Humphreys Engineer Center Vision Plan

Alexandria, VA

Prefinal Submittal April 2025

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Prepared For:
United States Army Corps of Engineers (USACE)

Contract Info
Contract #W912DR22D0003
Task Order #W912DR23F0383

JG&A-TSG
JOINT VENTURE

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ES.1 Introduction

The Humphreys Engineer Center (HEC) Vision Plan provides a strategic framework for HEC's future planning efforts. This plan includes a vision statement, specific goals and objectives, and spatial maps illustrating the vision's key aspects.

As the initial component of the installation development plan (IDP) for HEC, the Vision Plan lays the foundation for comprehensive planning. The IDP includes the vision plan, installation planning standards, long-range components (such as area development plans and network plans), a capital investment strategy, and a plan summary. The installation master planning process is guided by Unified Facilities Criteria (UFC) 2-100-01, Installation Master Planning.

By establishing a clear vision and structured approach, the HEC Vision Plan addresses current needs and anticipates future challenges. It aligns development initiatives with goals of sustainability, modernization, and operational efficiency, fostering an adaptable environment that supports HEC's mission and USACE's objectives.

The Vision Workshop aligned stakeholders and guided HEC's future planning efforts. The workshop featured activities such as a Visual Preference Survey, SWOT-V analysis, tabletop map exercises, and discussions on planning principles and Installation Planning Standards (IPS). The iterative process refined the vision, goals, and objectives, ensuring alignment with practical considerations and regulatory requirements. This approach ensures comprehensive and collaborative planning, addressing both immediate needs and long-term objectives for HEC. See Figure ES-1 for the Vision Workshop agenda.

	Tuesday 05/21/24	Wednesday 05/22/24	Thursday 05/23/24
Morning	Inbrief Visual Preference Survey SWOT-V Rights and Blights Framework Plan	Planning Principles Visions and Goals Installation Planning Standards	Refine Vision, Goals, and Objectives Refine IPS Outbrief
Afternoon	Constraints and Opportunities Developable Areas IPS Review	Refine Vision, Goals, and Objectives Refine IPS	

ES-1. Workshop Agenda

HEC Planning Vision Statement

Humphreys Engineer Center (HEC) is a safe, secure, and inviting campus integrated with the natural environment.

ES.2 Background

HEC is a 583-acre Civil Works installation owned by the U.S. Army Corps of Engineers (USACE) and operated by the Humphreys Engineer Center Support Activity (HECSA). Located in Fairfax County, VA, it serves as a research center for USACE and a headquarters for HECSA, supporting USACE missions and goals. HEC's proximity to USACE headquarters in Washington, D.C., and Fort Belvoir offers security and convenience for its tenants.

Fairfax County, a populous and diverse area, boosts HEC's socio-economic environment, supported by federal agencies, defense contractors, and tech companies. The area is well-connected via major highways, public transportation, and airports, enhancing accessibility. HEC's campus consists of modern office buildings, research laboratories, and conference facilities built in the 1980s.

Key Facilities

•Cude Building: Completed in 1988, the Cude building serves as the central administrative hub for HECSA. It houses offices for various USACE divisions and departments, including project management, planning, and administration support.

•Kingman Building: Kingman serves as an administrative center for HEC and provides offices for USACE's civic works mission. The building also supports training programs and workshops aimed at advancing USACE's capabilities in water resource engineering.

•Casey Building: Completed in 1981, the Casey Building has historically been used as a classroom training facility. Today, the building houses the USACE Finance Center and the Institute for Water Resources (IWR), a non-USACE tenant conducting research and development at HEC.

HEC's primary mission supports USACE's goals by providing a campus for engineering research and development. The site has functioned as a USACE testing facility since 1971 and officially became Humphreys Engineer Center in 1982. Today, HEC hosts several tenants and has room for growth. HECSA directs all USACE activities in the National Capitol Region, administers non-USACE tenants, and manages property at HEC.

Primary Functions

•Engineering and construction management for development projects.

•Environmental sustainability, hazardous waste cleanup, and resource management.

Stakeholders gather for Vision Workshop

•Research and development in engineering practices.

•Training and professional development.

HEC operates on a unique funding model, relying on tenant reimbursements rather than Congressional appropriations.

Environmental and Built Constraints
HEC's development considers existing constraints such as cemeteries, historic facilities, streams, wetlands, and floodplains. The Riparian Protection Areas (RPAs) and FEMA-designated floodplains indicate regions requiring special attention to safeguard water quality and habitat. Environmental protection measures ensure sustainable development and resilience.

Topography and Utilities
HEC's topography and utility infrastructure are crucial for future development. Most land is suitable for development, though some areas have restrictions due to slopes and existing infrastructure. Utility capacity is adequate but may require expansion for high-intensity development.

Transportation Network
HEC's transportation network includes primary and secondary roads, pedestrian pathways, and connectivity to external highways and public transport, supporting efficient movement and connectivity within the installation.

Green Infrastructure
HEC integrates green infrastructure with built environments, preserving natural features like forests, streams, wetlands, and floodplains. This approach supports sustainability and ecological health.

Development Potential
Land within HEC is categorized as developable or moderately constrained, with no areas deemed entirely constrained. This assessment ensures potential for development with varying environmental and engineering considerations.

ES.3 HEC Goals

The following goals provide concrete steps the installation should consider in the designated areas to fulfill HEC's Planning Vision:

Goal 1: Modernize Facilities and Infrastructure

Goal 2: Strengthen Transportation Networks

Goal 3: Design Safety and Security Measures

Goal 4: Protect the Natural Environment

Goal 5: Promote a Campus-Style Atmosphere

Figure ES-2 illustrates some design elements that can aid in achieving the above goals:

1. Modern Laboratory with stylish furnishings and full windows (Goal 1)

2. Modern crosswalk design with large grassy median (Goal 2)

3. Well-kept landscape along tree-lined pedestrian pathway (Goal 2)

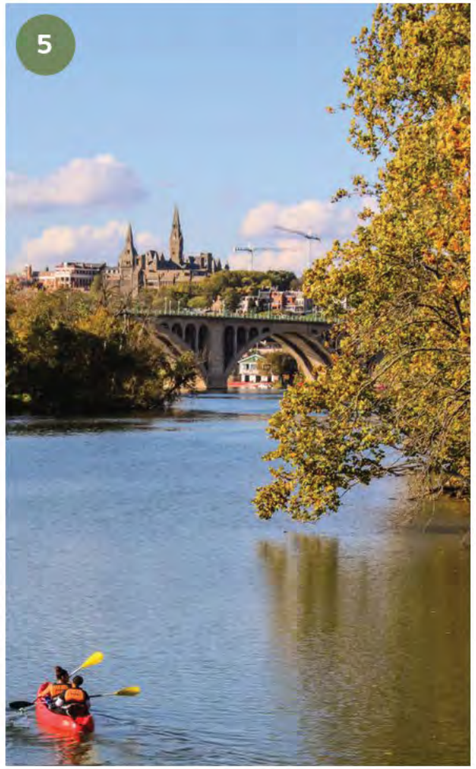
4. Security bollards with red LED lighting (Goal 3)

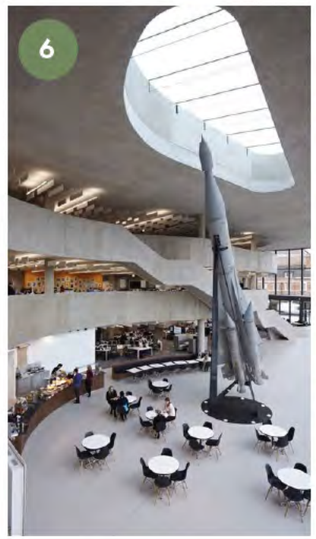
5. The Potomac River (Goal 4)

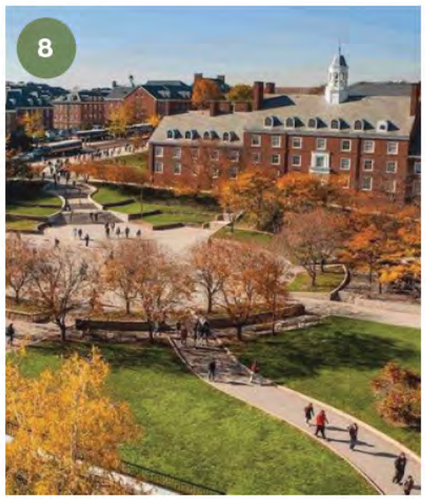
6. Office Atrium with retired space-age rocket decor (Goal 1)

7. Pocahontas State Park (Goal 4)

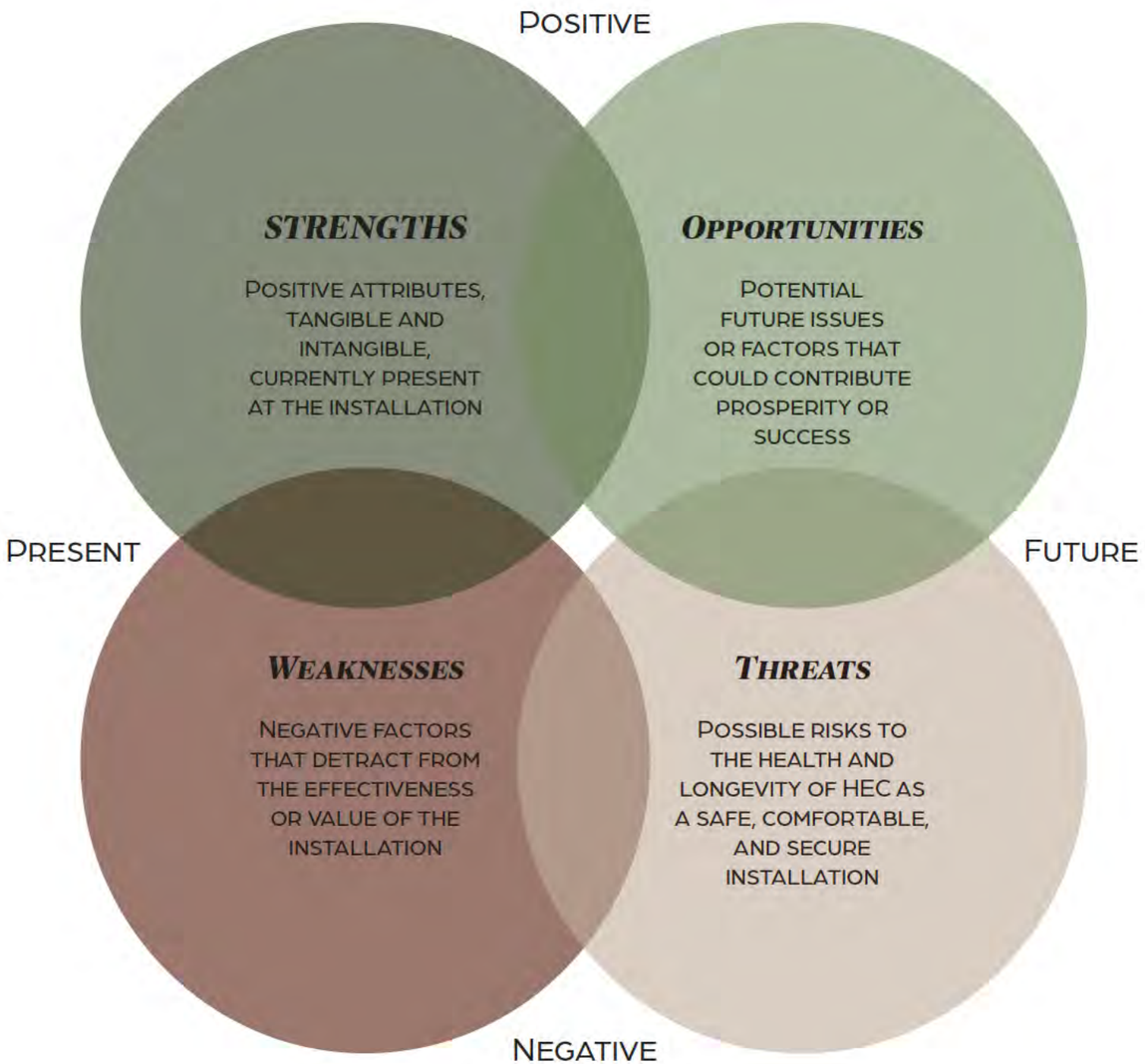
8. James Madison University campus (Goal 5)







ES-2. Goal Elements



ES-3. SWOT Analysis

ES.4 Vision Plan Workshop

The Vision Workshop, held from May 21–23, 2024, aligns stakeholders and guides future planning for HEC. Over three days, participants engage in various activities to develop a comprehensive strategy for HEC's growth and development.

During the workshop, the planning team used graphic notetaking to capture key insights and discussions in real-time.

Workshop Activity Highlights:

•SWOT-V Analysis (Figure ES-3): The analysis evaluates HEC's current state and future potential, identifying strengths, weaknesses, opportunities, and threats. This ensures alignment with HEC's core principles and strategic goals.

•Tabletop Map Exercises: Exercises such as "Rights and Blights" and the Framework Plan illustrate existing conditions and potential development areas. These activities ground planning efforts in practical and regulatory contexts.

•Visual Preference Survey (VPS): Participants provide feedback on aesthetic and functional preferences for the installation, defining visual and operational goals for future development.

Positive elements identified from the VPS include:

•Buildings: Integration of windows and natural light, impressive building scale, and use of natural materials.

•Circulation: Well-designed sidewalks and bike paths, varied materials, and multiple egress options.

•Landscaping: Variety of colors and native plants, mature trees, and effective bioswales.

•Development Patterns: Walkable layouts, centralized buildings, and clear separation between zones

•Site Elements: Mature trees, visual interest, and well-designed pathways.

Negative elements identified from the VPS include:

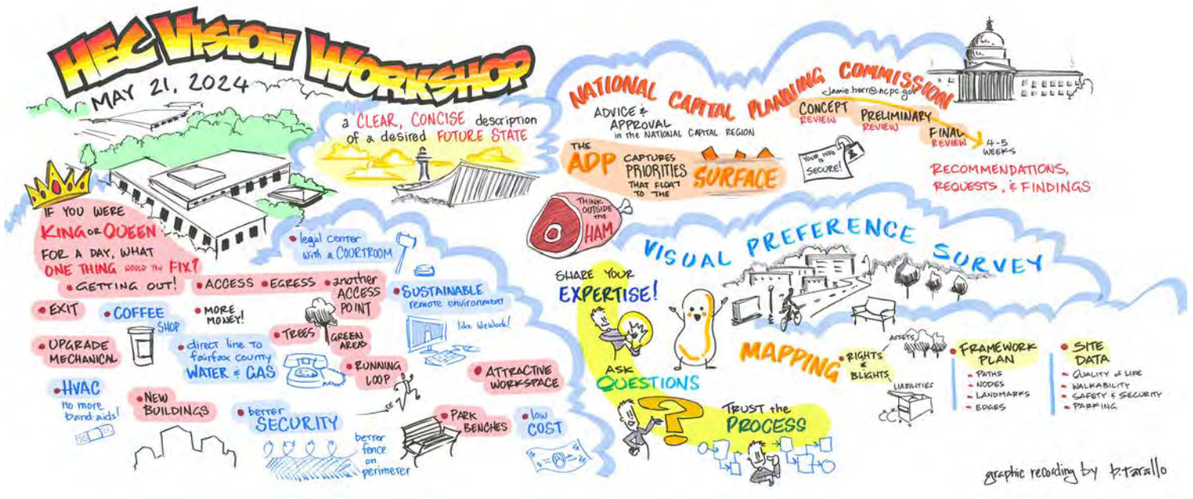
•Buildings: Inconsistent architecture, aging facilities, and lack of inviting design.

