

Airfield Area Area Development Plan

February 2008



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Prepared by:



Contents

1.0 Introduction

1.1 Purpose.....	1-1
1.2 Process.....	1-2
1.3 Vision	1-2

2.0 Airfield Setting

2.1 Location.....	2-1
2.2 Site Context	2-2

3.0 Existing Site Conditions

3.1 Development Constraints.....	3-1
3.2 Developable Areas	3-14
3.3 Operations	3-16
3.4 Facilities.....	3-20
3.5 Planned Projects.....	3-25
3.6 Circulation Patterns.....	3-26
3.7 Utilities.....	3-28

4.0 Program Requirements

4.1 Existing Tenants and Functions	4-1
4.2 Programmed Projects	4-3
4.3 Tenant Requirements.....	4-4
4.4 Displaced Facilities	4-11
4.5 Program Summary	4-11
4.6 Building Type Recommendations	4-11

5.0 Planning Principles

5.1 Overview	5-1
5.2 LEED Principles	5-1
5.3 Sustainable Principles	5-2
5.4 Land Use & Building Development Principles	5-2
5.5 Transportation Principles	5-3

6.0 Planning Framework

6.1 Overview.....	6-1
6.2 Initial Siting.....	6-2
6.3 UFC Primary Surface.....	6-2
6.4 Framework Plan Alternatives 1,2, and 3	6-4

7.0 Evaluation of Alternatives

7.1 Evaluation Criteria..... 7-1
7.2 Evaluation Matrix 7-2

8.0 Preferred Plan

8.1 Overview 8-1
8.2 Preferred Alternative 8-2
8.3 Relationship to Long Range Development Plan 8-3

9.0 Implementation Strategies

9.1 Phasing and Funding 9-1
9.2 Transportation Management Recommendations 9-7
9.3 General Recommendations 9-8
9.4 106 Consultation 9-8
9.5 Required NEPA Documentation..... 9-9

Appendices

A. Land Use Matrix..... A-1
B. Base Supplied Planning and Requirement Information B-1
C. Planning Needs Assessment (June 2006) C-1
D. Existing Building Tabulation..... D-1
E. Meeting Minutes E-1
F. Authorized/Allowable Facilities Criteria F-1
G. LEED Neighborhood Development Checklist G-1
H. MWR Recreation Plan H-1
I. United Facilities Criteria (Airfield & Heliport Planning & Design)..... I-1

List of Figures J-1

List of Tables K-1

List of Acronyms L-1

1.1 Purpose

Area development plans (ADPs) are an important part of the Comprehensive Master Plan process. The Installation Real Property Master Plan (RPMP) provides broad planning direction at the land use level. In contrast, an ADP provides site planning direction for a specific area of the installation based on the design standards set in the Installation Design Guide (IDG).

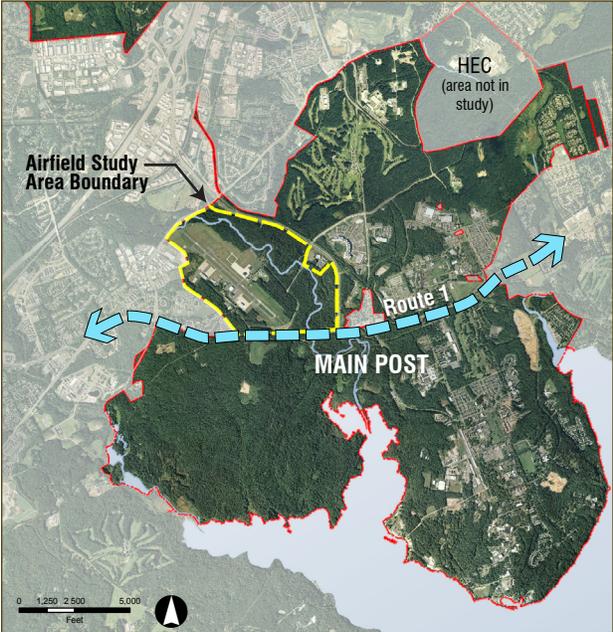
The focus area for this ADP is the Davison Army Airfield (DAAF) as defined in Figure 1.1. Relocation of the airfield was considered during the initial Belvoir New Vision Planners (BNVP) siting study for Base Realignment and Closing (BRAC) 2005 actions; however, this idea was rejected in favor of redeveloping the existing facility. This ADP provides guidance to allow for moderate expansion while bringing the existing airfield surfaces into conformance with Unified Facilities Criteria (UFC) development requirements for airfield design, and developing a program for a 21st century airfield at the current site.

The ADP illustrates short-term and long-term physical changes. Much of the data will be presented through graphics. The ADP will indicate construction phasing and development priorities, which will correlate with the facility programming contained in the Short Range Component (SRC) and Military Construction (MILCON) or other project funding documentation.

The final ADP will provide planning direction for:

- Building footprints
- Building setbacks
- Parking
- Streets and roads
- Indoor hangars and outdoor aircraft storage aprons

Figure 1.1 - Airfield ADP Boundary



1.2 Process

Developing an ADP is an inherently flexible process. While each ADP has its own unique focus, there are eight keys steps that are general to creating an ADP.

