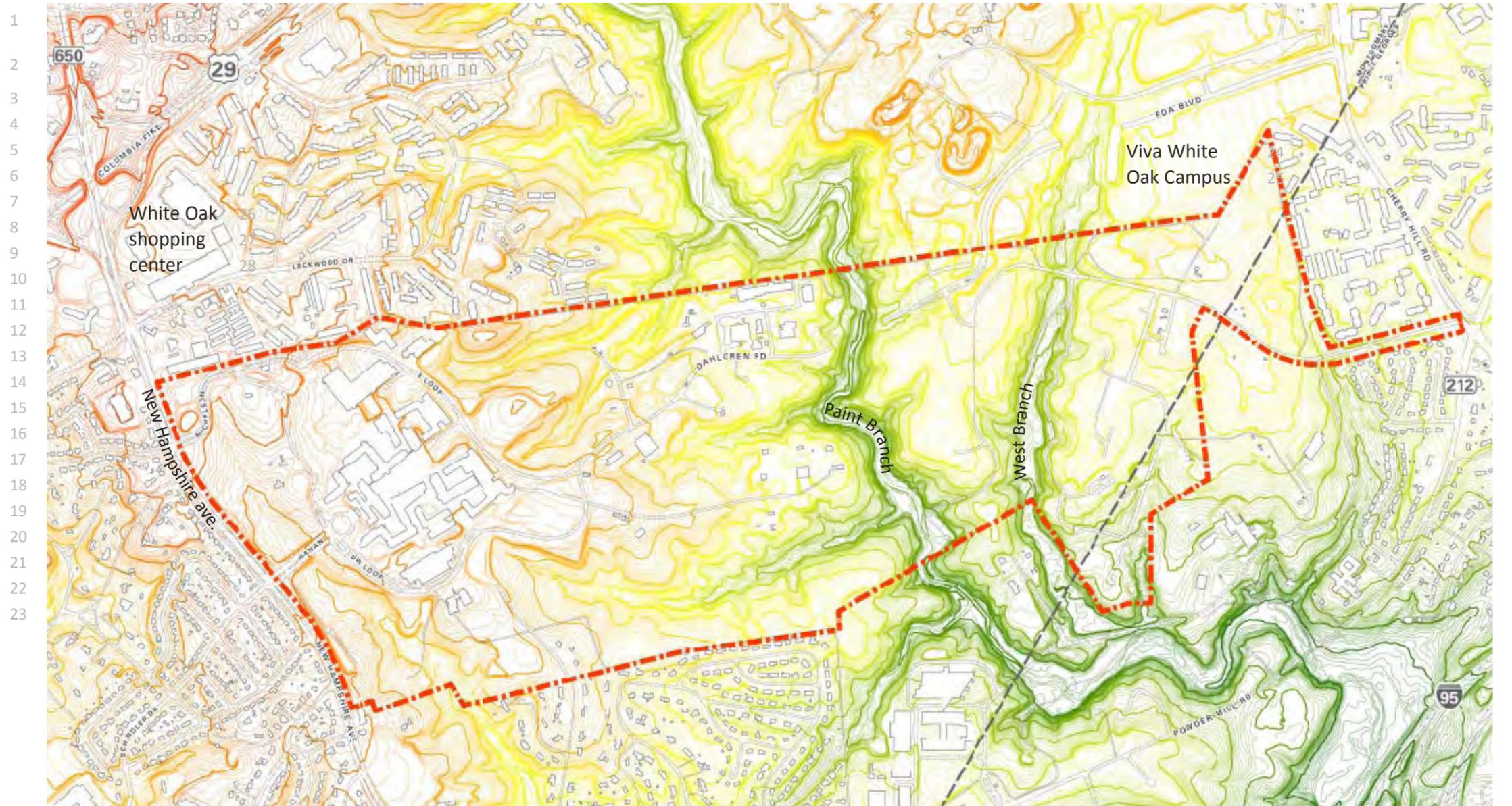


Figure 1-15: Site Topography

— 2' contours
— 20 contours

400'
300'
200'
100'
Site Boundary



1.7.2 Steep Slopes

Figure 1-16 depicts the steep slopes found on the FRC Campus and its surrounding context.

Most steep slope areas (at times greater than 25 percent) are located along stream valley buffers, primarily the Paint Branch, the West Branch, and their smaller tributaries and valleys. Aside from the FDA Headquarters itself, areas along Dahlgren and Bowditch Roads, as well as south of the FDA Headquarters do not feature significant steep slopes. While topographically dynamic, portions of land on the far east of the property do not feature steep slopes.

Several smaller, isolated steep slopes, especially on the western and eastern portions of the campus and its context, may be artificial creations typically consisting of landfill, berms, or retaining walls.

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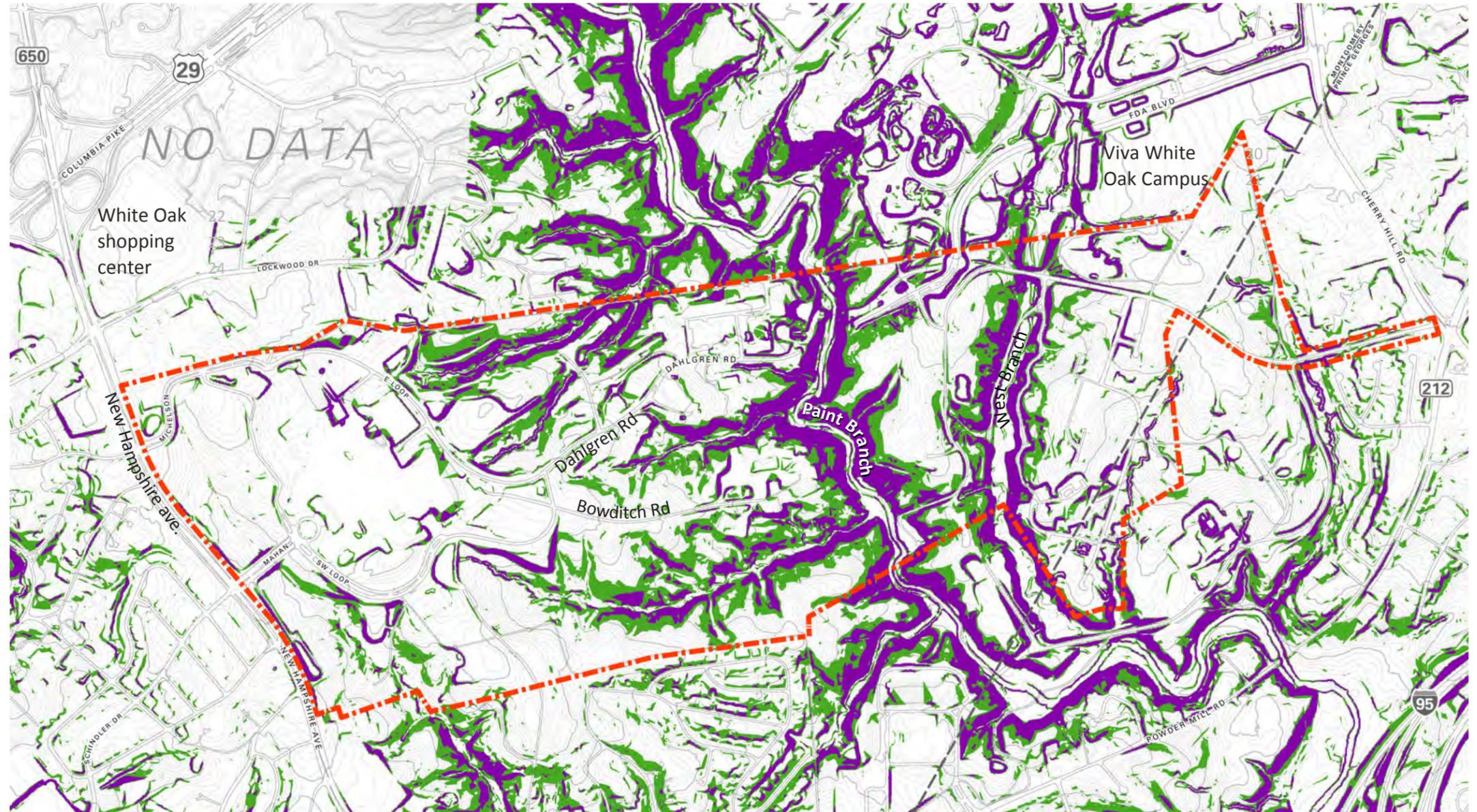


Figure 1-16: Steep Slopes



1.7.3 Tree Cover

Figure 1-17 shows the existing tree cover on the FRC and in the surrounding context. In addition, the Stream Valley Buffers have been overlaid to depict the amount of forest contained within these areas.

The majority of the property is forest saved for the FDA Headquarters itself. The former NOL golf course was partially reforested as part of an environmental mitigation process.

Most of the magnetic research area on the center of the property, as well as the former explosives research area on the far east of the property is slowly becoming reforested due to the abandonment and/or demolition of the buildings and facilities.

Beyond the FRC, there is significant tree cover in the Paint Branch stream valley, as well as moderate tree cover within the older residential subdivisions to the south and west of the property.

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Figure 1-17: Tree Cover



1.7.4 Historic Resources

The former Naval Ordnance Laboratory (NOL) White Oak campus was determined eligible for the National Register of Historic Places in 1997 for its exceptional significance as a first generation Cold War-era defense weapons research facility.

The historic buildings and structures of the NOL were documented for the Historic American Engineering Record in 2003. Under the terms of the 2002 and 2003 Memoranda of Agreement (MOAs) with the Maryland State Historic Preservation Office and the Advisory Council on Historic Preservation, the majority of the historic resources in the 100, 300, and 600 areas were removed. Buildings 1, 100, the historic flagpole environmental setting, and the historic buffer (golf course) were retained and protected.

GSA has identified the contributing buildings and features within Area 100 affected by the Master Plan alternatives, and determined that no buildings will be directly impacted. Contributing historic resources remain within the 200 and 400 areas, but the Master Plan alternatives do not extend into those areas.

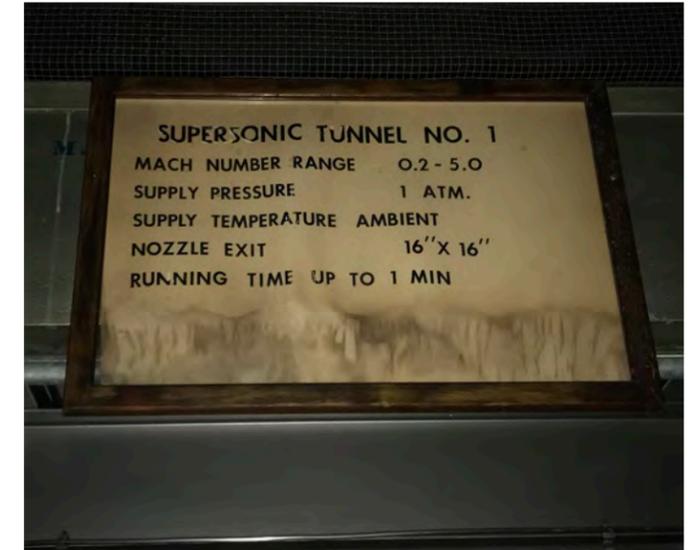
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Former Naval Ordnance Laboratory Main Building



Former Naval Ordnance Laboratory Fire Station



Former Supersonic Tunnel Infrastructure



Former Magnetic Research Facility



Current AEDC Wind Tunnel Facility



Former Dahlgren Road Bridge and Free Fall Drop Tower

1.8 Circulation

1.8.1 Vehicular Circulation

White Oak is relatively well-connected to the regional freeway network, including I-95, I-495, and US 29 via Cherry Hill Road, New Hampshire Avenue, and Powder Mill Road. The campus has three access points: two access points on New Hampshire Avenue are provided via Michelson Road, which serves as the main entrance for visitors and deliveries, and Mahan Road, which provides access to employee parking areas and the main building entrance. A third access point is provided on Cherry Hill Road via FDA Boulevard. All three access points are signalized.

Traffic is distributed throughout the site via a loop roadway network which provides access to the various surface parking lots and parking garages around the campus. The loop roads are primarily two-lane roadways, with the exception of Southwest Loop Road which is a four-lane roadway between Mahan Road and the Southeast Parking Garage. All internal intersections are unsignalized and intersections between primary campus roadways are all-way stop-controlled. Refer to Figure 1-18 for a depiction of current vehicular circulation in the study area.

1.8.2 Transit

Several bus routes serve the FDA Headquarters with stops along New Hampshire Avenue or internally within the campus. Currently Montgomery County is planning several BRT lines, with potential service along the US 29 corridor by 2018. Possible alignments place BRT service along Lockwood Drive, adjacent to the FRC.

In addition, FDA operates six shuttle routes that serve various regional locations, including several Metro stations. These shuttles are intended to fill gaps in the existing public transit network.

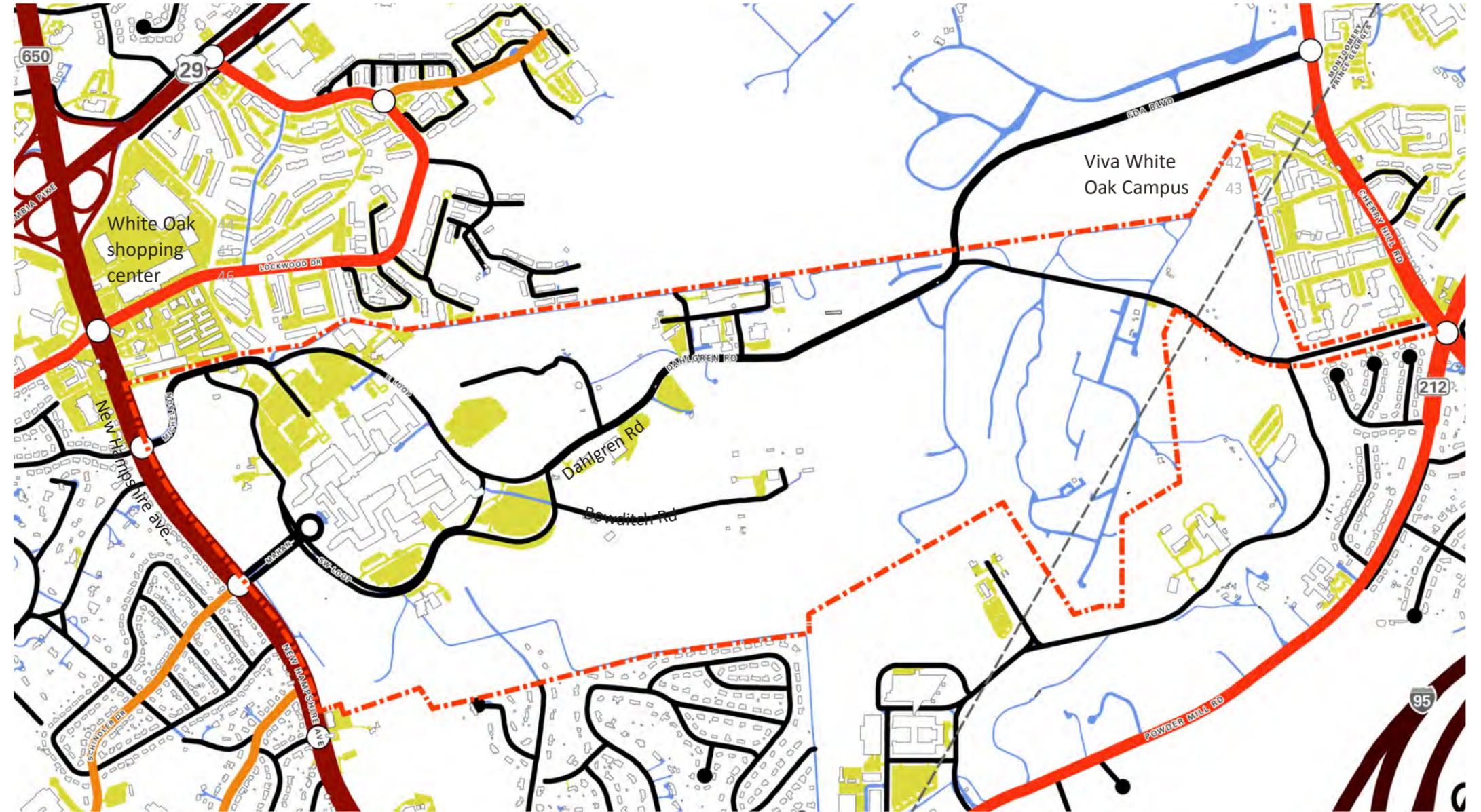
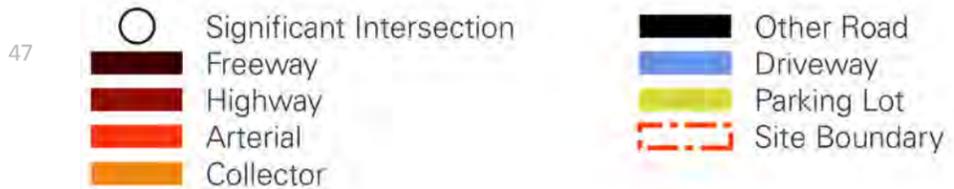


Figure 1-18: Vehicular Circulation



1.8.3 Parking

Parking has been identified as one of the key issues on the FDA Headquarters. Two parking structures have been constructed; however, a parking structure that was to be located in the southeast side of the campus has not been built. The FDA has implemented attendant-assisted parking in order to provide parking capacity for approximately 6,800 vehicles. The attendant-assisted parking is intended to be a stop-gap measure until additional parking can be provided because it is costly and not considered sustainable.

1.8.4 Pedestrian Facilities

Four- to five-foot wide sidewalks are provided along most roadways, connecting the FRC to nearby residential and retail areas. An eight-foot wide shared-use pathway is provided along northbound New Hampshire Avenue. A sidewalk and shared-use path are provided along FDA Boulevard. However, they terminate at the security gate and no pedestrian facilities are provided along Dahlgren Road to connect the FDA Headquarters.

1.8.5 Bicycle Facilities

Bicycle facilities are relatively limited. A narrow, five-foot wide bicycle lane is provided along northbound New Hampshire Avenue along the FDA site frontage. Please refer to Figure 1-19 for a depiction of the bicycle network.

Within the headquarters campus, pedestrian sidewalks and walkways are provided between parking areas and buildings, as well as along Northwest Loop Road and Southwest Loop Road. Sheltered bicycle parking is provided within parking garages and adjacent to building entrances. However, bicycle lanes are not provided on the internal roadway network.

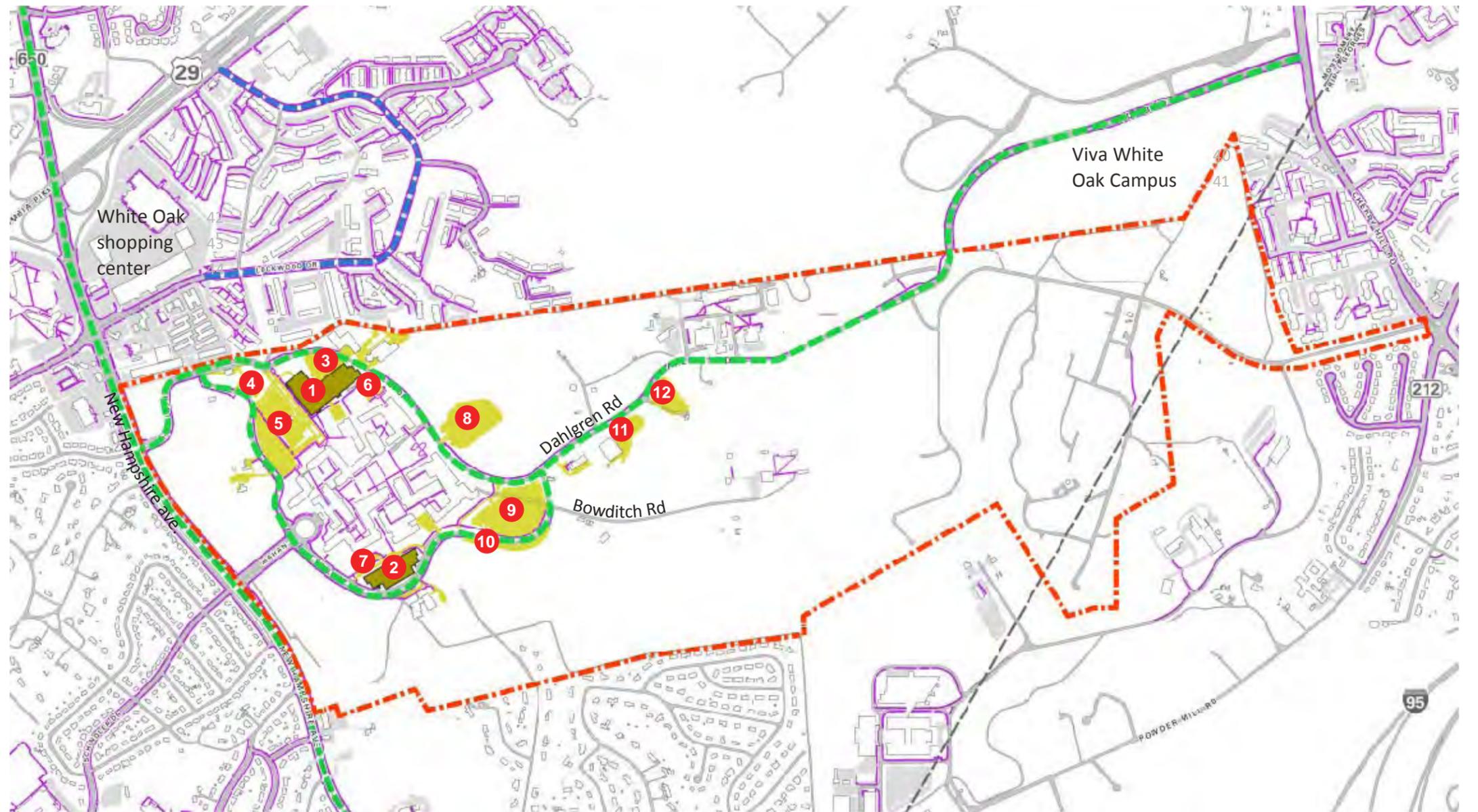


Figure 1-19: Parking, Pedestrian, & Bicycle Network

- | | | | | | |
|---|-------------------------------------|----|---------------------------------|----|-----------------------------|
| 1 | Northeast & North Parking Garage | 7 | Southwest Surface Parking | 51 | Parking Structure |
| 2 | Southwest Parking Garage | 8 | East Loop Road Surface Parking | 52 | Parking Lot (on FRC campus) |
| 3 | Northeast Surface Parking 2 | 9 | Southeast Surface Parking | 53 | Shared Use Path |
| 4 | Visitor Parking Lot | 10 | South Loop Road Surface Parking | 54 | Bicycle Lane |
| 5 | Northwest Surface Parking 1, 2, & 3 | 11 | Lot 132A Surface Parking | 55 | Sidewalk Network |
| 6 | Northeast Surface Parking 1 | 12 | Lot 132B Surface Parking | 56 | Site Boundary |

1.8.6 Bus Rapid Transit and Campus Connectivity

The development of additional BRT lines that would provide service to the FRC will improve the site's transit service and access.

Currently two lines are planned that would be adjacent to the site, as depicted in Figure 1-20:

1. New Hampshire Avenue Route
2. US-29 Colesville Road Route

The route US-29 BRT line is projected to be in operation by 2020. Currently there is no anticipated implementation date for the New Hampshire Avenue BRT line.

The implementation of BRT service adjacent to the FDA Headquarters would have a potential impact to the amount of parking that NCPD would recommend for the facility.

NCPD has adopted the following parking ratio policies, as stated in the Comprehensive Plan for the National Capitol, Transportation Element:

1. Within the Central Employment Area, the parking ratio should not exceed one space for every five employees.
2. Outside of the Central Employment Area, but within the Historic District of Columbia boundaries, the parking ratio should not exceed one space for every four employees.
3. For suburban Federal facilities within 2,000 feet of a Metrorail station, the parking ratio should not exceed one space for every three employees.
4. For suburban Federal facilities beyond 2,000 feet of a Metrorail station, the parking ratio will reflect a phased approach linked to planned improvements over time.

FDA anticipates that the provision of BRT to the site could allow for a reduction in the parking ratio from 1:1.5 to 1:1.8.

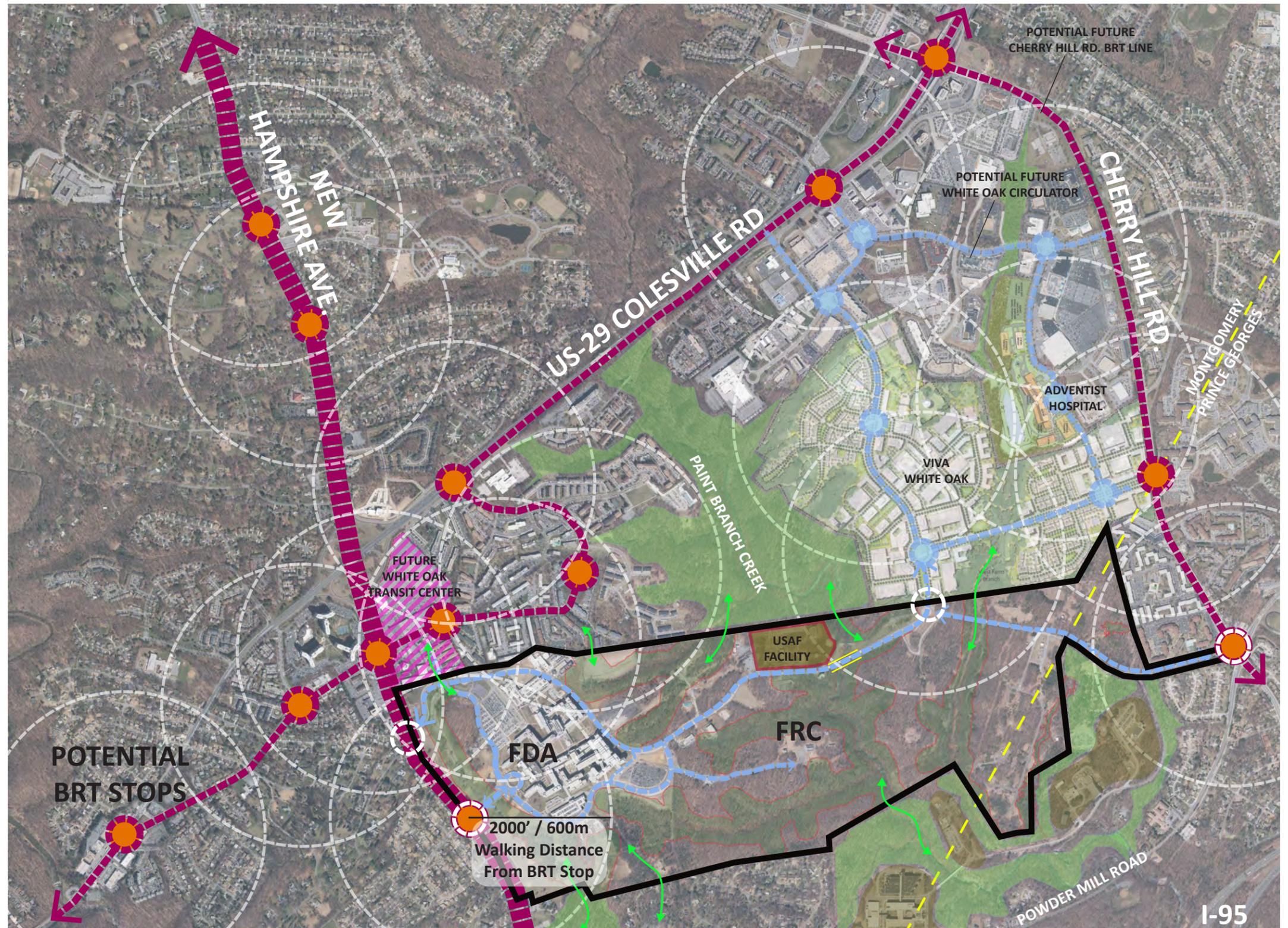


Figure 1-20: Site Context with Potential BRT Stations & Alignments

Potential BRT Stop
 Potential FDA Headquarters Entrance

0 1/4 1/2 1 2mi

1.9 Utility Infrastructure

The following section describes water, sewer, stormwater, and electrical power/HVAC on the FRC campus.

Refer to Figure 1-21 for a depiction of existing domestic water and sewer features and characteristics.

1.9.1 Domestic Water

The Washington Suburban Sanitary Commission (WSSC) provides potable water to the FDA Headquarters via two 12-inch connections to the 16-inch WSSC water main under New Hampshire Avenue. A system of mostly 12-inch water lines, with some 8-inch lines, serves the existing site through redundant loops around the buildings. There is a duplex pump station with a backflow preventer located on each of the two supply lines. These variable speed pumps can boost water pressures as needed on site during peak times, during periods when WSSC's system has low pressure, or during a fire event.

1.9.2 Sewer

WSSC provides sanitary sewer service to the FDA Headquarters. The campus is within WSSC's Blue Plains Wastewater Treatment Area (Mini-Basins 02-050, 02-014). Sewer lines from the campus drain to a 15-inch outfall pipe running east from the East Loop Road and ultimately connecting to the existing 27-inch sewer trunk line running along Paint Branch to the east.

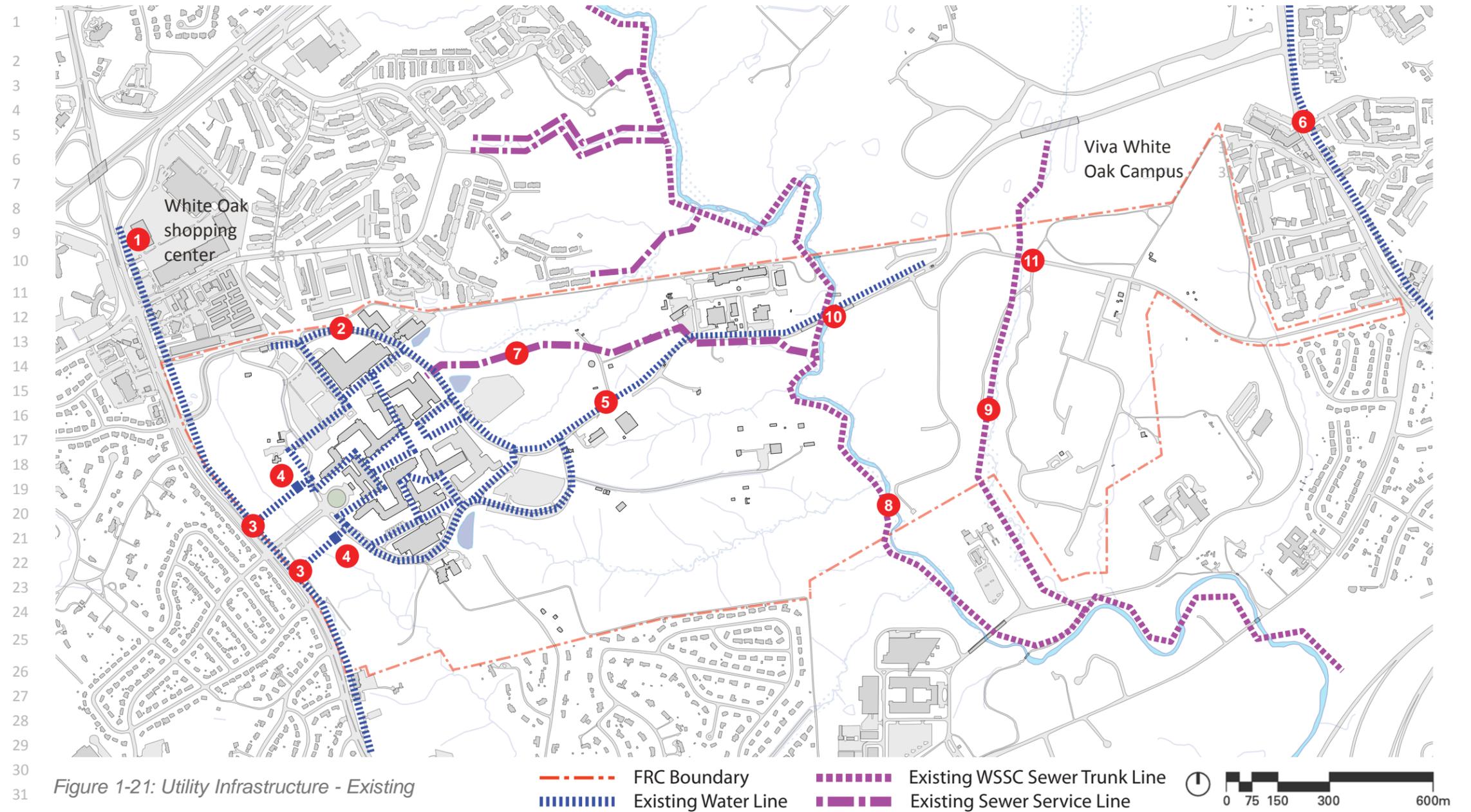


Figure 1-21: Utility Infrastructure - Existing

Existing Water

- 1 Existing 16" WSSC Water Main
- 2 Existing FDA Headquarters Water System (Primarily 12" Pipes)
- 3 Two Existing Connections to Existing 16" WSSC Water Main in New Hampshire Ave.
- 4 Two Existing Duplex Pumping Stations Increase Water Pressures on FDA Site

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- 5 Existing 8" Water along Dahlgren Road from Campus Loop Road to East Guard House
 - 6 Existing 12" WSSC Water Main in Cherry Hill Road
- #### Existing Sewer
- 7 Existing 15" Sewer Outfall Pipe from FDA Headquarters

- 8 Existing 27" Paint Branch Sewer Trunk Line
 - 9 Existing 20" West Farm Branch Sewer Trunk Line
- #### Existing Other
- 10 Existing Bridge over Paint Branch
 - 11 Existing Bridge over West Farm Branch

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1.9.3 Stormwater

Please refer to Figure 1-22 for stream valley buffer and Figure 1-23 for a depiction of stormwater management facilities.