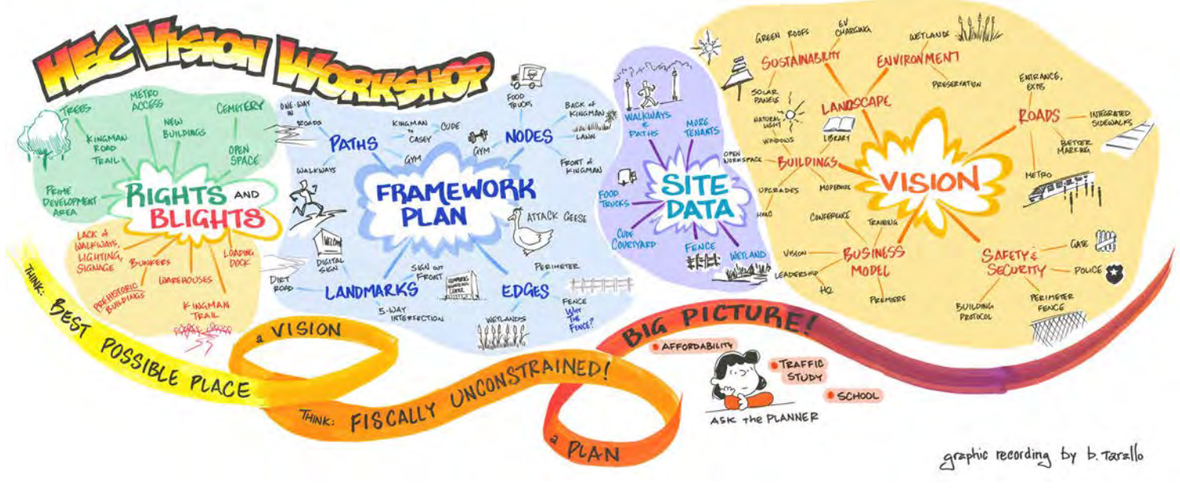
•Circulation: Poor markings, visibility issues, and unclear egress patterns.

•Landscaping: High maintenance requirements.

•Development Patterns: Congestion and industrial appearance.

•Site Elements: Confusing layouts, inadequate wayfinding, and lack of ADA accessibility.





Graphic Notes from Vision Workshop

1

Introduction

1.1 Vision Plan Purpose

The Humphreys Engineer Center (HEC) Vision Plan offers a strategic outlook for HEC's real property, serving as a decision-making framework for future planning efforts. This framework includes a vision statement, specific goals and objectives, and a series of maps illustrating the spatial aspects of the vision.

As the initial component of the installation development plan (IDP) for the Humphreys Engineer Center, the Vision Plan lays the foundation for comprehensive planning. The IDP encompasses the vision plan, installation planning standards, long-range components (such as area development plans and network plans), a capital investment strategy, and a plan summary. The installation master planning process, as outlined by Unified Facilities Criteria (UFC) 2-100-01, Installation Master Planning, is shown in Figure 1-1.

By establishing a clear vision and a structured approach to development, the HEC Vision Plan addresses current needs and anticipates future challenges and opportunities. It ensures that all development initiatives are aligned with the overarching goals of sustainability, modernization, and operational efficiency. This planning strategy is essential for fostering an adaptable environment that supports the mission of HEC and the broader objectives of USACE.

Stakeholders gathered for workshop

Figure 1-1. Installation Master Planning Process

1. Develop Vision Plan

- Vision, Goals, Objectives
- Developable Areas Map
- Network Plans

2. Prepare Installation Planning Standards

- Building Standards
- Street Standards
- Landscape Standards

3. Update Long Range Component

- Area Development Plan (ADP) and Area Development Execution Plan (ADEP)
- Illustrative Plan
- Regulating Plan
- Tree Preservation Plan
- Transportation Management Plan (TMP)
- Zero Emission Vehicle (ZEV) Fleet Strategic Plan

4. Document Capital Investment Strategy (CIS)

- Facilities Condition Assessment
- Infrastructure Capacity Assessment (ICA)
- Project Development Plan (PDP) and DD1391s

5. Create Plan Summary

- Installation Development Plan (IDP) Summary
- National Environmental Policy Act (NEPA) Environmental Assessment (EA)

1.2 Planning Assumptions

The planning team identified key planning assumptions:

- The vision plan will focus on areas within the HEC boundary, ensuring that all proposed development and improvements are contained within the specified geographic limits.
- HEC relies on a funding model that is not typical compared to other U.S. military installations. Construction and other real property improvements at HEC are funded through tenant reimbursements, rather than Congressional appropriations, such as MILCON (Military Construction) funding.
- Any development or modification plans at HEC must be reviewed by the National Capital Planning Commission (NCPC). Ensuring coordination with NCPC guidelines and obtaining necessary reviews will be a critical step in the planning process.

Stakeholders gathered for workshop

1.3 Workshop Overview

The Vision Workshop, held 21–23 May 2024, is a comprehensive, three-day event designed to align stakeholders and guide the future planning efforts for HEC. The workshop is structured to systematically address various aspects of strategic planning, ensuring a holistic approach to the development process.

The workshop begins with an inbrief, setting the stage and expectations for the days ahead. Participants engage in a Visual Preference Survey to identify aesthetic and functional preferences for the installation. This is followed by a SWOT-V analysis (Strengths, Weaknesses, Opportunities, Threats, and Vision) to assess the current state and future potential of the site. Tabletop map exercises include "Rights and Blights" (to highlight areas of concern and opportunities for improvement) and the development of a Framework Plan that highlights the existing conditions of HEC. These mapping exercises focus on identifying constraints and opportunities, mapping out developable areas, and reviewing Installation Planning Standards. This segment of the workshop ensures that all planning efforts are grounded in practical considerations and regulatory requirements.

The second day of the workshop focuses primarily on planning principles, establishing foundational guidelines for future development. Participants revisit the Visions and Goals set on the first day, refining them in light of the previous day's insights. This workshop session also includes a detailed discussion on Installation Planning Standards (IPS) to ensure alignment with broader regulatory frameworks. This day is also dedicated to further refining the Vision, Goals, and Objectives, ensuring that they are clear, actionable, and aligned with the identified planning principles. This iterative process allows for continuous improvement and adjustment based on stakeholder feedback and expert input. The workshop concludes with an outbrief, summarizing the key outcomes and next steps. This session ensures that all participants are aligned on the proposed vision and are clear on their roles in the ongoing planning process.

By following this structured workshop approach, the Vision Workshop ensures a comprehensive and collaborative planning process that addresses both immediate needs and long-term objectives for HEC.

	Tuesday 05/21/24	***Wednesday 05/22/24***	***Thursday 05/23/24***
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Figure 1-2. Workshop Agenda

Stakeholders gathered for workshop

HEC Planning Vision Statement

Humphreys Engineer Center (HEC) is a safe, secure, and inviting campus integrated with the natural environment.

1.4 Goals and Objectives

The following goals and objectives provide concrete steps the installation should consider to fulfill HEC's Planning Vision. The objectives outline actions aimed at achieving the goals articulated in the vision statement. They were selected based on an analysis of the current conditions and envisioned future state.

Goal 1: Modernize Facilities and Infrastructure

•Objective 1.1: Strengthen infrastructure resilience.

•Objective 1.2: Develop versatile spaces.

•Objective 1.3: Improve accessibility.

•Objective 1.4: Enhance aesthetics and design.

•Objective 1.5: Upgrade environmental quality.

•Objective 1.6: Ensure regulatory compliance and standards adherence.

•Objective 1.7: Optimize utility management.

•Objective 1.8: Promote energy efficiency initiatives.

Goal 2: Strengthen Transportation Networks

•Objective 2.1: Foster community engagement in transportation planning and design.

•Objective 2.2: Improve transportation infrastructure and comfort.

•Objective 2.3: Strengthen public and school transit connectivity.

•Objective 2.4: Develop secondary/alternative transportation routes.

Live notetaking during Vision Workshop

•Objective 2.5: Expand bike and pedestrian pathways.

•Objective 2.6: Upgrade traffic management systems.

•Objective 2.7: Enhance parking and landscaping areas.

•Objective 2.8: Implement strategies to increase natural and man-made shading along transportation routes.

Goal 3: Design Safety and Security Measures

•Objective 3.1: Conduct regular safety and security audits.

•Objective 3.2: Develop emergency egress routes with safe access to Telegraph Road.

•Objective 3.3: Enhance safety signage and designated gathering areas throughout the property.

•Objective 3.4: Install lighting improvements across all pathways and parking areas.

•Objective 3.5: Implement speed control measures at key entrances and roads.

•Objective 3.6: Deploy integrated security enhancements including fencing, guard points, and emergency alert systems.

•Objective 3.7: Establish secure entry and exit points with gated access and advanced screening.

Goal 4: Protect the Natural Environment

•Objective 4.1: Promote environmental stewardship and consciousness throughout the community.

•Objective 4.2: Manage potential hazards while coexisting harmoniously with wildlife.

HEC Planning Vision Statement

Humphreys Engineer Center (HEC) is a safe, secure, and inviting campus integrated with the natural environment.

•Objective 4.3: Preserve and protect critical wetlands and natural habitats.

•Objective 4.4: Designate and maintain protected development zones.

•Objective 4.5: Implement low-impact development practices across the property.

•Objective 4.6: Promote sustainable landscaping and effective water management strategies.

•Objective 4.7: Enhance energy efficiency through solar installations and sustainable parking solutions.

•Objective 4.8: Foster a scenic environment with tree-lined pathways and landscaping.

Goal 5: Promote a Campus-Style Atmosphere

•Objective 5.1: Promote operational efficiency.

•Objective 5.2: Design with recruitment and retention in mind.

•Objective 5.3: Preserve sense of place.

•Objective 5.4: Design a unified architecture.

•Objective 5.5: Incorporate ample green space.

•Objective 5.6: Consider use-informed siting.

•Objective 5.7: Encourage pedestrian connectivity.

•Objective 5.8: Encourage perimeter parking.

This Vision Statement, Goals, and Objectives will be reintroduced in further detail in Chapter 3 of the Vision Plan.

Team members presenting and brainstorming

Live notes from Vision Workshop

2

Background

HEC Background

This chapter delves into the rich history, strategic location, and multifaceted roles of HEC, offering a comprehensive background on its development, significance, and contributions to the United States. By examining HEC's historical evolution, key facilities, and strategic initiatives, this chapter provides a detailed understanding of the unique context in which HEC operates.

2.1 Geographic Context

HEC is a 583-acre Civil Works installation owned by the U.S. Army Corps of Engineers (USACE) and operated by the Humphreys Engineer Center Support Activity (HECSA). Located in Fairfax County, VA, the facility operates as both a research center for USACE and a headquarters for HECSA to support USACE missions and goals. HEC's prime location just 17 miles south of USACE headquarters in Washington, D.C. – and immediate adjacency to Fort Belvoir – offers security and convenience for the facility's many tenants.

Fairfax county is one of the most populous, affluent, and diverse counties in the United States. The prominence of federal agencies, defense contractors, and tech companies in the surrounding area contributes to HEC's strong socio-economic environment and encourages investment. The area is also well-connected via major highways (I-95, I-495), public transportation (Metro, VRE), and proximity to airports (Reagan National Airport, Dulles International Airport). See Figure 2-1 for a Regional Map of the area.

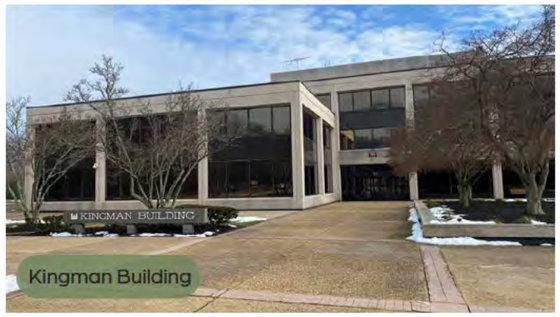
HEC's existing campus consists of a series of research and development facilities constructed in the 1970s and 1980s. HEC includes modern office buildings, research laboratories, and conference facilities equipped with the latest technology to support its mission.

Major facilities at HEC include:

•Cude Building: Completed in 1988, the Cude building serves as the central administrative hub for HECSA. It houses offices for various USACE divisions and departments, including project management, planning, and administration support.

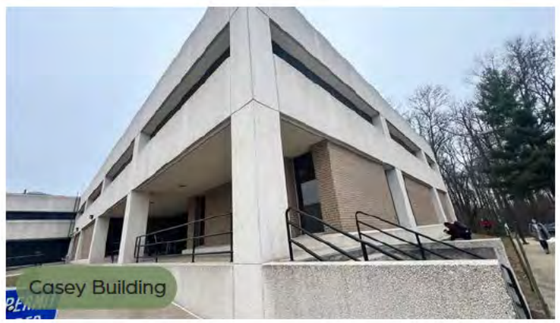
•Kingman Building: The Kingman Building accommodates the Institute for Water Resources, a non-USACE tenant conducting research and development at HEC. The building also supports training programs and workshops aimed at advancing the Corps' capabilities in water resource engineering.

•Casey Building: Completed in 1981, the Casey Building has historically been used as a classroom training facility. Today, the building houses the USACE Finance Center and includes offices for accounting, budgeting, and finance staff.



Kingman Building

Cude Building


Casey Building

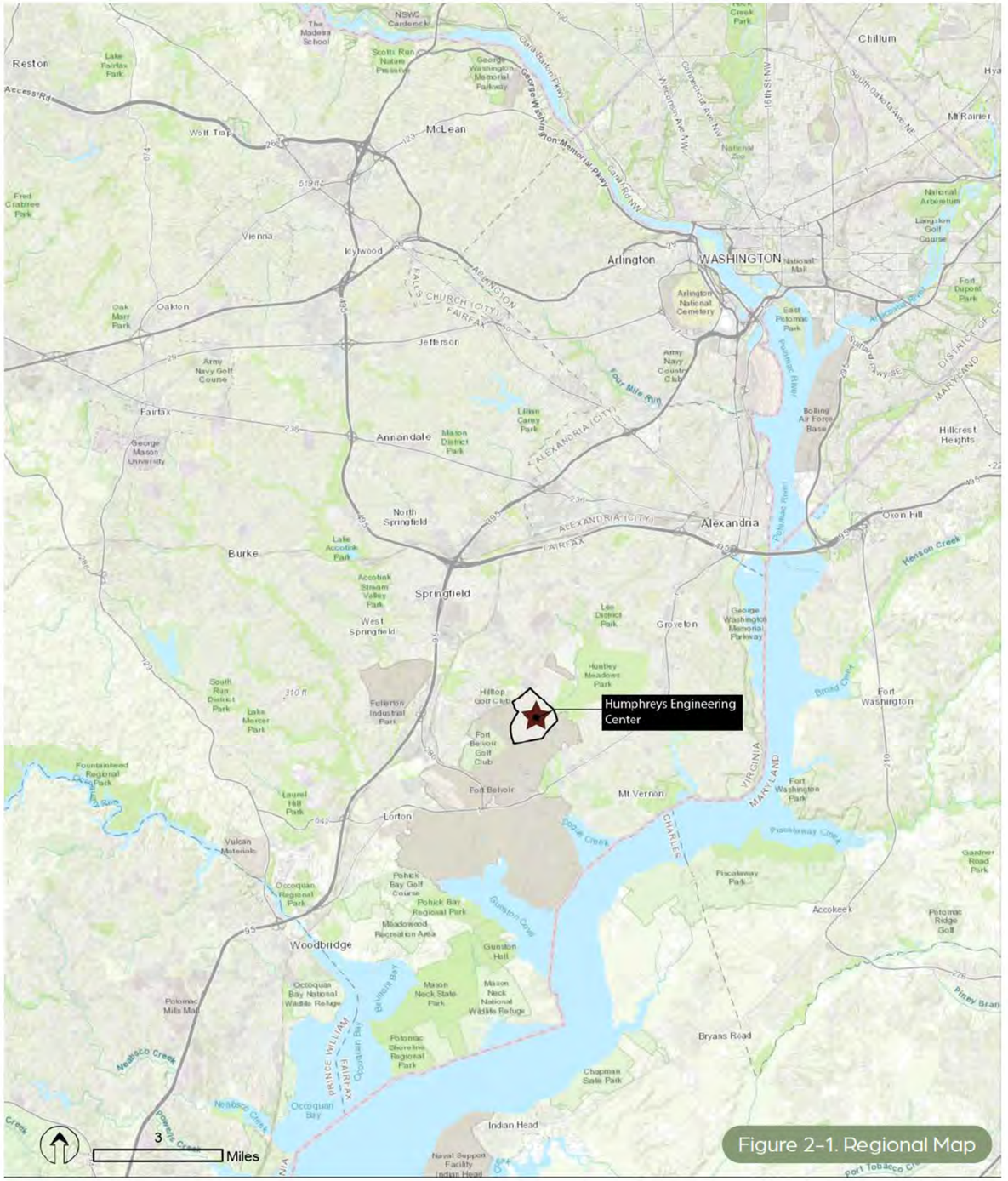


Figure 2-1. Regional Map

2.2 HEC Past and Future

USACE's primary mission is to energize the economy, reduce disaster risk, and deliver vital engineering solutions for the United States Armed Forces. As one of USACE's many operating facilities, HEC supports these goals and provides a campus for engineering research and development.

Although not officially designated Humphreys Engineer Center until 1982, the site's function as a USACE testing facility dates back to 1971 when the land was first granted to USACE from Fort Belvoir territory.

Today, HEC's campus has grown to encompass several tenants serving USACE's objectives, with room to grow. HESCA's operations include supporting all USACE activities in the National Capitol Region, administering HEC's other non-USACE tenants, and providing property management to all HEC facilities.

HEC's primary functions today include:

- Engineering and construction management for various national and international development projects
- Environmental sustainability management, hazardous waste cleanup, and resource management for USACE facilities across the country
- Research, development, and innovation in engineering practices, aiming to enhance USACE capabilities
- Training and professional development to foster continuous professional growth and development

Stakeholders gathered for workshop

1971

187 acres of Fort Belvoir dedicated to Coastal Engineering Research Center

1973

Kingman, Cude, and Hall buildings complete construction

1981

Casey building completes construction

1982

Facility officially designated Humphreys Engineer Center

1983

HECSA formed to manage and maintain HEC

1999

Coastal Engineering Research Center structures are demolished and historic Fort Belvoir bunkers are renovated for new office spaces

Today

HEC consists of administrative and industrial facilities in support of USACE mission objectives

Humphreys Engineer Center

Vision Plan

Basemap

Legend

- Existing Buildings
- Existing Pavement
- Existing Sidewalks
- Installation Boundary

750 Feet

Figure 2-2. Basemap

HEC is a unique installation because of its funding model, which is 100% reimbursable through its tenants rather than appropriated directly from Congress. Among the USACE tenants is the IWR, which, like the Casey Building where IWR operates, plays a critical role in supporting USACE's Civil Works mission. Additional tenants include the Army Geospatial Center and the Department of Defense (DoD)'s Strategic Environmental Research and Development Program (SERDP). By fostering public/private partnerships, HEC can further enhance USACE objectives and improve the quality of life for all members of the HEC community.

For an overview of HEC's current layout, refer to the Basemap in Figure 2-2 depicting the campus configuration.

Humphreys Engineer Center

Vision Plan

Built Constraints

Legend

- Cemetery
- Buildings Eligible for Listing with NRHP
- Existing Buildings
- Existing Pavement
- Existing Sidewalks
- Installation Boundary

750 Feet

Figure 2-3. Built Constraints

2.3 Constraints and Opportunities

This section examines factors influencing the site's potential, including analysis of built constraints, environmental considerations, topographical features, utility infrastructure, transportation networks, green infrastructure initiatives, and available developable areas.

2.3.1 Built Constraints

Understanding built constraints is vital for any future development or modernization efforts at HEC. Existing Built Constraints (Figure 2-3), including cemeteries, historic facilities, and existing pavement infrastructure should be taken into consideration for future development. These man-made constraints should align with a broader vision of the physical environment, supporting overall mission readiness.

The map identifies the location of a cemetery at HEC. This area is sensitive and likely subject to special protections and considerations during any planning or construction activities.

Several buildings are highlighted in a darker brown, indicating their eligibility for listing with the National Register of Historic Places (NRHP). Although they are not deemed historic facilities, their eligibility means that these buildings are of potential historical significance, and any modifications or developments around these structures should consider preservation guidelines to maintain their integrity.

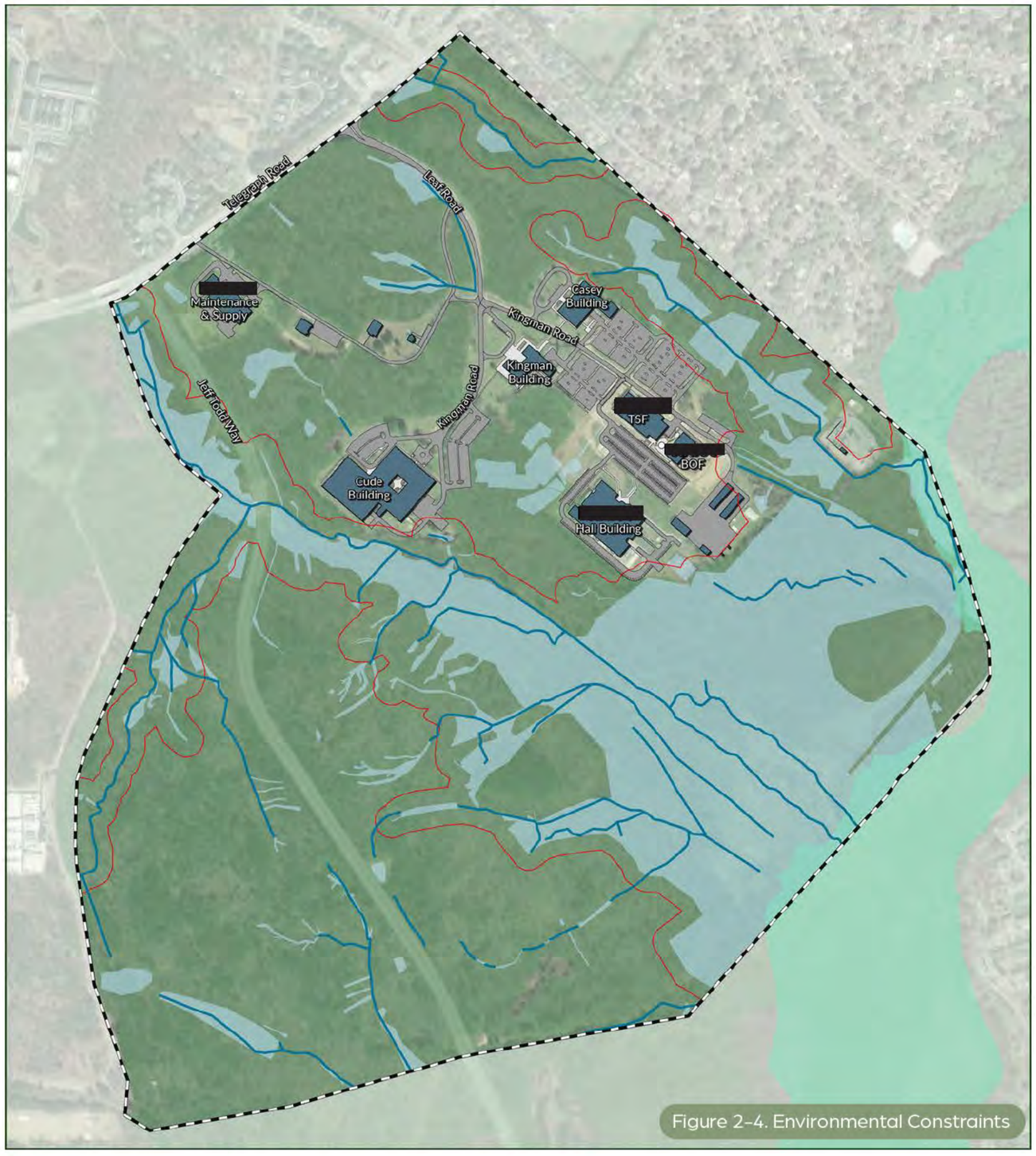
Humphreys Engineer Center

Vision Plan

Environmental Constraints

Legend

- Streams
- Approximate RPA
- FEMA Floodplain
- Wetlands
- Vegetation Area
- Existing Buildings
- Existing Pavement
- Existing Sidewalks
- Installation Boundary



750 Feet

Figure 2-4. Environmental Constraints

2.3.2 Environmental Constraints

Incorporating environmental considerations into the planning and development at HEC is crucial to preserving its natural resources.

The presence of streams, wetlands, and floodplains means that any new construction or infrastructure projects must incorporate strategies to protect these natural resources. The map identifies several streams within the installation boundary. These streams are ecological features that support local biodiversity and should be protected from pollution and physical disruption without proper environmental assessment.

The Riparian Protection Areas (RPAs) indicate regions that require special attention to safeguard water quality and habitat. RPAs typically include buffers around streams and wetlands, aiming to minimize the impact of development on these sensitive areas. The RPA should be a 100-foot setback from water bodies, such as creeks, streams, etc.

The Federal Emergency Management Agency (FEMA)-designated floodplain indicate regions susceptible to flooding. Development in these areas is heavily regulated to prevent property damage and ensure safety during flood events. Wetlands are vital ecosystems that provide numerous environmental benefits, including water filtration, flood control, and habitat for wildlife. These areas are protected under various environmental regulations, and any development near them must mitigate potential impacts. Significant vegetation is also depicted on the map, which plays a role in maintaining ecological balance, providing habitat, and preventing soil erosion.

This map serves as a tool to identify areas where environmental protection measures are necessary. By adhering to these constraints, HEC can ensure sustainable development that respects and preserves the natural environment, ultimately contributing to the long-term resilience and ecological health of the area. See Figure 2-4 for a comprehensive Environmental Constraints map.

Humphreys Engineer Center

Vision Plan

Topography

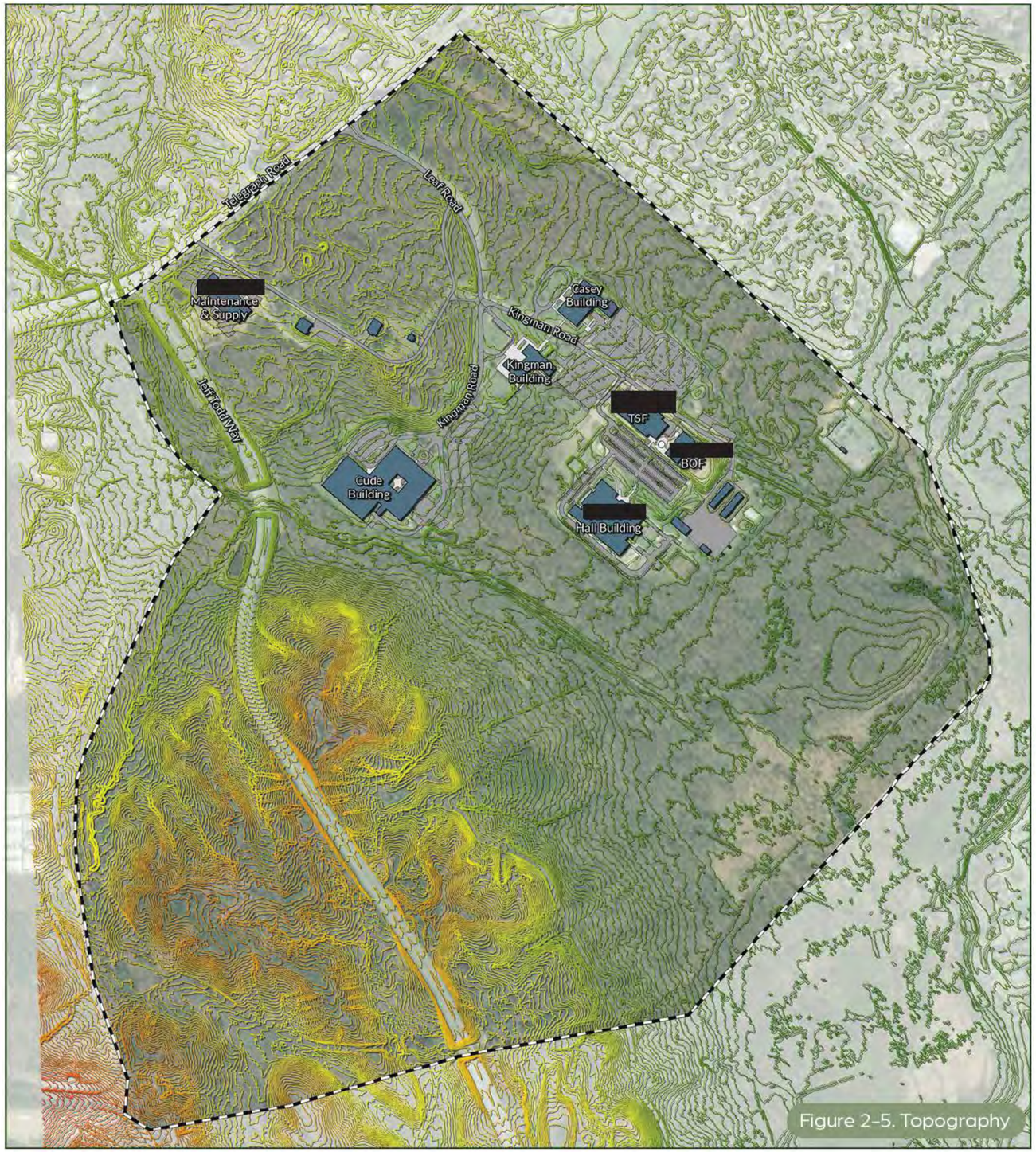
Legend

- Existing Buildings
- Existing Pavement
- Existing Sidewalks
- Installation Boundary

Elevation Contours

0′

218′



750 Feet

Figure 2-5. Topography

2.3.3 Topography

Figure 2-5, illustrates the key topographical elements at HEC. This figure provides a detailed illustration of the site's key topographical elevation changes.

Much of the eastern half of the installation is relatively flat. Municipal zoning and subdivision ordinances generally consider grades of 3–4% suitable for all types of development, and grades of 8–10% appropriate for medium-density development. Grades exceeding 15% are typically limited to low-intensity uses such as rural residential, agricultural, or recreational purposes.

While a topographic map should not solely determine development suitability, it can guide general trends for anticipated development at HEC. Most land east of Jeff Todd Way is topographically suitable for development. However, the area northeast of the Cude Building, which includes the cemetery, may face some restrictions. The southwest corner of the installation features steeper slopes that limit high and some medium-density development. Similar conditions are found west of Jeff Todd Way, though engineering solutions aligned with the ridge line could support medium-density construction.