The FDA Headquarters is served by a system of open swales and closed piped storm drains that convey storm runoff water. There are three existing detention ponds on the campus that provide stormwater quantity control. There are also numerous bio-retention areas, grass channels, green roofs, rooftop disconnects, and sand filters scattered around the campus that provide water quality treatment for specific buildings and roadways (see Figure 1-22). These existing stormwater management facilities on campus do not have available additional capacity to serve new development.

Additionally, seven existing parking lots on the FDA Headquarters currently do not have MDE-approved stormwater treatment facilities. GSA is currently working with MDE to resolve this issue prior to any future development.

All areas of the FDA Headquarters drain to Paint Branch. Paint Branch and all its tributaries upstream of the Capital Beltway are classified as Use III waters. No in-stream work is allowed between October 1 and April 30. Streams on the FRC site are subject to County Stream Valley Buffers. In addition, the presence of steep slopes and potentially erodible soils could increase the width of these buffers.

The FRC site is subject to the NPDES MS4 Discharge Permit (General Permit) requirements. The emphasis of this permit is on efforts that will help achieve the Chesapeake Bay total maximum daily load (TMDL) goals established under the authority of the Clean Water Act.

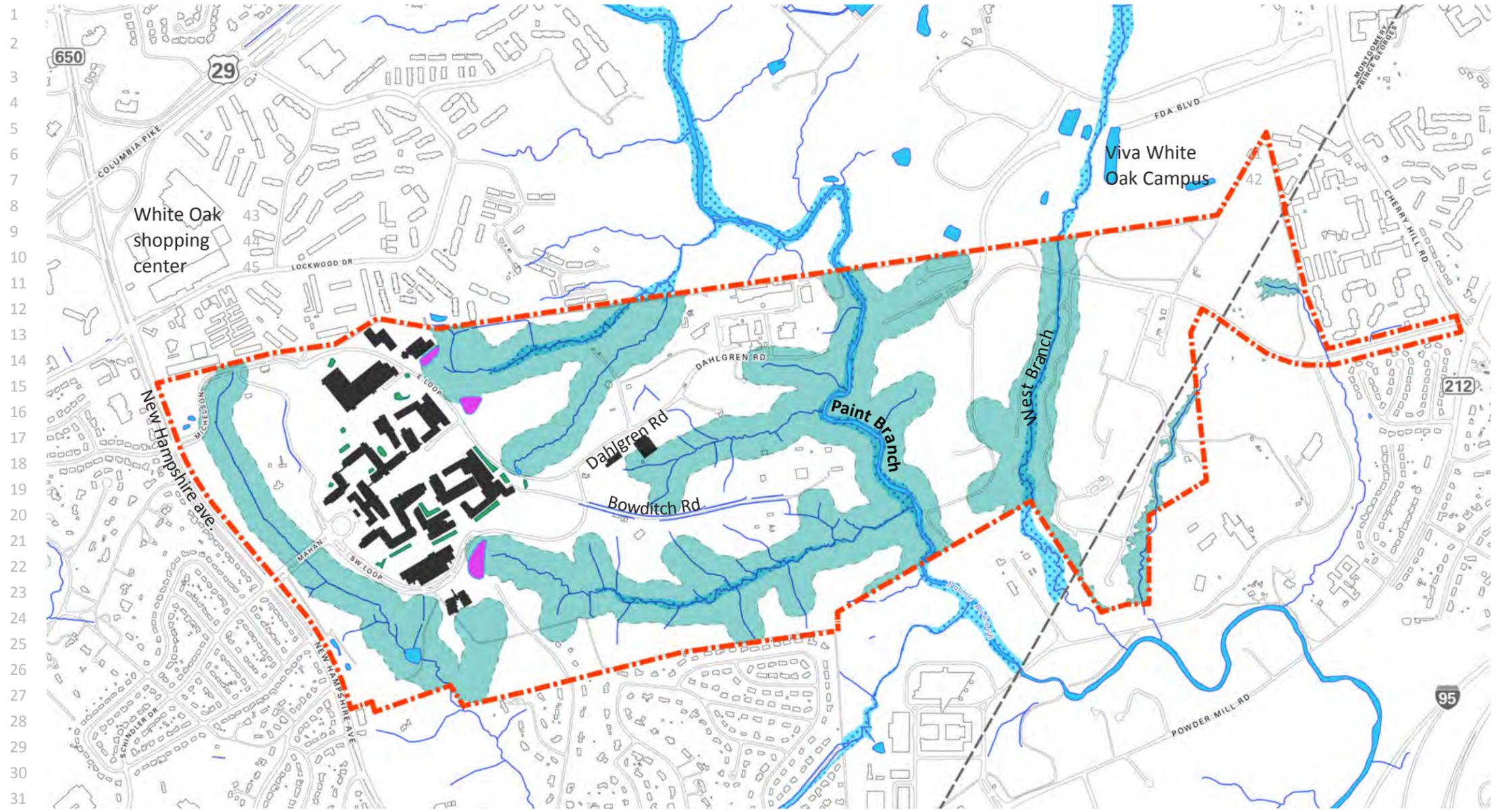


Figure 1-22: Bodies of Water & Stream Valley Buffers



1.9.4 Electrical/HVAC

Electrical power and HVAC on the existing FDA Headquarters is provided by Honeywell by way of an on-site Central Utility Plant (CUP). The CUP currently generates electricity, chilled water, and hot water for heating and cooling the FDA Headquarters. The CUP is a combined heat and power and a cogeneration facility where natural gas is burned in an engine that turns a generator to produce electricity. Natural gas to power the engine is provided by Washington Gas. A photovoltaic array provides additional electricity depending on weather. Cooling at the CUP is provided by electric centrifugal and absorption chillers. Heating at the CUP is provided by dual-fueled water boilers and heat recovery boilers. Hot and cold water are distributed to each building via an underground hydronic distribution system. Electrical power is distributed to all the buildings on the headquarters via underground duct banks. Backup electric power to the FDA Headquarters is provided by Potomac Electric Power Company (PEPCO) via two transmission lines leading to a substation that feeds the FDA Headquarters and Air Force/AEDC. The substation is managed by GSA.

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Figure 1-23: Stormwater Management - Existing

- Extended Detention Ponds
- Bio-Retention Facilities
- Rooftop Rainwater Harvesting
- Green Roofs
- Sand Filters



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2 OUTREACH AND COORDINATION



Entry Roundabout, Building 1 and Building 31

2. OUTREACH AND COORDINATION

2.1 Public Engagement

2.1.1 Introduction and Identified Issues

Public engagement is an important part of the Master Plan process. By involving citizens, stakeholder groups, and local, state, and Federal agencies, the Federal Government can make better informed decisions. GSA and FDA have continued to meet with the public, area neighborhood groups, special interest groups, and government agencies throughout the Master Plan process. Key issues identified during meetings with the public and agencies are outlined in the Environmental Impact Statement (EIS) Document. The key issues included the need for the Master Plan Action, the design review of the Development Alternatives, the impact on views and natural resources, review of community amenities, economic impacts and transportation impacts.

2.1.2 Public Review

GSA issued a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) on August 18, 2017. The letters included information on the public scoping meeting and asked for the public's comments on the proposed FDA Master Plan. The NOI was published in the Federal Register, as well as The Washington Post, the Montgomery Sentinel, and the Prince George's Sentinel. NOI letters were mailed to approximately 125 federal, state, and local

agencies, public officials, community groups, special interest groups, and area residents.

GSA held a public scoping period on the EIS/ Master Plan from August 21, 2017 through September 25, 2017. GSA also held an Open House for the public on September 12, 2017 from 6:30 to 8:30 pm. Approximately 50 people attended the public meeting, including FDA employees and staff from the following offices:

- Senator Van Hollen and Congressman Sarbanes' offices,
- Montgomery and Prince George's County Councils,
- Maryland Department of Commerce,
- Montgomery and Prince George's County,
- Prince George's County Police Department, and,
- Maryland Park Police.

In addition, several organizations (Strengthen FDA, Labquest, North White Oak Civic Association, Percontee, Inc., Eyes of Paint Branch, Greater Colesville Civic Association, Whitehall Square Homeowner's Association, and the Alliance for a Stronger FDA) and members of the local communities were in attendance.

Poster boards were displayed showing the site

plan; a history of the FDA consolidation; the Environmental Impact Statement (EIS) and National Historic Preservation Act (NHPA) processes; the Area of Potential Effect (APE); preliminary Development Alternatives; and environmental features. In addition, a continuously running slide presentation was shown.

A public comment period on the Draft EIS was held from March 2, 2018 through April 16, 2018. GSA also held a public hearing on the Draft EIS during the public comment period on March 22, 2018. Approximately seven people attended the hearing.

Public comments can be found in the EIS.

2.2 Coordination with Federal, State, and Local Jurisdictions

Consultation with federal, state, and local agencies has been conducted throughout the preparation of the Master Plan and EIS. The following table, shown in figure 2-1, provides a list of the meetings held with federal, state, and local agencies during the development of the Master Plan and EIS.

Meeting Date	Organization
February 15, 2017	Early coordination meeting with NCPC
February 27, 2017	Informational Scoping meeting with M-NCPPC – Montgomery & Prince George's counties
July 27, 2017	Informational Meeting/Tour of FRC with NCPC
August 28, 2017	Informational Meeting/Tour of FRC with NCPC, M-NCPPC – Montgomery & Prince George's counties, MHT, ACHP
September 1, 2017	Informational Meeting with Labquest
September 12, 2017	Scoping Meeting
September 21, 2017	Master Plan Briefing Meeting with Montgomery County Executive staff
October 5, 2017	Informational Briefing – NCPC
October 11, 2017	Informational Meeting with Hillandale & North White Oak Citizens Associations
October 24, 2017	Consulting Party Meeting 1
November 14, 2017	Consulting Party Informational Meeting at FRC
December 7, 2017	Master Plan update meeting with NCPC
January 22, 2018	Master plan update meeting with M-NCPPC – Montgomery County
January 23, 2018	Meeting with Montgomery County – BRT/Purple Line update
February 21, 2018	Meeting MD DOT SHA
February 22, 2018	Public Hearing presentation to Montgomery County on Draft Master Plan
March 22, 2018	Public Hearing on EIS
April 4, 2018	Consulting Party Meeting 2
May 16, 2018	Public Hearing Presentation to Montgomery & Prince George's counties on Draft MP
May 21, 2018	Consulting Party 3
June 7, 2018	NCPC Draft Master Plan Approval Hearing

Figure 2-1: Public Outreach/Coordination Meetings



3

**MASTER PLAN
DEVELOPMENT
ALTERNATIVES**



Commons Area, Building 71 and Building 52/72

3. MASTER PLAN DEVELOPMENT ALTERNATIVES

3.1 Land Use Feasibility Study

3.1.1 Land Use Strategies

Prior to the Master Plan development, a series of land use feasibility development strategies and scenarios were developed to test the feasibility of fulfilling the FDA program requirements on the FRC site, based upon the site analyses and capacity study. The purpose of the Land Use Feasibility Study (LUFS) was to study and demonstrate the feasibility of accommodating the proposed program on the FRC site. Based upon analyses of the constraints on the site, including stream valley buffers and steep slopes, the Land Use Feasibility Study demonstrated that it is feasible to accommodate the full program on the FRC site. In fact there is ample developable land on the 662 acre FRC site to allow for a variety of configurations of the program. Further, there is capacity on site to accommodate FDA growth beyond the current 18,000 employee planning parameters of this master plan.

Four fundamental land use strategies were examined in developing the land use feasibility development scenarios. The land use analyses demonstrated that there is sufficient land to allow for the implementation of each strategy, and each approach would yield their own set of advantages

and disadvantages which are further described in the evaluation portion of this report.

- Strategy 1: Expansion immediately adjacent to the existing campus
- Strategy 2: Development of a new campus central to the overall FRC property
- Strategy 3: Development of a new satellite campus on the Eastern portion of the FRC property
- Strategy 4: No new development, other than providing required parking spaces to maximize existing capacity

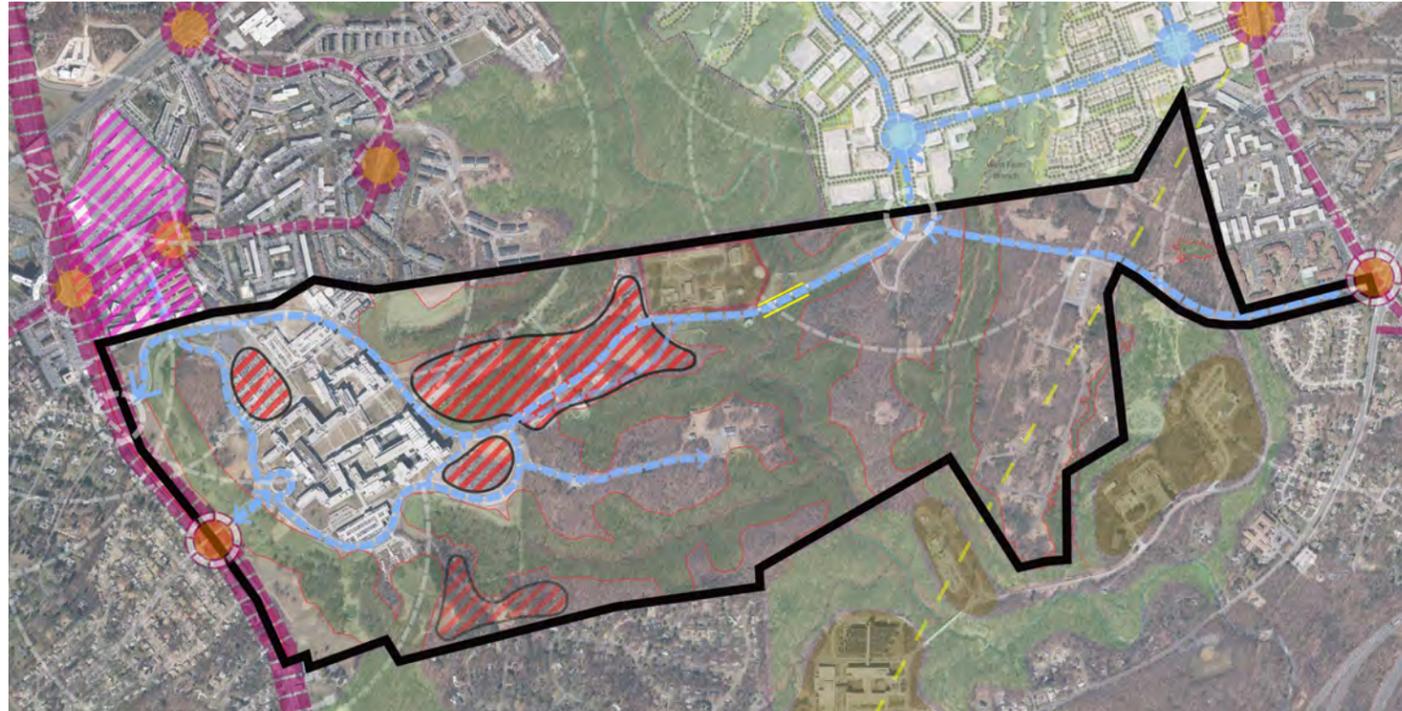
3.1.2 Preferred Land Use Strategy One

Based on consultation between GSA, FDA and the consultants, Strategy 1 was selected to test three master plan options and a no-action option. Strategy 1 embodies the following important principals:

- Creates a walkable campus promoting collaboration,
- Maintains the tree canopy and biodiversity of the site, and
- Converts surface parking lots into building pads thereby minimizing additional impervious surface.



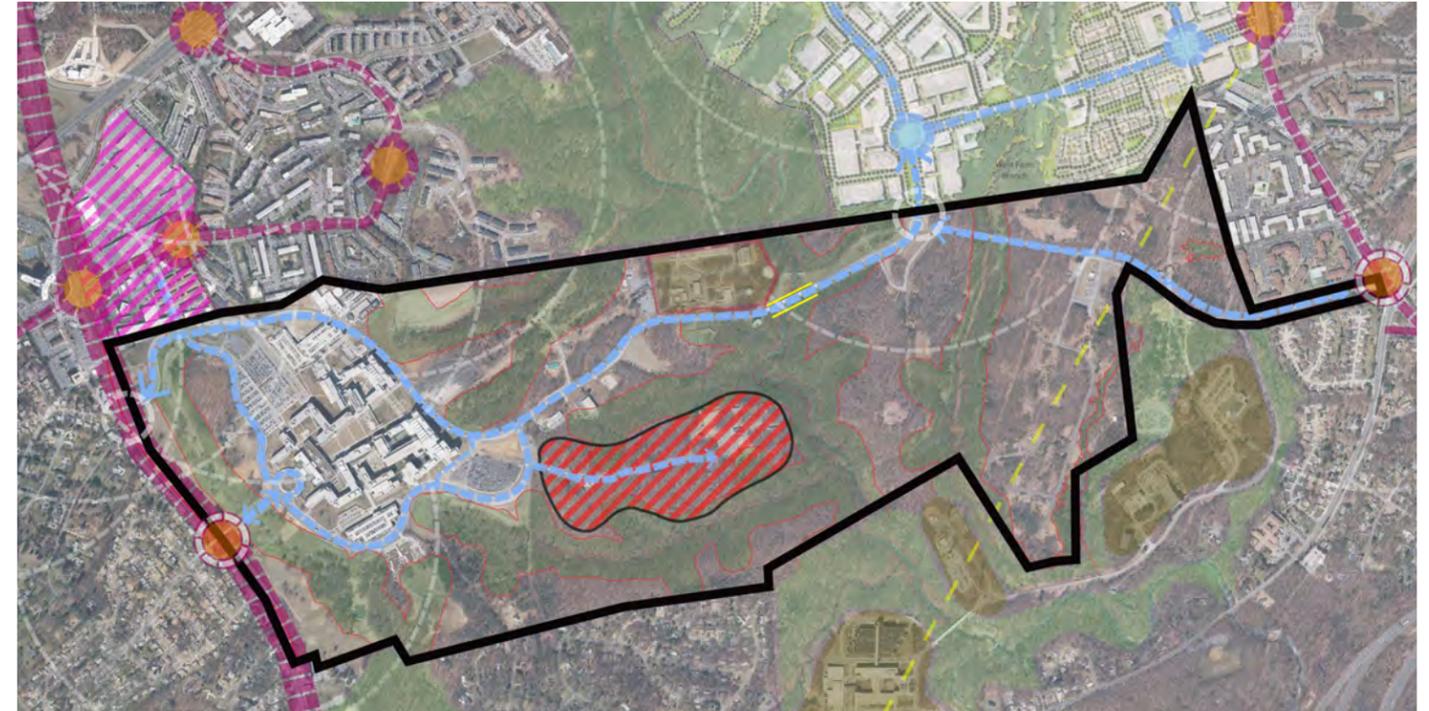
3.1.3 Land Use Strategy Diagrams



**STRATEGY 1:
DEVELOPMENT ADJACENT TO EXISTING
FACILITIES**

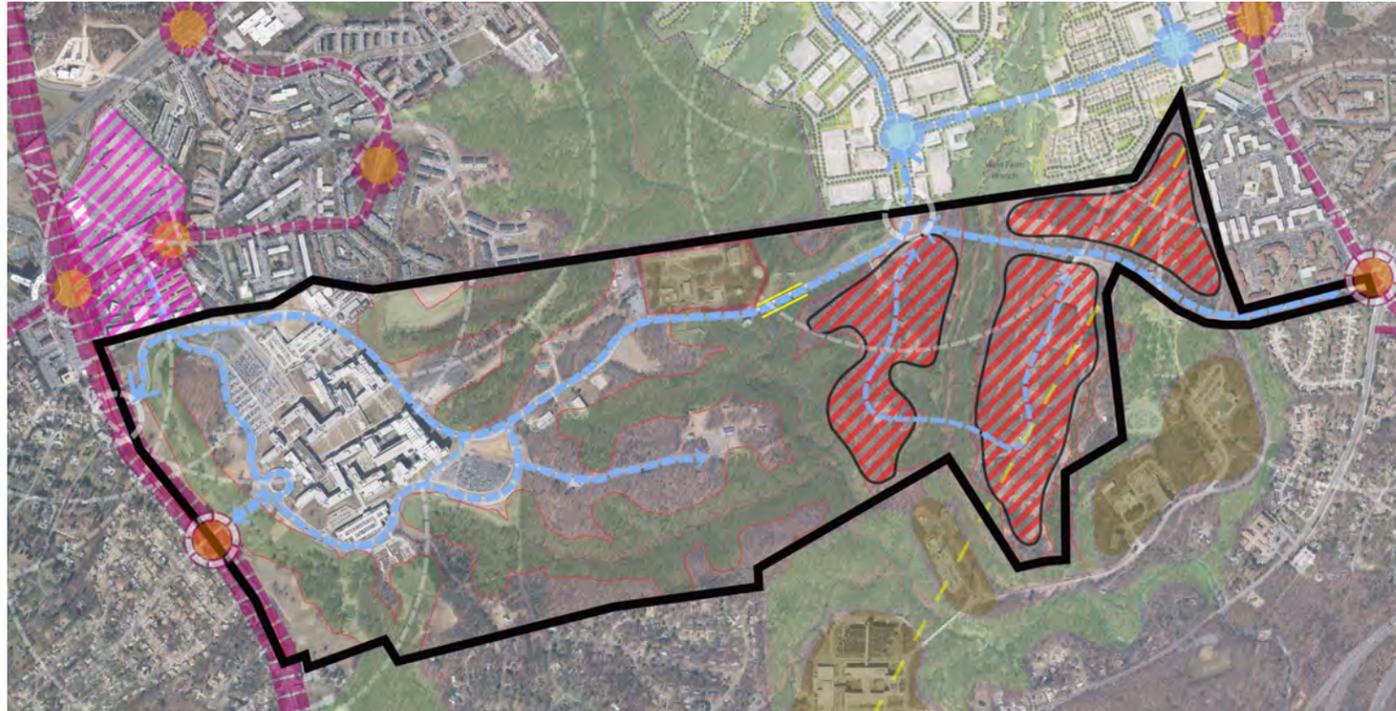
- Focuses new development on periphery of existing campus
- Proximity to main campus promotes connectivity and collaboration
- Potential to link into SE, E, and NW portions of campus
- May link into existing utility infrastructure and CUP
- May require increasing capacity of CUP
- Construction may disrupt some main campus operations/traffic
- Potential advantage to distribute some traffic between East/West sides of site, capture traffic from East and North sides of site

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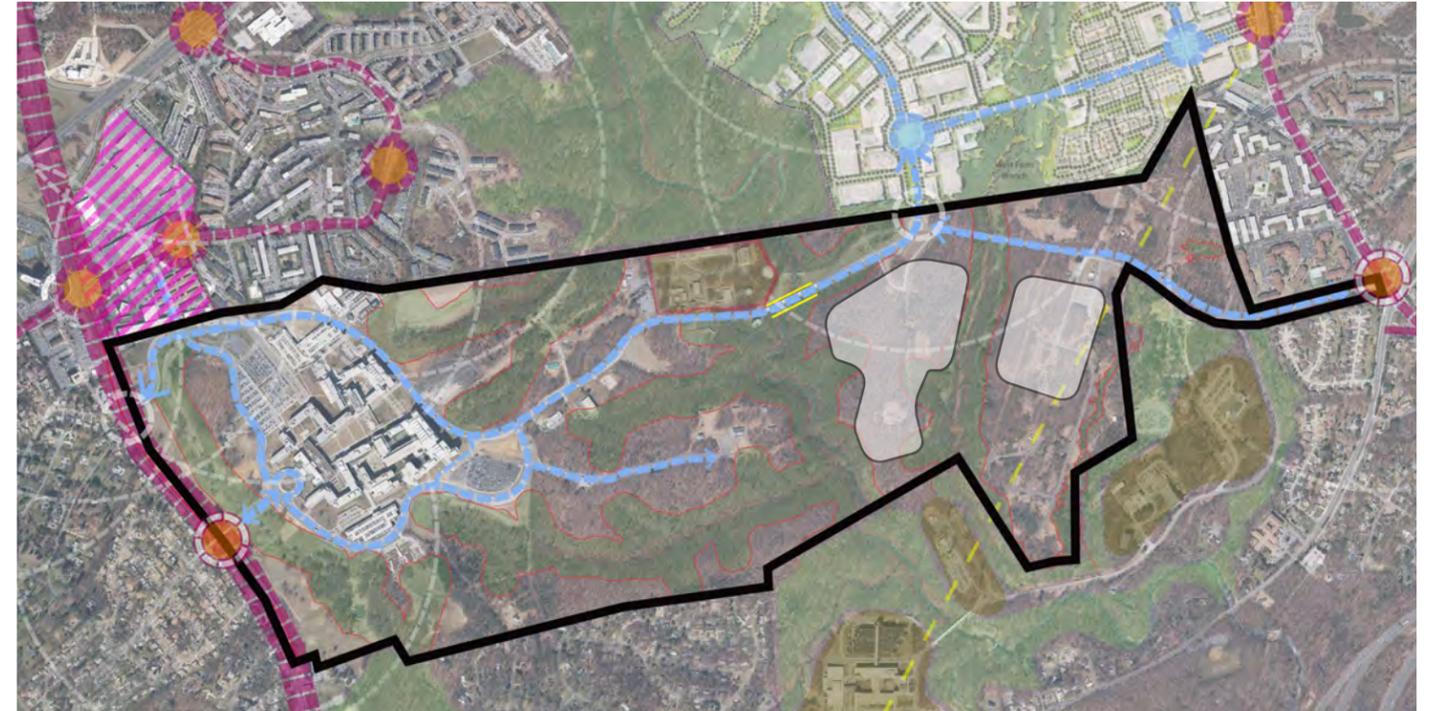
**STRATEGY 2:
DEVELOPMENT IN CENTER OF PROPERTY**

- Focuses new development in center of the campus
- Takes advantage of large land bay in center portion of site
- Expansion may be constrained by slopes and stream valley buffers
- Potential to link into SE portion of campus
- Potential to link into existing utility infrastructure
- May require independent or secondary utility plant
- May reduce construction disruption to main campus
- Distance from main campus may impede pedestrian connectivity/collaboration opportunities
- Potential advantage to distribute traffic between East/West sides of site, capture traffic from East and North sides of site
- Single road access may require construction of additional access road/bridge across Paint Branch Creek



STRATEGY 3: **DEVELOPMENT TO EAST OF PROPERTY**

- Focuses new development on the east side of the campus
- Potential to integrate with Viva White Oak Development
- Takes advantage of large land bays on eastern portion of site
- May require independent or secondary utility plant
- Potential to tie into utility corridors in Cherry Hill Road and/or Viva White Oak
- May minimize construction disruption to main campus
- Distance from main campus may impede pedestrian connectivity/collaboration opportunities
- Potential advantage to distribute traffic between East/West sides of site



STRATEGY 4: **NO BUILD OPTION**

- Provides for additional remote parking to allow existing campus to reach capacity, does not propose new buildings
- Distance from main campus may impede pedestrian connectivity and create additional travel time from parking to offices
- New parking could be used to offset loss of parking in the event that existing surface lots surrounding campus are developed
- Potential to integrate with Viva White Oak Development in future
- Takes advantage of large land bays on eastern portion of site
- May minimize construction disruption to main campus
- Potential advantage to distribute traffic between East/West sides of site

3.2 Master Plan Development Alternatives

Proceeding the Preferred Development Alternative, there were four alternatives in the Draft Master Plan: a No-Action Alternative, and Action Alternatives A, B and C they are briefly summarized on the following three pages.

At present, the campus includes:

- 10,987 assigned personnel to the FDA Headquarters with a current peak daily population of 7,793;
- 3,766,605 gsf with 60,438 gsf of bridges and tunnels and 996,975 gsf parking garages for a total of 4,824,018 gsf;
- 6,817 parking spaces (including visitor parking); and
- Child Care Center located on the south side of the FDA Headquarters.

3.2.1 No-Action Alternative

With a No-Action Alternative, FDA would continue its current operation at the FRC. Specifically, under the No-Action Alternative the number of employees and support staff would not increase and would remain at approximately 10,987 assigned personnel to the FDA Headquarters. (The peak daily population at the FDA Headquarters is 7,793). The additional employees would need to be in other government owned or leased space in the Washington, DC metropolitan area. Locating these employees outside of the FDA Headquarters would result in inefficiencies in coordination of work products and in use of administrative, management, and technical support function.

NO-ACTION ALTERNATIVE



Figure 3-1: Existing Campus Aerial View - No-Action Alternative

3.2.2 Action Alternatives A, B and C

Under the Action Alternatives, the number of FDA employees and support staff at the FDA Headquarters would increase to approximately 18,000. The proposed master plan alternatives would add in the range of 1,550,000 gsf of office space and 280,000 to 350,000 gsf special use space to support FDA's mission.

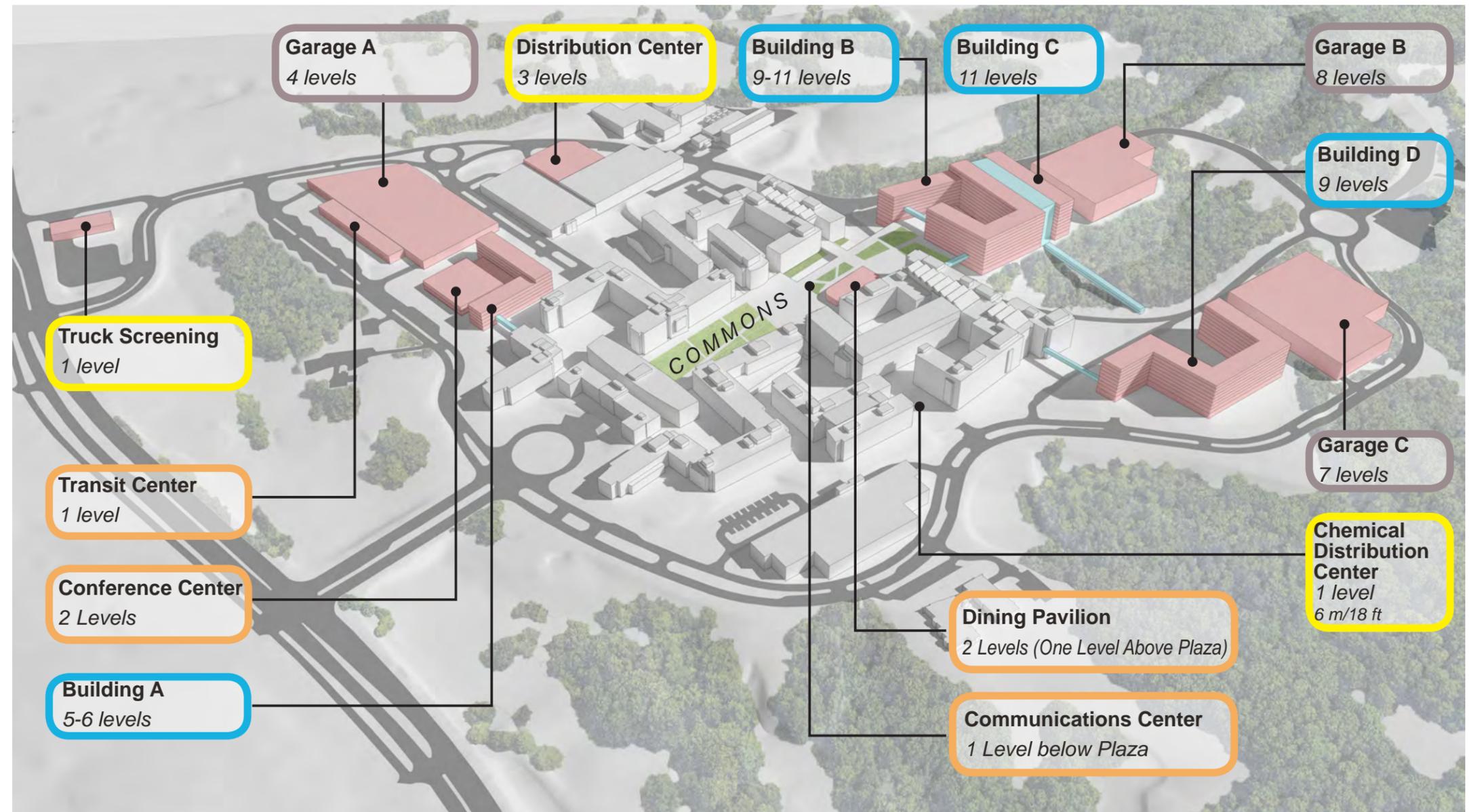
Parking would be provided at ratio of 1 space for every 1.8 employees (1:1.8) for a total of 10,000 parking spaces for FDA employees and campus support staff; and visitor parking would be increased from 1,000 to 1,615 parking spaces. Thus, the total number of parking spaces provided on the FDA Headquarters would be 11,615, which would include the additional 7,342 new additional parking spaces for FDA and its employees. Additional new parking spaces include replacement of 2,544 existing surface parking spaces displaced by new buildings.