Humphreys Engineer Center

Vision Plan

Utilities

Legend

- Existing Buildings
- Existing Pavement
- Existing Sidewalks
- Installation Boundary

Developable Area

- Electrical Lines
- Natural Gas Lines
- Sanitary Sewer Lines
- Water Lines

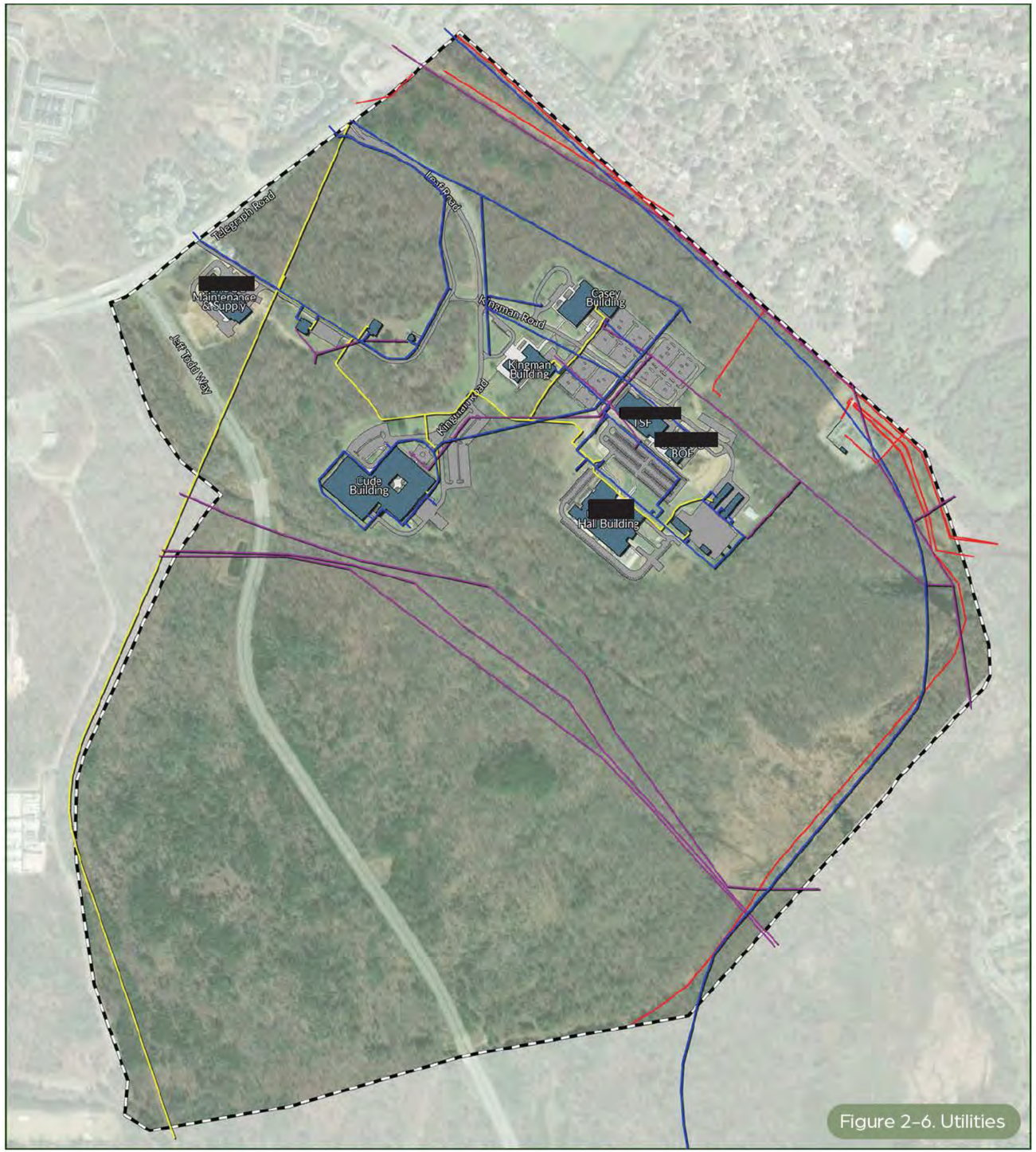


Figure 2-6. Utilities

2.3.4 Utilities

Figure 2-6 depicts the existing utility infrastructure within HEC, highlighting the layout and connectivity of essential services such as electrical, natural gas, sanitary sewer, and water lines. This map is important for both current operations and future development planning, helping to identify potential areas for expansion and maintenance. It serves as a guide for new construction or renovation projects to avoid conflicts with existing utilities and ensure necessary connections. By knowing the locations of these utilities, disruptions during construction can be minimized, maintaining the integrity and reliability of essential services.

Utility provisions at HEC may limit high-intensity development without capacity expansions. Most electrical cables surround the perimeter. The underground distribution system serves existing facilities. HEC's water supply is currently provided by the Fairfax County Water Authority. The existing distribution system, while adequate, is below current standards, and HEC's consumption is well within its allocated capacity. Natural gas is supplied by a Washington Gas Light transmission line. Wastewater is discharged into the Fairfax County sanitary sewer system. Utility lines may temporarily constrain development until they are relocated, but capacity issues are minimal. Most utilities at HEC can accommodate future growth, though reassessment and digitization of utility lines and a capacity analysis are recommended for long-term planning.

The utilities map is a tool for infrastructure planning, ensuring HEC remains fully functional and prepared for future growth.

Humphreys Engineer Center

Vision Plan

Transportation

Legend

- Gate
- Primary Roads
- Secondary Roads
- Dirt Roads
- Local Roads
- Pedestrian Trail
- Existing Buildings
- Existing Pavement
- Existing Sidewalks
- Installation Boundary

Figure 2-7. Transportation Network

2.3.5 Transportation Network

Figure 2-7 outlines the transportation network within the installation boundary. It provides a comprehensive view of the various types of roads and pathways, along with key infrastructure elements such as gates, buildings, and existing pavement and sidewalks.

The map features a network of primary roads, secondary roads, and unpaved roads that connect the various buildings and facilities within the HEC. The highway along the northern edge provides external connectivity to the local road network, ensuring efficient access to and from the center.

A pedestrian trail weaves through the installation, providing a designated route for walking. This trail enhances connectivity between buildings and promotes a pedestrian-friendly environment, encouraging walking as a mode of transport within the center. The main gate serves as the entry and exit point for the installation.

The transportation network at the HEC is designed to support efficient movement and connectivity within the installation. The combination of primary and secondary roads, along with pedestrian pathways, provides access to key buildings.

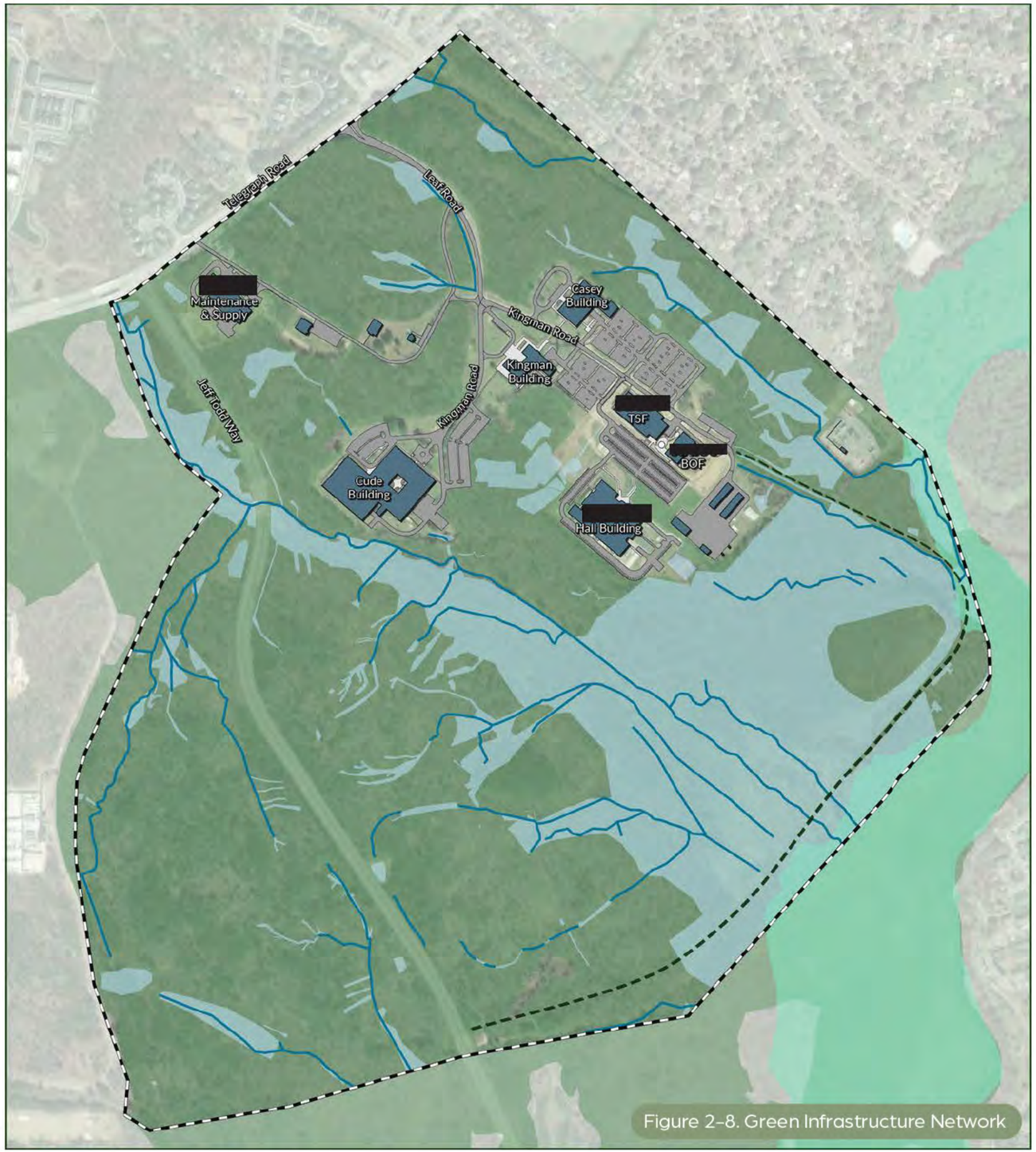
Humphreys Engineer Center

Vision Plan

Green Infrastructure

Legend

- Streams
- Pedestrian Trail
- Forested Area
- FEMA Floodplain
- Wetlands
- Existing Buildings
- Existing Pavement
- Existing Sidewalks
- Installation Boundary



750 Feet

Figure 2-8. Green Infrastructure Network

2.3.6 Green Infrastructure Network

The Green Infrastructure Network Plan (Figure 2-8) for HEC provides a detailed view of the natural features and environmental considerations within the installation. This map depicts the integration of green spaces, water systems, and ecological preservation in the overall design and layout of HEC.

The map highlights several key natural features including forested areas, floodplains, streams, and wetlands. Forested areas are regions covered with dense vegetation. These areas are essential for maintaining biodiversity and providing habitat for wildlife.

Streams and wetlands play a role in HEC's water management strategy. The streams channel water through the installation, while wetlands act as natural water filtration and storage systems. These features help to mitigate flooding and maintain water quality.

The floodplain areas indicate regions that are prone to flooding. Understanding these zones is important for planning infrastructure and development projects. The pedestrian trail weaves through both developed and natural areas, providing a route for walking.

By integrating green infrastructure with existing built environments, HEC creates a sustainable setting. The Green Infrastructure Network serves as a tool for guiding planning efforts to preserve and enhance its strengths while addressing and mitigating any weaknesses.

Humphreys Engineer Center

Vision Plan

Developable Areas

Legend

- FEMA Floodplain
- Wetlands
- Existing Buildings
- Existing Pavement
- Existing Sidewalks
- HEC Boundary

Developable Area

- Unconstrained
- Moderately Constrained

750 Feet

Figure 2-9. Developable Areas

2.3.7 Developable Areas

Within HEC's boundary, the development potential of land is classified into three categories: developable/unconstrained, moderately constrained, or constrained. The analysis, which was conducted during the vision plan workshop, categorizes land based on its susceptibility to environmental and built restrictions and is summarized in Table 2-1 and shown in Figure 2-9. The "Unconstrained" category comprises approximately 213.7 acres, constituting around 36.6 percent of HEC's campus and denotes land relatively free from significant environmental constraints.

Development on land affected by environmental and built constraints that can be mitigated, rather than being outright prohibitive, necessitates advanced engineering solutions and potentially higher construction costs. These areas are classified as "Moderately Constrained" and encompass 17.6 acres, equivalent to 3 percent of HEC's campus. Despite the presence of environmental mitigation regulations, strategic planning and adaptive measures can facilitate viable development within these zones.

There are no areas within HEC's boundary that are classified as "Constrained." All portions of the campus that have been evaluated were categorized either as developable or moderately constrained, reflecting the absence of zones where development is restricted due to insurmountable environmental or built constraints. This assessment ensures that the entirety of HEC's campus holds potential for development, albeit with varying degrees of environmental considerations and engineering requirements.

Table 2-1. Developable Areas

Land Description	Acreage	% of Total
Unconstrained	213.7	36.6%
Moderately Constrained	17.6	3%
Constrained	0	0%
Total	584.0	-

3

Real Property Vision

Real Property Vision

This chapter presents a forward-looking Vision Statement that guides the management and development of HEC's real estate assets. By setting clear goals and actionable objectives, this plan aims to enhance the operational efficiency, environmental stewardship, and overall resilience of the campus.

HEC Planning Vision Statement

Humphreys Engineer Center (HEC) is a safe, secure, and inviting campus integrated with the natural environment.

3.1 Real Property Vision Statement

During the Vision Workshop, stakeholders collectively crafted a vision statement that encapsulates the future aspirations for HEC. This statement reflects the shared values and strategic objectives that will guide the center's development and operational strategies. The vision statement emphasizes three core aspects: safety, security, and an inviting atmosphere, all integrated with the natural environment at HEC.

Safety and Security

The primary commitment of HEC is to ensure a safe and secure environment for all its occupants. Safety protocols and measures will be prioritized in every aspect of planning and development. This includes infrastructure designed to withstand natural and man-made hazards and continuous monitoring and improvement of safety practices. Security measures will be stringent, incorporating advanced technologies and best practices to protect personnel, assets, and information. The goal is to create a campus of safety that adheres to Anti-Terrorism/Force Protection (AT/FP) standards.

Inviting Atmosphere

An inviting campus fosters a sense of community and enhances productivity. HEC aims to be more than just a place of work; it strives to be a welcoming environment that promotes well-being and collaboration. This involves thoughtful urban design principles that prioritize accessibility, aesthetic appeal, and functional spaces. Recreational areas, communal spaces, and facilities that cater to the diverse needs of its occupants will be integral to the campus layout. By creating a pleasant and inclusive environment, HEC will attract and retain top talent and tenants.