The East Loop Road would be reconfigured to allow for ease of circulation and access into and out of the FDA Headquarters. The reconfigured East Loop Road would circle around the new office buildings proposed on the east side of the FDA Headquarters and would connect with Blandy Road. At Blandy Road and FDA Boulevard, a new traffic circle would be constructed that would connect it with the Southeast Loop Road. The Southeast Loop Road would circle around the Southeast Parking Garage and connect to the existing Southeast Loop Road that would be reconfigured for the connection.

Under each of the Action Alternatives, a Distribution Center would be constructed adjacent to the Northeast Parking Garage. The distribution would connect directly into the existing tunnel network. In addition to the Distribution Center, FDA intends to enhance the loading docks adjacent to Building 72 to better handle chemical distribution to the lab buildings. This enhancement is common to all the alternatives.

1 ALTERNATIVE A: Mid-Rise Office Buildings

2 With Alternative A, building heights were in the range of existing buildings and the planning principle of the buildings
3 define a series of courtyard spaces in the tradition of great university campuses.
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43 Figure 3-2: Alternative A Aerial View

A Truck Screening Facility would be constructed at the entrance to the FDA Headquarters on Michelson Road and a new Transit Center would be located on the existing northwest surface lots.

In addition to the above-mentioned elements, there are commonalities to each of the Action Alternatives that range from historic preservation to high preference buildings. The net result is that each of three action alternatives A, B and C had the capability of accommodating 18,000 FDA employees and support staff in GSA's proposed Master Plan.

A summary of the alternatives is as follows:

- Approximately 18,000 employees and support staff
- Approximately 1,550,000 gsf of office space and 280,000 to 350,000 gsf special use space
- Parking ratio 1:1.8
- 10,000 total parking spaces for FDA employees and support staff;
- Visitor parking of 1,615 parking spaces
- Reconfigured East Loop Road
- Distribution Center is located adjacent to the Northeast parking garage and connects directly into the existing tunnel network
- Truck Screening Facility located at the entrance to the FDA Headquarters on Michelson Road
- Transit Center located along the Northwest Loop Road adjacent to the Visitors Center

ALTERNATIVE B: One Large Tower Office Building

With Alternative B, a 20-story office building would be located on the eastern end of the FDA Headquarters. This iconic building would anchor the eastern of the commons and signal the significance of the campus.

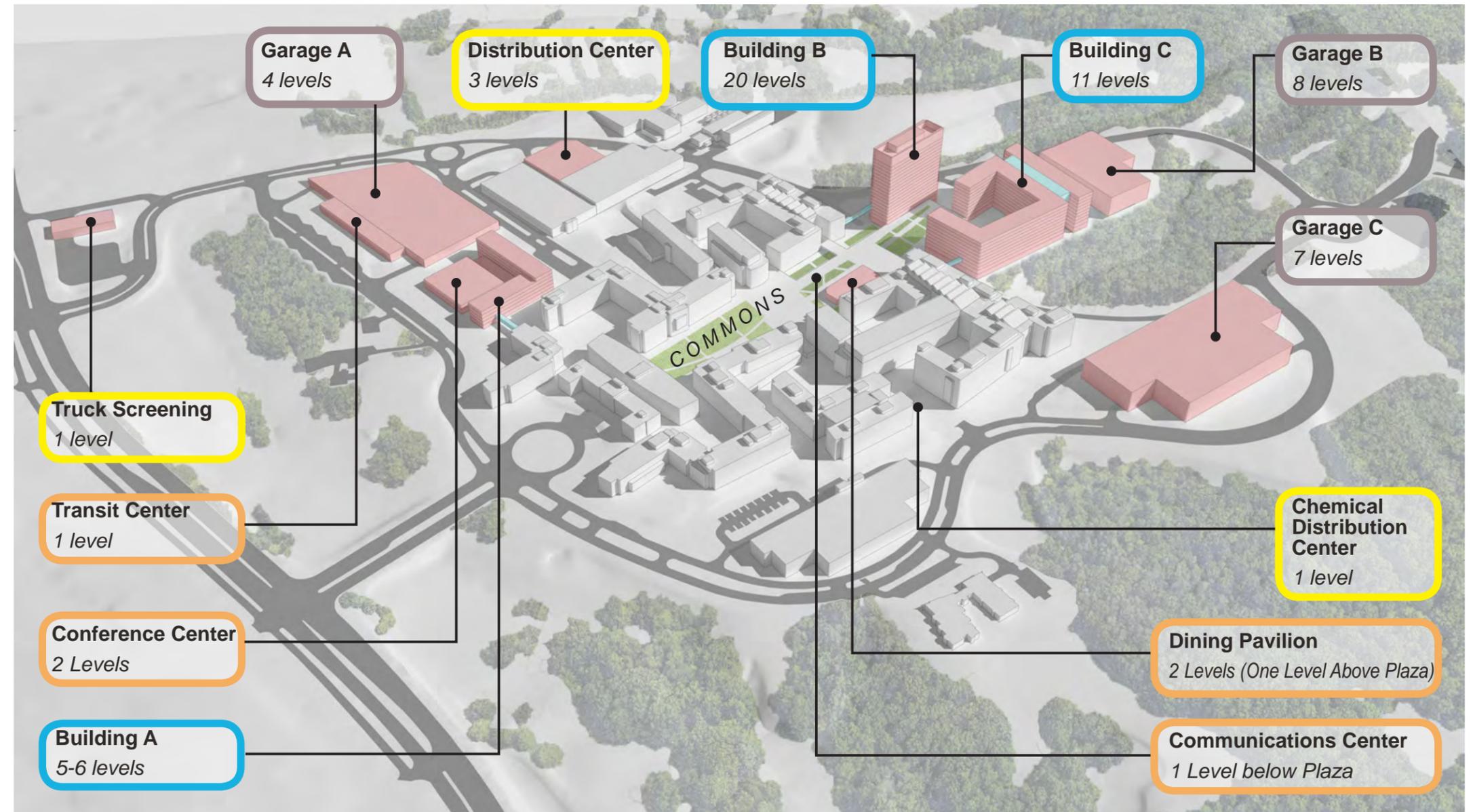


Figure 3-3: Alternative B Aerial View

ALTERNATIVE C: Mid-Rise Office Buildings

With Alternative C, one 14-story and one 16-story office building would be located on the eastern end of the FDA Headquarters.

Alternative C is Preferred Development Alternative, see section 3.3 for further development.

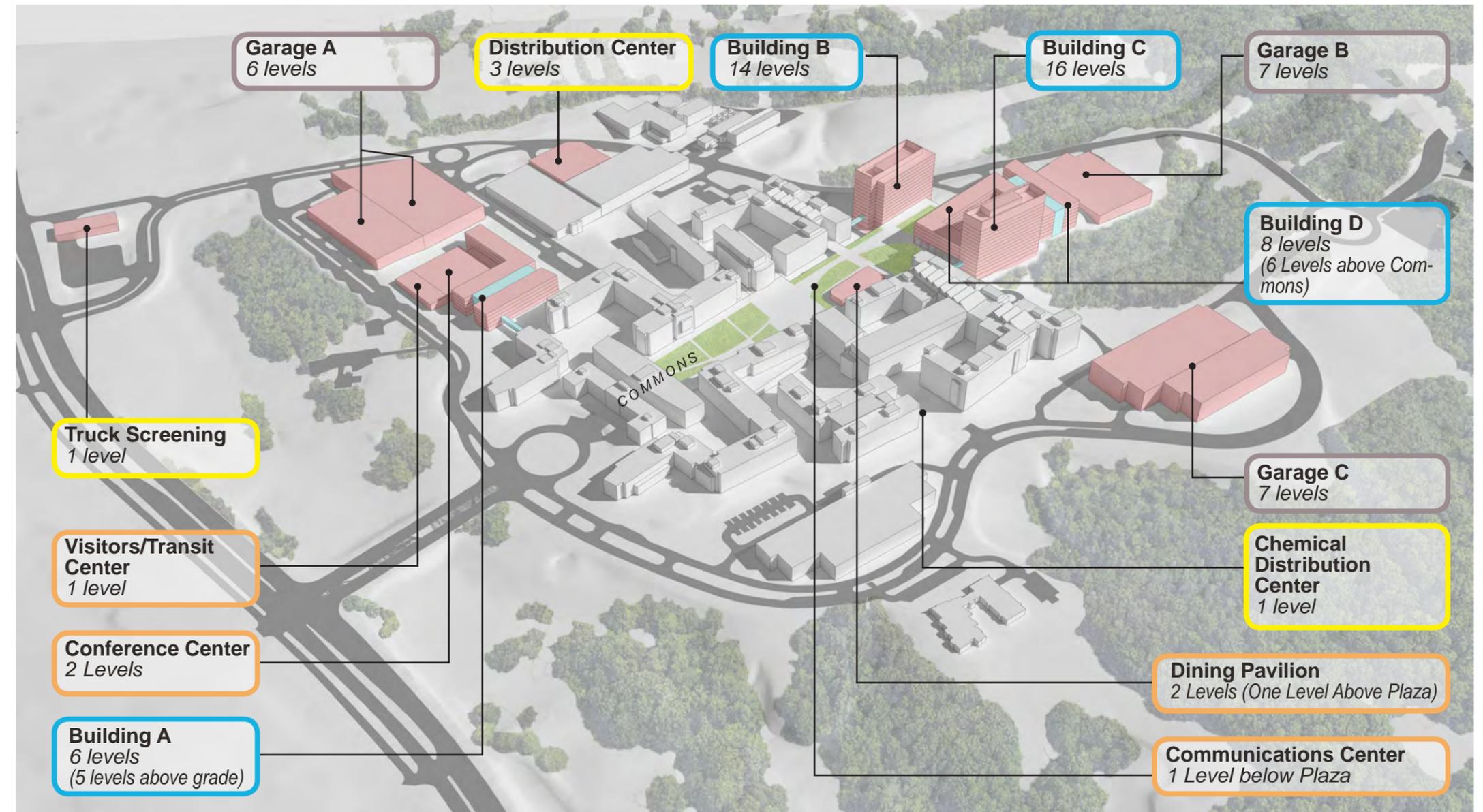


Figure 3-4: Alternative C Aerial View

3.3 Preferred Development Alternative

NEW OFFICE	1.55M ft ²	144K m ²
COMMUNICATION CENTER	65K ft ²	6.0K m ²
TRANSIT/VISITOR CENTER	15K ft ²	1.4K m ²
CENTRAL CONFERENCE	60K ft ²	5.6K m ²
DISTRIBUTION CENTER	105K ft ²	9.8K m ²
OTHER SPECIAL /SHARED SPACES	36K ft ²	3.3K m ²
PARKING	7,342 Spaces	
SITE INFRASTRUCTURE		

Table 3-1: Preferred Development Alternative Concept

TOTAL REQUIRED NEW BUILDING AREA :

- **TOTAL OFFICE : 144,000 m² / 1,550,000 ft²**
- **TOTAL SPECIAL USE AND SHARED USE : 280,000 to 350,000 SF**
- **TOTAL NEW PARKING : 7,342 Spaces**

The Preferred Development Alternative’s two taller office buildings, 14-story and 16-story, would be located on the eastern end of the FDA Headquarters framing the view down the axis of the campus Commons. The plan include opening the space between the taller buildings, framing the view to the east, activating the space, providing a connection between the Commons and the new courtyard, and adjusting the massing to respond to the approach as you enter the site from Mahan Road.

In summary, the Preferred Development Alternative is as follows:

- Accommodate a total campus population of 18,000. This number includes GSA staff necessary support FDA’s operations on site.
- Total new office area required is in the range of 1,550,000 GSF based on a utilization rate of 170 SF/Person.
- Approximately 280,000 to 350,000 SF of special space is broken down as follows:
 - Distribution Center – 105,000 SF
 - Communication Center – 65,000 SF
 - Conference Center – 60,000 SF
 - Visitor Center/Transit Center – 15,000 SF

- 1 Food Service Facilities/Dining Pavilion– 18,000 SF
- 2 Truck Screening Center – 10,000 SF
- 3 Fitness Center – 6,500 SF
- 4 Expansion of the Chemical Loading Dock – 1,000 SF
- Total parking required is 11,615 spaces. This includes 10,000 spaces for employees at a parking ratio of 1 space for every 1.8 employees (1:1.8), or 5 parking spaces per 9 employees plus 1,615 spaces for visitors. Of the 7,342 new parking spaces, approximately 2,544 spaces account for existing surface parking spaces that are displaced by new buildings. Please see 3.3.11 for more detail.

3.3.1 Planning Development and Refinement

The Preferred Development Alternative combines many of the positive aspects of Alternatives B & C. A broad overview of the development are as follows:

- Development of the Preferred Development Alternative resulted in the structure that is labeled Building B located further to the north, anchoring the buildings along northern arm of the Commons and opening the space between buildings towards the natural, forested part of the site. Furthermore, this move increases the distance of the building further off center from Building 1 as you drive into the campus along Mahan Road resulting in less impact on the viewshed.
- Design developments also include relocation of Building C to anchor the buildings along the southern arm of the Commons. Much like Building B, this building is further off center from Building 1 as you proceed down Mahan Road. This building has increased in height to accommodate a refined program.
- With the two adjustments mentioned, above the

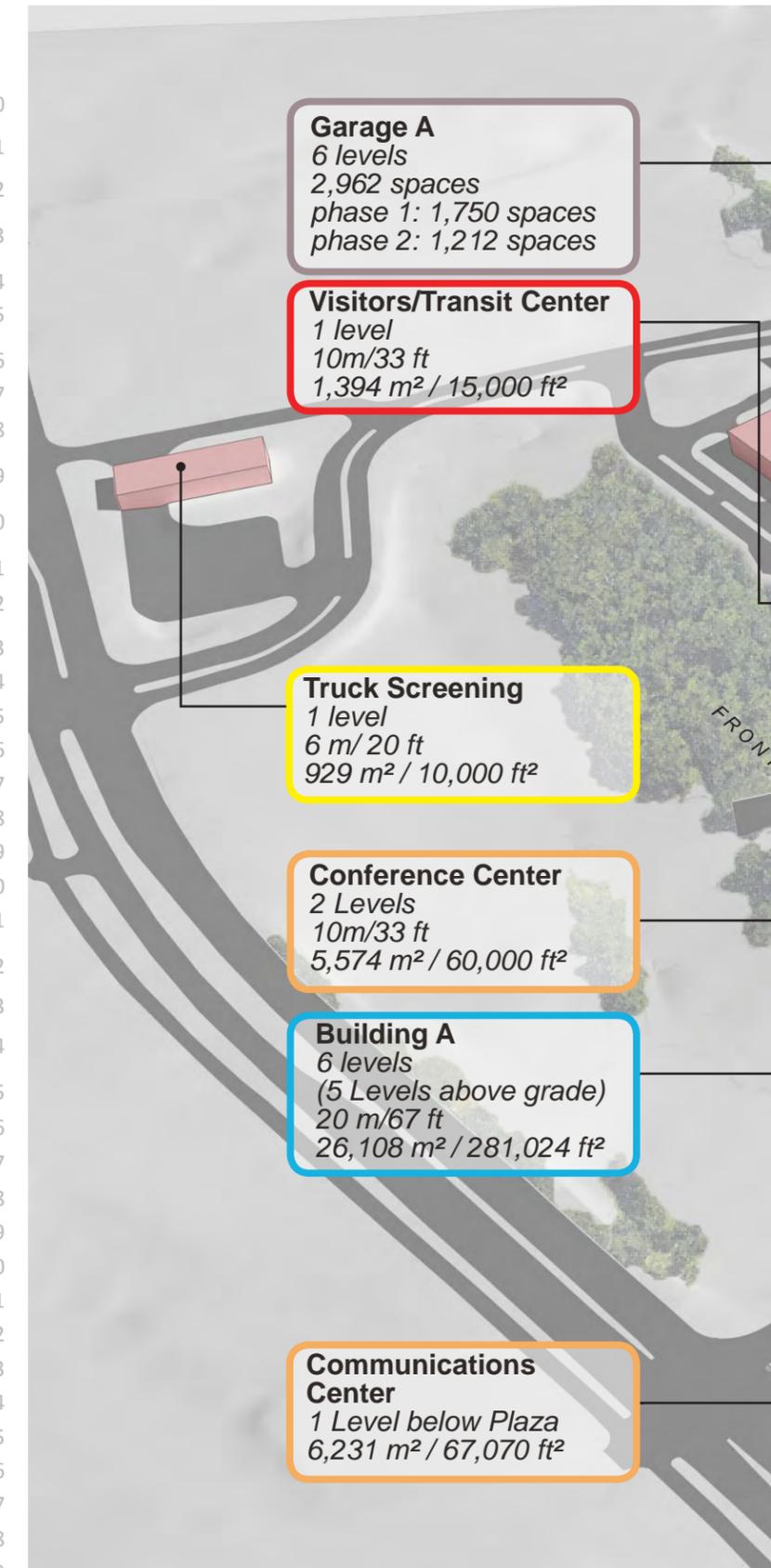
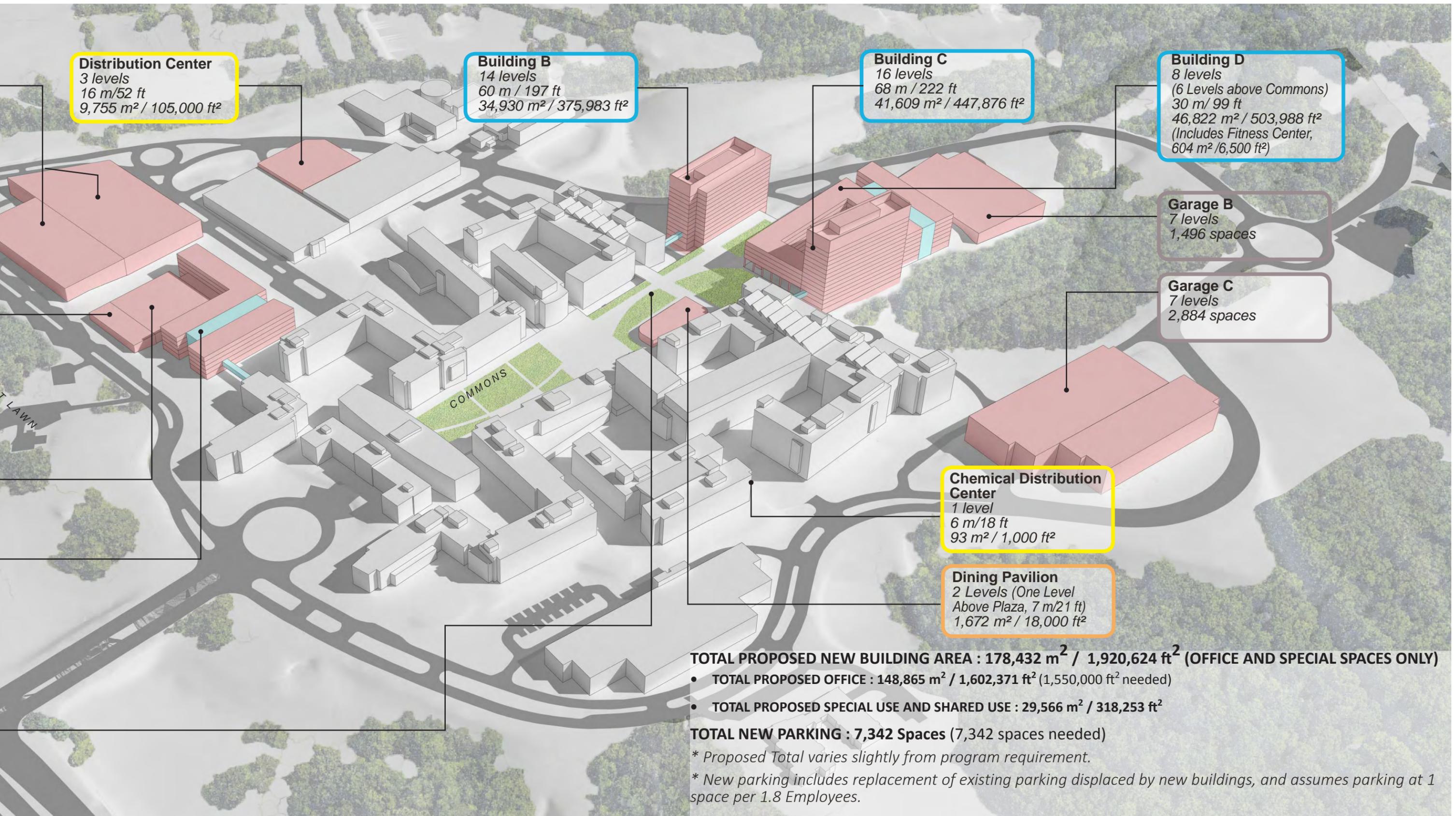


Figure 3-5: Preferred Development Alternative Aerial View



Distribution Center
 3 levels
 16 m/52 ft
 9,755 m² / 105,000 ft²

Building B
 14 levels
 60 m / 197 ft
 34,930 m² / 375,983 ft²

Building C
 16 levels
 68 m / 222 ft
 41,609 m² / 447,876 ft²

Building D
 8 levels
 (6 Levels above Commons)
 30 m/ 99 ft
 46,822 m² / 503,988 ft²
 (Includes Fitness Center,
 604 m² / 6,500 ft²)

Garage B
 7 levels
 1,496 spaces

Garage C
 7 levels
 2,884 spaces

Chemical Distribution Center
 1 level
 6 m/18 ft
 93 m² / 1,000 ft²

Dining Pavilion
 2 Levels (One Level
 Above Plaza, 7 m/21 ft)
 1,672 m² / 18,000 ft²

TOTAL PROPOSED NEW BUILDING AREA : 178,432 m² / 1,920,624 ft² (OFFICE AND SPECIAL SPACES ONLY)

- **TOTAL PROPOSED OFFICE : 148,865 m² / 1,602,371 ft² (1,550,000 ft² needed)**
- **TOTAL PROPOSED SPECIAL USE AND SHARED USE : 29,566 m² / 318,253 ft²**

TOTAL NEW PARKING : 7,342 Spaces (7,342 spaces needed)

* Proposed Total varies slightly from program requirement.
 * New parking includes replacement of existing parking displaced by new buildings, and assumes parking at 1 space per 1.8 Employees.

view down the Commons looking east, opens the view to the sky and trees beyond. Specifically, in the Preferred Development Alternative, this opening is now 135', whereas it was 72' for Alternative C and 100' in Alternative B. The opening between the buildings is centered on the original planning axis of the historic building.

- Compared with the Draft Master Plan of Alternative C, a new 5 story building has been added to the southern side of Building A and a new 7 story building has been added eastern side of Building D.
- All the low-rise buildings have been reduced to 19.25M / 64 ft in width to permit more natural light to penetrate the interior and improve the opportunity to become Zero Net Energy in the future.

3.3.2 Additional Program Development and Refinement

- The Commons extends to engage the new buildings to the east to maintain the walkable campus.
- The extended Commons is at the same level as the existing Commons. Because the natural grade slopes down towards the east, the new Commons area is built above the existing grade. The Communication Center is housed in the space below and the Dining Pavilion will be constructed on the Commons to activate to this space.
- To create a physical and visual connection between the Commons and the courtyard defined by Building D, a portion of the building is constructed on two-story pilotis.
- The Distribution Center is located on the north side of the Northeast Parking Garage. With a program of 105,000 SF, this facility will be 3 levels above grade and connects directly to the existing tunnel system.
- The Visitor/Transit Center has been moved further south to decrease the walking distance to

the main entrance at Building 1 as this serves as an important functional entry to the campus. It is anticipated the future New Hampshire Bus Rapid Transit (BRT) will have a stop at this location, along with public buses and FDA shuttles.

- A truck screening facility, that supports distribution, is located at the intersection of Michelson Road and New Hampshire Avenue.

3.3.3 Parking Summary

As noted above, the total parking required is 11,615 spaces. This includes 10,000 spaces for employees at a parking ratio of 1 to 1.8, or 5 parking spaces per 9 employees, plus 1,615 spaces for visitors. Of that total, 7,342 are new parking spaces in 3 parking garages. This figure includes the replacement of existing 2,544 parking spaces displaced by new buildings. Development of the Preferred Development Alternative resulted in the following parking modifications:

- Parking Garage B, on the eastern end of the Commons, has reduced in size to accommodate the increased footprint of the adjacent office space, but also to minimize the impact to the tree canopy. Depending on when this phase is implemented the parking could be reduced further in size if modern technology comes on-line reducing the demand for parking spaces.
- Parking Garage C has marginally increased in size from 2,700 spaces to 2,884 spaces.
- The garage on the west side of the campus has been replaced by the Distribution Center.
- Parking Garage A, on the NW side of the campus, has increased in size from 2,067 spaces to approximately 3,000 spaces. The footprint has been modified in response to the changes in the location of the Transit Center and the Visitors Center and the height has increased to 6 levels. While it is 6 levels in height, because of the change in grade on the western side, it will be only 4 elevated levels above grade.

The increase in size is due to the reduction in the size of Garage B and the elimination of the western garage. This garage will be the principal place for visitor parking and as well as staff. The garage can be easily configured so the visitor can enter and park on the western side of the garage, segregated for security reasons from staff parking who will enter and park on the eastern side of the structure. Depending on funding and demand, this garage can be built in phases.

3.3.4 Loop Road Summary

To improve connection and access to the FDA Headquarters, the Preferred Development Alternative will be reconfigured utilizing the following design strategies:

- A future connection to the redevelopment of the White Oak Shopping Center has been planned at the intersection of Michelson Road and the NW Loop Road on FDA's Campus. This will facilitate access between this future development by vehicles, bikes, and pedestrians. While it is well inside Federal Research Center, this connection is before the first security checkpoint on Michelson Road.
- The East Loop Road will be reconfigured to allow for ease of circulation and access into and out of the FDA Headquarters. The reconfigured East Loop Road would circle around the new office buildings proposed on the east side of the FDA Headquarters and would connect with Blandy Road. At Blandy Road and Dahlgren Road, a new traffic circle would be constructed that would connect it with the Southeast Loop Road. The Southeast Loop Road would circle around the Southeast Parking Garage and connect to the existing Southeast Loop Road that would be reconfigured for the connection.

3.3.5 Proposed Development & Land Use

The FDA Master Plan will enhance the public realm in

the following ways:

- Strengthening the walkability of the campus to include accessible sidewalks, adequate light, and maintained vegetation along the entry roads.
- Encouraging healthy community behavior by improving bike infrastructure for bike commuters.
- Minimizing energy resources by reducing the maintenance of the vegetation as much as possible around the perimeter of the campus.
- Supporting the conservation of the natural resources on the campus by a careful and dense layout of new features.

Preferred Development Alternative
New Development Concept Diagram

- 1 Central Axis from Building 1
- 2 Cross Axis
- 3 Southern Arm of Commons
- 4 Visual Connection to Nature

LEGEND
New Development
Axial Relationship



Scale 1:5,000

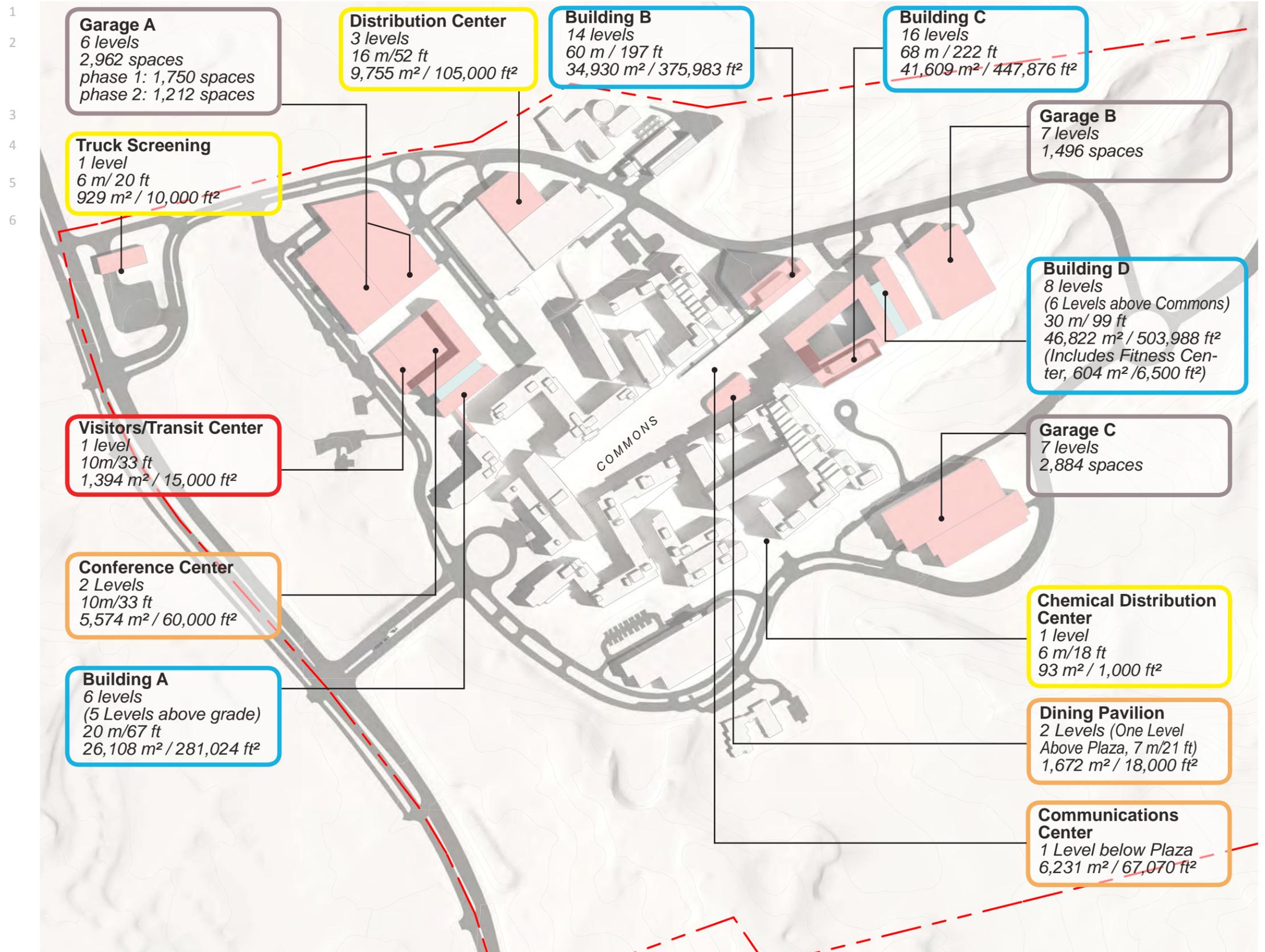


Figure 3-6: Preferred Development Alternative Concept Diagram

Preferred Development Alternative
Site Plan

LEGEND

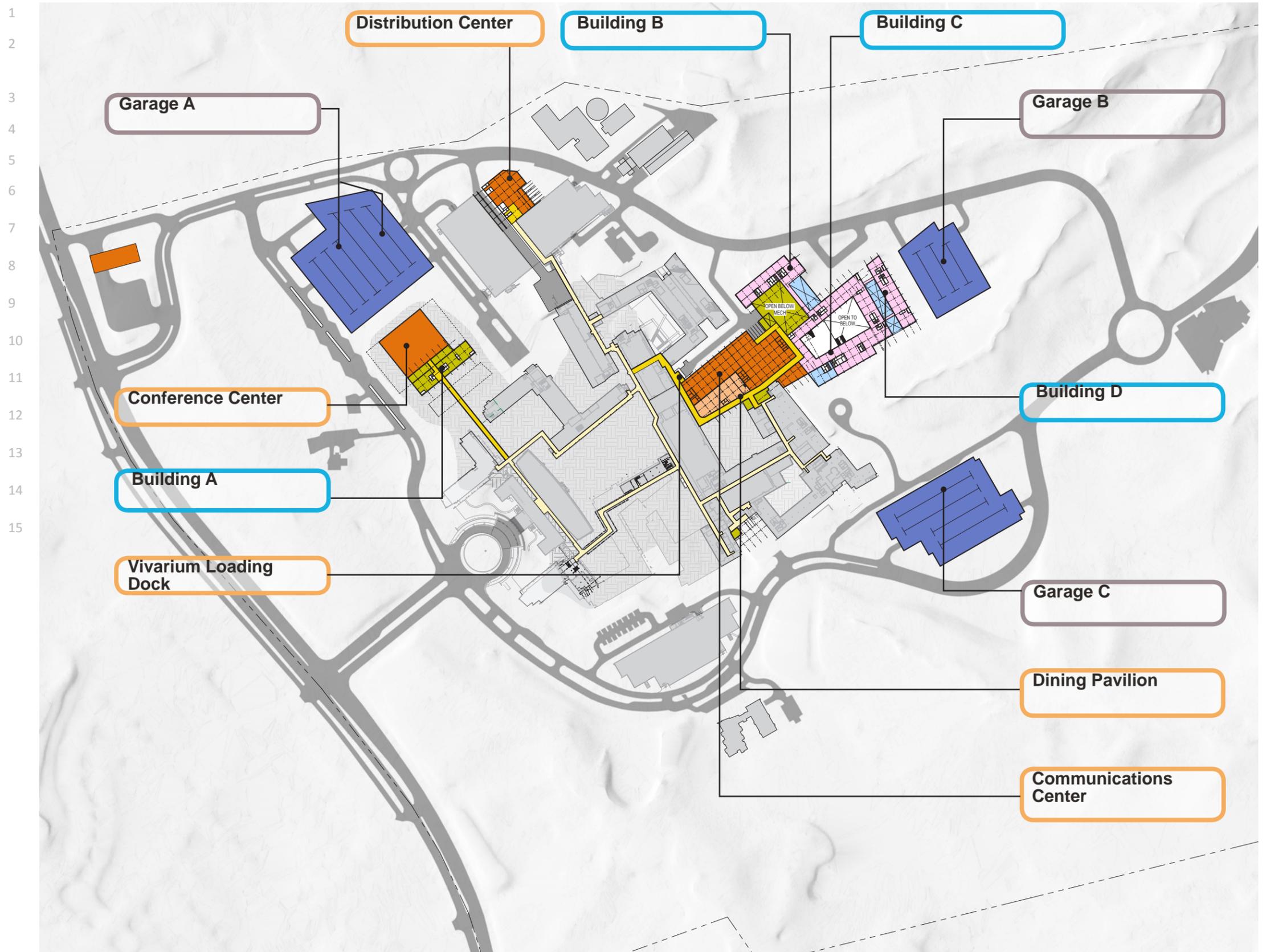
- New Development
- Existing Buildings



Preferred Development Alternative
Ground Floor Plan

LEGEND

- Existing Buildings
- Existing Tunnel Distribution System
- New Special Spaces
- New Office
- New Parking
- New Tunnel Distribution System
- Support Spaces
- Lobby and Atrium
- Dining