Stakeholders gathered for workshop

Integration with the Natural Environment

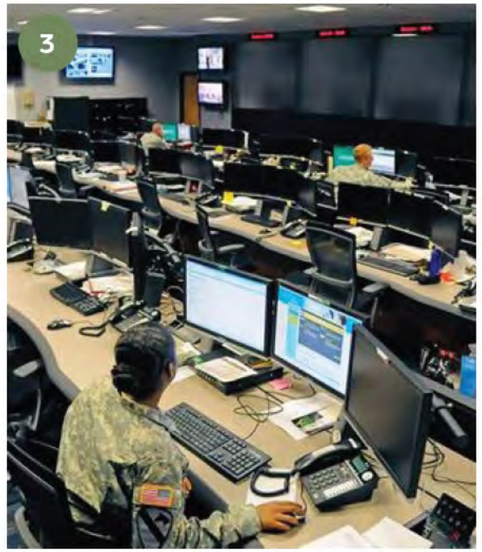
The vision for HEC includes an emphasis on environmental stewardship and sustainability. Integrating the campus with the natural surroundings involves preserving green spaces, promoting biodiversity, and minimizing ecological footprints. Sustainable building practices will be key components of this integration. HEC's campus will feature landscaping that enhances visual appeal and supports local flora and fauna. By aligning development with environmental principles, HEC will demonstrate a commitment to sustainability and serve as a model for environmentally conscious planning.

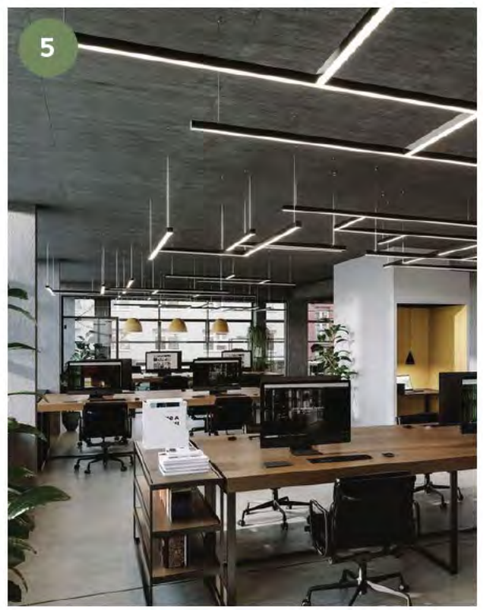
The HEC Planning Vision Statement sets forth an ambitious yet attainable future for the campus. This vision will guide future planning and development efforts, ensuring that HEC continues to thrive as a premier federal institution.

3.2 Real Property Goals and Objectives

The Real Property Goals and Objectives for the Vision Plan emphasize a holistic approach to enhancing facilities and infrastructure at HEC. From the planning vision, 5 key goals were established to steer the development process. Each goal was further elaborated to offer clear and actionable guidance for realizing the Real Property Vision.

Planning objectives outline the steps to achieve the goals set forth in the vision statement. Each objective is specific and measurable. The rationale behind selecting these objectives was grounded in HEC's current mission, an analysis of current conditions, and the desired end state. The planning objectives are further addressed on the following pages.





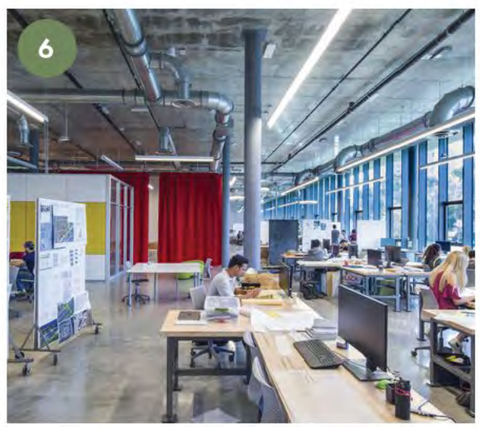


Figure 3-1. Goal 1 Design Elements

Goal 1: Modernize Facilities and Infrastructure

This goal focuses on upgrading existing buildings, integrating cutting-edge technology, and enhancing the overall infrastructure to support HEC's mission and operational needs. The following objectives were identified:

- Objective 1.1: Strengthen infrastructure resilience.
- Objective 1.2: Develop versatile spaces.
- Objective 1.3: Improve accessibility.
- Objective 1.4: Enhance aesthetics and design.
- Objective 1.5: Upgrade environmental quality.
- Objective 1.6: Ensure regulatory compliance and standards adherence.
- Objective 1.7: Optimize utility management.
- Objective 1.8: Promote energy efficiency initiatives.

Figure 3-1 illustrates design elements that can aid in achieving these objectives:

1. Modern Laboratory with stylish furnishings and full windows
2. Office Atrium with retired space-age rocket decor
3. U.S. Military Data Center with a well-organized layout with multiple workstations
4. Modern co-working laboratory and office space
5. Stylish office with sleek lighting and large windows
6. Student co-working studio with floor-to-ceiling windows and industrial style
7. U.S. Air Force Headquarters has an efficient use of work space

Figure 3-2. Goal 2 Design Elements

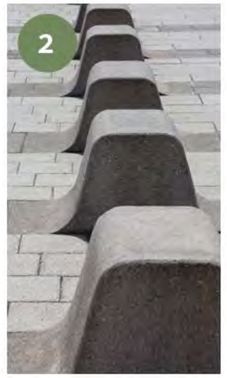
Goal 2: Strengthen Transportation Networks

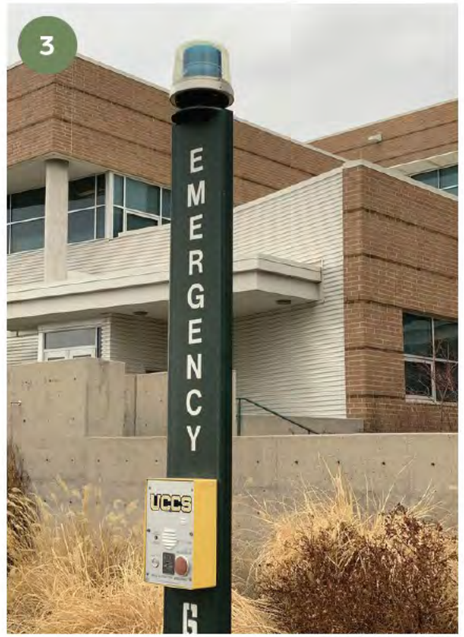
This initiative aims to optimize transportation routes, improve access to and within the campus, and implement sustainable mobility solutions that align with HEC's environmental stewardship goals. The following objectives were identified:

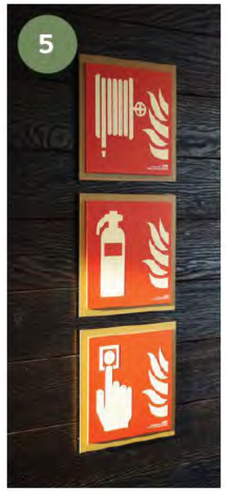
- Objective 2.1: Foster community engagement in transportation planning and design.
- Objective 2.2: Improve transportation infrastructure and comfort.
- Objective 2.3: Strengthen public and school transit connectivity.
- Objective 2.4: Develop secondary/alternative transportation routes.
- Objective 2.5: Expand bike and pedestrian pathways.
- Objective 2.6: Upgrade traffic management systems.
- Objective 2.7: Enhance parking and landscaping areas.
- Objective 2.8: Implement strategies to increase natural and man-made shading along transportation routes.

Figure 3-2 illustrates design elements that can aid in achieving these objectives:

1. Generous pedestrian space and bike lanes with additional median at intersection
2. Modern speed bump design
3. Sleek, minimalist lighting set into brick pavers
4. Well-kept landscape along tree-lined pedestrian pathway
5. Modern crosswalk design with large grassy median
6. Modern sidewalk design with benches, trees, and bike lanes
7. Stylish nighttime lighting at public park







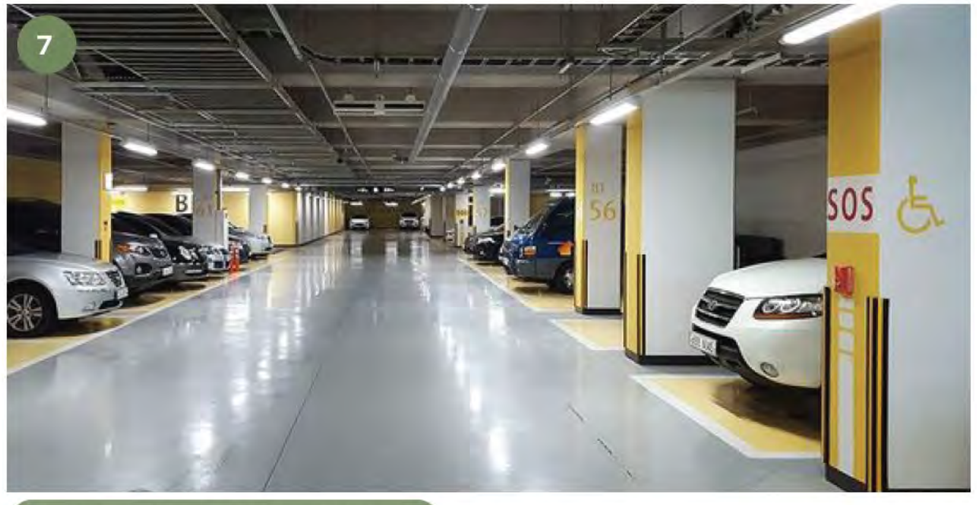


Figure 3-3. Goal 3 Design Elements

Goal 3: Design Safety and Security Measures

This initiative focuses on implementing security protocols, enhancing emergency preparedness, and integrating advanced safety technologies to safeguard personnel, facilities, and sensitive assets. The following objectives were identified:

•Objective 3.1: Conduct Regular Safety and Security Audits.

•Objective 3.2: Develop emergency egress routes with safe access to Telegraph Road.

•Objective 3.3: Enhance safety signage and designated gathering areas throughout the property.

•Objective 3.4: Install comprehensive lighting improvements across all pathways and parking areas.

•Objective 3.5: Implement speed control measures at key entrances and roads.

•Objective 3.6: Deploy integrated security enhancements including fencing, guard points, and emergency alert systems.

•Objective 3.7: Establish secure entry and exit points with gated access and advanced screening.

Figure 3-3 illustrates design elements that can aid in achieving these objectives:

1. Security bollards with red LED lighting

2. Modern built-in security bollards designed for withstanding vehicular impact

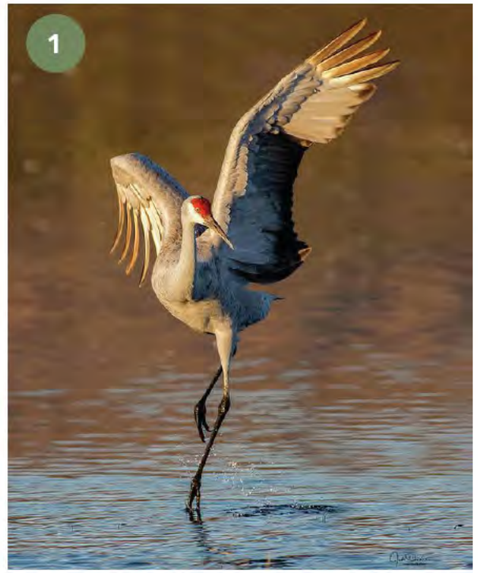
3. Campus emergency hotline stations, popular among universities across the country

4. Military security checkpoint with automatic fence

5. Clear, legible fire safety signage

6. Security bollards on pedestrian path at modern office park

7. Modern, well-lit, safe parking garage with emergency call button



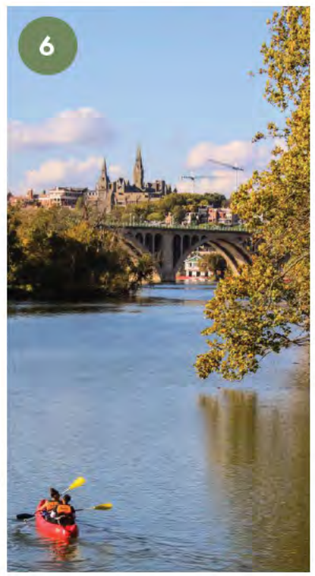


Figure 3-4. Goal 4 Design Elements

Goal 4: Protect the Natural Environment

This objective is centered on biodiversity, conserving critical habitats, and minimizing ecological footprint through compliance with environmental regulations. The following objectives were identified:

•Objective 4.1: Cultivate a culture of environmental stewardship and consciousness throughout the community.

•Objective 4.2: Coexist harmoniously with wildlife while managing potential hazards.

•Objective 4.3: Preserve and protect critical wetlands and natural habitats.

•Objective 4.4: Designate and maintain protected development zones.

•Objective 4.5: Implement low-impact development practices across the property.

•Objective 4.6: Promote sustainable landscaping and effective water management strategies.

•Objective 4.7: Enhance energy efficiency through solar installations and sustainable parking solutions.

•Objective 4.8: Foster a scenic environment with tree-lined pathways and landscaping.

Figure 3-4 illustrates design elements that can aid in achieving these objectives:

1 and 8. Virginia wildlife

2. The Appalachian Mountains in early Autumn

3. Virginia wetlands

4. Harbor on Chesapeake Bay

5. Courtyard with lush plantings

6. The Potomac River

7. Pocahontas State Park

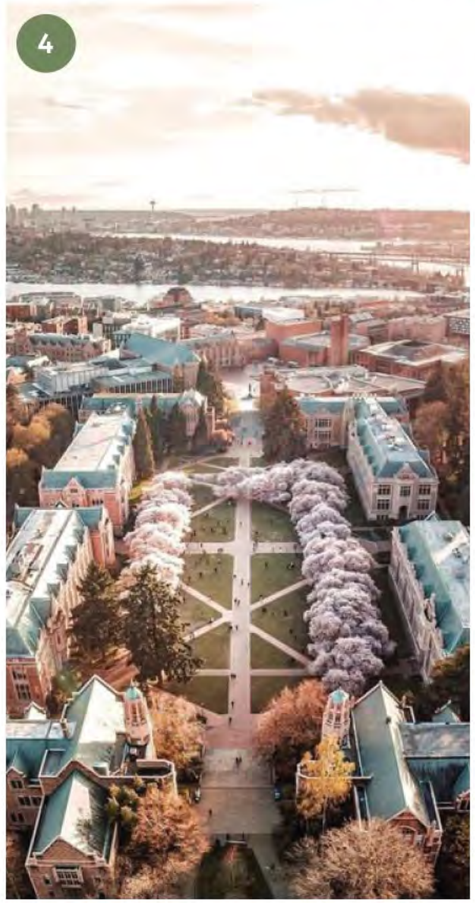


Figure 3-5. Goal 5 Design Elements

Goal 5: Promote Campus-Style Atmosphere

This initiative aims to cultivate a collaborative and engaging workplace culture by enhancing community spaces, facilitating meaningful interactions among personnel, and promoting a sense of pride and belonging within the campus community. The following objectives were identified:

- Objective 5.1: Promote operational efficiency.
- Objective 5.2: Design with recruitment and retention in mind.
- Objective 5.3: Preserve sense of place.
- Objective 5.4: Design a unified architecture.
- Objective 5.5: Incorporate ample green space.
- Objective 5.6: Consider use-informed siting.
- Objective 5.7: Encourage pedestrian connectivity.
- Objective 5.8: Encourage perimeter parking.

Figure 3-5 illustrates design elements that can aid in achieving these objectives:

1. Modern office park with cohesive architectural language
2. James Madison University campus has a well-defined central quad
3. Modern office park with large windows and open green spaces
4. University of Washington campus has inviting green space and mature trees
5. Boston College campus has pedestrian pathways promoting connectivity
6. University of Virginia campus has historical central structure and symmetrical building layouts

4

Workshop Summary

Vision Plan Workshop Summary

The Vision Workshop was an in-person event aimed at aligning stakeholders and shaping the future direction of HEC. Participants engaged in activities and tabletop map exercises. These sessions evaluated current conditions, identified areas for improvement, and established a plan for development, ensuring regulatory compliance and stakeholder input guided the planning process.

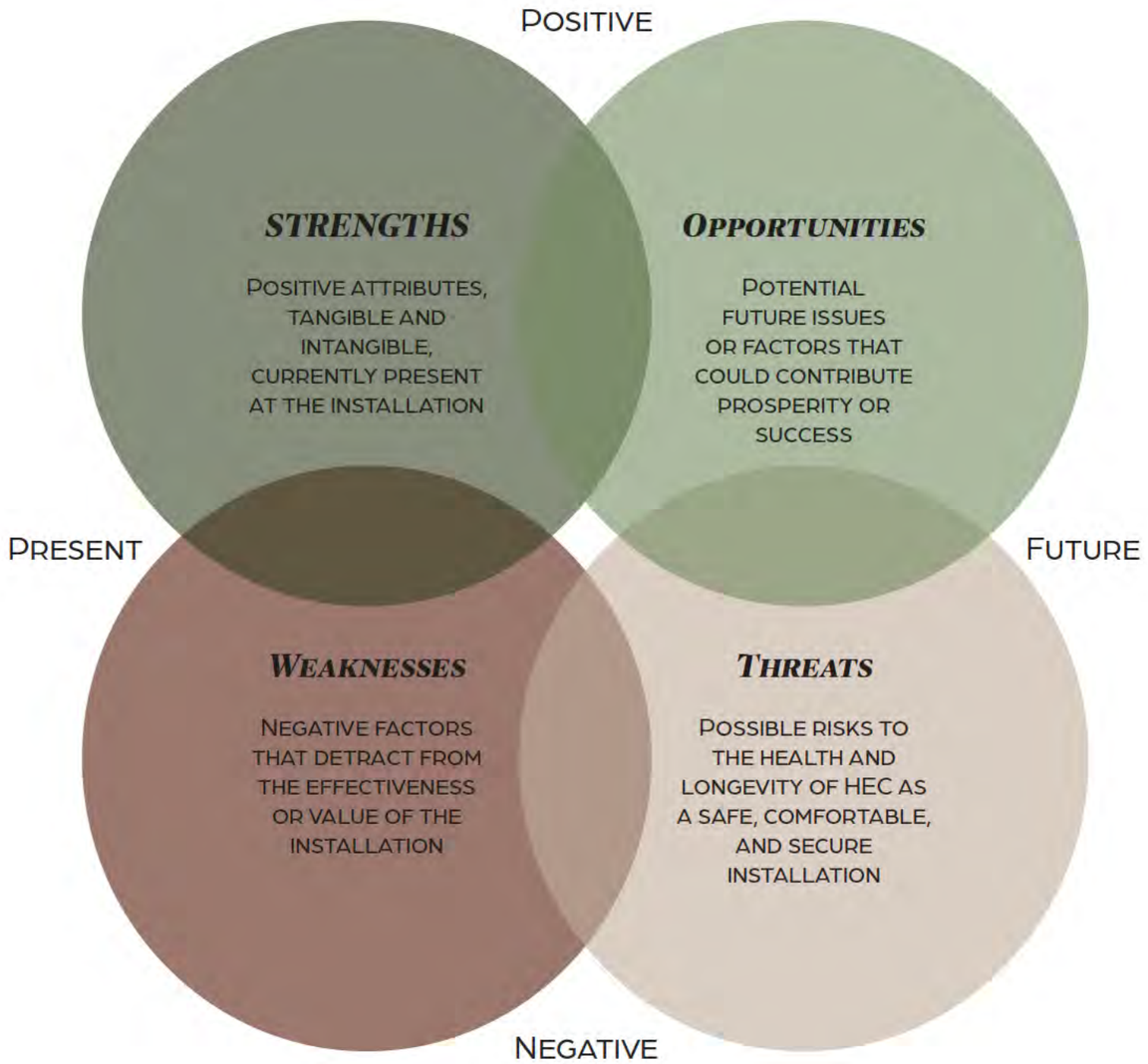


Figure 4–1. SWOT Analysis Overview

4.1 Vision Plan Workshop Overview

The Vision Workshop, conducted from 21–23 May 2024, was an event designed to align stakeholders and guide future planning for HEC. Over three days, participants engaged in comprehensive activities to create a well-rounded development strategy.

The workshop sessions included a Visual Preference Survey (VPS) and Strengths, Weaknesses, Opportunities, Treats, and Vision (SWOT-V) analysis to evaluate the site's current state and potential. Tabletop map exercises, including "Rights and Blights," identified areas for improvement, while a Framework Plan showed existing conditions and potential development areas, grounding planning efforts in practical and regulatory contexts. Workshop participants reviewed Installation Planning Standards to ensure regulatory alignment, ensuring continuous improvement through stakeholder feedback and expert input.

The workshop concluded with an outbrief, summarizing key outcomes and next steps, ensuring all participants were aligned on the proposed vision and clear on their roles in the ongoing planning process. This planning approach facilitated a collaborative planning process, addressing both immediate needs and long-term objectives for HEC.

4.2 SWOT-V Analysis

To assess common consensus on the current state of HEC facilities and future challenges HEC faces, workshop attendees participated in a SWOT-V analysis (Figure 4–1). Participants brainstormed and collaborated to gain a more complete understanding of HEC's current and future capabilities. The group categorized HEC's existing characteristics as strengths and weaknesses; thoughts and feelings about the future of HEC were categorized as either opportunities or threats.

The SWOT-V analysis conducted during the workshop identified key internal and external factors and fostered a deeper appreciation of HEC's strategic position. By integrating the Vision into the analysis, participants ensured that future development aligns with the core principles and mission of HEC. This approach highlighted immediate challenges and opportunities and set a foundation for growth and adaptation in an evolving environment. The interactive nature of the SWOT-V exercise promoted a shared vision among stakeholders, enhancing collaboration and commitment to achieving long-term objectives. These insights will guide decision-making and resource allocation, ensuring that HEC continues to thrive as a dynamic hub of innovation. The workshop's outcomes, captured visually through graphic representations, serve as a roadmap for prioritizing actions that will maximize HEC's impact and resilience in the years ahead.

As a whole, these analyses offer planners valuable insight into critical aspects and traits necessary for successful development at HEC. The following graphics (Figures 4–2 through 4–5) illustrate the results of this exercise and underscores the most important characteristics vital to HEC's success and prosperity.

Strengths

Stakeholders identified nine key groups of strengths at HEC. These strengths collectively contribute to a positive workplace environment, supporting both the operational needs and the well-being of those within HEC.

- Nature: The natural surroundings at HEC enhance well-being, productivity, and a sense of calm among employees and visitors.
- Location: A favorable location can attract talent, ease commuting, and provide access to amenities and business opportunities.
- People: Stakeholders highlighting the strengths of the workforce at HEC.
- Campus Layout: A well-designed layout is a strength of HEC's.
- Parking Availability: Ample parking can reduce stress for employees and visitors, making the site more accessible and convenient.
- On-site Library: Access to a library can support continuous learning, research, and professional development among staff.
- Security: Existing security measures contribute to a safe and secure environment.
- Fitness Center: Offering fitness facilities promotes employee health and well-being.
- Conference Rooms: HEC has adequate and well-equipped conference room.

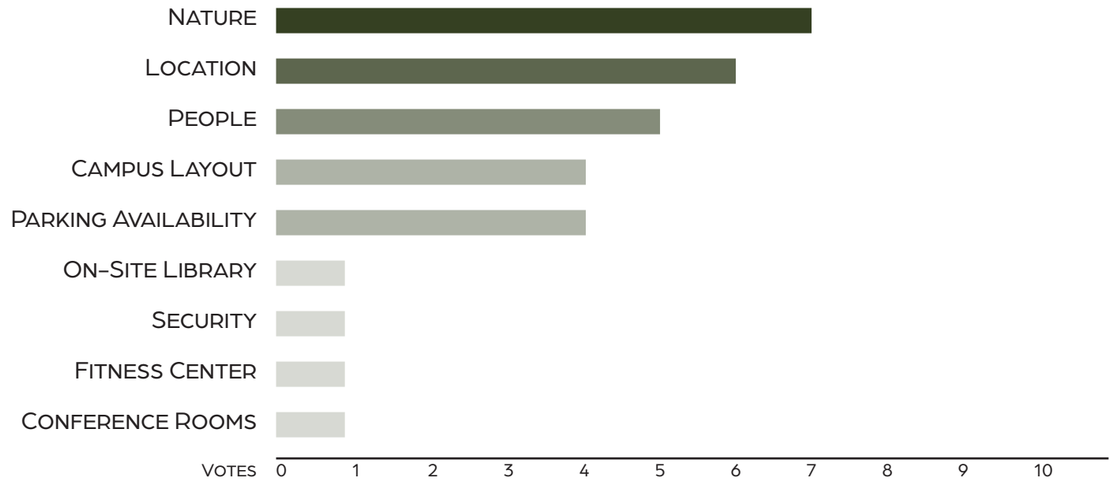


Figure 4-2. Strengths Results

Weaknesses

Stakeholders identified seven key groups of weaknesses at HEC. Addressing weaknesses proactively can help mitigate risks, improve operational effectiveness, and create a resilient campus.

- Entry/Exit Circulation: Poor circulation at entry and exit points can lead to congestion and inefficiency.
- Aging Infrastructure: Aging infrastructure may lead to higher maintenance costs, increased downtime, and potential safety concerns if not addressed.
- Leadership Turnover: Turnover in leadership roles can disrupt continuity and strategic direction.
- Funding: Inconsistent funding can limit investment in necessary upgrades.
- Security: Weaknesses in security measures can jeopardize safety.•Technology: Inadequate technology infrastructure may hinder productivity.
- Environment: Environmental concerns can affect regulatory compliance.

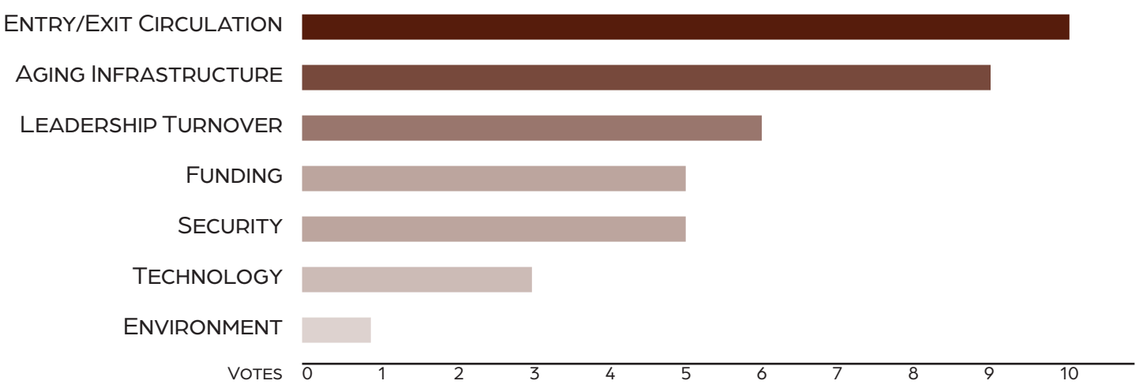


Figure 4-3. Weaknesses Results

Opportunities

Stakeholders identified six key groups of opportunities at HEC. Exploring these opportunities can lead to strategic advantages and enhanced capabilities that support long-term growth and goals.

- Nature: Leveraging the natural surroundings can enhance the aesthetic appeal of the site, promote eco-friendly practices, and improve employee well-being.
- Land Development: Developing unused or underutilized land can expand facilities, accommodate growth, and enhance the overall campus layout.
- Access: Improving access can attract talent, streamline operations, and enhance customer and employee satisfaction.
- Utilities: Upgrading utility infrastructure can reduce operating costs and support sustainability goals.
- Funding: Securing additional funding or grants can enable investments in infrastructure upgrades. Security: Strengthening security measures can enhance safety, protect valuable assets, and improve the overall reputation and trustworthiness of the organization.

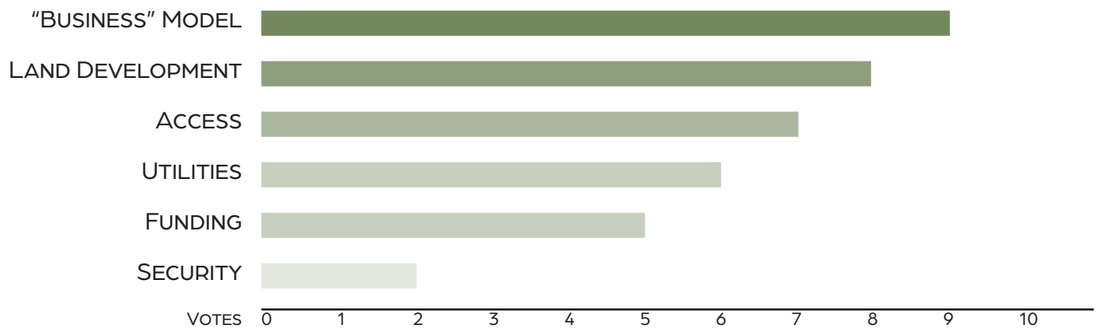


Figure 4-4. Opportunities Results

Threats

Stakeholders identified eight key groups of threats at HEC. Addressing these threats through proactive strategies can mitigate risks and strengthen resilience in the face of challenges.

- Budgetary Restrictions: Tight budgets can limit investments in critical infrastructure upgrades. Security and Safety: Weaknesses in security measures can lead to safety risks and data breaches.
- Staffing Availability: Difficulty in recruiting and retaining skilled staff can impact operations and overall organizational effectiveness.
- Facility Infrastructure: Aging or inadequate infrastructure may lead to maintenance issues, downtime, and disruptions to operations.
- Traffic: Congestion and accessibility issues can affect employee commute times, customer access, and overall operational efficiency.
- Neighbor Community: Conflicts with the local community can lead to regulatory challenges and operational disruptions.
- Environment: Environmental regulations, sustainability concerns, or natural disasters can impact operations and compliance costs.
- Technology: Dependence on outdated or vulnerable technology could expose HEC to cybersecurity threats.

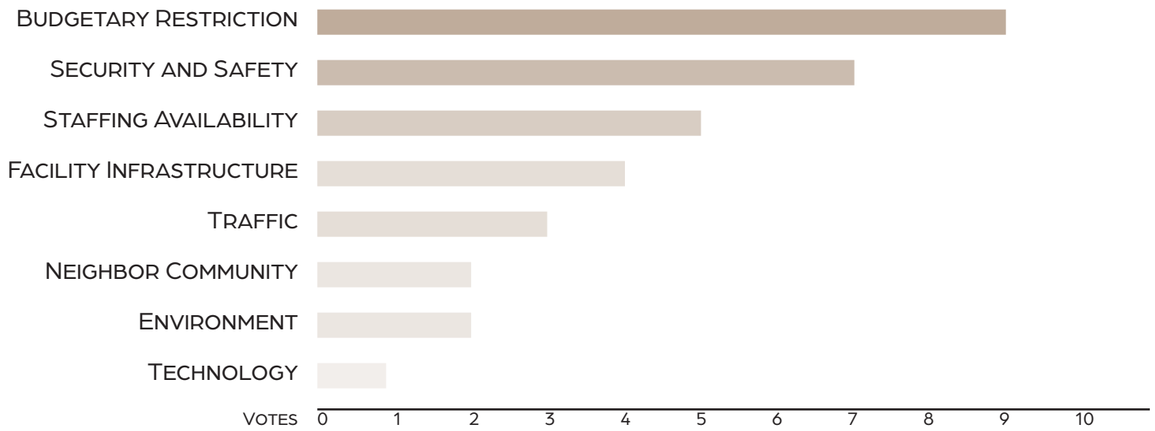


Figure 4-5. Threats Results

4.3 Visual Preference Survey

The VPS is a quick and easy yet powerful tool for ascertaining stakeholder taste among aesthetic design options. This survey format allows participants, regardless of their architectural background, to directly describe their preferences in building appearance. The process ultimately determines trends in the preferences among stakeholders and should be used as a foundational guide for the aesthetic principles of any new development. The results of HEC's VPS provide a guide for shaping the aesthetic principles of future developments. By understanding which architectural styles and visual characteristics resonate most with stakeholders, planners can ensure that new developments align with community expectations and enhance overall satisfaction. This informed approach fosters a cohesive visual identity for HEC and promotes a built environment that meshes well with its surroundings and supports its mission effectively.