PREFERRED DEVELOPMENT ALTERNATIVE
View from Commons to New Development

1
2



Figure 3-7: Preferred Development Alternative View from Commons to New Development



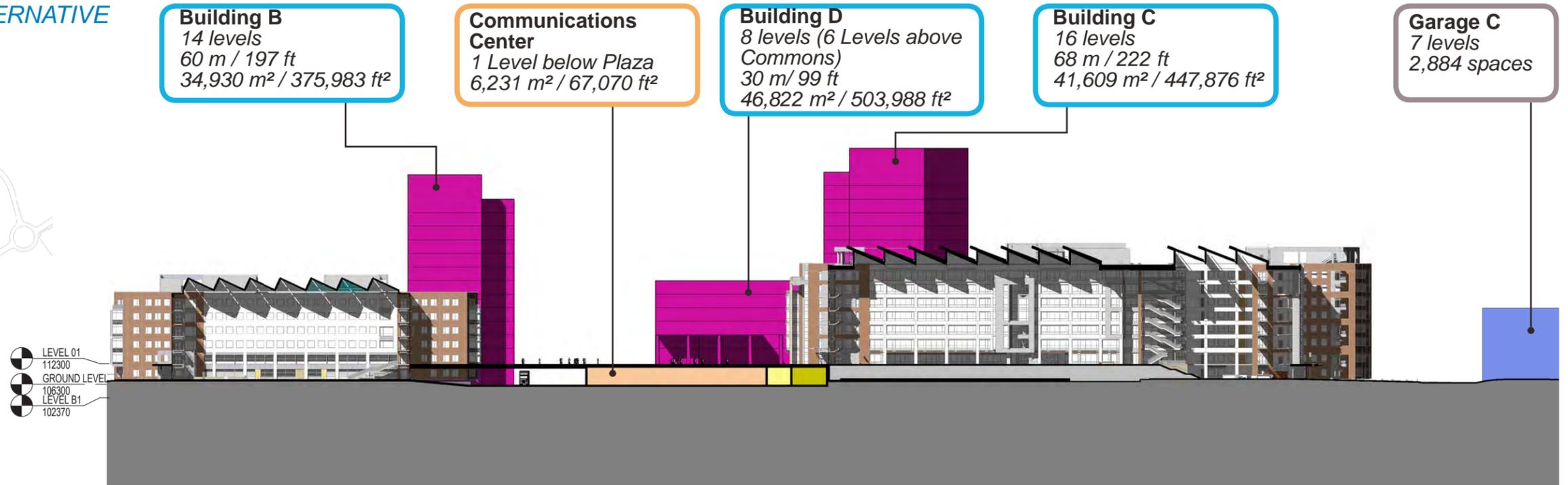
PREFERRED DEVELOPMENT ALTERNATIVE ¹
View from Commons ²



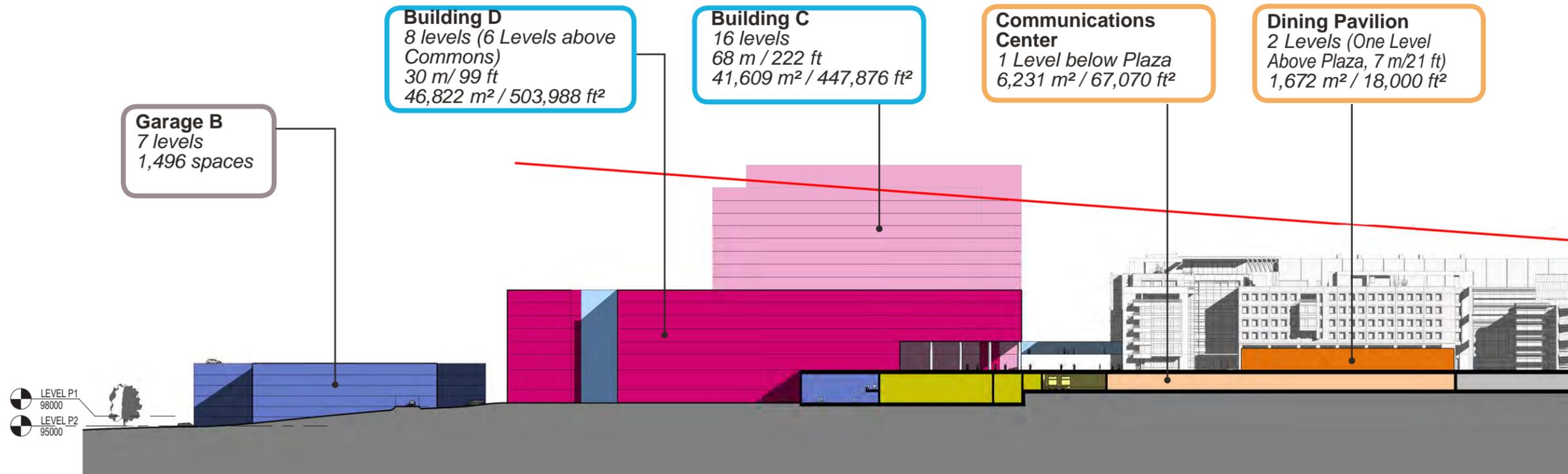
Figure 3-8: Preferred Development Alternative View from Commons



PREFERRED DEVELOPMENT ALTERNATIVE
Sections and Line of Sight

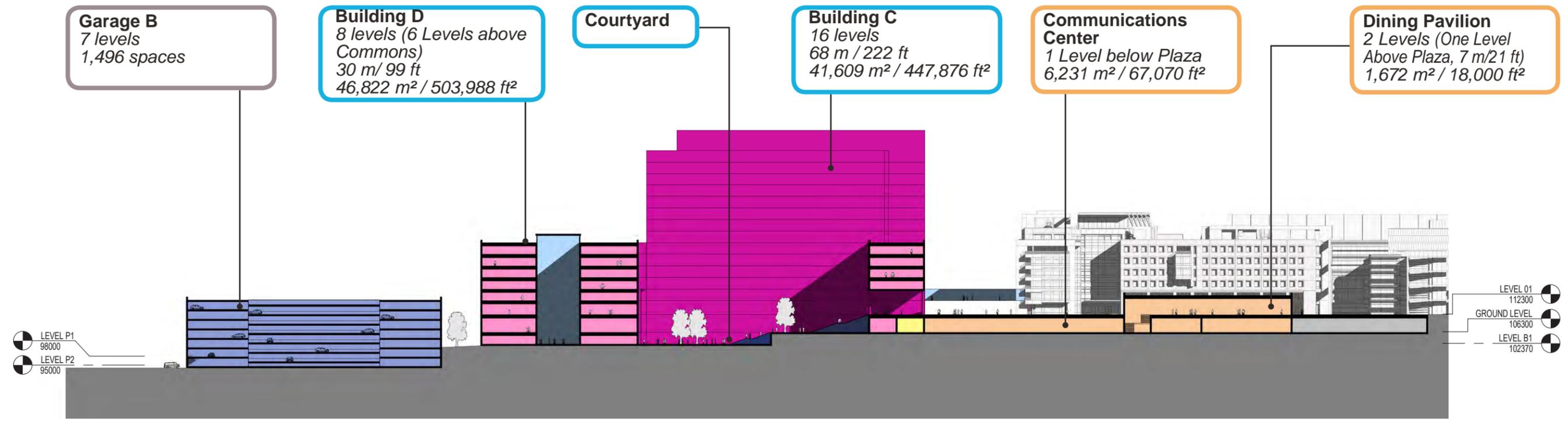


SECTION A-A

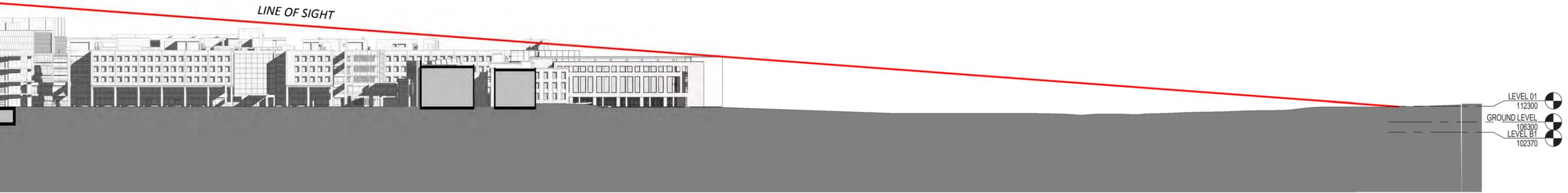


SECTION C-C

Figure 3-9: Preferred Development Alternative Sections and Line of Sight Diagram



SECTION B-B



3.3.6 Phasing & Implementation

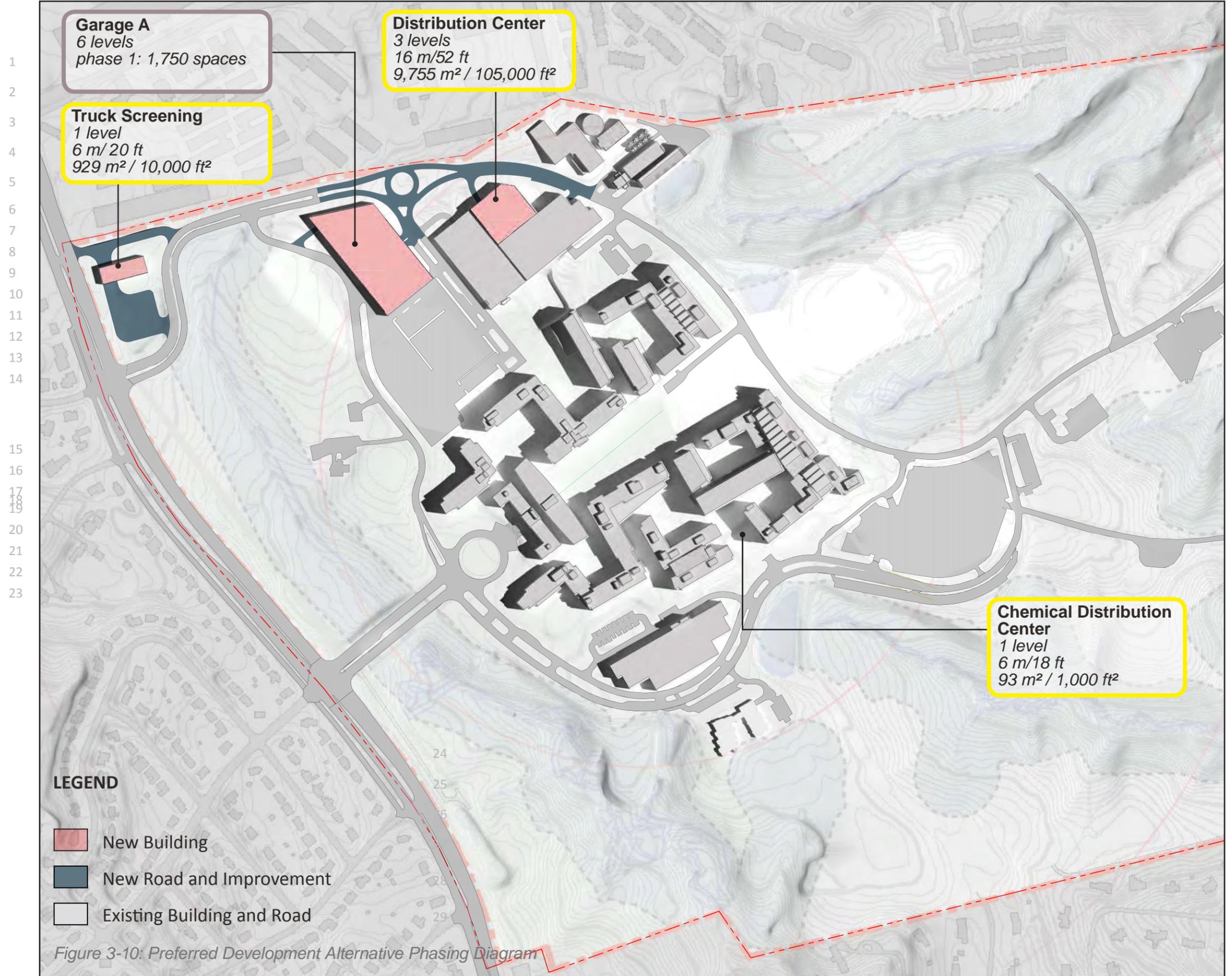
Phase 1 Summary

Building(s), Roadway(s) and Improvement

The construction of the Distribution Center and Truck Screening Facility is of critical importance to the operation of the campus. They would be both built in the first phase. In addition, a significant portion of Garage A would also be constructed. Doing so would both relieve the current parking shortage on site, but also provide parking capacity for future phases to be implemented, as all of the future phases remove existing surface parking lots.

Distribution Center	9,766 m ² / 105,000 ft ²
Chemical Distribution Ctr	93 m ² / 1,000 ft ²
Truck Screening Facility	929 m ² / 10,000 ft ²
Phase 1 Total	10,777 m² / 116,000 ft²

Garage A Phase 1 **1,750 spaces**



Phase 2 Summary

Building(s), Roadway(s) and Improvement

PHASE 2 will include realignment of the NW Loop Road, construction of Office Building A, the Conference Center, Visitor Center and the remainder portion of Garage A.

NW Loop Road

Building A	26,108 m ² / 281,024 ft ²
Conference Center	5,574 m ² / 60,000 ft ²
Visitor/Transit Center	1,394 m ² / 15,000 ft ²

Phase 2 Total	33,076 m ² / 356,024 ft ²
Cumulative Total	43,852 m² / 472,024 ft²

Garage A Phase 2	1,212 spaces
Cumulative Total	2,962 spaces

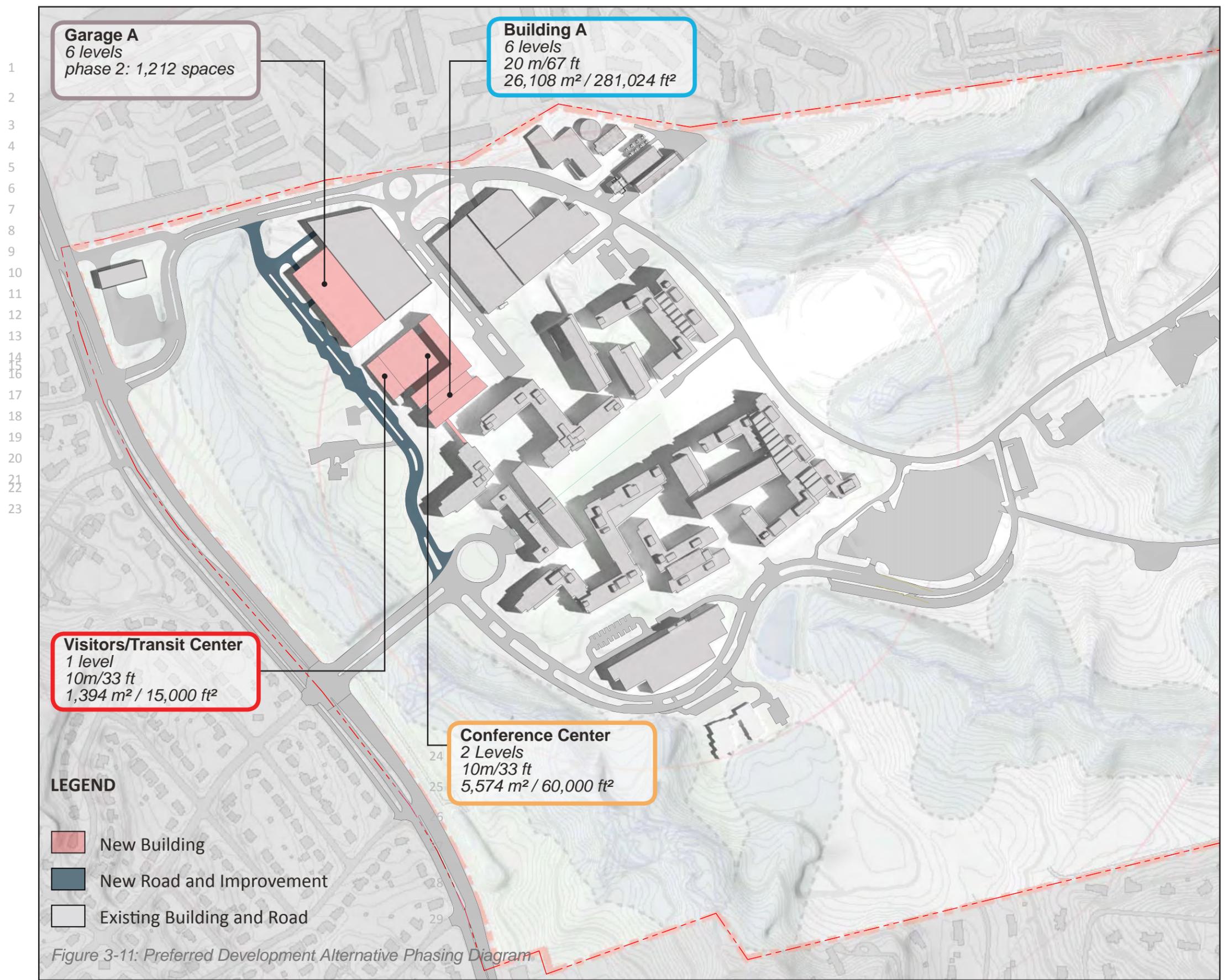


Figure 3-11: Preferred Development Alternative Phasing Diagram

Phase 3 Summary

Building(s), Roadway(s) and Improvement

Phase 3 includes the construction of Parking Garage C in the SE Quad and realignment of the SE Loop Road. This garage is necessary to permit the largest phase to proceed as the final phase.

SE Loop Road

No buildings To be constructed in this phase

Cumulative Total 43,852 m² / 472,024 ft²

Garage C 2,884 spaces

Cumulative Total 5,846 spaces

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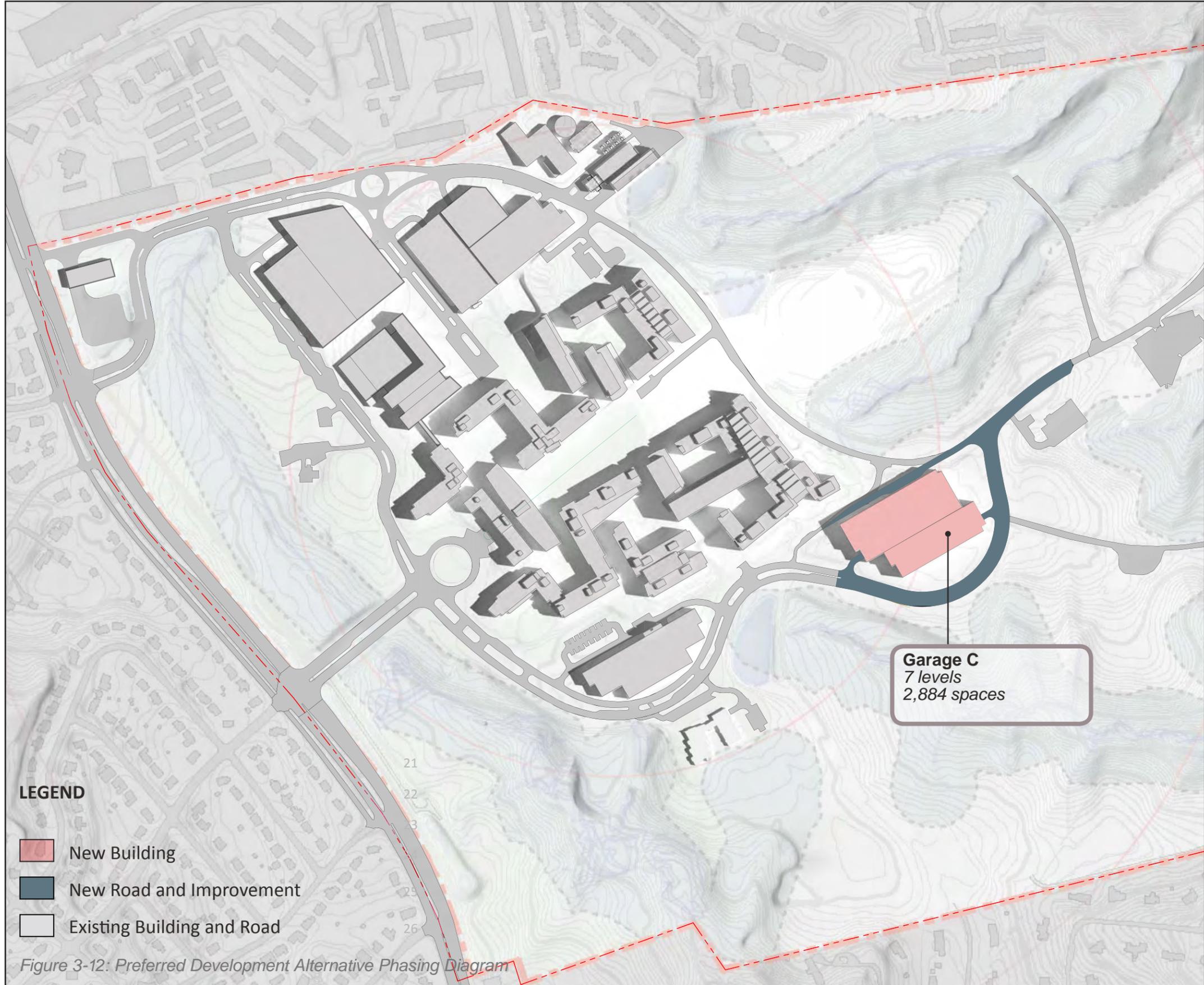


Figure 3-12: Preferred Development Alternative Phasing Diagram

Phase 4 Summary

Building(s), Roadway(s) and Improvement

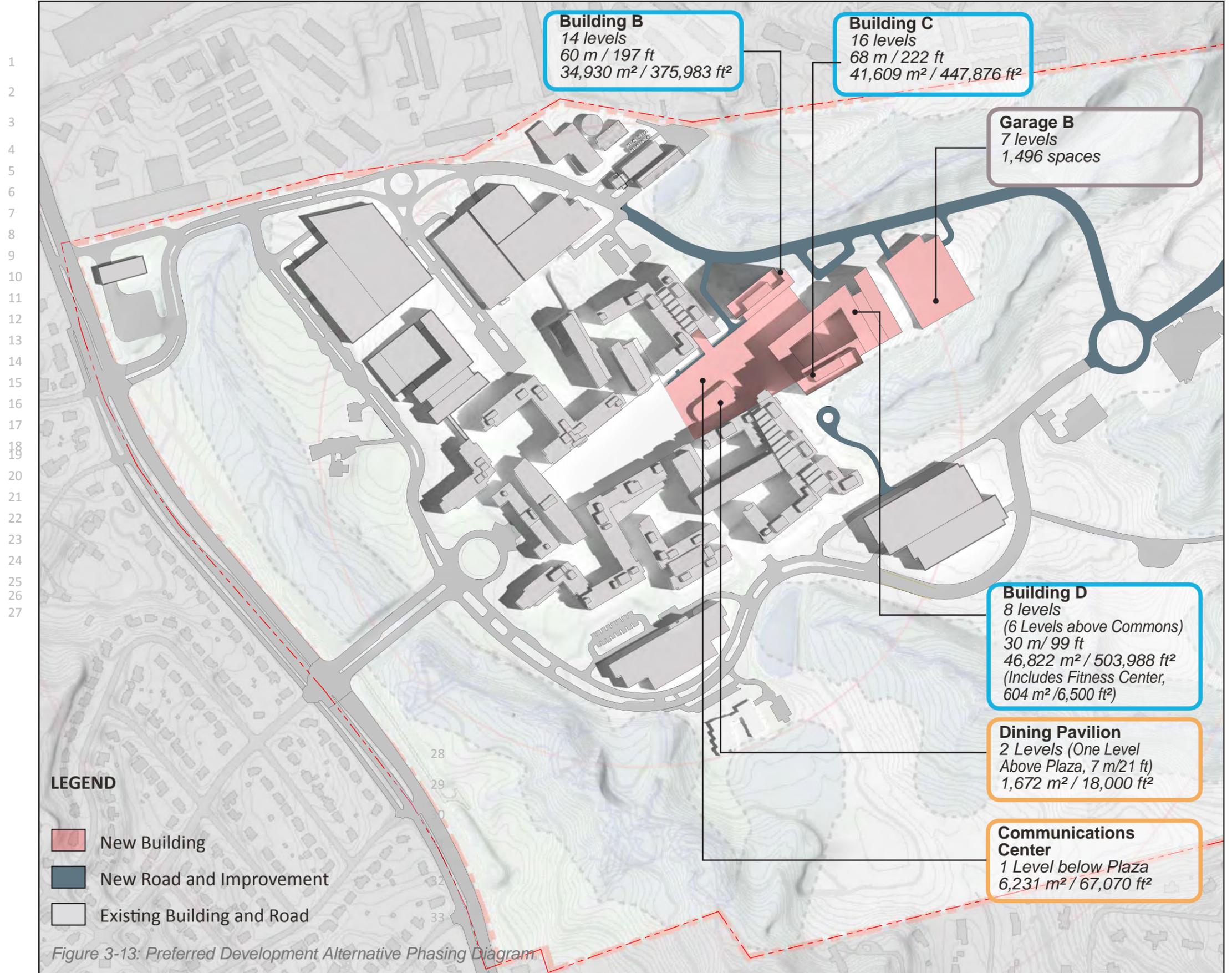
Phase 4 is the construction of Buildings B, C & D, Elevated Plaza, Communication Center, Dining Pavilion and Garage B. At approximately 1.4M GSF this is largest single phase. They could be easily reversed based on the availability of funds.

NW Loop Road	
Elevated Plaza	
Building B	34,930 m ² / 375,983 ft ²
Building C	41,609 m ² / 447,876 ft ²
Building D	46,822 m ² / 503,988 ft ²
Communication Center	6,231 m ² / 67,070 ft ²
Dining Pavilion	3,145 m ² / 33,853 ft ²
Misc. shared use	1,838 m ² / 19,797 ft ²

Phase 4 Total	134,579 m ² /1,448,600 ft ²
Cumulative Total	178,432 m²/1,920,624 ft²

Garage B	1,496 spaces
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Cumulative Total	7,342 spaces
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3.3.7 Design Guidelines

Architectural Character

With approximately 3.0 million square feet of space completed at the FDA Headquarters, the architectural character established in the original 1997 Master Plan has clearly emerged and will continue to guide future planning, form making, and aesthetic development. The FDA Headquarters consists of buildings placed to define a variety of different scaled courtyards. Much like a university campus, FDA has a large Commons that is the central focus of the campus and a series of smaller courtyards, all of which are intended to promote interaction and collaboration between staff. The campus was designed to foster walkability, keep parking and vehicular circulation at the periphery, and permit views of nature both at outside ground level and from large glass windows.

The scale of the plan development is intended to serve dual purposes. On one hand, the development should be as intimate as possible to offset the immense project scope. At the same time, the scale should clearly establish the significance and importance of this major Federal facility. The architecture should connote a sense of spontaneity and delight, notwithstanding the restrained approach to building design necessitated by cost constraints. It should project an image for FDA as a cutting edge modern facility, as well as a Federal agency of major stature, inspiring dignity and permanence. The principal materials are to be both forward looking and compatible with the historic structures on campus.

The laboratory buildings are primarily clad in metal panels to depict FDA as leading scientific institution. Office buildings, which constitute a sizable percentage of the program, are clad in a brick that complements the historic buildings on campus. This approach maintains continuity between the past and the present and creates collegial atmosphere by contrasting modern glass and steel with the warmth

1 of brick and views of nature beyond. Typically,
2 the office buildings have large punched window
3 openings detailed in a more modern way than the
4 historic buildings to differentiate from the historic
5 buildings and ground them in the period in which
6 they are built. To stitch the campus together, metal
7 panels that match the laboratory buildings are used
8 as an accent element in office buildings. In addition,
9 like historic Building 1, limestone is used on the new
10 office buildings as an accent.

11 As the Master Plan is implemented in the future,
12 the intent is to continue the material strategy that
13 was established in the 1997 Master Plan and has
14 continued to evolve through the latest construction
15 project completed in 2014. The exception to this
16 strategy is the taller buildings recommended in the
17 Preferred Development Alternative. These buildings
18 are iconic office towers anchoring the eastern end of
19 the campus. Using all-brick exteriors with punched
20 openings on high rise buildings would make them
21 too heavy in appearance, overemphasizing their
22 height and presence in relation to Building 1, as well
23 as inhibiting their ability to achieve zero net energy.
24 These structures should be light in appearance using
25 the most sophisticated curtain systems available at
26 the time they are being designed. While they should
27 be contemporary in appearance and function, it
28 would be appropriate to use design gestures to
29 relate them to the existing fabric that is now well
30 established on the campus, for example using brick
31 in an accent wall up the entire height of the building,
32 and maintaining similar scales, such as window
33 openings and floor to floor heights.

34 The Dining Pavilion, situated on the Commons,
35 presents a great opportunity to activate the space
36 and become a destination for FDA Employees. As
37 such, it needs to be sensitively designed and be a
38 standard banner for design excellence. It is seen as
39 a light, transparent structure with the kitchen and
40 back-of-house support spaces on the level directly
41 below the Commons. In the implementation stage, if
42 these goals cannot be met then the facility should be
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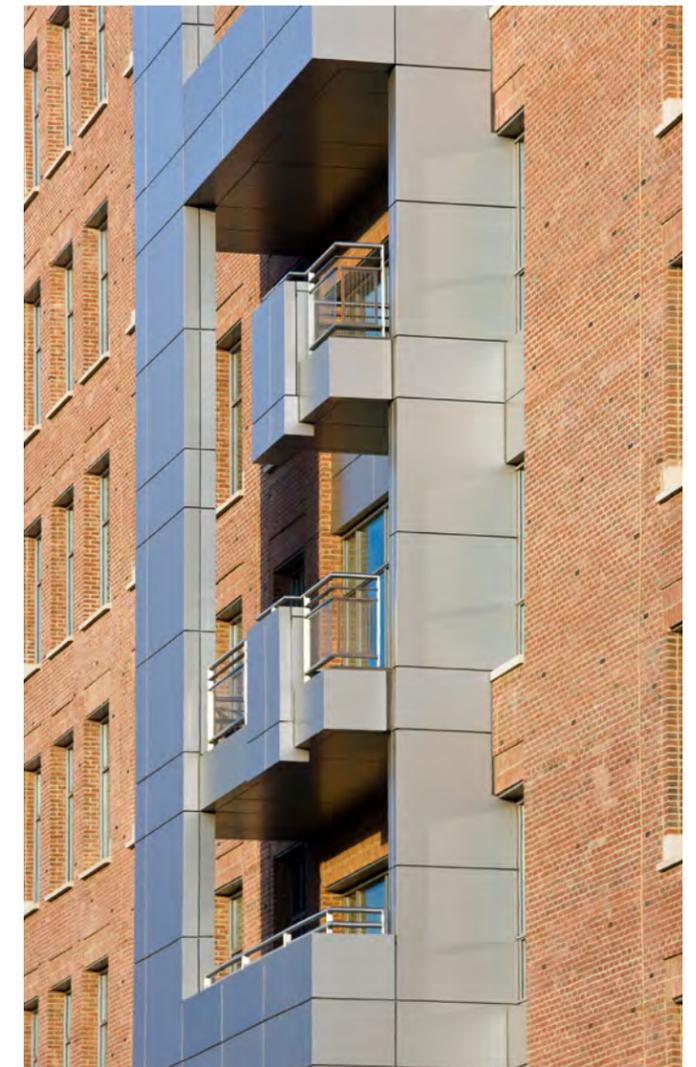
44 repositioned into one of the new office buildings. 88
45 89
46 The FDA Headquarters has evolved over the last 90
47 20 years. It was one of the earliest projects to be 91
48 initiated under GSA's Design Excellence Program. 92
49 The tenants of that program have played a 93
50 significant role in guiding the design. This Master 94
51 Plan is the next step in the headquarters' evolution. 95
52 It is a long-term vision to add significant capacity. 96
53 While the implementation could be years away, it is 97
54 highly likely small scaled projects will come about 98
55 in advance of the completion of the Master Plan to 99
56 meet the current needs of FDA. As those projects 100
57 are designed, there needs to be the same care in 101
58 design that has taken place within the headquarters 102
59 to date. Design excellence encompasses all scales of 103
60 work, from large projects too much smaller efforts, 104
61 and their guiding principals apply no matter the scale 105
62 of the work undertaken. 106
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Historic Building 1 with its new modern entrance at the base of the building, adjacent to Building 31



Left is the Engineering Physics Lab - Right is Building 21. Labs buildings are sheathed in glass and metal panel and office buildings in brick. The limestone portal is modern interpretation of the Building 1 historic entrance



Photos illustrate the use of the same brick used that on Historic Building 1 used on the office buildings, but is detailed in more contemporary way. Lab buildings are sheathed metal panel. To tie the office building and lab buildings together, metal that matches the lab buildings is used as an accent material.

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3.3.8 Streetscape & Landscape Plan

Existing Landscape

Since the inception of the original Master Plan in 1997, the fundamental concept has been to create a walkable campus to promote collaboration and accessibility. Now 20 years later, this continues to be the fundamental goal. Like a great university campus, buildings have been carefully sited to create a series of experiences and define a sequence of exterior spaces from the large Commons-oriented west to east to a series of smaller scaled courtyards. To make this successful, the landscape takes on an elevated level of importance. As the next phases are completed, the landscape needs to be implemented concurrently with each successive phase.

Generously sized outdoor spaces are positioned around the buildings, reflecting the growth of the campus over time and evoking the historic character of the NOL with its groupings of buildings spatially oriented in clusters and separated by green spaces. The grounds persist mostly as flexible areas that support the basic needs of circulation between the buildings; however, some of the courtyards have been adapted to host unique gardens. The gardens contain mostly herbaceous species of a wide variety that display the changing seasons throughout the year. The contrast of these contemporary, wild beds against the well-manicured lawns laced throughout, gives the landscape a distinct character of an ever-evolving canvas.

Proposed Design

The proposed landscape improvements aim to build on the successes of the existing campus and support the new facilities and the heavier everyday use. The grounds of the campus, therefore, become an important interstitial space that can be used to blend the existing and extended campus, by maintaining views and access, blending old and new materials, and creating complementary forms to create a unified campus experience. Throughout the campus, walkability will remain a priority. Since

the campus is expanding along existing organizing geometry, extending walkways and plazas to access the new office buildings, parking garages, and visitor center will help maintain desire lines for movement throughout the campus and seamlessly connect the existing and proposed designs.

Perimeter security features, lighting, and signage are key elements to ensure a functional, safe, and user-friendly campus experience. Site elements will be selected carefully to match existing details and finishes. Security features such as bollards, curb walls or knee walls will be designed to blend into the landscape as much as possible to maintain a welcoming appeal.

Ecological considerations

An important goal for the landscape is to support a healthy relationship between the campus and the surrounding natural systems. While impact to the existing mixed deciduous forest and stream valley buffer will be minimized, the campus edges offer new opportunities to enhance the ecological performance of the landscape. A mix of native woodlands species, including shade trees, understory trees, and shrubs can be used to naturalize disturbed areas at the campus perimeter and help the campus blend into the surrounding landscape. Native species provide habitat, rain water catchment, and improvements to water and air quality. In existing detention ponds, introducing native plants and removing invasive species will also improve the function and visual impact of these important catchment systems. Improvements to these ponds, including specific recommendations for restoration and management, should align with ongoing studies by GSA.

Throughout the campus, the ecological benefits of the landscape include using a mix of plants to increase bio-diversity, using flowering plants for pollinators, using shade trees to lower building energy consumption, and drought tolerant plants

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Art and Landscape successfully integrated together

to minimize the use of irrigation. When irrigation is needed, water from a rainwater harvesting system should be used as a sustainable and cost-effective source. In all stormwater management areas and within stream valley buffers, using native plants and designating no-mow zones will help to decrease maintenance, and improve the ecological health of the campus. Rain gardens not only protect the health of receiving water-bodies but can be planted with a variety of species to provide habitat and prevent erosion. Rain gardens should be integrated into programmable areas to provide stormwater catchment and enjoyable spaces for people. Bio-swales around roadways should be planted with native grasses and wetland species that are easy to maintain and effectively filter pollutants.

Relationship to Adjacent

While the campus is intentionally inwardly focused and avoids obtrusion to neighbors, the publicly accessible entry roads and visible front lawn will be improved as a result of the plan. Improvements to the roads include new street trees and an upgraded

multi-purpose path for bikers and pedestrians. Additional bike racks or bike share stations should be provided throughout the campus to encourage bike commuting as a community benefit.

By replacing the surface visitor parking lots with a sustainable garage and welcoming visitor's center, the curb appeal of the campus will improve. The campus will continue to embrace its unique setting within the densely wooded forest. In the front lawn, new stands of trees will be planted to restore the stream valley and provide a picturesque landscape in the campus foreground, helping to frame views toward the historic buildings. (Please see section 4.3.1 for the addition and removal of existing trees).

Art in Architecture

The GSA Art in Program has been successfully implemented in previous construction phases. One example is Mathew Ritchie's "This Garden at This Hour" in the photo above. Future locations for art will be determined by selected artist in consultation with the Art in Architecture panel.

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Preferred Development Alternative
Streetscape & Landscape Concept Diagram

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LEGEND

Existing

- Commons
- Garden
- Paving

Proposed

- Structures
- Special Paving
- Walkway
- Un-Mowed Planting
- Mowed Lawn
- Bio-Retention Area / Rain Garden
- Restored Detention Basin*

*Area to be evaluated for invasive species removal and additional plantings including wetland and native grass species

NORTH



Scale 1:5,000



*Preferred Development Alternative
Illustrative Plan - Overall Land Use*

- 1** New Office Building
- 2** New Parking Garage
- 3** Distribution Center
- 4** New Conference & Visitor Center
- 5** New Dining
- 6** Potential Truck Screening Facility
- 7** Transit Hub and Bus Bays
- 8** Dining Pavilion

SUSTAINABLE FEATURES

- 1** Proposed Green Roof
- 2** Rooftop Solar Panels
- 3** Permeable Paving
- 4** Stormwater Management Area
- 5** Stream Restoration Planting
- 6** Naturalized Edge Planting
- 7** Preserved Forest

NORTH



Scale 1:5,000



Figure 3-14: Preferred Development Alternative Illustrative Plan

*Preferred Development Alternative
Illustrative Plans - Commons*

Commons

The FDA Headquarters Commons will be extended to meet the new buildings creating new opportunities for gardens and space for outdoor gatherings. The new larger Commons will still function as central green that prioritizes walkability and movement between buildings. A new stormwater management area will collect water in an existing low point adding new colorful plants and new paving to the space updating the existing Commons to match the expansion. At the center of the Commons, the existing artistic garden will become a pivotal point in the landscape interrupting the curvilinear walkways for a unique moment for users. By providing a range of experiences along the Commons, users can adapt the landscape to their needs and find new ways to use or view the campus. Ideas for the Commons include a tree grove to provide shade and more intimate gathering spaces, a flexible lawn for larger gatherings, and a feature garden at the end of the Commons. Outdoor dining under the canopy of the dining pavilion will take place and activate the lawn on an everyday basis. Trees play an important role in framing the views to the forest beyond.

Within the new courtyards on the eastern end, stairs will be integrated into the paving to allow people to access the two lower levels from the Commons. Lawn will compose the upper terrace to create a continuous green effect as viewed from the plaza level. In the lowest courtyard, plants adapted for shade are proposed along the southern face to cool the air in between the buildings. Taller plants or small trees would be seen from the plaza level to continue the green view. Built-in seat walls can be added to this space to help contain the plants and further utilize the courtyard.

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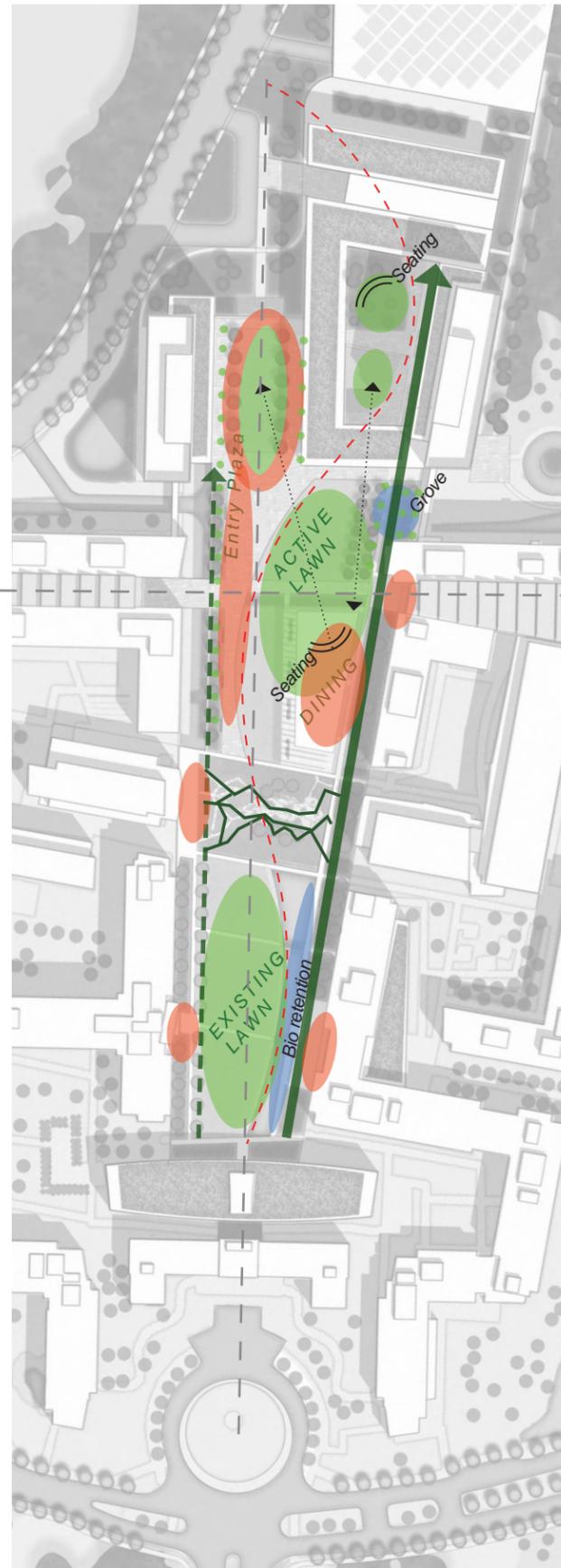


Figure 3-15: Commons Concept Diagram



- Grade Level
- Permeable Paving
- Shade Garden
- Guardrail
- Stairs to Courtyard Below
- Feature Lawn
- Tree Grove and Seating Area
- Integrated Seating
- Dining Pavilion
- Existing Garden to Remain
- Walkway over Bio-Retention Bed
- Existing Commons to Remain

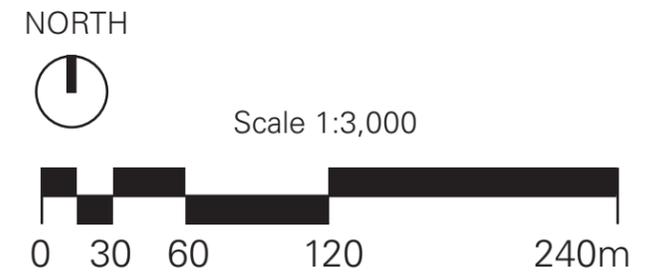


Figure 3-16: Commons Plan Enlargement

Preferred Development Alternative

Plant Pallet

Vegetation selection and layout will be used to emphasize views, highlight places for people, and meet performance expectations in stormwater management areas. The plant pallet will change depending on soil depth and structure in certain areas, but this will only enhance the diversity and seasonality of the landscape. A variety of trees, shrubs, and perennials should be used to connect the interior of the campus to the surrounding landscape and tie the grounds back to the ecological context of the region. Species should be carefully selected by evaluating the health of the species that are planted on the grounds today.

In stormwater management areas and in larger gardens, a layering of low maintenance plants will create an informal and lush appeal that matches existing gardens. Adjacent to the mowed lawns and in more manicured areas, a more uniform and formal plant pallet should be used. A key factor in the ability of all vegetation and to survive will be determined by the soil quality, especially in areas that are on structure. Adequate soil depth and quality should be considered a priority especially where new trees are proposed.

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Flowering Natives- Bio Retention Bed



Red Maple Allee- Feature Lawn



Groundcover Tapestry- Shade Garden



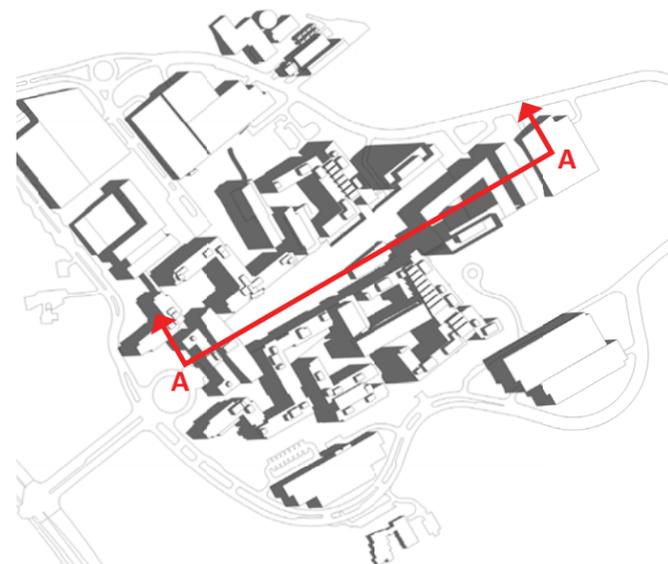
Sedge Grass- Bio Retention Bed



Honey Locust- Tree Grove



Cinnamon Fern- Shade Garden



SECTION A-A



3.3.9 Sustainable Design Plan

The entire FDA Consolidation project is designed with the intent to achieve the highest possible degree of sustainability within the project constraints. Since 2003, all the buildings on campus have been designed to achieve a LEED silver certification using a variety of strategies summarized below. GSA plans to pursue LEED in the future.

Site

The LEED process began with the act of consolidating the scattered facilities of the FDA onto a single, pedestrian oriented campus. The chosen site is a former Naval Ordnance Laboratory. During this process, site disturbance has been kept to a minimum preserving wetlands and woodlands, including landscaped areas and mature trees. Located within walking distances of multiple stops for public bus lines, the consolidated site encourages the use of public transportation. The Transportation Management Plan expresses a commitment through the planning of limited employee parking, a campus circulating shuttle that connects to the public bus lines, and substantial biking and pedestrian paths on the campus.

Strategies employed in the past and in the future include:

- Increasing the parking ratio from 1:1.5 employee parking ratio to 1:1.8
- Provided preferred parking, 5% of total parking spaces each, for low emission vehicles and car/vanpooling
- Substantial secured storage and shower facilities for bicyclists
- Maximized open/green space on site vs. building and parking footprints
- Stormwater quality and quantity management
- Bio-retention areas for roof and parking runoff
- Minimizing the heat island effect -through the use of light colored roofs and shaded pavements

- Reduction of light pollution
- Reforestation in disturbed areas using native plants selected to blend into the existing mixed forest
- Restoration of steam valley with new tree plantings and no-mow designation
- Use of drought tolerant plants to minimize irrigation
- Rainwater harvesting for irrigation
- Use of a variety of native plant species to increase bio-diversity and provide habitat for pollinators
- Green roof and geo-thermal for heating; refer to the photo of the FDA Child Care Center on page 79.

Water

Maximizing water efficiency by implementing creative conservation strategies within the buildings on the campus has helped to reduce the burden on the municipal water supply and wastewater systems. In addition to being ecologically wise, the following measures also reduce total operating costs:

- Using low-flow/no-flow plumbing fixtures in the facilities
- Water efficient landscaping

Energy & Atmosphere

Through the use of high performance mechanical and electrical equipment and innovative design, the campus buildings have achieved increased levels of energy performance in order to reduce environmental and economic impacts associated with excessive energy use. Strategies include:

- A central co-generation plant provides electricity, and hot and chilled water for the entire campus
- Exhaust heat recovery system
- High-efficiency HVAC systems

- Occupancy sensors for office lights
- Active and passive solar techniques
- Energy (enthalpy) recovery wheel systems
- Free cooling/preheat conditioning systems
- Low temperature HVAC air systems
- Dual duct CO2 system
- Natural ventilation systems
- Building commissioning
- Environmentally compliant refrigerators

Materials & Resources

Material waste has been reduced with the implementation of a campus wide recycling program. Recycled materials are collected at each of the buildings on campus and transported to a staging area in Building 51 and the Distribution Center loading docks where it is then hauled to a recycling facility. Strategies include:

- Recycling of demolished building materials
- Adaptive use of Building 1 and Building 100
- Use of locally manufactured brick
- On-site concrete batch plant
- Construction waste management plans

Indoor Environmental Quality

Efficient and filtered air handling systems, natural day lighting and ventilation, and low emitting interior materials provide occupants with a healthy, comfortable work environment. Strategies include:

- Under-floor air distribution in Building 51
- Natural thermo-syphon ventilation in Central Shared Use building
- Night flushing with thermal mass in Central Shared Use building
- CO2 based demand control ventilation
- Enhanced building commissioning
- Low VOC materials

Innovative Design

Each building in conjunction with the Central Utility Plant has been targeted for Innovative Design strategies which include:

- Campus-wide green cleaning/housekeeping program
- Green education program
- LEED certified professionals on the design team

The Future

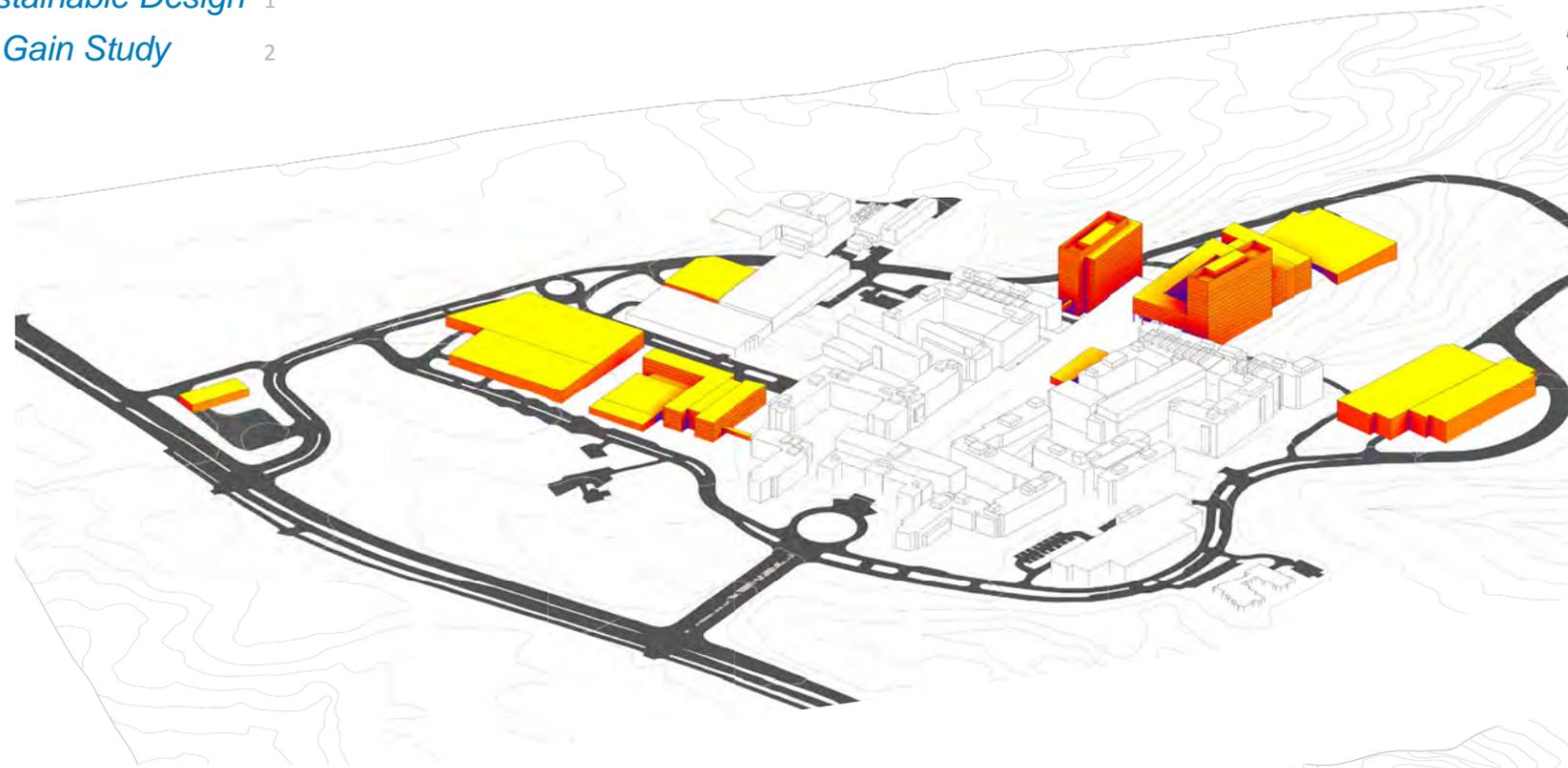
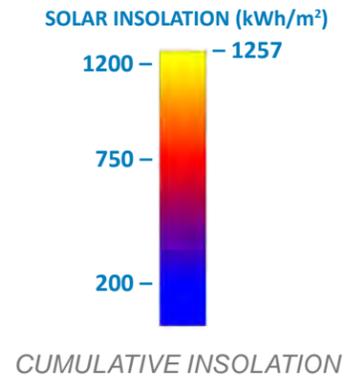
The proposed master plan is guided by the following Federal standards:

- Executive Order 13693 – Planning for Federal Sustainability in the Next Decade - “reduce agency direct greenhouse gas emissions by at 40% over the next decade”
- Executive Order 13653 - Climate Change Risk Mitigation and Resiliency
- Executive Order 13693 - Stormwater Management
- Executive Order 13508 - Federal Leadership in Chesapeake Bay Protection and Restoration
- FDA’s Agency Sustainability Plan
- EISA 438 - Stormwater runoff requirements for federal development projects
- MD MDE MS4 Permit - General Permit for Discharges from State and Federal Small Municipal Separate Storm Sewer Systems

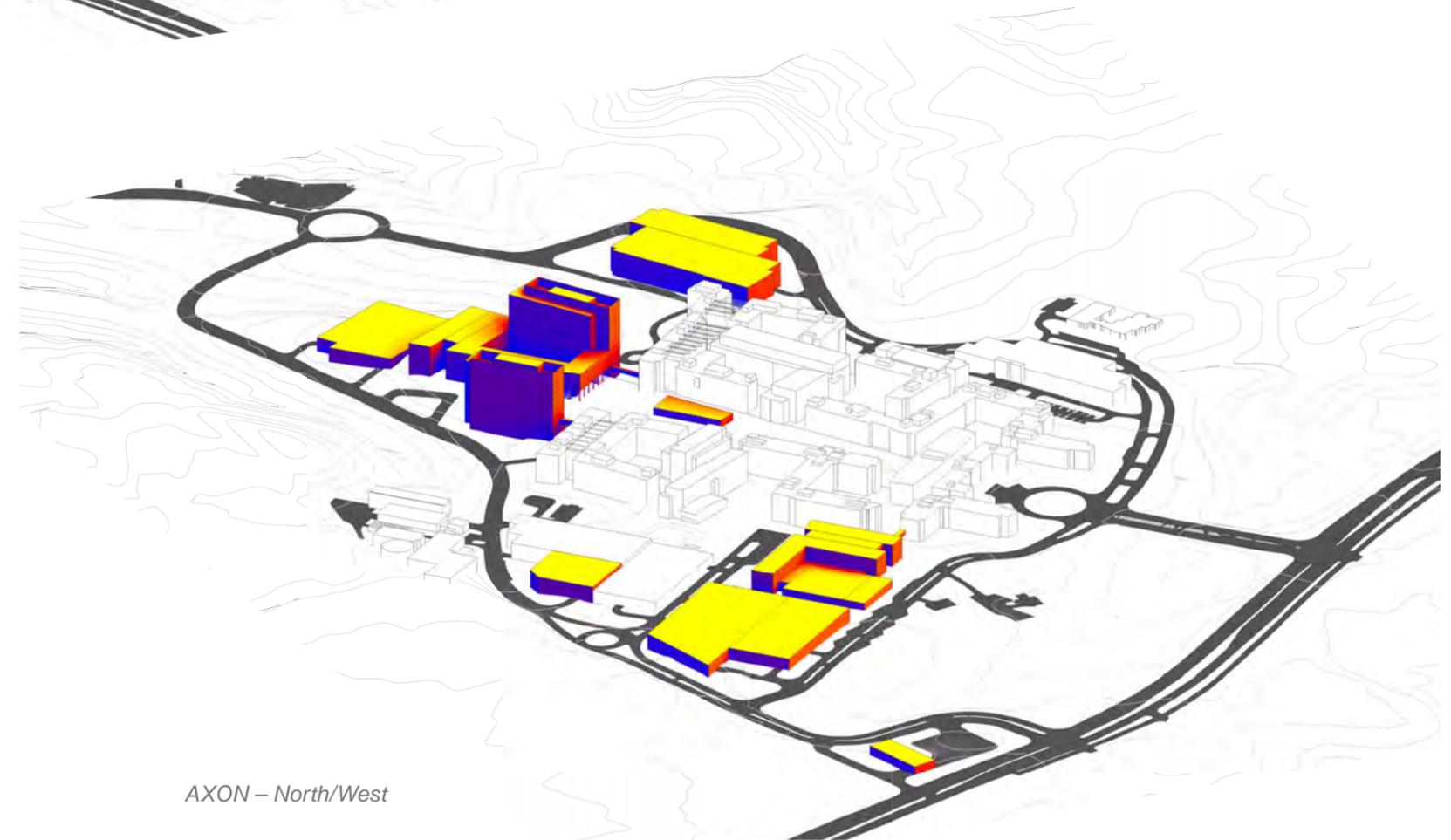
This will result in future construction designed to meet the following strategies:

- LEED Gold
- Energy Net Zero Buildings
- Water Net Zero
- SITES Silver

Figure 3-17: Preferred Development Alternative Solar Heat Gain Diagram



AXON – South/West



AXON – North/West



FDA Child Care Center with Green Roof and Geo-thermal for heating a well thought out sustainable design strategy

3.3.10 Perimeter Security

Perimeter Security Plan

As a civilian Federal facility, the FDA Campus must adhere to the most current version of the “Physical Security Criteria for Federal Facilities” produced by the Interagency Security Committee (ISC). Using the ISC Risk Management Process, the FDA Campus is designated as a Level IV Facility due to its specific factors related to Mission Criticality (Very High); Symbolism (Very High); Facility Population (>750); and Facility Size (> 250,000SF).

The perimeter of the FDA Campus is therefore required to meet the Level IV security requirements and reinforce its presence as a U.S. Government Facility. As such, the campus plan incorporates those elements necessary to restrict the uncontrolled access of both vehicles and pedestrians. These include the provisions for additional fencing and site lighting, access control equipment for both vehicles and personnel, intrusion detection devices, and added security patrol pathways. The perimeter of the existing outer perimeter fence will be extended and enhanced to accommodate all the new development. Ornamental fencing is used in areas of pedestrians and high public visibility, chain link fencing is provided in the more-hidden wooded locations. Where possible, the design of the site perimeter security boundary integrates existing natural site features and incorporates aesthetically-designed landscaping elements.

Vehicular Access

Access to the site occurs via two main roadways: from New Hampshire Avenue and via an upgraded access from the east via two-lane Dahlgren Road. From a transit perspective, commuter buses will be operationally restricted to the northwest portion of the inner loop road. Northbound buses enter Mahan Road and make a left toward the Visitor Center and then continue back to New Hampshire Avenue via Michelson Road. Southbound buses have the reverse

1 movement with entry at Michelson Road and exit
2 at Mahan Road. In the future, once the new transit
3 center is built and in operation, there will no longer
4 be unrestricted vehicular access into the traffic
5 circle in front of Building 1. The existing operable
6 vehicle barriers shall be used to restrict access to
7 VIPs, official FDA-shuttle buses, and Emergency
8 Operations only. In the meantime, public buses will
9 continue to use the circle in front of Building 1 as a
10 transit stop.

11 Michelson Road is the primary access for all service
12 and delivery vehicles as it feeds directly to Campus
13 Support Functions. All service vehicles utilize the
14 road bypass to the Remote Inspection Facility for
15 enhanced security vetting prior to site entry and
16 access to the Material Delivery Facility and other
17 service/loading areas. All rejected vehicles are
18 redirected back to New Hampshire Avenue. The
19 importance of the inspection process is to keep the
20 higher risk vehicles as far away from the populated
21 facility as possible until they have been cleared. In
22 addition, Michelson Road supports the access of
23 staff vehicles with convenient access to the north
24 side of the Campus Loop and all parking structures.
25 Finally, it supports the movements of the commuter
26 buses indicated above.

27 Mahan Road is the major FDA Campus entry with
28 the approach and views oriented towards Building
29 1. It supports staff vehicles with convenient access
30 to the south side of the Campus Loop and all
31 parking structures. Mahan Road is also identified
32 as the primary visitor entry with access to the
33 visitor center, conference center and visitor parking
34 facilities. It also supports the movements of the
35 commuter buses indicated above.

36 Dahlgren Road provides staff-only access from the
37 East (via Cherry Hill Road). This road incorporates
38 access control points at both ends in support of the
39 security for the AEDC Facility.

40 FDA should implement proactive advance

41 communications with all visitors and vendors so
42 that they are aware of access requirements in
43 advance of their visit. Likewise, enhanced and well-
44 coordinated signage and wayfinding is important
45 to integrate into the holistic site planning. The
46 external and internal roadway signage and striping
47 must clearly indicate the requisite vehicular
48 movements to avoid confusion and security risks.
49 For example, signage along New Hampshire Avenue
50 must reinforce the visitor entry and service entry
51 for both northbound and southbound traffic. Once
52 onsite, all drivers should have clear signage to get
53 them to their ultimate destinations. Increased use of
54 secure shuttles (FDA-managed) and external parking
55 structures are proposed as the most cost-effective
56 strategies for the long-term.

Inner Perimeter

57 The primary security goal for the campus is the
58 protection of the FDA staff. To achieve this, the
59 design includes layered strategies to keep all vehicles
60 as far away as possible from the inhabited facilities.
61 The planning team worked with FDA Security to
62 determine the minimum stand-off requirements for
63 each individual inhabited structure (25'), and where
64 possible, the campus planning maximized those
65 distances ($\geq 75'$) to provide efficient inner perimeters
66 with elegant collective building groupings. Where
67 the stand-off is less than 75', such as the NE corner
68 of the new development, those buildings will require
69 additional reinforcement for blast.

70 Most of the inner stand-off perimeter length is
71 established using the natural topography and
72 integrates thoughtfully-designed landscape
73 elements. Additionally, this is created by strategically
74 locating interactive and engaging outdoor spaces,
75 creating recreational areas, and aligning the requisite
76 stormwater best management practices.

77 The FDA Master Plan creates holistic solutions that
78 establish the requisite stand-off while ensuring
79 that the design integrates an aesthetically-pleasing

80 campus experience within the context of a totally
81 green pedestrian-friendly environment. Bollards
82 and deployable barriers are only located where
83 necessary to provide the requisite hardening and
84 setbacks. Walking and other outside activities are
85 key elements of the design and the campus planning
86 encouraging wellness behaviors. Circulation
87 pathways and adjacent green spaces are unrestricted
88 and free-flowing to pedestrians within the inner
89 campus once both staff and pass one of the security
90 screening points located at all major building
91 entrances. As the campus grows, the intent is to
92 expand that concept and the extension of the
93 commons to the east enables that capability.