HEC's VPS consisted of 36 images of various existing HEC buildings as well as other exemplary buildings of various styles and visual characteristics. The five categories shown to the stakeholder group were Buildings, Circulation, Landscaping, Development Patterns, and Site Elements. Participants were asked to rank each image on a scale from 1 to 10, based on how much they preferred the depicted visual aesthetic against the pool of images. These survey insights will inform design decisions and facilitate collaborative efforts between planners, architects, engineers, and community stakeholders. By integrating stakeholder preferences into the planning process, HEC can cultivate spaces that meet functional needs and inspire engagement among its diverse community of users.

Category 1: Buildings

Key Takeaways

- Effective use of fenestration and natural lighting.
- Integration with surrounding green spaces.
- Appropriate building scale, aligning with human dimensions
- Facade design is well-liked among stakeholders.

Key Takeaways

- Appropriate building scale.
- Inviting atmosphere.
- Design looks like it would support collaborative activities.

Key Takeaways

- Aged and outdated facility.
- Blocky and unappealing design.
- Insufficient window placement.
- Discolored and dreary appearance.
- Vault-like, uninviting appearance because of the concrete and lack of material variation.

Category 2: Circulation

Key Takeaways

•Effective integration of sidewalks, bike paths, and vegetation to enhance the environment.

•Distinct zones designated for walking, biking, and driving.

Key Takeaways

•Clear markings for circulation.

•Use of varied materials, such as cobblestone and permeable pavement.

Key Takeaways

•Lack of clear markings and striping with little landscaping.

•Poor visibility for a parking area.

•Inefficient circulation patterns/egress routes.

Category 3: Landscaping

Key Takeaways

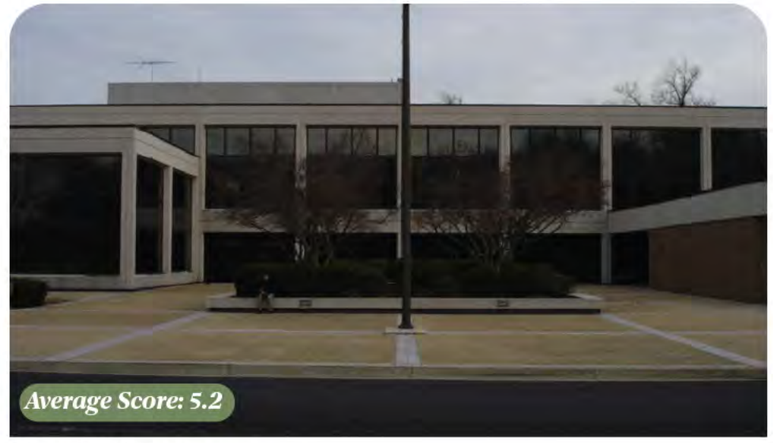
•Diverse plant varieties and colors.

•Incorporation of medians with landscaping.

Key Takeaways

•Breaks in asphalt within parking lots for improved aesthetics and function (specifically bioswales).

•Use of native plants, vegetation, and mature trees.



Key Takeaways

•High maintenance requirements.

•Lack of visual contrast in landscaping.

Category 4: Development Patterns

Key Takeaways

- Integration of sidewalks to enhance pedestrian access and balances individuality with a centralized layout.
- Effective separation and connections between different areas.

Key Takeaways

- Design promotes walkability.
- Purpose-built organization for efficient use of space.
- Centralized main building with walkable access around it.

Key Takeaways

- Potential issues with congestion and traffic flow.
- Industrial complex layout affecting aesthetics and functionality.
- Presence of outdated World War II-era buildings.

Category 5: Site Elements

Key Takeaways

- Use of quality materials and mature trees.
- Curved pathways creating a natural feel.

Key Takeaways

- Well-placed benches and pavers.
- Effective lighting throughout the site.

Key Takeaways

- Confusing layout and difficulty in navigation.
- Insufficient ADA accessibility.

4.4 Rights and Blights

The Rights and Blights maps are another method for assessing stakeholder approval or disapproval with HEC's existing conditions. This collaborative tabletop map exercise is designed for stakeholders to discuss their goals and objectives for the planning process through mapping, sketching, and diagramming. This form of facilitation encouraged meaningful discussions on how best to preserve and enhance valued landscape features, viewsheds, and architectural elements. Landscape features, viewsheds, and other characteristics of the built environment identified for preservation or enhancement are marked as Rights; features stakeholders dislike or wish to minimize are marked as Blights. This process highlights areas of consensus and reveals areas where differing perspectives may exist, prompting constructive dialogue about HEC's campus. Documenting insights on Rights and Blights maps provide planners with a comprehensive overview of community elements, ensuring future development aligns with stakeholder values. This exercise fosters informed decision-making and inclusive planning at HEC, integrating stakeholder feedback to navigate challenges and opportunities effectively.

Humphreys Engineer Center

Vision Plan

Rights

Legend

- Cemetery
- FEMA Floodplain
- Wetlands
- Existing Buildings
- Existing Pavement
- Existing Sidewalks
- HEC Boundary

Rights

1. Kingman Rd Trail
2. B. 2596 - updated
3. Open space behind Kingman
4. Visual appeal of main intersection
5. Historic cemetery
6. New buildings
7. New building - MTF
8. Prime developable areas
9. Trees provide visual buffer of substation
10. Opportunity for break area
11. Metro bus stop (4x-5x AM, 4x-5x PM)

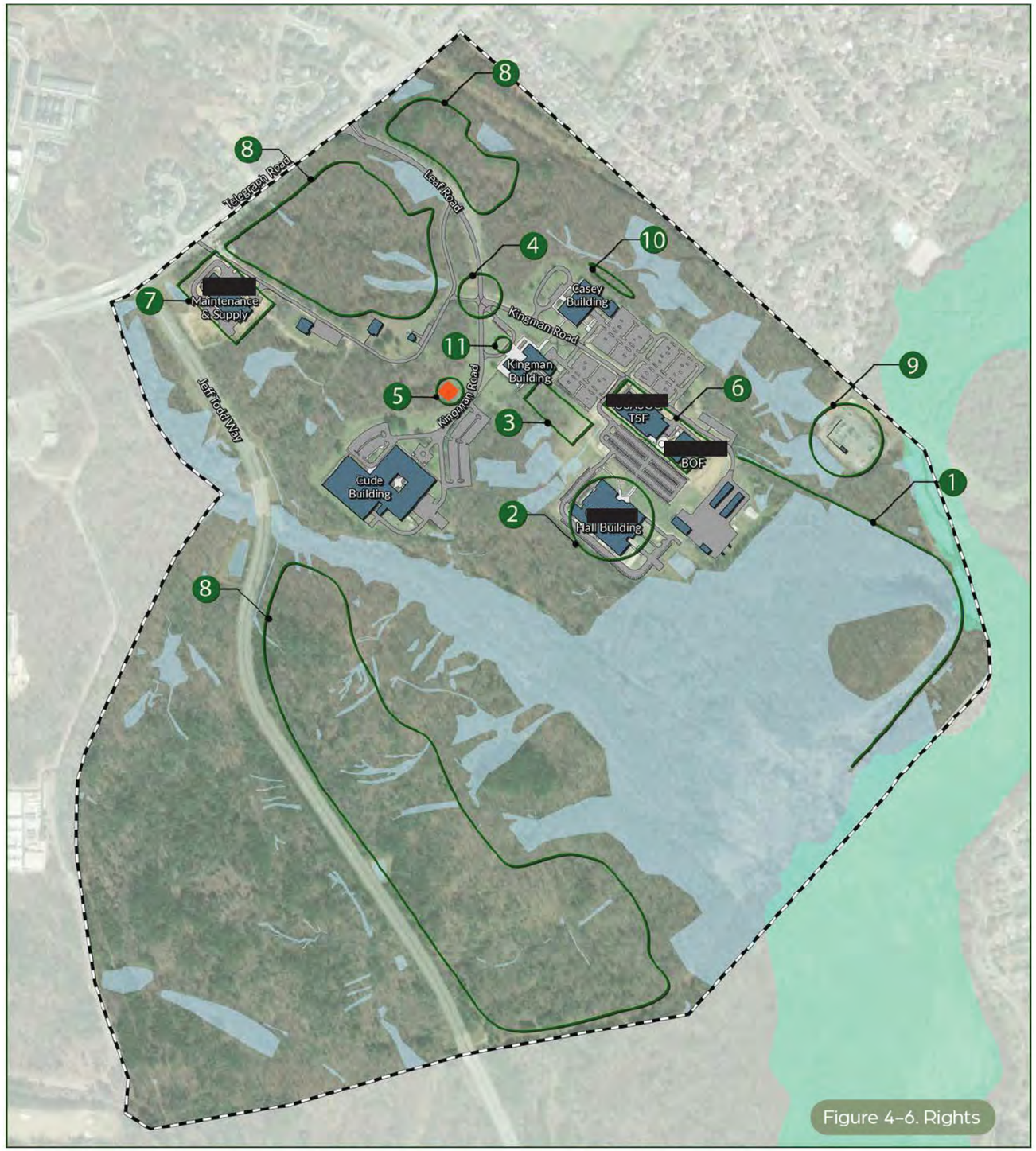


Figure 4-6. Rights

4.4.1 Key Features

"Rights" at HEC include:

•Kingman Rd Trail

•New buildings

•Trees/natural environment

•Metro bus stops/public transport

"Blights" at HEC include:

•Old, aging, and obsolete facilities

•Lack of sidewalks

•Lack of lighting

•Parking issues

•Lack of signage

See Figures 4–6 and 4–7 for composite Rights and Blights identified in the Vision Workshop.

Humphreys Engineer Center

Vision Plan

Blights

Legend

- Cemetery
- FEMA Floodplain
- Wetlands
- Existing Buildings
- Existing Pavement
- Existing Sidewalks
- HEC Boundary

Blights

1. Old Warehouse Bldgs, grounds
2. Obsolete buildings
3. Obsolete buildings
4. Kingman Trail needs improvement
5. Improve gathering space
6. Need more sidewalks
7. Casey patio - hot concrete/no shade
8. Loading dock & generator - eyesore
9. Lack of walkways from parking
10. Traffic/access
11. Parking needs improvement
12. Lack of lighting overall
13. Lack of signage for visitors- parking, directional
14. Deficient traffic signage overall

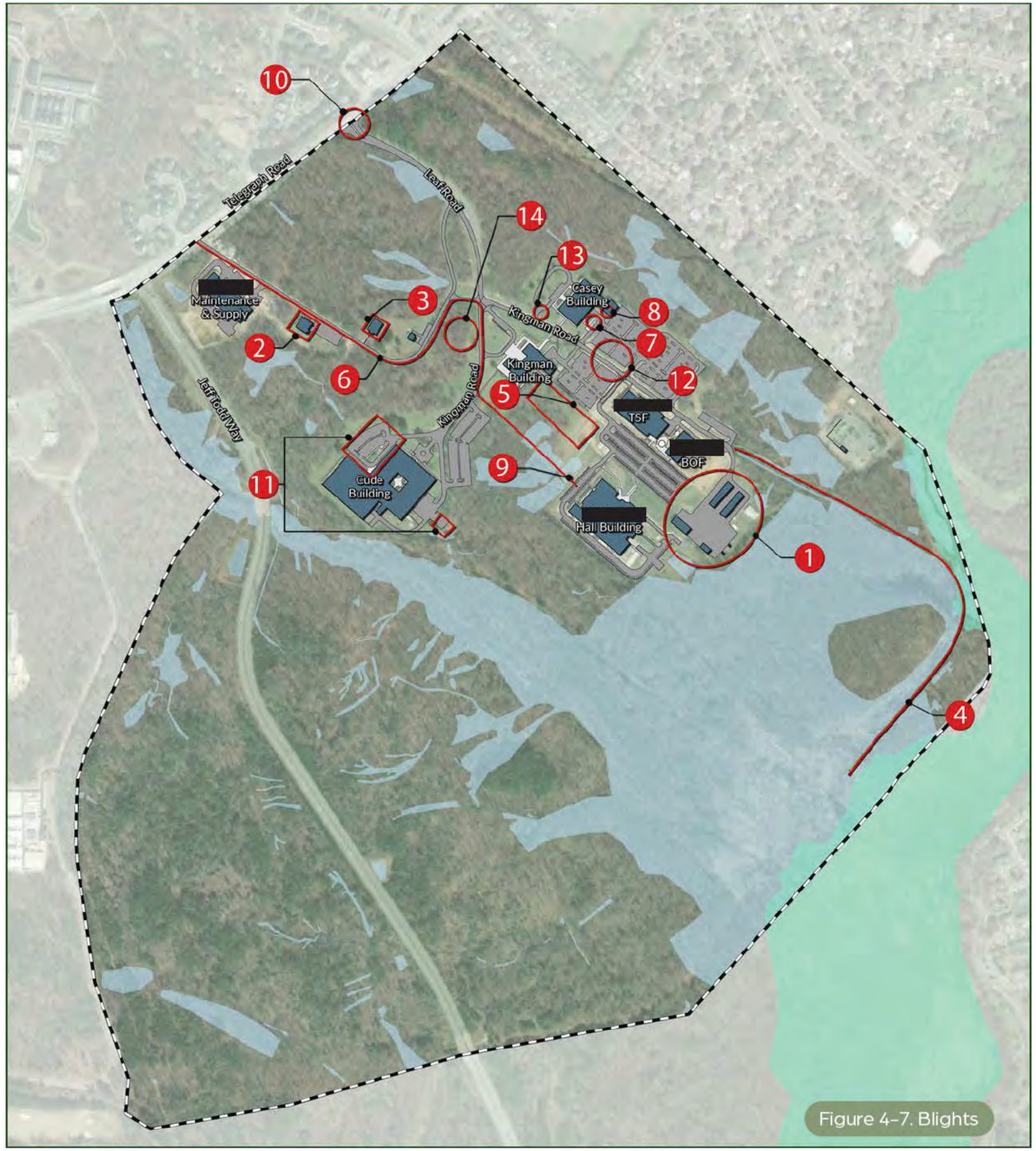


Figure 4–7. Blights

4.5 Framework Plan

The Framework Plan (Figure 4–8) is designed to create a detailed spatial inventory and provide valuable insights into how the physical environment can support operational efficiency at HEC. Using a key, stakeholders identified Nodes (centralized points of interest or frequently visited landmarks within the installation), Landmarks (distinctive features or viewsheds that aid in navigation and orientation), Paths (routes or channels people move along, both vehicular or pedestrian), Edges (different than paths in that they are lines that separate features), Incompatibilities (current use issues), Opportunities (future density or open space), and Desired Connections.