Preferred Development Alternative
Perimeter Security Plan

LEGEND

-  25' Standoff
-  75' Standoff
-  Site Perimeter
-  Vehicle Barrier
-  Outer Perimeter Fence
-  Restricted Access Road
-  Permanent Gate
-  Pedestrian Entrance Security Point
-  Service Access Point
-  Inner Campus Perimeter
-  New Building
-  New Building Garage
-  Existing Building
-  Existing Building Garage
-  Entrance Function

NORTH



Scale 1:5,000

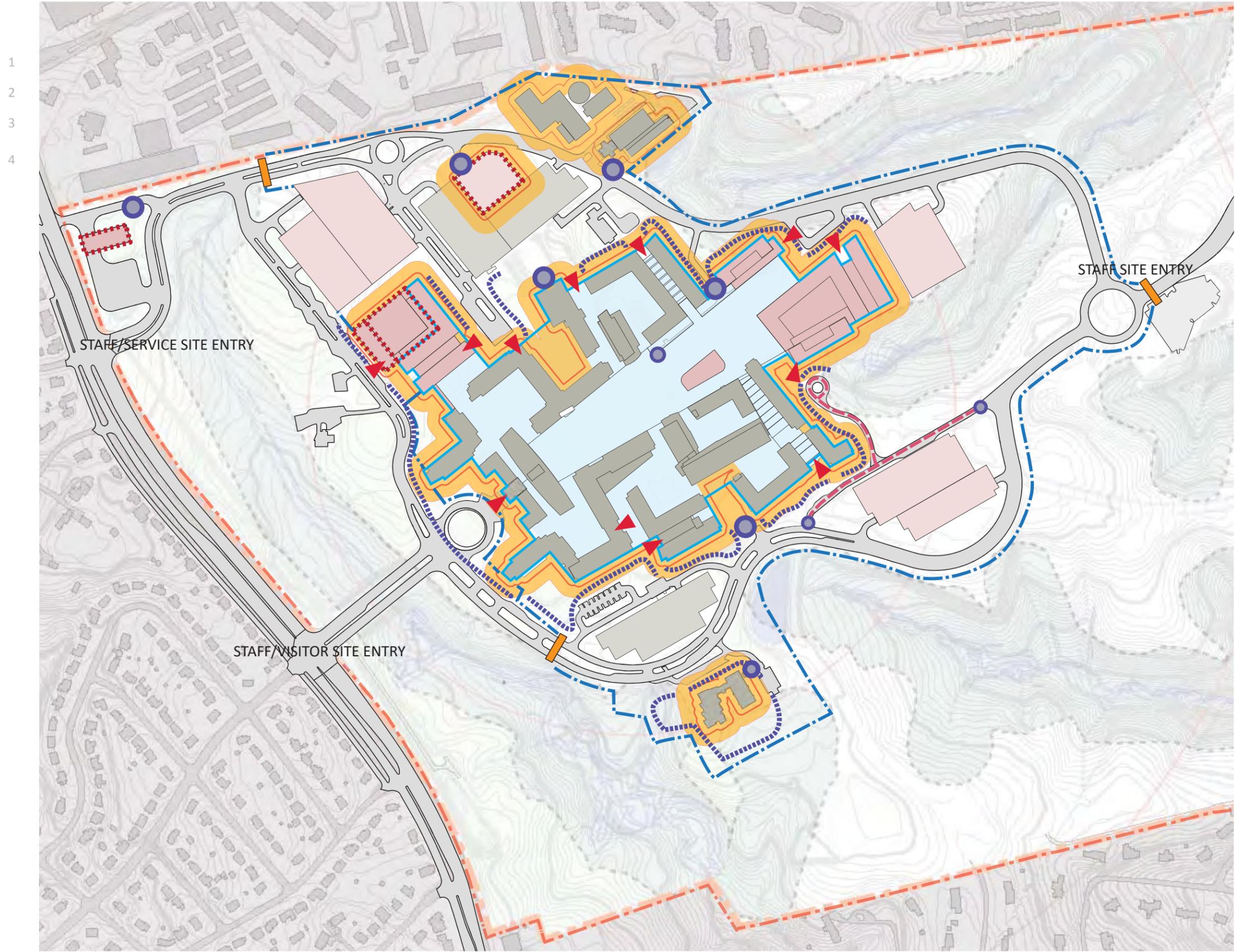


Figure 3-18: Preferred Development Alternative Perimeter Security Diagram

3.3.11 Parking and Circulation

Existing Campus Users

The primary current users of the FDA Headquarters at the FRC are employees of the FDA. A very small percentage of overall users are GSA employees.

Online surveys of existing on-campus and off-campus employees were conducted to determine current commuting patterns and how they might change after the consolidation as part of the Transportation Management Plan (TMP). The survey examined the modes by which employees travel to work, working hours, telecommuting, origin/destination, possible improvements to transit options, and reasons for mode choice. The survey results show that most (about 86.7%) of the existing on-campus employees work a typical 5 day/40 hours per week work schedule. In addition, a majority, 62.3%, of employees arrive between 7:00 AM and 9:00 AM and 61.2% depart between 3:30 PM and 5:30 PM.

Existing and Proposed Transportation Access

Regional access to the FDA Headquarters is provided from US 29, I-95, the Capital Beltway (1-495), and New Hampshire Avenue (MD 650). The FDA Headquarters can be accessed via two driveways (Michelson Road and Mahan Road) on New Hampshire Avenue, as well as Cherry Hill Road via FDA Boulevard. Upon completion of the Viva White Oak development, the site would also be accessed via a planned extension of Industrial Parkway from US 29 to FDA Boulevard.

Several bus routes serve the FDA Headquarters with stops along New Hampshire Avenue (MD 650) or internally within the campus. Most of the bus routes provide service during typical FDA operating hours at 15 to 30-minute headways. In addition to the bus

1 services, FDA operates six commuter shuttle routes
2 that serve local Metro stations. These shuttles are
3 intended to fill gaps in the existing public transit
4 network. Circulator shuttles are also provided
5 internally to link the buildings and parking lots on
6 the FDA Headquarters.

7 Four- to five-foot wide sidewalks are provided
8 along most roadways, providing a network that
9 connects the FDA Headquarters to nearby residential
10 and retail areas. Sidewalks are provided along
11 northbound and southbound Cherry Hill Road and
12 southbound New Hampshire Avenue (MD 650).
13 An eight-foot wide multi-use pathway is provided
14 along northbound New Hampshire Avenue (MD
15 650). The FDA Headquarters is connected to the
16 facilities on New Hampshire Avenue (MD 650) via
17 sidewalks along Michelson Road and Mahan Road. A
18 sidewalk and multi-use path are provided along FDA
19 Boulevard and the multi-use path continues along
20 Dahlgren Road to connect the FDA Headquarters
21 with the facilities on FDA Boulevard and Cherry Hill
22 Road.

23
24 Bicycle facilities are relatively limited for accessing
25 the site. A narrow, five-foot wide bicycle lane is
26 provided along northbound New Hampshire Avenue
27 (MD 650) along the FDA Headquarters frontage
28 that begins just south of the FDA Headquarters and
29 continues to an area just north of Columbia Pike
30 (US 29). Given the narrow width of the bicycle lane,
31 its proximity to a heavily traveled roadway, and
32 limited connections, it is not likely to encourage
33 FDA employees to commute via bicycle. There is
34 a multi-use path provided along the northside of
35 FDA Boulevard that extends to the campus along
36 Dahlgren Road. However, there are limited facilities
37 on Cherry Hill Road, which does not make the multi-
38 use path an attractive bicycle route.

39 The results of the employee survey show that
40 approximately 75% of existing on-campus employees
currently commute by driving alone to work. Of the
25% of campus employees that do not drive alone

41 to work, 9% commute via transit, 12% carpool or
42 vanpool, 2% utilize the FDA shuttles, and 4% bike or
43 walk to work. In addition to commuting by other
44 modes, FDA offers a robust telework program. Only
45 31% of on-campus employees typically work all five
46 days on campus, and 87% of off-campus employees
47 report telecommuting at least one day per week, on
48 average.

49
50 There were many reasons cited for the reliance on
51 driving to work alone; however, the recurring themes
52 were convenience, shorter overall commute times,
53 lack of suitable pedestrian and bicycle facilities,
54 and the lack of a high-frequency and high-capacity
55 transit service in White Oak.

Increased Volume Impact

56
57
58 Currently, 10,987 employees and support staff
59 are assigned to the FDA Headquarters. Future
60 development plans will accommodate another
61 7,018 people on-site, for a total population of up to
62 18,000.

63
64 A trip generation analysis was performed using
65 existing data to estimate an AM and PM peak hour
66 trip per employee rate based upon the current
67 employee population. These rates account for the
68 effect of site constraints, like parking capacity, as
69 well as employees that telecommute or take transit.
70 It is anticipated that the ratio of employees that
71 telecommute or take transit would remain relatively
72 consistent from the employee survey that was given;
73 therefore, the rates developed based on existing
74 activity likely provide a fair estimate of future
75 vehicular trip generation.

76
77 The number of AM and PM peak hour entering and
78 exiting trips was then calculated for the proposed
79 7,013 additional employees based on an AM peak
80 hour rate of 0.195 entering trips per employee and
81 0.018 exiting trips per employee, and a PM peak
82 hour rate of 0.008 entering trips per employee and
83 0.168 exiting trips per employee. A trip distribution
84 analysis then was used to estimate how the new

85 vehicle trips would travel to and from the site using
86 the following established entrance/exit points:

- 87
- 88 • New Hampshire Avenue (MD 650) North 132
- 89 • New Hampshire Avenue (MD 650) South 133
- 90 • Columbia Pike (US 29) South 134
- 91 • Columbia Pike (US 29) North 135
- 92 • Cherry Hill Road South 136
- 93 • Powder Mill Road (MD 212) East 137
- 94 • Fairland Road East 138
- 95 • Musgrove Road East 139

96
97
98
99 The results of the capacity analysis indicate that the
100 proposed site would generate significant additional
101 delay and queuing on multiple intersection
102 approaches to the campus. Given the built-out
103 nature of the transportation network within
104 the study area, emphasis should be placed
105 on improving overall intersection operations
106 through adjustments to signal timing and phasing.
107 In addition, physical capacity improvements will
108 need to be evaluated for movements that would
109 experience an increase in delay of at least ten
110 seconds per vehicle.

111
112 It is possible that at least two, if not all three of
113 the proposed BRT corridors serving the White
114 Oak area, as well as the Purple Line, would be
115 operational once the expansion of the campus is
116 underway. However, suburban to suburban transit
117 routes, even those located in higher density areas,
118 tend to have a limited impact on journey to work
119 trips for office sites, like the FDA Headquarters. To
120 plan appropriately, roadway mitigation measures
121 combined with transportation demand management
122 (TDM) strategies will be required to support the
123 Master Plan development.

- LEGEND**
- ➔ Restricted Access
 - ➔ Public Access
 - - - Potential Future Connection
 - Security Check Point
 - Public Parking Garage
 - Public Garage Access
 - Parking Garage
 - Garage Access

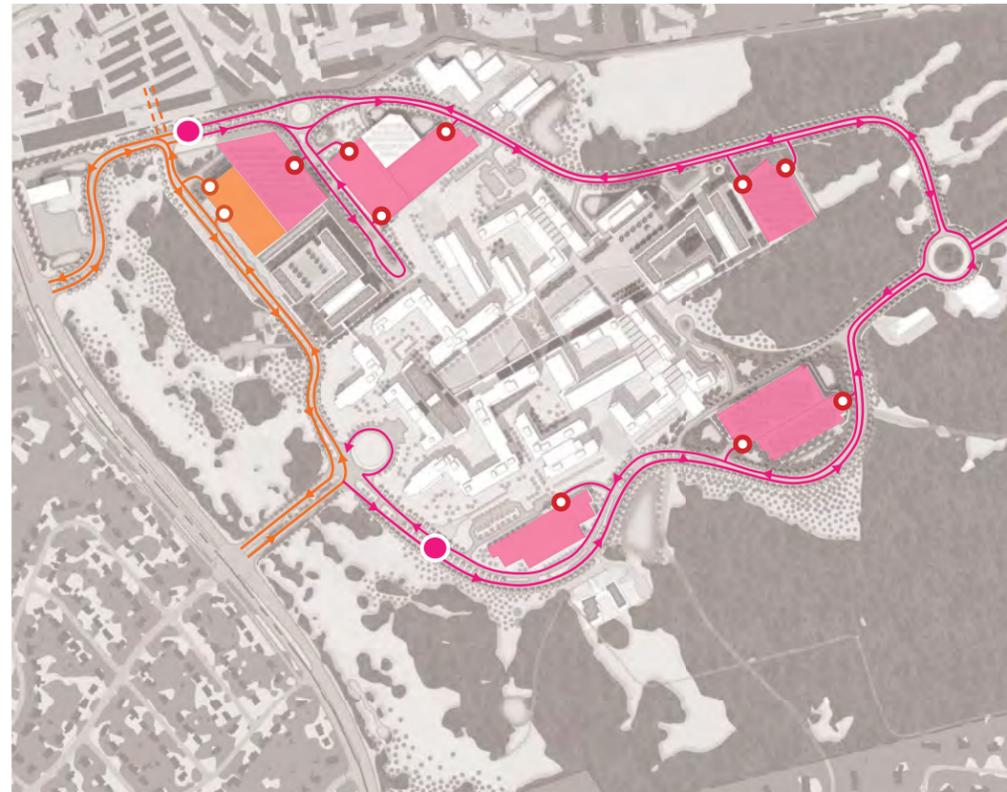


Figure 3-19: Preferred Development Alternative Campus Vehicular Circulation

- LEGEND**
- ➔ Public Access
 - - - Potential Future Connection
 - Public Buses and Off-site Shuttles
 - Internal Shuttle Route
 - Internal Shuttle Stop

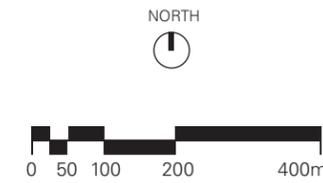


Figure 3-20: Preferred Development Alternative Campus Bus and Shuttle Service Diagram

- LEGEND**
- Multi-purpose Trail
 - Bike Share Station
 - - - Existing Local Bike Lane

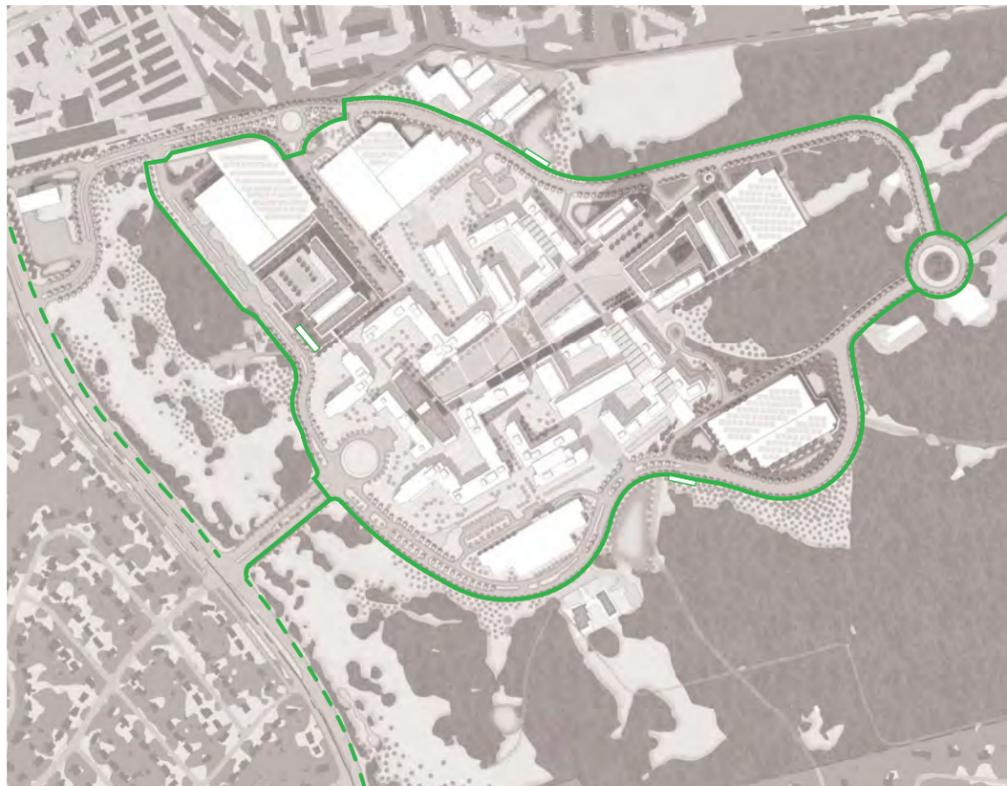


Figure 3-21: Preferred Development Alternative Campus Bicycle Circulation

- LEGEND**
- Truck Route
 - Truck Screening
 - Loading Docks
 - Distribution Center

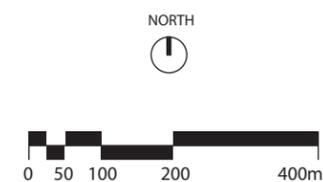


Figure 3-22: Preferred Development Alternative Campus Truck Screening, Service Access and Delivery

The transportation analysis and proposed mitigation measures are detailed further in the Traffic Transportation Report (TTR) and TMP.

Planned Onsite Circulation Improvements

Under the proposed Master Plan development, internal roadway improvements and increased parking capacity and management are planned to accommodate the increased driver population. Security check points will be enhanced and internal intersections improved through widening and roundabouts. Some consideration should also be given to building a new road which would by-pass the Air Force Wind Tunnel.

The existing FDA Headquarters already has a well-planned fabric of landscaped pedestrian walkways that employees and visitors use to traverse to and from parking garages and between buildings on campus. The proposed Master Plan expands this approach using ample sidewalk connections and nature/fitness path connections to and around the new structures planned to encourage and support pedestrian use.

Alternative Transportation Strategies

Based on the Transportation Management Plan (TMP), improvements to pedestrian, bicycle, and transit facilities and services are also recommended as part of a robust and comprehensive mitigation strategy that attempts to reduce and mitigate the impact of peak hour vehicle trips on the external roadway network by an additional 20% beyond what is currently being achieved onsite.

Several enhancements are recommended to provide better connections for alternative modes, such as transit, pedestrians, and bicyclists. These recommendations include:

- Enhance the existing TDM program to encourage more employees to commute via modes other than driving alone (see TMP).

- Provide a 10-foot wide multi-use or protected bicycle lanes path along the campus loop roads that connect pedestrian and bicycle facilities on the external roadway network to the on-campus facilities.
- Provide secure, covered bicycle parking near building entrances. FDA currently provides locker room and shower facilities as well as bicycle repair stations throughout the campus.
- Construct a new transit hub that provides a climate-controlled waiting area with amenities, such as benches, wi-fi, real-time transit information, defined boarding and alighting areas for bus, BRT, and shuttle services, a taxi/rideshare waiting area, and public bikeshare stations.
- Work with Montgomery County to provide a connection to planned bus rapid transit (BRT) corridor and the Purple Line.
- Work with Montgomery County, SHA, and Prince George’s County to enhance pedestrian and bicycle connections to nearby residential and commercial centers, as well as to regional pedestrian/bicycle path networks.
- Enhanced shuttle services to transit facilities near areas with higher concentration of employee residences.

Parking Ratio

The Master Plan increases the number of FDA employees and support staff at the FDA Headquarters to 18,000. To accommodate the planned growth, up to an additional 1.9 million gross square feet (GSF) of building space and 7,342 additional parking spaces is proposed. The parking equates to a parking ratio of 1:1.8, or approximately one parking space for every 1.8 employees, plus 1,615 spaces for visitors.

Parking has been identified as one of the key issues on the FDA Headquarters. NCPC permitted 6,926 parking spaces (at a rate of 1:1.5 or 2 parking spaces for every 3 employees) as part of the 2009 Master

Plan. However, a proposed parking structure that was to be located in the southeast side of the campus was not constructed. Thus, the FDA has implemented attendant-assisted parking to provide parking capacity for approximately 6,800 vehicles. The attendant-assisted parking is intended to be a stop-gap measure until additional parking can be provided because it is costly and not considered sustainable.

Based on NCPC guidelines, a suburban facility that is not located in close proximity to a high-capacity transit stop, such as a Metrorail station, can have a parking ratio as high as 1:1.5. Therefore, based on this ratio, up to 12,000 parking spaces for employees would be permissible on the FDA Headquarters. However, it is important to think critically about parking supply and demand because additional parking would likely lead to an increase in vehicle trips. During days of peak attendance, it is likely that all parking spaces would be occupied. Therefore, the site would be expected to see an increase in peak period vehicle trips of approximately 5,200 vehicles over a three to four-hour period. This would likely have a significant impact on the study area roadway network.

A sensitivity analysis was performed early in the master planning process to identify the threshold at which major intersections along New Hampshire Avenue (MD 650), US 29, and Cherry Hill Road would begin to fail, making it difficult for employees to access the campus, and requiring significant roadway improvements on a scale that would likely not be feasible. The results of the sensitivity analysis revealed that a lower parking ratio, approximately 1:1.8 would be more appropriate, reducing peak period trip generation by 2,000 vehicles. Refer to the TMP.

At a 1:1.8 parking ratio, approximately 10,000 parking spaces would be permitted for employees and support staff. However, some additional parking is needed for visitors. Thus, approximately

11,615 parking spaces are recommended in the FDA Headquarters Master Plan.

Excluding visitor parking, the additional employee parking will only accommodate approximately 54% of staff that is assigned to the campus. Based on information contained in the employee commuter survey, approximately 75% of existing on-campus employees drive alone to work, while 79% of employees at leased locations are anticipated to drive alone to work if they are relocated to the FDA Headquarters. Factoring in FDA’s robust telework program, and peak employee attendance rate of 85% on any given day, the amount of employees that are anticipated to drive-alone to work will be 64%. This is 10% above the planned parking ratio. Refer to the TMP.

As required by NCPC, a Transportation Management Plan (TMP) has been prepared to recommend strategies that FDA can use to reduce the single-occupancy vehicle trips to the site and encourage increased vehicle occupancy and alternative modes of transportation.

Visitor Parking Analysis

The number of visitor parking spaces (1,615) proposed in the Master Plan, was verified utilizing information contained in the Urban Land Institute (ULI) Shared Parking Manual (2nd Edition), which is one of the only standard publications to address visitor parking demand for office uses. The comparative analysis shows that the 1,615 visitor parking spaces proposed in the Master Plan, calculated by applying the ratio of existing and projected site population to the existing number of visitor parking spaces (1,000), is within the range of demand as estimated by information contained in the ULI Shared Parking Manual.

With the increase in the number of employees located at the White Oak site, an increase in public

- LEGEND**
- Existing Primary Ground Level
 - Primary Ground Level
 - Building Entry Points

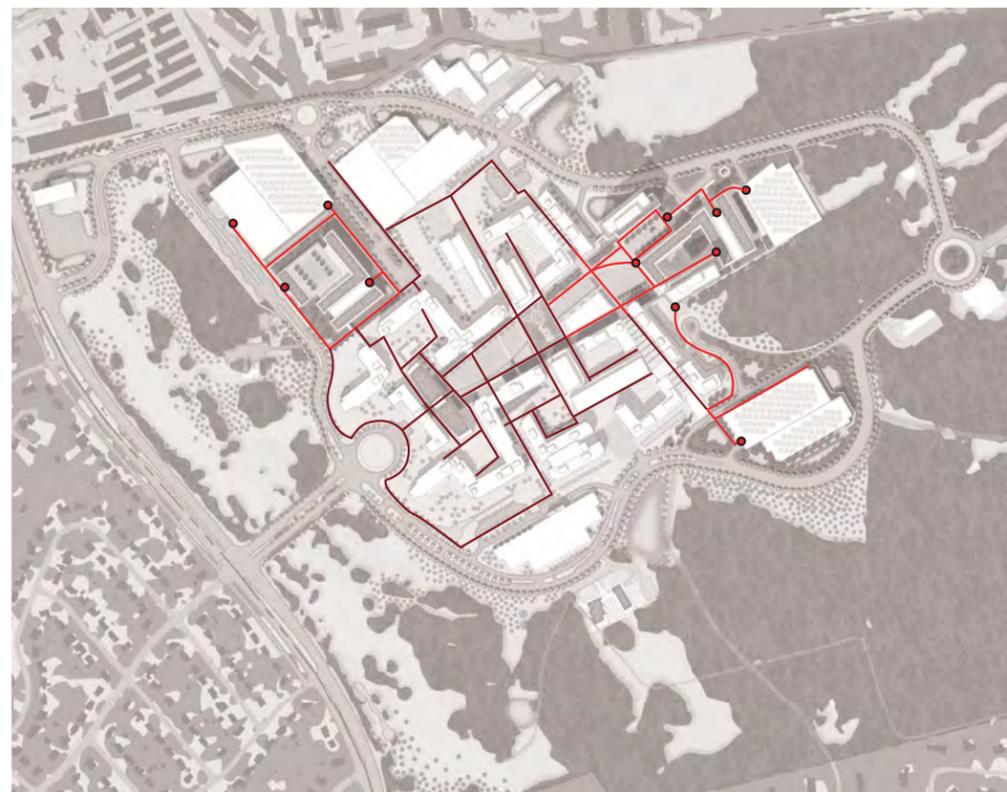


Figure 3-23: Preferred Development Alternative Plaza Level Pedestrian Circulation Diagram

- LEGEND**
- Hard Paved Fire Lane
 - Reinforced Turf Fire Lane
 - Elevated Plaza Fire Lane
 - Main Entrance

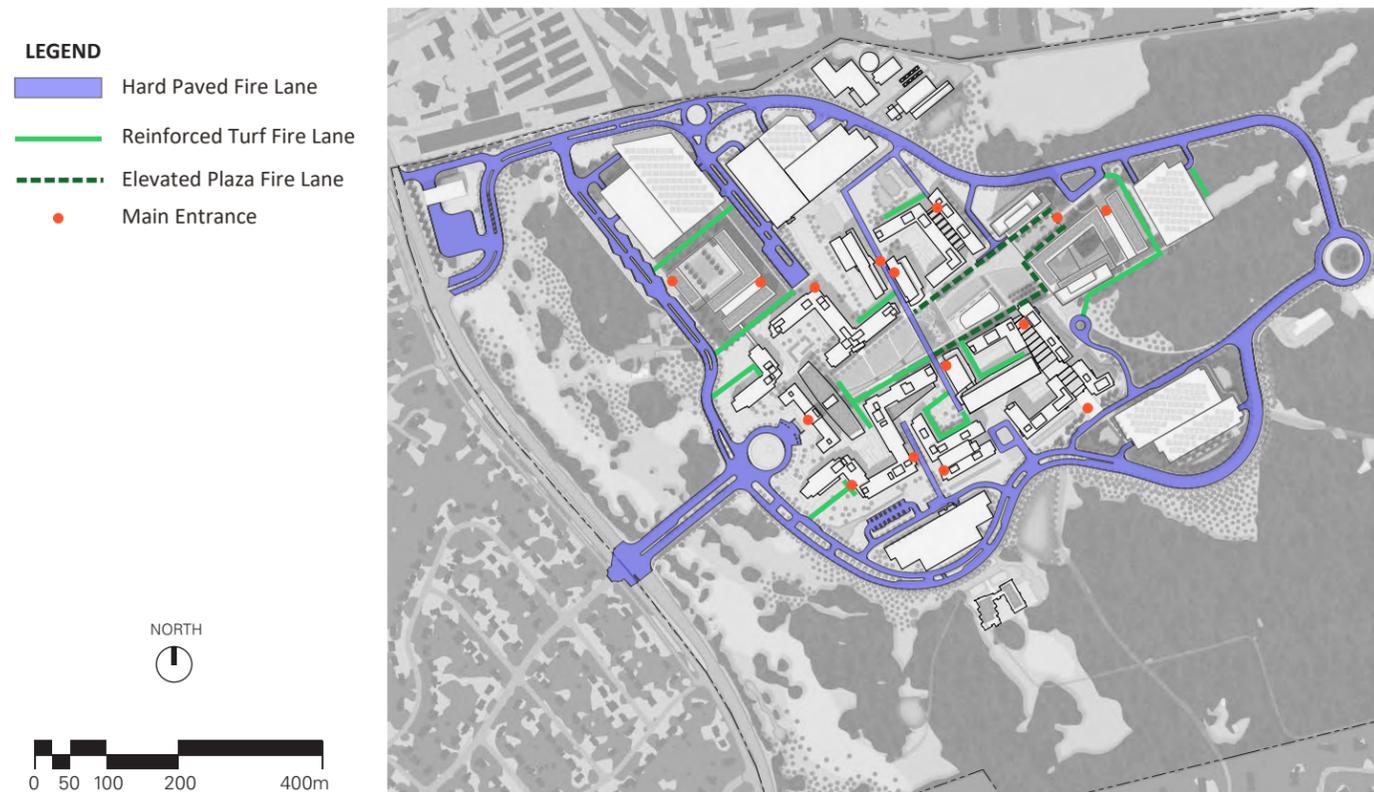


Figure 3-24: Preferred Development Alternative Fire Truck Access Diagram

- LEGEND**
- Primary Second Level

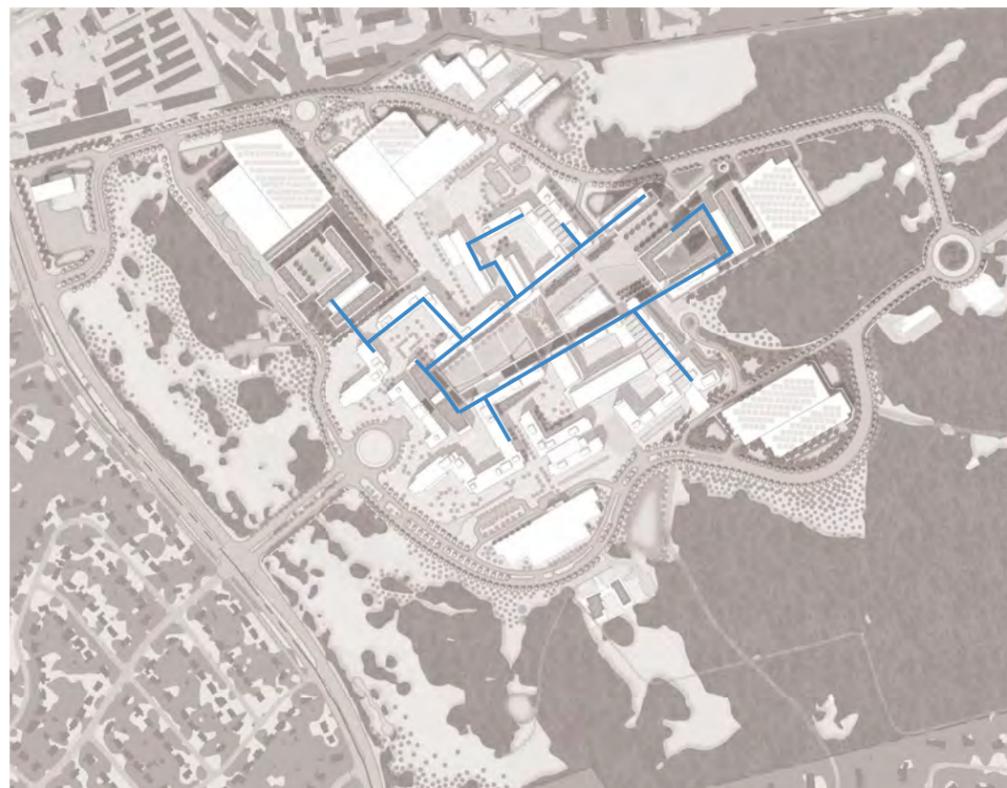


Figure 3-25: Preferred Development Alternative Elevated (2nd Level) Pedestrian Circulation Diagram

meeting space, and an increase in the amount of occupied space, FDA expects a proportionate increase in the demand for visitor parking. It is inherent to FDA's mission for it to be accessible to the public who it serves and who may choose to visit or conduct business with the agency. The demand for visitor parking at White Oak is generated by a variety of activities that can be categorized as follows:

- Daily and routine interaction with government personnel who are not assigned to the White Oak Campus.
- Daily and routine interaction with business/public personnel.
- Routine public meetings required to be open to the public (fluctuating attendance).
- New Employee orientation activities occurring two days every two weeks (fluctuating attendance).
- Daily requirements to have personnel from the trades and services arrive in support of facilities and infrastructure project work.

With the present population of the FRC at White Oak, FDA routinely receives up to 400 public visitors a day. Additionally, FDA receives on average over 500 to 1000 government visitors (badged) who are not assigned to the White Oak site. While many of these government personnel are projected to be assigned to the White Oak site when the additional office space is provided, FDA will continue to have employees from large off-site locations in Beltsville and College Park whose occupants visit the White Oak Campus in addition to employees from national/international locations who also visit the campus. FDA also receives government visitors from the Department of Health and Human Services and the General Services Administration. In addition, on days where FDA holds large public meetings there are a high number of visitors who arrive on site to access the semi-public meeting space and which can exceed 400 in a single day. Moreover, every two weeks FDA holds a two-day new employee orientation for onboarding new staff. On average

1 there are over 50 new employees onboarded every 46
 2 two weeks and on occasion there are 150 or more. 47
 3 New employees arrive for these two-day sessions 48
 4 without an FDA badge and are therefore required to 49
 5 park in visitor parking. 50

6 51
 7 As a large facility, the FDA facility and infrastructure 52
 8 needs are continuous. Outside vendors are 53
 9 frequently needed on site to provide for facilities 54
 10 and infrastructure projects that are commensurate 55
 11 with maintaining and occupying a technically 56
 12 advanced and technology intensive buildings. 57
 13 These requirements fluctuate based on the ongoing 58
 14 requirements but are continuous. As these vendors 59
 15 are often on campus for short duration activities, 60
 16 they are not assigned to the site and they are 61
 17 regarded as visitors. 62

63
 18 The nature of visitor parking is that it ebbs and flows 64
 19 depending on the nature of activities occurring on 65
 20 site. Additionally, as all the activities that generate 66
 21 demand for visitor parking are critical to the Agency 67
 22 and its operations, it is not practical to plan visitor 68
 23 parking based on an average arrival rate. Table 3-2 69
 24 provides FDA's existing peak visitor attendance and 70
 25 an estimate of future peak attendance. 71

26 72
 27 While it is not practical or warranted to provide 73
 28 visitor parking at a one-to-one ratio, there is no 74
 29 direct formula for estimating the amount of visitor 75
 30 parking that may be needed on site. Therefore, 76
 31 for the Master Plan, the amount of recommended 77
 32 visitor parking spaces (1,615) was calculated by 78
 33 increasing the number of existing visitor parking 79
 34 spaces (1,000) at a ratio that matches the increase in 80
 35 onsite population. 81

36 82
 37 The estimate was then verified utilizing data in the 83
 38 Urban Land Institute (ULI) Shared Parking Manual 84
 39 (2nd Edition) which provides a recommended visitor 85
 40 parking ratio of 0.2 spaces per 1,000 square feet for 86
 41 office and provides a recommendation that visitor 87
 42 parking should make up 7% to 8% of total parking 88
 43 supply. Thus, verification was done by calculating 89
 44 visitor parking based on total planned square 90
 45 footage and as a percentage of total parking supply. 91

Table 3-2: Peak Visitor Scenario

Visitor Type	Existing Condition	Future Condition
Government and Contract Personnel Not Assigned to the White Oak Campus	500	250
Business/Public	400	720
Event-Specific	400	800
New Employee (Orientation)	150	200
Facilities and Infrastructure Projects	50	100
Total Peak Demand	1,500	2,070

Table 3-3: Parking Demand Calculation Based on Square Footage

	Low	High
Square Footage	5,621,227	5,677,116
Base Video Parking Demand (0.2 per ksf)	1,124	1,135
Visitor Mode Split Credit (25%)	281	284
Adjusted Base Parking Demand	843	852
Peak Event/Conference Parking Demand	800	800
Mode Split Credit (12%)	96	96
Adjusted Event/Conference Parking Demand	704	704
Facilities/Infrastructure Parking Demand	100	100
Mode Split Credit (12%)	12	12
Adjusted Facilities/Infrastructure Parking Demand	88	88
Total Demand	1,635	1,644

Table 3-4: Parking Demand Calculation Based on Percentage of Total Parking

	Low	High
Percent of Total Parking	7%	8%
Base Parking Demand	707	808
Peak Event/Conference Parking Demand	800	800
Mode Split Credit (12%)	96	96
Adjusted Event/Conference Parking Demand	704	704
Facilities/Infrastructure Parking Demand	100	100
Mode Split Credit (12%)	12	12
Adjusted Facilities/Infrastructure Parking Demand	88	88
Total Demand	1,499	1,600

Refer to the FDA White Oak Campus Visitor Parking Demand Memo from Stantec to GSA, dated July 9, 2018.

1
2
3
4

In Conclusion, the comparative analysis, described in the FDA White Oak Campus Visitor Parking Demand Memo, shows that while the estimated demand based on square footage is slightly higher than the estimate based on percentage of total parking, the estimates are within a similar range. The 1,615 visitor parking spaces proposed in the Master Plan, calculated by applying the ratio of existing and projected site population to the existing number of visitor parking spaces (1,000), is within the range of demand as estimated by information contained in the ULI Shared Parking Manual. Therefore, this visitor parking estimate is valid and reasonable for FDA.

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4

ENVIRONMENTAL AND HISTORICAL CONSIDERATIONS

4. ENVIRONMENTAL AND HISTORICAL CONSIDERATIONS

4.1 Historic Preservation

4.1.1 Area of Potential Effect (APE)

The Area of Potential Effect (APE) is defined in 36 CFR 880.16 as “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist.”

The APE for the project contains the resources visually or physically affected by the demolition and construction associated with the expansion of the FDA Headquarters. The APE is contiguous with the boundaries of the historic 100 area of the White Oak Naval Ordnance Laboratory. This geographic area includes the existing FDA Headquarters and the portions of the 100 area outside the boundary of the FDA Headquarters, particularly the historic green buffer zone between the campus and New Hampshire Avenue. Within the APE lie the historic resources of the White Oak Naval Ordnance Laboratory Historic District that were retained under a previous Memorandum of Agreement executed as part of the initial development of the FDA Headquarters. These include the retained portions of the Main Administration Building (Building 1), the flagpole with a redesigned and relocated circle in front of Building 1, and the historic fire station,

1 which is now part of Building 100. The APE includes 28
 2 all historic resources that may be affected by the 29
 3 proposed undertaking. 30
 31

4.1.2 Historic Resources in the APE

4 When the Naval Ordnance Laboratory (NOL) was 33
 5 determined eligible for the National Register of 34
 6 Historic Places in 1997, there were 372 documented 35
 7 resources on the site, which included 260 36
 8 contributing resources and 112 non-contributing 37
 9 resources. The enumerated resources included 38
 10 buildings, structures, and utilities. One contributing 39
 11 landscape was identified, the golf course at the 40
 12 western and southern edges of the property, 41
 13 which provided a “physical and natural buffer 42
 14 which preserves the visual character of the main 43
 15 complex” and was also important as an amenity 44

AREA OF POTENTIAL EFFECT

16 *Area of Potential Effect (APE) means the 45
 17 geographic area or areas within which an 46
 18 undertaking may directly or indirectly cause 47
 19 alterations in the character or use of historic 48
 20 properties, if any such properties exist. The 49
 21 APE is influenced by the scale and nature of an 50
 22 undertaking and may be different for different 51
 23 kinds of effects caused by the undertaking. 52
 24 36 CFR 800.16 53
 25 54*



Figure 4-1: Front Lawn, Flag Pole, and Main Administration Building 1



Figure 4-2: Former Naval Ordnance Laboratory Fire Station

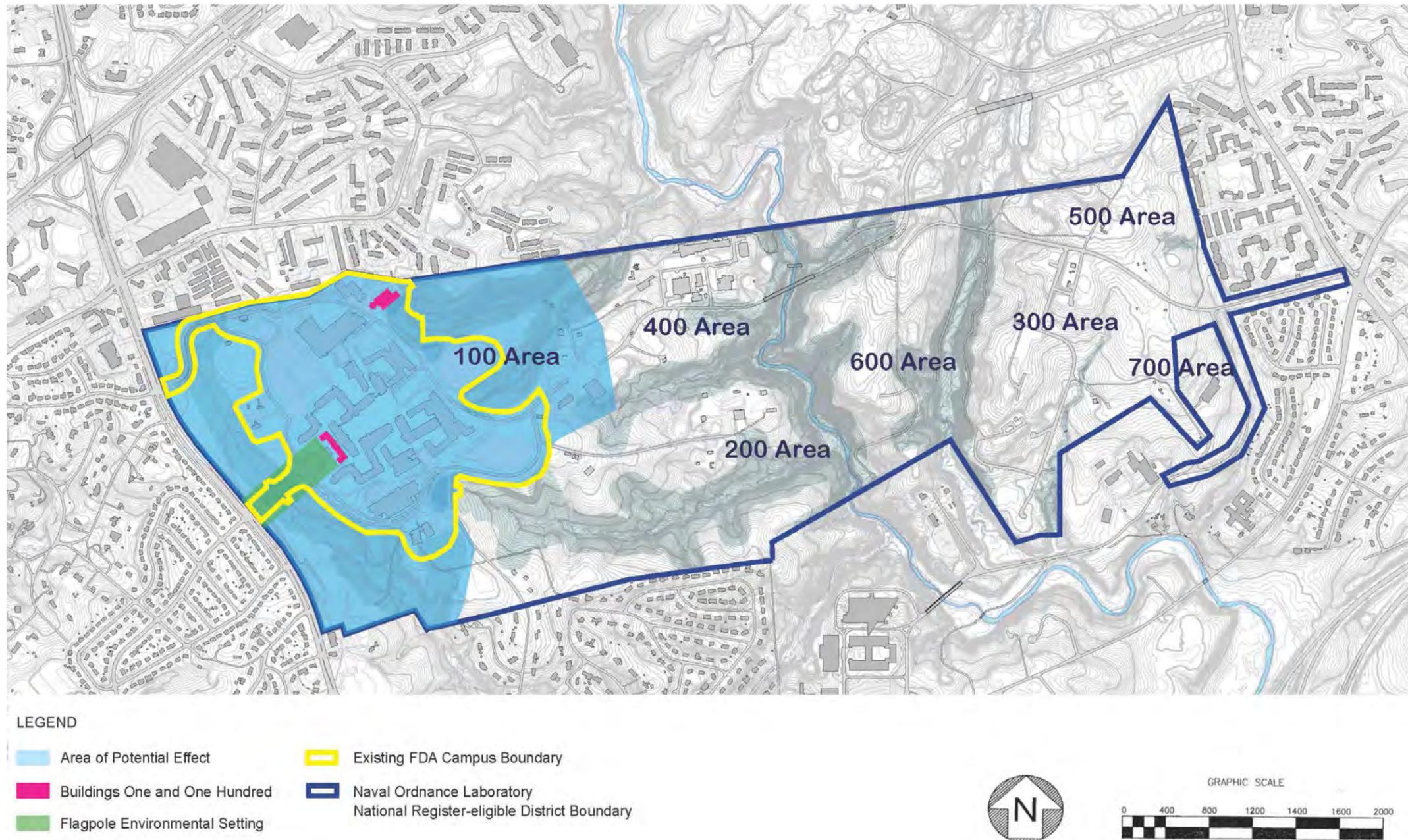


Figure 4-3: Area of Potential Effect Map

“conceived, built, and maintained entirely by the employees” of the NOL. Under a 2002 Memorandum of Agreement, a number of historic resources within the boundaries of the FDA Headquarters (100 area) were documented and removed during the development of that facility. Historic resources retained in this area include Buildings 1 and 100 and the flagpole. Additionally, following completion of the 2003 Memorandum of Agreement, nearly all the resources in the 300 and 600 area were removed. Historic resources remain in the 200 and 400 areas. GSA confirmed with the Maryland State Historic Preservation Office that there were no adverse visual effects on portions of the NOL outside the 100 area.

4.1.3 Approach to Addressing Historic Resources within the APE(s)

The 2002 Memorandum of Agreement (MOA) was to remain in effect until its termination or until a new MOA was negotiated. The 2002 MOA stipulated that GSA should consult with the Maryland State Historic Preservation Office (MD SHPO) on the design plans of proposed buildings that are “compatible with neighboring historic buildings in terms of their height, scale, massing, and materials.” Under the 2002 MOA, GSA, MD SHPO, and other signatories established compatibility standards for future development at the Federal Research Center that have been adhered to throughout subsequent master plans (2006, 2009) and implementation. Because this is a new Master Plan, the existing MOA is closed out concurrently with the execution of the new MOA associated with the new master plan. It initiated consultation with potential consulting parties under Section 106 of the National Historic Preservation Act (NHPA), which was carried out in coordination with the Environmental Impact Statement under NEPA. GSA negotiated a Memorandum of Agreement (MOA) with the MD SHPO to govern work carried out under the new

1 master plan. GSA carried forward the compatibility
2 standards established under the 2002 MOA to the
3 new MOA.

4
5 No historic resources within the APE are expected to
6 be physically affected by the planned construction
7 under the Master Plan alternatives. The truck
8 screening facility would be built north of Michelson
9 Road, beyond the north edge of the historic buffer.
10 Under Alternatives B and C, the construction of a
11 high-rise tower (B) or towers (C) would represent
12 a departure from the compatibility standards
13 established under the 2002 MOA and would
14 adversely affect the visual setting of Building 1.
15 GSA initiated consultation under Section 106 of
16 the National Historic Preservation Act to negotiate
17 a Memorandum of Agreement for mitigation in
18 the event of any adverse effects to the historic
19 buildings or landscapes as a result of the Preferred
20 Development Alternative.

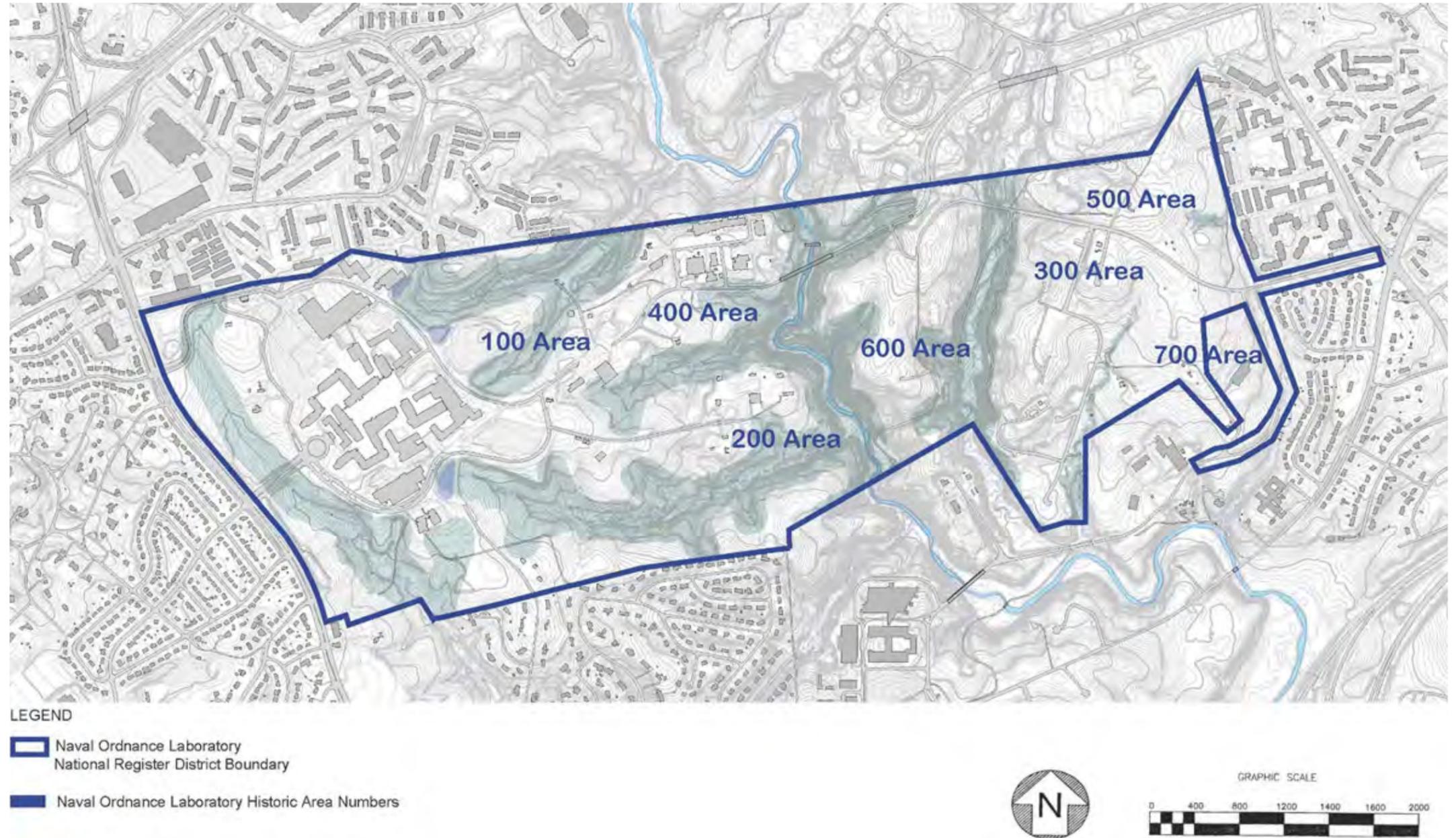


Figure 4-4: Historic District Boundary and Areas Map

4.2 Natural Resources

The existing natural features of the FRC defining the built-up land at the FDA Headquarters include large wooded land areas, wooded stream valleys, and grassy meadow areas. The rolling topography, water resources, and the wildlife habitats enhance the FDA's and Air Force's employee and visitor experience. GSA analyzed potential direct, indirect, short-term, long-term, and cumulative impacts on the natural resources associated with each of the alternatives under consideration.

4.2.1 Soils and Topography

There are eight soil unit types within the study area (see Figure 4-5). The most abundant soil type within the study area is Croom gravelly loam which accounts for over 70 percent of the soils. The next most abundant soil type is classified as Urban Land where 75 percent of the surface is covered by asphalt, buildings, or other structures. Approximately 9 acres in the FDA Headquarters contains Croom gravelly loam and Blocktown channery silt loam (USDA, 2017); the slope associated with these soils may have a severe hazard of erosion (USDA, 1995).

1 Prime farmland soils have the best combination of 27
 2 characteristics for producing crops such as food, 28
 3 feed, forage, fiber, and oilseed crops. Sassafras 29
 4 loam with 2 to 5 percent slopes (58B) is considered 30
 5 prime farmland soils in all areas. Soil map unit 58B 31
 6 comprises approximately 3 percent of the soil within 32
 7 the FDA Headquarters. Glenelg silt loam with 8 to 15 33
 8 percent slopes (2C) and Croom gravelly loam with 3 34
 9 to 8 percent slopes (61B) and with 8 to 15 percent 35
 10 slopes (61C) are classified as farmland soils of 36
 11 statewide importance and account for the majority 37
 12 of the soils within the project area (USDA, 2017). 38
 13 Although there are prime farmland soils within the 39
 14 FDA Headquarters, the land is classified as urban 40
 15 or built-up and therefore exempt from the Farm 41
 16 Protection Act. 42
 17 Generally speaking, the topography of the FRC 43
 18 is generally rolling with elevations ranging from 44
 19 approximately 160 to 400 feet above mean sea 45
 20 level (msl). Within the FDA Headquarters, the 46
 21 topography is relatively flat due to grading and 47
 22 existing construction, ranging from approximately 48
 23 350-to 390 feet msl. Towards the west end of the 49
 24 FRC, elevation is approximately 290 feet msl with 50
 25 steep slopes along the unnamed tributaries to 51
 26 Paint Branch. Slopes of greater than 15 percent are 52
 53 considered to have severe erosion potential. 54

Soil Unit	Soil Type	Slopes
2C	Glenelg silt loam	8 to 15 percent slopes
58B	Sassafras loam	2 to 5 percent slopes
58C	Sassafras loam	8 to 15 percent slopes
61B	Croom gravelly loam	3 to 8 percent slopes
61C	Croom gravelly loam	8 to 15 percent slopes
61 D	Croom gravelly loam	15 to 25 percent slopes
116E	Blocktown channery silt loam	25 to 45 percent slopes
400	Urban Land	

Figure 4-5: Soil Map Units Within the Study Areas (USDA, 2017)



Figure 4-6: Area adjacent to new loop road

Construction in areas of steep slopes will be avoided to the extent possible. Detailed subsurface engineering studies will be undertaken prior to design and construction to ensure that sound building practices are followed. Soil suitability will be determined, and appropriate building foundation specifications will be developed. A soil erosion and sediment control plan will be developed to minimize soil loss due to erosion. Best Management Practices (BMP), such as silt fencing, construction sequencing, and seeding exposed soil areas with grass seed, will be used to control and minimize sedimentation, which is the transportation and deposition of sediments from land into water.

4.2.2 Surface Water and Wetlands

All waterways on the FRC are unnamed tributaries of Paint Branch, located within the Anacostia River watershed. Perennial and intermittent streams on the FDA site are subject to Montgomery County Stream Valley Buffers (SVBs) and require a 150-foot minimum buffer, which may be expanded up to 200 feet to include steep slopes equal to or greater than 25 percent, 100-year floodplains, wetlands, and wetland buffers. No buildings, structures, impervious surfaces, or activities requiring clearing or grading are permitted within SVBs, except for unavoidable road, trail, or utility crossings.

Stream Valley Buffers and Mitigation Strategies

The expansion of the campus may require development within or adjacent to existing stream valley buffers. M-NCPPC provides guidelines for stream valley buffers and development. Based upon those guidelines, encroachments into the stream valley buffers could be mitigated by re-forestation plantings. The re-forested areas may be on a 1:1 basis within the FRC site, if possible.

M-NCPPC recommended guidelines for stream buffers states:

1 “5. The plan design provides compensation for loss of 44
2 buffer function. 45
3 46

4 In reviewing buffer compensation proposals, staff 47
5 will consider such options as buffer averaging, 48
6 enhanced forestation, bioengineering practices, and 49
7 other environmentally beneficial techniques. Buffer 50
8 averaging provides environmentally comparable 51
9 on-site area outside the delineated stream buffer 52
10 in exchange for the allowance of encroachment 53
11 elsewhere in the delineated stream buffer. The 54
12 concept of enhanced forestation (as described in 55
13 detail in Chapter V, section C) goes beyond the 56
14 county legal requirements for forest conservation 57
15 to enhance the existing riparian forest or to 58
16 accelerate the creation of healthy mature forest in 59
17 afforestation/reforestation areas.” 60

18 p.19 Environmental Guidelines 61 19 62

20 Encroachments within SVBs will be subject to 64
21 M-NCPPC review. All proposed encroachments to 65
22 SVBs will be designed in accordance with Chapter 66
23 5 of the M-NCPPC Environmental Guidelines to 67
24 the maximum extent practicable. M-NCPPC will 68
25 be consulted prior to final design to determine 69
26 additional avoidance, minimization, and appropriate 70
27 compensatory mitigation for impacts to SVBs. 71
28 72

29 Implementation of the Master Plan will require 73
30 authorization under the Maryland State 74
31 Programmatic General Permit 5 (MDSPGP-5), 75
32 co-administered by USACE and MDE, which 76
33 authorizes projects that would result in less than 77
34 2,000 linear feet of stream impacts and less 78
35 than 1 acre of wetland impacts. The MDSPGP-5 79
36 requires compensatory mitigation for stream 80
37 impacts exceeding 200 linear feet and wetland 81
38 impacts exceeding 5,000 square feet. By providing 82
39 compensatory mitigation in accordance with the 83
40 MDSPGP-5 and complying with the permit terms 84
41 and conditions, the impacts to streams and wetlands 85
42 would be reduced. 86
43



Examples of Stream Valley Mitigation Improvements



Photos of Paint Branch Stream

4.2.3 Vegetation

A variety of pine and hardwood forested areas, wooded stream valleys, and grassy meadow areas define areas around the campus.

Urban or Built-up Land

FDA's Headquarters is comprised of area of intensive use with much of the land covered by structure and parking lots. Urban land within the FDA Headquarters includes green buffer zones, the FDA development, roads, and parking lots. Landscaped areas comprise most of the vegetation within the urban and developed land of the FDA Headquarters.

Deciduous Forest Land

All forested areas have a predominance of trees that lose their leaves at the end of the frost-free season or at the beginning of the dry season. There are approximately 26.8 acres of forest within the study area and delineated into seven forest stands. Forests within the study area are defined as mid-successional. A mid-successional forest is a transitional stage between a young and mature forest.

A Forest Conservation Plan will be developed in compliance with Montgomery County's Forest Conservation Law and the MD State Forest Conservation Act. The plan will outline compensatory mitigation, if needed to offset the loss of forest and vegetation.

4.2.4 Wildlife

The large wooded land areas and aquatic features on the FRC support numerous wildlife species. The Paint Branch bisects the FRC. The Paint Branch and its tributaries are home to aquatic wildlife. Numerous animal species, amphibians, avian and aquatic species are potentially in the FRC. There are no known protected species, federally listed threatened or endangered species.

1 Minimization of impacts to wildlife will be obtained
2 by maintaining areas of forest that provide habitat
3 and movement corridors for wildlife. Signage for
4 deer crossing would be placed along the roadway
5 through the FRC to mitigate for the risk of deer
6 being struck by vehicles. Time-of-year restrictions
7 of construction activities may be used to protect
8 species most sensitive to human activities.
9 Compliance with the approved erosion and sediment
10 control plan would minimize impacts to aquatic biota
11 by controlling sedimentation.

4.3 Public Realm and Viewsheds

4.3.1 Addition & Removal of Trees

Tree Protection

12 Trees are a valuable resource in the National
13 Capital region. They reduce temperatures, reduce
14 air pollution, mitigate climate change by storing
15 carbon, and improve soil and water quality through
16 retention of stormwater and controlling erosion.
17 An essential strategy of the Master Plan was to
18 avoid existing mature forests and consequently,
19 the removal of large stands of trees. The Preferred
20 Development Alternative successfully limits most of
21 the disturbance to areas that have been previously
22 disturbed and avoids tree removal as much as
23 possible. In areas where trees need to be removed,
24 proper measures such as root spading and tree
25 protection fencing should be taken to protect
26 mature trees adjacent to the limits of work.

Tree Replacement Requirements

27 In alignment with the Comprehensive Plan for the
28 National Capital, when tree removal is unavoidable,
29 trees should be replaced to prevent a net loss of
30 trees to the project area, according to the following
31 process:

- 43 • An evaluation of potential tree loss should be
44 made prior to any tree removal
- 45 • Trees 10 inches in diameter or less should be
46 replaced on a one to one basis
- 47 • Trees larger than 10 inches in diameter should be
48 surveyed by a professional arborist to establish
49 the replacement ratio in alignment to the ISA
50 (International Society of Arboriculture)
- 51 • Replacements should be located within the
52 property

53 In impacted areas that are very densely forested, it
54 may prove impossible to professionally survey and
55 evaluate each individual tree. As an alternative,
56 the local jurisdiction of Montgomery County has
57 a tree replacement program that calculates tree
58 replacements based on tree canopy cover. In
59 accordance with the Forest Conservation Law,
60 analysis of the tree canopy and the replacement
61 rate per acre should be met. After review of this
62 law, assumptions were made for planning purposes
63 to propose two acres planted for every one acre of
64 trees removed. This ratio should be reevaluated
65 during design development and a representative
66 from Montgomery County should review to assure
67 that the most current requirements are being met.

Tree Planting Framework

68 A tree replacement framework proposes
69 appropriate areas in which to plant new trees on
70 the property. While the exact quantity of new
71 trees will be determined later, a large amount of
72 space is designated to meet requirements. While
73 coordinating the tree replacement ratios with the
74 local jurisdiction, it is recommended that GSA share
75 their current practice of tree planting. Recent
76 plantings of new trees on the campus may work
77 toward the replacements required if Montgomery

81 County is made aware of the improvements that
82 FDA has already made.

83 This plan defines three zones of tree replacement:
84 Stream Restoration, Naturalized Edge, and Loop
85 Road. These design guidelines are framework to be
86 followed in future design phases. Refer to figure
87 4.7. Specific design guidelines for the Front Lawn of
88 the FDA Headquarters are shown in figure 4.8.

89 Within the stream valley buffers, replacement
90 trees should be planted to support the health
91 of the waterways. Water-loving species of
92 trees should be planted in organic groupings
93 and protected according to plant establishment
94 practices. Bare root trees may be a cost-effective
95 option for this area. Refer to Figure 4.9- Stream
96 Restoration Photo.

97 Trees are proposed along the edges of stormwater
98 management ponds setback 15' from the base of
99 the slope and avoiding the dam embankments.

100 Trees planted beyond the Loop Road are
101 characterized as a naturalized edge. This area
102 will be dominated by native trees and woodland
103 species that can establish a less manicured look
104 and help restore the previously disturbed areas.
105 An un-mowed buffer should be setback from this
106 area to allow for a natural transition from lawn to
107 forest. Refer to Figure 4.9- Naturalized Edge.

108 Additional trees will be planted along the Loop
109 road to increase the campus character of the
110 grounds. Along this road today there is extensive
111 mowing that new trees will help to limit. Street
112 trees will also help to provide a buffer for bikers
113 using the new bike trail that is proposed around
114 the perimeter of the campus. Refer to Figure 4.9-
115 Loop Road Photo.

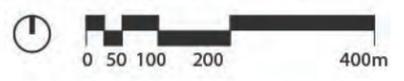
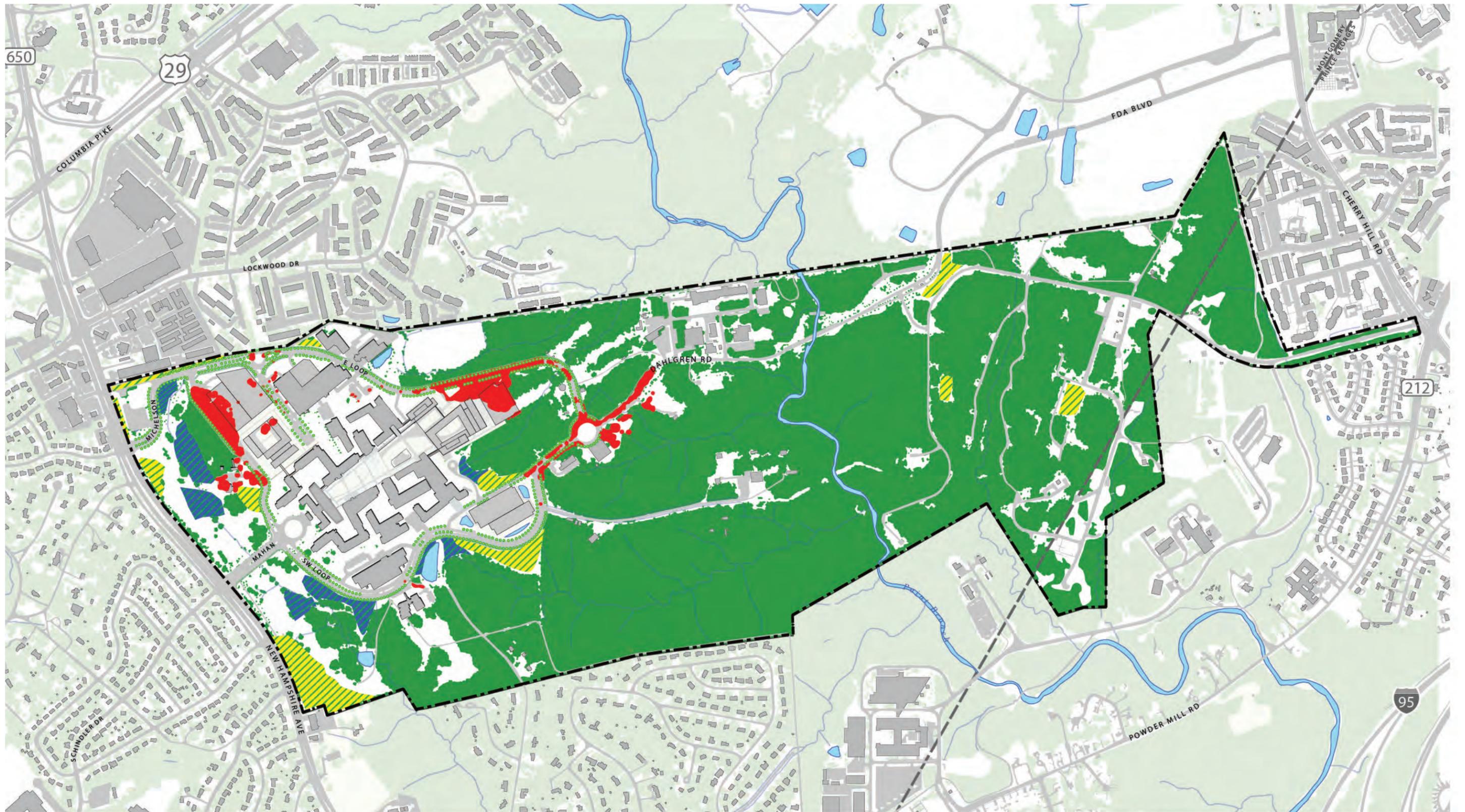


Figure 4-7: Preferred Development Alternative: Tree Removal Diagram

Preferred Development Alternative
Front Lawn Diagram



Figure 4-8: Preferred Development Alternative Front Lawn Diagram

NORTH



Scale 1:3,000



- Preserved Trees
- Mowed Lawn
- No-Mow Zone in Stream Valley Buffer
- Stream Restoration Trees
- Naturalized Edge Trees

Naturalized Edge



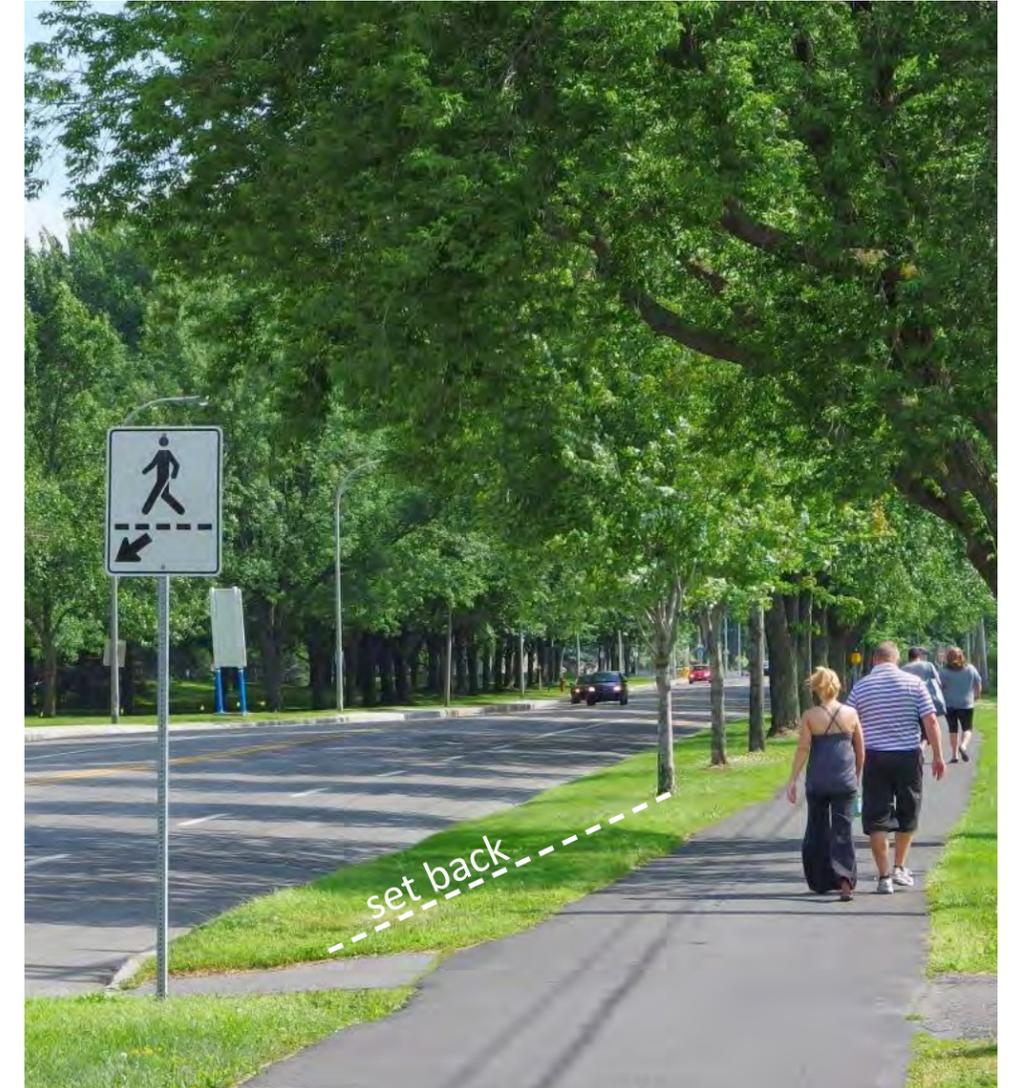
- Un-mowed grasses
- Flowering perennials
- Native under-story Trees

Stream Restoration



- Un-mowed grasses/ reeds
- Native bare-root trees

Loop Road



- Buffer for trail users
- Provides Shade

Figure 4-9: Preferred Development Alternative Tree Planting Framework



Figure 4-10: Front Lawn, Flag pole, and Main Administration Building 1



Figure 4-11: Entrance from New Hampshire Avenue

4.3.2 Impact on Viewsheds

The 1997 determination of eligibility and 2002 MOA cited the historic buffer and the views from New Hampshire Avenue to the façade of Building 1 as important campus features but did not define a historic viewshed beyond the façade of Building 1. Because of the relative location and height east of Building 1, the high-rise buildings proposed in the Preferred Development Alternative would be visible behind Building 1 when viewed from some points along New Hampshire Avenue. This visibility would be mitigated by the relative distance of the high rises (about half a mile) from Building 1. While the tall buildings would not intrude on the view of the Building 1 façade across the buffer from New Hampshire Avenue, the broader visual setting of Building 1 from New Hampshire Avenue would include taller buildings behind and above the historic building. They may also be visible, depending on seasonal vegetative cover, from the northwest portion of the campus (area 400).