This mapping exercise serves as a foundational tool for guiding future development strategies and ensuring that proposed changes align with the site's overall vision and functional requirements. The Framework Plan will inform decision-making processes, enabling HEC to evolve in a manner that meets both current and future needs.

Key Elements from the Framework Plan include:

•Landmarks: 5-way intersection at Kingman Road and Leaf Road, Casey Building, and Kingman Building

•Nodes: Kingman Road turnaround, gathering spaces near parking lots, and the gymnasium

•Incompatibilities: Multiple pinch points for traffic at major intersections

•Opportunities: Developable area parcels near [redacted] and Cude Building

•Desired Paths: Complete pedestrian corridors

Humphreys Engineer Center

Vision Plan

Framework Plan

Legend

- Cemetery
- FEMA Floodplain
- Wetlands
- Existing Buildings
- Existing Pavement
- Existing Sidewalks
- HEC Boundary

Framework Elements

- Landmarks
- Nodes
- Incompatibilities
- Opportunities
- Desired Path
- Current Pedestrian Path
- Current Vehicle Path

Figure 4–8. Framework Plan

4.6 Additional Site Elements

Stakeholders discussed additional site data at HEC, including Quality of Life, Walkability, Safety/Security/AT/FP, and Parking (Figure 4-9).

Addressing quality-of-life amenities involved assessing current and potential improvements. Existing amenities like recreational facilities, dining options, and community spaces were evaluated, with suggestions for enhancements such as bike corridors and green spaces.

For walkability, stakeholders mapped commonly used pathways and assessed sidewalk networks, highlighting areas needing improved pedestrian access, especially during bad weather or peak times.

Safety and security recommendations included enhancing lighting and implementing surveillance in specific areas to improve campus safety.

Parking discussions focused on congestion and underutilization. Stakeholders considered optimizing parking distribution, reallocating spaces, or introducing shuttle services to enhance accessibility.

Some key additional site elements identified are:

- Food truck gathering area
- Existing pedestrian pathways
- Developable areas and green space
- High capacity areas, such as the [redacted] and the surrounding plaza
- Constraints, like wetlands and high topography areas

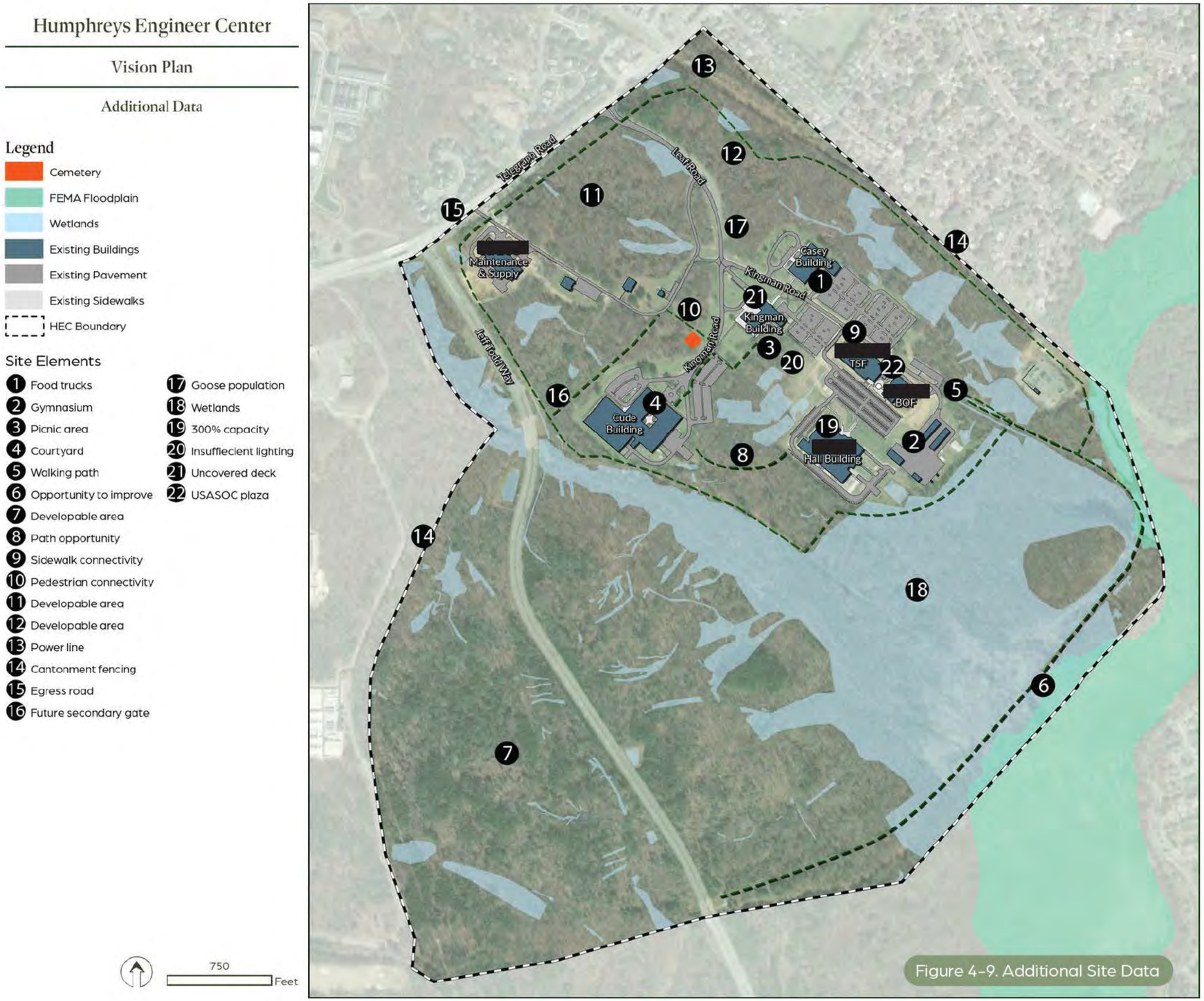


Figure 4-9. Additional Site Data

4.7 Live Notetaking

During the workshop, the planning team used graphic notetaking to capture key insights and discussions in real-time. This approach enabled the team to document complex ideas and recommendations effectively. The designated note-taker and artist transformed these insights into comprehensive designs that reflect the collective wisdom and vision articulated during the workshop. This method ensured that details and nuance were captured and facilitated the creation of actionable plans and designs that align closely with the workshop outcomes and goals. See Figures 4-10 through 4-14.

Figure 4-10. Live Workshop Notes | Introductions

Figure 4-11. Live Workshop Notes | Visual Preference Survey

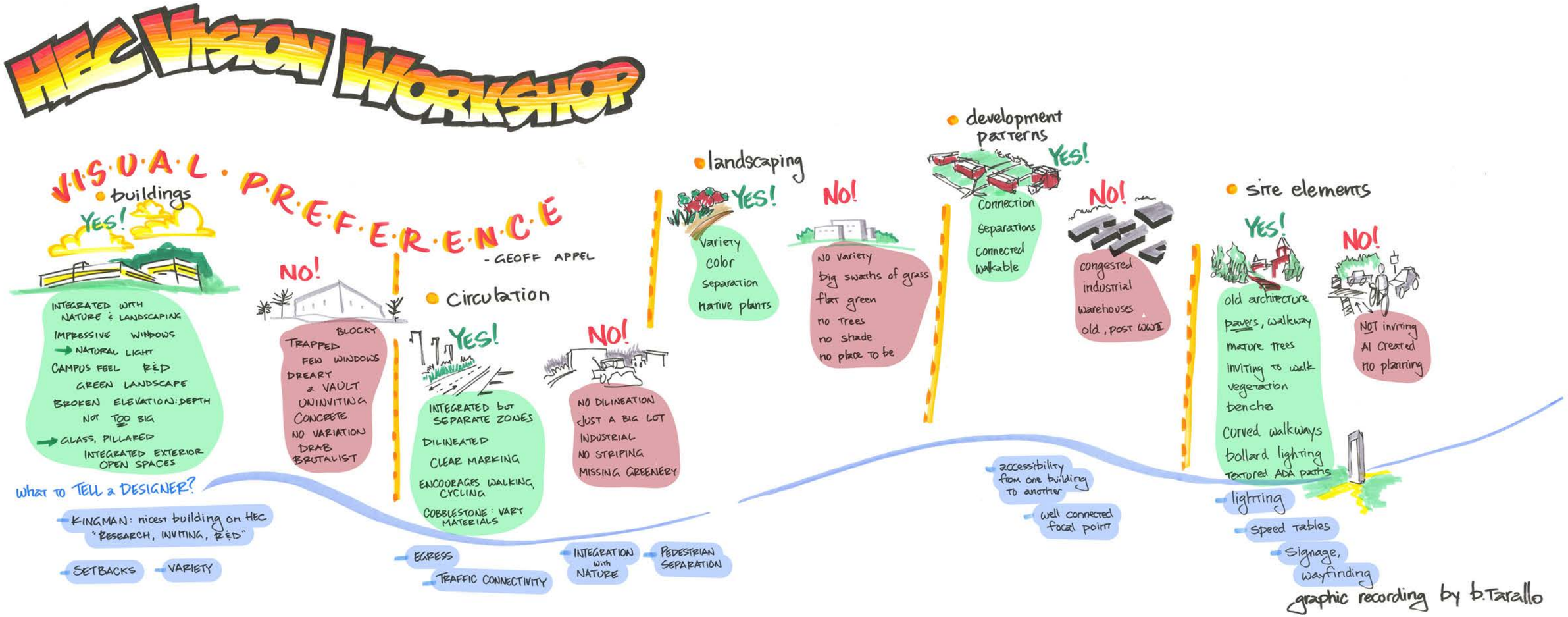


Figure 4–12. Live Workshop Notes | Activities

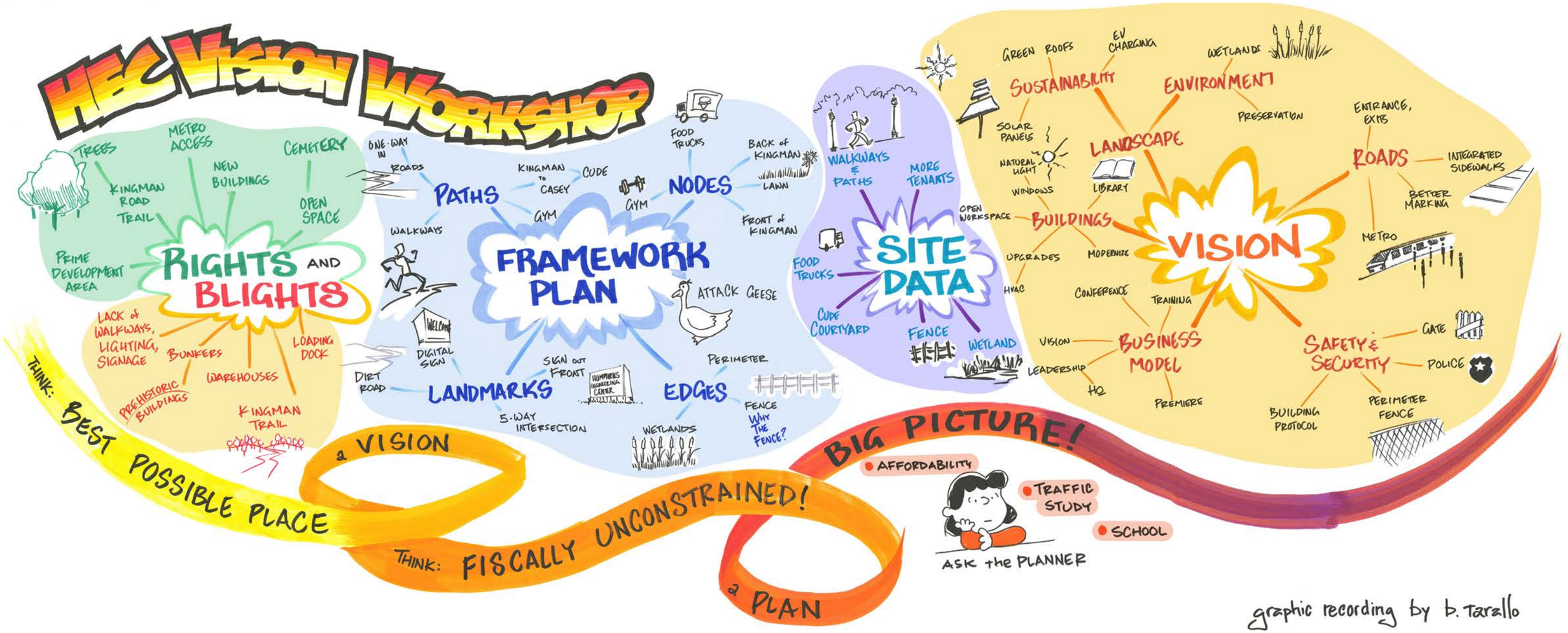


Figure 4–13. Live Workshop Notes | SWOT Analysis

Figure 4–14. Live Workshop Notes | Vision

5

Appendix

Acronyms

ADEP	Area Development Execution Plan
ADP	Area Development Plan
AT/FP	Antiterrorism/Force Protection
CIS	Capital Investment Strategy
DoD	Department of Defense
FCA	Facilities Condition Assessment
FEMA	Federal Emergency Management Agency
HEC	Humphreys Engineer Center
HECSA	Humphreys Engineer Center Support Activity
ICA	Installation Capacity Assessment
IPS	Installation Planning Standards
IDP	Installation Development Plan
IWR	Institute for Water Resources
MILCON	Military Construction
NCPC	National Capital Planning Commission
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
PDP	Project Development Plan
RPA	Riparian Protection Areas
SERDP	Strategic Environmental Research and Development Program
SWOT-V	Strengths, Weaknesses, Opportunities, Threats, and Vision
TMP	Transportation Management Plan
UFC	Unified Facilities Criteria
USACE	United States Army Corps of Engineers
[redacted]	[redacted]
ZEV	Zero Emission Vehicle

References

- UFC 2-100-01 installation Master Planning (September 2020)
- 1st Capabilities Integration Group HEC Real Property Master Plan (September 2020)
- 1st Capabilities Integration Group Space Utilization PLan (September 2020)
- Humphreys Engineer Center Master Plan (October 2021)
- Fort Belvoir Main Post Installation Design Guide (November 2008)
- Humphreys Engineer Center Tree Replacement Plan (May 2021)

Acknowledgments

Special thanks to all the participants. Without your input, this plan would not be possible.

- COL Mabry Sumner
- Victor Stephenson
- LTC David Dawes
- Franklin Barrett
- Valerie Carney
- Randy Covington
- Sarah Diehl
- Melody Encarnacion
- Emily Green
- Michael Grizer
- Terrence Harrington
- Jamie Herr
- Jay Hershey
- Richard Hinzc
- Brad Hudgens
- Latoya Huggins
- Breanna McCoy
- Michael Johnson
- Amani Khalil
- Wendy Larson
- Paul Pinnock
- Martin Pitts
- Jerry Proctor
- Doug Pohlman
- Vivian Anaya Rivera
- Rodney Roberts
- Tham Saravanapaven
- Mike Schneid
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Plan prepared for:

Humphreys Engineer Center Support Activity

and The United States Army Corps of Engineers

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