The new buildings at the east and north ends of the campus would be visible from the fire station (Building 100) but given their distance from the building and the already affected visual setting due to past construction, there is no anticipated effect from the construction of new facilities.

GSA initiated consultation under Section 106 of the National Historic Preservation Act to prepare a Memorandum of Agreement (MOA) for mitigation in the event of any adverse effects to historic views or visual settings as a result of the Preferred Development Alternative.

Preferred Development Alternative
New Hampshire Ave View



Figure 4-12: Preferred Development Alternative View from New Hampshire Ave.



*Preferred Development Alternative
Mahan Road Circle View*



Figure 4-13: Preferred Development Alternative View from Mahan Road Circle



*Preferred Development Alternative
South New Hampshire Ave View*



Figure 4-14: Preferred Development Alternative View from South New Hampshire Ave.



Equinox (Spring & Fall)

Summer Solstice

Winter Solstice

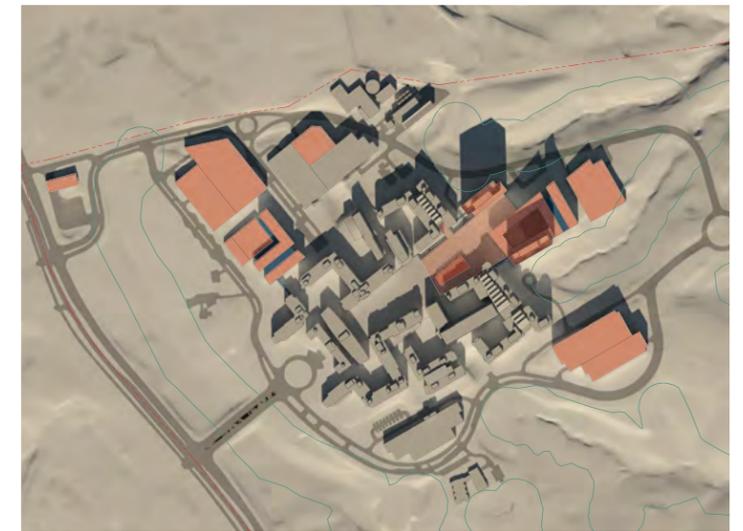
1 4.3.3 Changes in Light & Shadow

2 The anticipated impacts on light and shadow are
3 depicted in the diagrams for various times and
4 seasons.

9 am



Noon



3 pm

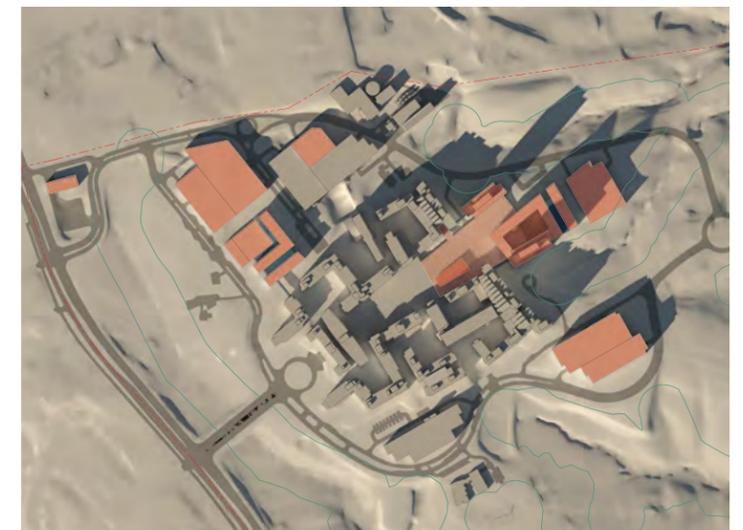


Figure 4-16: Preferred Development
Alternative Shadow Study

4.4 Flooding

Based on a review of FEMA Flood Insurance Rate Maps (FIRM), floodplains for Paint Branch and several tributaries to Paint Branch are found on portions of the FRC and within the study area). The FRC is mapped on FIRM Panel 24031C0390D, effective September 29, 2006 (FEMA, 2006). These floodplains have been designated Zone AE which indicates a detailed study was performed to map the floodplain and Base Flood Elevations (BFEs), the elevation to which the flood is expected to rise during the 100-year storm, have been calculated. The floodplains on the FRC are primarily confined to the narrow channels of the streams and do not span large areas. The Preferred Development Alternative does not involve development within the 100-year floodplain. The implementation of the Preferred Development Alternative complies with Executive Order 11988 and the PBS GSA Floodplain Management Desk Guide, 2016. There would be no significant impacts to floodplains.

4.5 Stormwater Management Plan

4.5.1 Introduction

Figure 4-17 shows the proposed stormwater management plan for the Preferred Development Alternative.

Impervious area would be reduced by providing structured parking instead of parking lots, maximizing the office building heights, and providing pervious pavements in hardscape areas and some fire lanes.

The State of Maryland Environmental Site Design (ESD) strategies would be implemented to the maximum extent practicable. LEED and SITES points for stormwater management would be pursued for each building. Low Impact Development (LID) strategies would be employed in accordance with the Technical Guidance on Implementing

the Stormwater Runoff requirements for Federal Projects under Section 438 of the Energy Independence and Security Act (EISA 438). Strategies to incorporate SWM facilities into the site as amenities and spatial drivers would be pursued, as well as exploring the potential to integrate the design into the natural systems of the White Oak FRC site.

Potential types of LID/BMP facilities for the expanded FDA Headquarters are: Micro-bioretenion (Structural walled micro-bioretenion may be used in lieu of graded micro-bioretenion where space limitations dictate), Bio-swales (on road sides), Rooftop Rainwater Harvesting (Typical reuse methods are toilet flushing and cooling tower makeup water), Green Roof/Partial Green Roof (Green roof with 4" media provides 38% of the required MDE Environmental Site Design Volume (ESDv)), Pervious Pavements (The best opportunities on the campus are likely to be fire lanes, sidewalks, paths, and other hardscape areas), Submerged Gravel Wetlands (MDE will generally accept these if alternative ESD BMPs are not feasible), Tree Planting, and Stream Restorations (Tree planting and stream restoration can at times be credited toward meeting water quality requirements).

Roadways would maximize use of bio swales. Office buildings would maximize the use of rooftop rainwater harvesting as well as green roofs. Any untreated storm runoff from roads, buildings, and parking structures would be conveyed to new non-structural ESD/BMP facilities such as bio-retention areas. Once ESD measures have been implemented to the maximum extent practicable (MEP), then structural and other non-ESD type BMP facilities could be utilized. An existing SWM pond (Pond #3) located at the east end of the central commons would be removed and replaced via a re-design and expansion of existing SWM Pond #1 (adjacent to the Central Utility Plant). The existing SWM pond (SHA Pond #2) located north of Michelson Road, and adjacent to New Hampshire Avenue (MD 650) would be removed and replaced by a submerged

gravel wetland located south of Michelson Road. The other existing stormwater facilities on the FDA Headquarters may be retrofitted, relocated, or replaced as necessary. These areas would drain to new storm pipe systems that would in turn outfall to existing tributaries of Paint Branch. Outfalls would be required to be non-erosive.

Construction would be authorized under the NPDES General Permit for Stormwater Associated with Construction Activity. Notices of Intent (NOI) would be filed and NPDES General Permits for Construction would be obtained for all new work. During construction, BMPs such as silt fence, erosion matting, inlet protection, sediment traps, sediment basins, and revegetation of exposed sediment would be implemented to minimize soil erosion and stormwater pollution. Stormwater management plans and erosion and sediment control plans would be prepared and submitted to MDE for review and approval prior to construction. MDE enforces a maximum limit of 20 acres of disturbed ground at any time. All disturbed areas would be permanently revegetated and stabilized following construction. Temporary impacts to streams and wetlands would be restored to pre-construction conditions to the maximum extent practicable following construction, including contour and elevation restoration, revegetation with native species, streambank stabilization, and stream substrate replacement.

Stormwater quantity and quality control measures would be designed and implemented in accordance with the following regulations, permits and guidance documents:

- COMAR 26.17.01 Erosion and Sediment Control
- COMAR 26.17.02 Stormwater Management
- Maryland Standards and Specifications for Soil Erosion and Sediment Control (MDE, 2011)
- Maryland Stormwater Management and Erosion & Sediment Control Guidelines for State and Federal Projects (MDE, 2015)
- Maryland Stormwater Design Manual, Volumes I & II (MDE, 2000) and Supplement 1 (MDE, 2009)

- Section 438 of the Energy Independence and Security Act of 2007 (EISA)
- Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under EISA 438 (EPA, 2009)
- Guidelines for Environmental Management of Development in Montgomery County (M-NCPPC, 2000)
- NPDES General Permit for Stormwater Associated with Construction Activity, administered by MDE
- NPDES General Permit for Discharges from State and Federal Small Municipal Separate Storm Sewer Systems (MS4s), administered by MDE
- Maryland State Programmatic General Permit 5 (MDSPPG-5), co-administered by USACE and MDE

4.5.2 Calculations

Each proposed Development Alternative was analyzed against MDE Environmental Site Design (ESDv) requirements and EISA Section 438 Low Impact Development (LID) requirements to confirm the feasibility of the proposed SWM concepts and to estimate the amount of treatment that may be required. The proposed SWM BMPs would include micro-bioretenion, bio-swales, green roof, submerged gravel wetlands, and rainwater capture and reuse.

BMPs are shown schematically on the SWM Plans and each shape represents the approximate size of the treatment area that would be needed. The exact location, size and shape of each BMP would be determined during design, and would consider factors such as contributing drainage area, site grading, site utilities, fire access, and aesthetics.

The enlargement of SWM Pond #1 was estimated based on including the storage volume that would be lost in the removal of Pond #3. The submerged gravel wetland located near Michelson Road was sized to replace the function of the SHA SWM Pond that would be removed for the construction of the new Truck Screening Area.

*Preferred Development Alternative
Stormwater Management Plan*

LEGEND

-  Bio-swale
-  Schematic locations for Micro Bio-Retention Facilities
-  Rainwater capture and reuse
-  Green Roof
-  Submerged Gravel Wetland Area
-  Re-design and expansion of Existing SWM Pond #1 ; Replaces function of SWMP #3 (removed)



Figure 4-17: Preferred Development Alternative - Stormwater Management Plan

4.6 Utilities Plan

4.6.1 Power Plan

The proposed addition of employees and support staff at the FDA Headquarters would result in increased demand for electrical, and HVAC services.

Power for the proposed new buildings on the FDA Headquarters would be provided by new feeder lines from the existing PEPCO substation, which currently only supplies backup power. Each new building would have its own individual power supply and dedicated mechanical spaces for HVAC. PEPCO would become the sole provider of electricity for the new Campus buildings. No new buildings nor equipment would be added to the existing Central Utility Plant (CUP) system.

Power could also be provided by expansion of the existing CUP and utility distribution system, or by the addition of a new and separate utility plant and distribution system that would serve only the new buildings. With the former, the existing utility plant capacity would be expanded, and the distribution system would be extended to the areas of new development to provide electrical power as well as chilled and heated water for HVAC. This would be accomplished by expansion of the existing CUP site and/or by adding a new satellite plant. With the latter, a new separate utility plant would be added, and a new separate distribution system would provide power and HVAC to the new buildings only. If the existing CUP were expanded or a separate utility plant built, additional studies and compliance activities would be required.

The following energy conservation strategies would be used: rooftop solar panels, active and passive solar techniques, high-efficiency lighting and occupancy sensors, modern and efficient heating and cooling equipment, natural ventilation systems, and ENERGY STAR® appliances. LEED® Gold certification and net zero energy usage would be achieved for all new buildings.

4.6.2 Water Plan

The proposed addition of employees and support staff at the FDA Headquarters would result in increased demand for water service. Water supply to the site would use a portion of the existing capacity of the regional water storage and water distribution. WSSC conducted a System Planning Forecast (SPF) to review the water and sewer demands for the Development Alternative. The Letter of Findings (LOF) for the SPF, issued May 31, 2017, concluded that the existing water service would be adequate for the Development Alternative.

While new 12"-inch and 8-inch water service lines would be constructed within the FDA Headquarters to service new buildings, no additional connections to the New Hampshire Avenue water main would be required. It is expected that a connection will be made from the existing 8" water line in Dahlgren Road to a new water system constructed as part of the VIVA White Oak project to the northeast.

The proposed new buildings and parking structures would include water-efficient landscaping and low-flow plumbing fixtures that would reduce potable water usage. Rooftop rainwater harvesting would be employed when possible, and rainwater would be reused for toilets and cooling towers, reducing the demand for potable water.

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Preferred Development Alternative
Water Service Plan

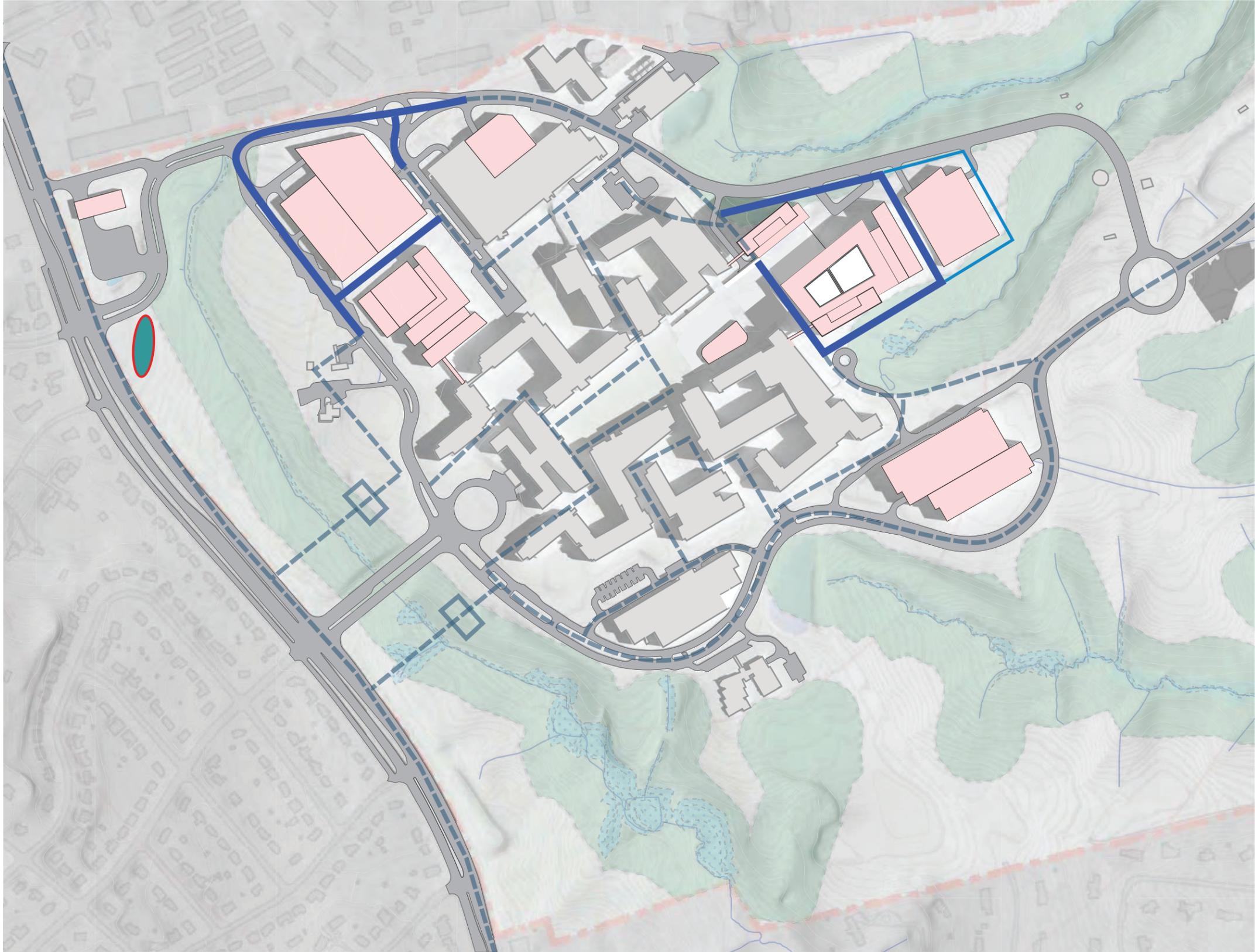
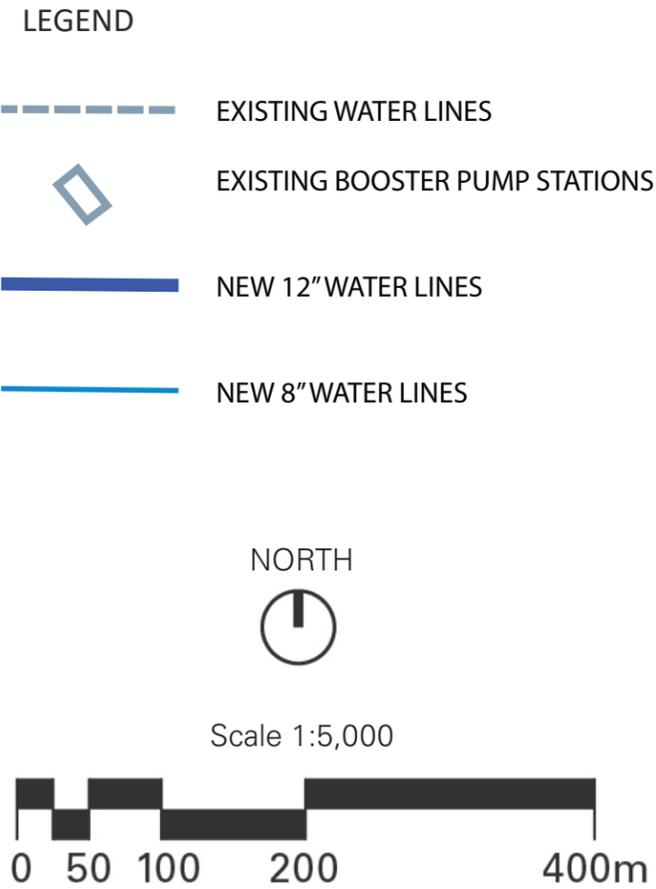


Figure 4-18: Preferred Development Alternative Water Service Plan

4.6.3 Sewer Plan

The proposed addition of employees and support staff at the FDA Headquarters would result in increased demand for sewer service.

WSSC was contacted and they required that a System Planning Forecast (SPF) application be prepared and submitted before they would give an answer on their ability to provide additional sewer service to the site. The SPF application was submitted and WSSC conducted an extensive analysis and issued a Letter of Findings (LOF).

The WSSC Letter of Findings for the SPF, issued May 31, 2017, concluded that there is capacity available to provide sewer service for this project. Service may be obtained through a new (or existing) service connection to the Paint Branch trunk line; The WSSC LOF also stated that the project has the potential to exacerbate existing sewer overflows downstream of the FRC site (These existing overflows are occurring due to stormwater infiltration during large rain storm events). Therefore, WSSC would require the implementation of mitigation measures so that the impact would be minimized. Their analysis indicates a need to replace approximately 4,850 feet of 27" sewer trunk lines downstream of the FRC site. This replacement is not intended to increase capacity, but rather to make the system more resistant to water infiltration and less prone to overflows during storms. WSSC also stated that, in lieu of replacing the downstream pipe, the applicant may choose to participate in a sewer system rehabilitation effort to remove excess inflow/infiltration (As a part of the WSSC "Clearwater" program). This effort would include rehabilitation of an agreed upon number of existing manholes and pipes located on the Paint Branch sewer basin system (on and off the FDA site) to mitigate the effect of the increased wastewater flows from the expanded FDA Headquarters. Prior to receiving approval for development, a study and cost estimates would be performed to analyze the options. This would be performed in conjunction with

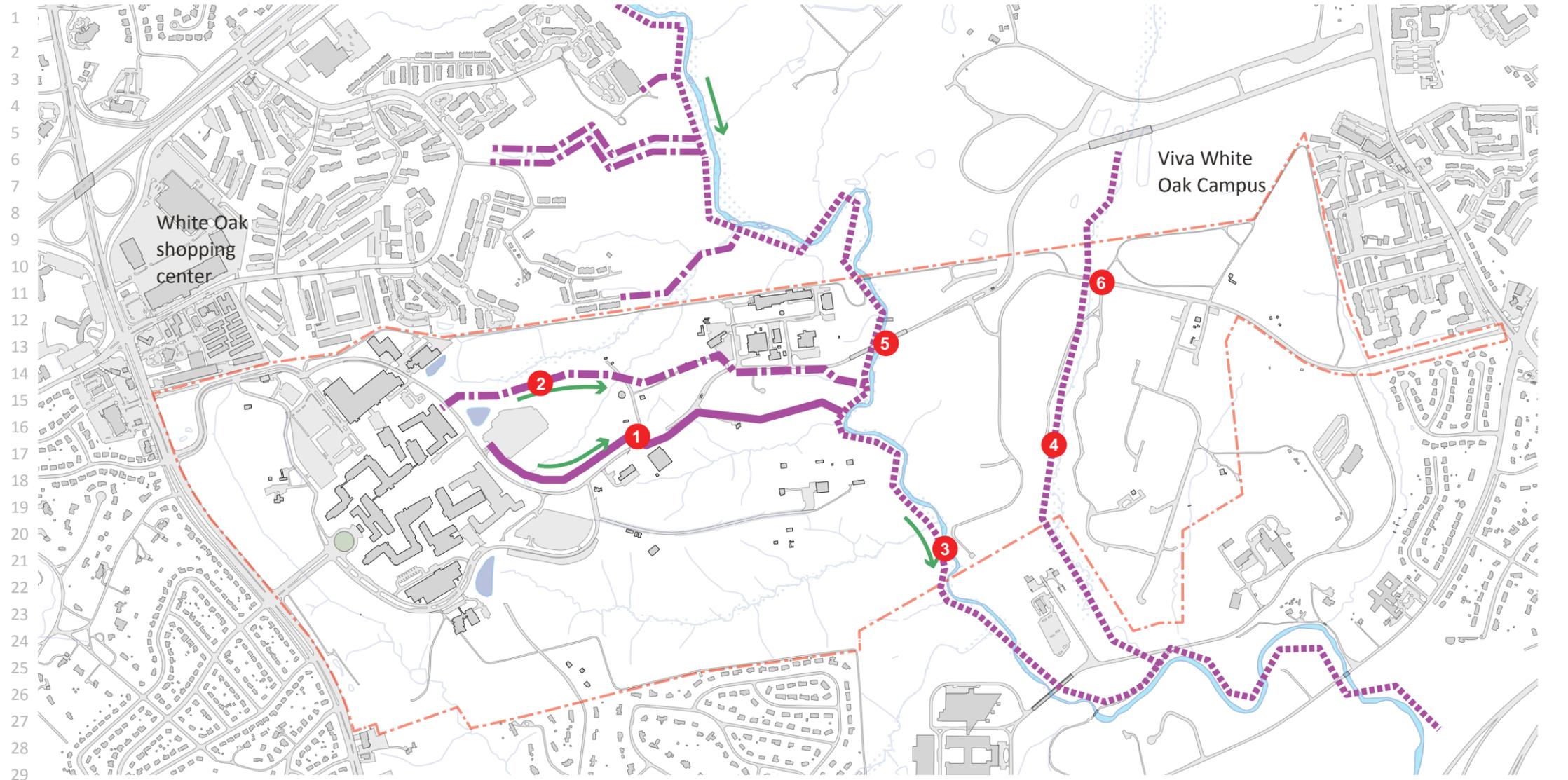
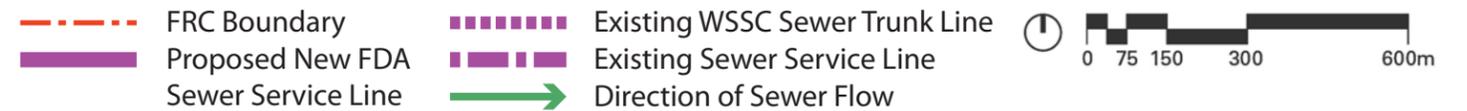


Figure 4-19: Sewer Service Plan



the design of sewer construction plans for the selected alternative.

The existing FDA 15" outfall sewer service line has capacity to serve the existing campus but will not handle the ultimate build out of the expanded site under this Master Plan. A new 15" outfall sewer service line will convey sewer flows from the new buildings (and some of the existing buildings) to the existing 27" WSSC Sewer Trunk Line running along Paint Branch. The sanitary sewer system materials will be per WSSC specifications. Piping would be PVC or DIP.

New Sewer

1 Proposed New 15" Sewer Line To Serve Expanded FDA Headquarters

Existing Sewer

2 Existing 15" Sewer PVC Sewer Line Serving FDA Headquarters

3 Existing 27" Paint Branch Trunk Sewer Line Serving The White Oak Area

4 Existing 20" West Farm Branch Sewer Trunk Line

Existing Other

5 Existing Bridge over Paint Branch

6 Existing Bridge over West Farm Branch

*Preferred Development Alternative
Sewer Service Plan*

See Figure 4-20 for Sewer lines downstream of FDA site.

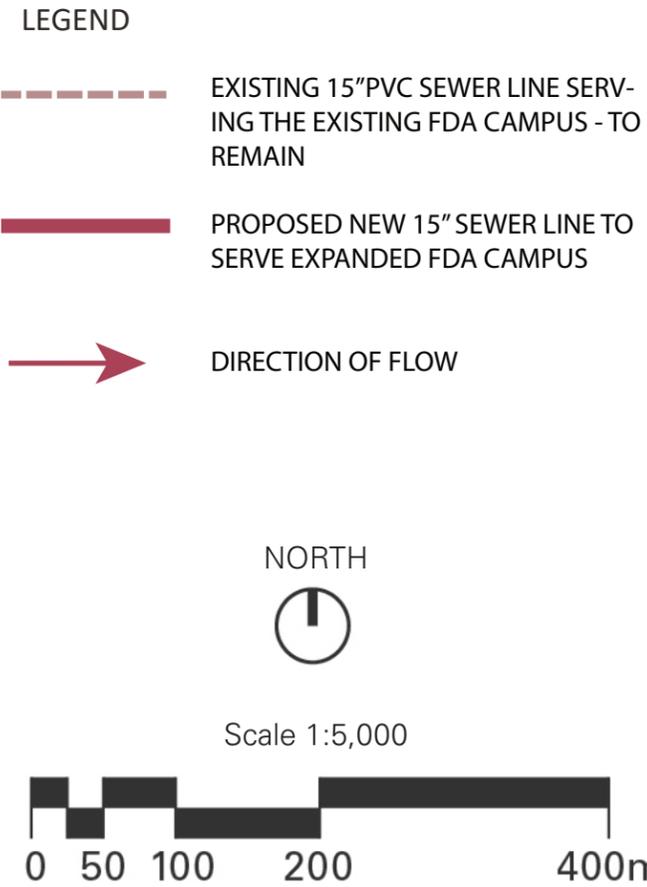


Figure 4-20: Preferred Development Alternative Sewer Service Plan



5

**LIST OF
PREPARERS**

5. LIST OF PREPARERS



GENERAL SERVICES ADMINISTRATION

National Capital Region
7th & D Streets, SW
Washington, DC

Mina Wright
Director
Office of Planning and Design
Quality (OPDQ)

Stephanie Hamlett, AICP
Chief, Planning Branch

Gary Porter
Historic Preservation Specialist

Edith Toms
Supervisory General Counsel
National Capital Region

Dawud Abdur-Rahman
Project Director
Office of Portfolio Management
and Real Estate (OPMRE)

Paul Gyamfi
Senior NEPA Compliance
Specialist

Marc Poling
Transportation, Community
Planner

Jeff Hysen
Attorney-Advisor (General)
National Capital Region

Shelly Jones, AIA
Project Manager, Community
Planner

Nancy Witherall
Regional Historic Preservation
Officer

Ernest Hall
FDA Consolidation Program
Manager

Christine Ewing
GSA – FDA FRC Campus
GSA Director,
Federal Research Center at
White Oak



FOOD AND DRUG ADMINISTRATION

10903 New Hampshire Avenue
Silver Spring, Maryland 20993

Don Demers
Acting Director
Office of Facilities Engineering
and Mission Support Services

Elena Garrison
Branch Director
Portfolio and Space
Management Branch

Marty Borenstein
Project Engineer
Engineering Management
Branch

Carl Pavetto
Director
Office of Safety, Security, and
Crisis Management

Kelvin Lawson-Associate
Director
Division of Operations
Management and Community
Relations

Mehryar Ebrahimi
Branch Director
Engineering Management
Branch

Imran Kahn
Project Engineer
Engineering Management
Branch

Karl Thrash
Director
Office of Security Operations

Andrew Dempster
Branch Director
Logistics and Transportation
Management Branch

Rob Alexander
Branch Director
Facilities Maintenance and
Operations Branch

Karen Rhodes
Project Engineer
Engineering Management
Branch

Matt Amann
Director
Employee Safety and
Environmental Management

GBR | Architects

500 L Montgomery St
Alexandria, VA 22314

William H. Geier, AIA
Principal

Sonia R. Jarboe, AIA
Project Manager

John E. Wittmann, AIA
Planner



6110 Frost Place
Laurel, Maryland 2070

Elizabeth Edelen Estes
M.S. Environmental
Management

Joan Glynn
B.A. Communications

Roger Windschital
M.S. Environmental Studies

Brian K. O'Mara, PE
B.E. Civil Engineering

Rand L. Postell, PE
B.S. Civil Engineering

Adam Catherine, PE, PTOE
M.S. Civil Engineering



A DESIGN CONSULTANCY OF ARCADIS
2101 L Stree, NW Suite 200
Washington DC 20037

Rod Henderer, FAIA
Senior Vice President

Bill McCarthy, AIA
Vice President

Phill Walker, ACIP
Senior Assoc. Vice President

Jeong Han Kim
Senior Associate

Kristen Vican, AIA
Senior Assoc. Vice President

Ellen Wright, AIA
Senior Associate

William Quattlebaum, AIA
Associate

Monica Streeper, ASLA
Senior Designer

Ahnaf Chowdhury
Architectural Intern

Virginia Paulk
Architectural Intern

Lark Pfleegor
Associate

Melody Hung
Associate

Owen Railey
Architectural Intern



Ruth Mills
M.S., Historic Preservation