- **STEP 1: Set goals to guide the development of the ADP** (see Chapter 1).
- **STEP 2: Define the study area boundary** (see Chapter 2).
- **STEP 3: Define the “end-state” program requirements with input from stakeholders** (see Chapter 4).
- **STEP 4: Collect and analyze data.** Identify issues (see Chapter 3).
- **STEP 5: Develop alternative plans.** Before arriving at the preferred plan, it is important to explore several alternatives in order to: (see Chapter 6)
 - Illustrate design ideas and strategies
 - Ensure all implications of a siting decision are explored and understood
 - Facilitate National Environmental Policy Act (NEPA) documentation at required levels for the ADP/ individual projects
- **STEP 6: Evaluate alternative plans.** For each alternative, compile a list of pros and cons. Use these to compare options and select a preferred plan (see Chapter 7).
- **STEP 7: Develop final plan** (see Chapter 8).
- **STEP 8: Develop implementation plan including:** (see Chapter 9)
 - A list of projects for the area
 - Identification of funding sources for each project
 - A phasing plan

1.3 Vision

The vision of the Airfield ADP is to develop a 21st century airfield that supports current and future operational requirements by planning for the appropriate facility requirements and safety standards.

The Airfield ADP will determine and plan for safety requirements of a Class A runway (as defined in the UFC 3-260-01 Airfield & Heliport Planning & Design) at DAAF. Improvements will also be made to DAAF's circulation patterns for fixed wing and rotary wing aircraft, vehicles, and pedestrians to increase efficiency and safety.

As the operational capacity for an airfield can be diminished by encroachment of incompatible development around the airfield, the Airfield ADP will help to preserve the operational capacity of DAAF by identifying the impacts to on Post areas and the surrounding community, as well as infrastructure for current operations, as well as additional requirements due to mission realignments. This will be achieved by identifying the facility requirements through replacement or renovation of existing facilities and construction of new ones.

Environmental stewardship has long been an important goal at Fort Belvoir. The facility's plan proposed in the Airfield ADP will incorporate a high level of environmental sensitivity and identify opportunities to implement sustainable practices.

The Airfield ADP will aim to address short-term needs and long-term growth including possible alternate land uses that are in accordance with the long range master plan.

Airfield Setting

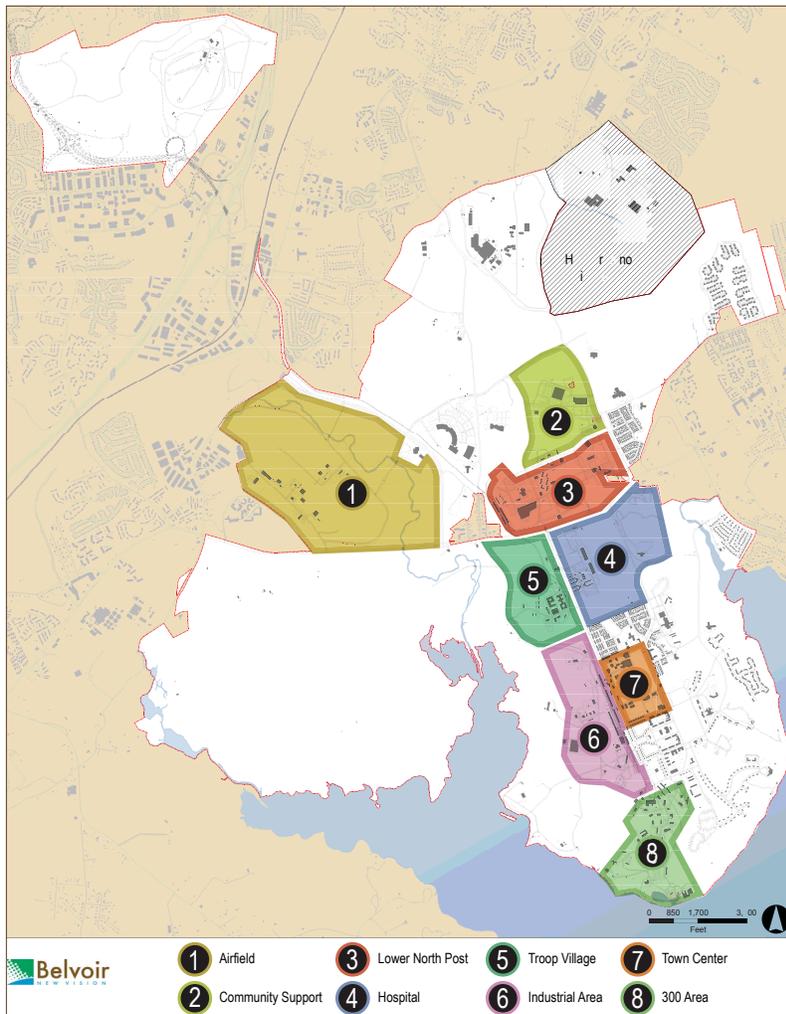
2.1 Location

The Davison Army Airfield (DAAF) is one of eight sub-areas for which ADPs are being developed in support of the overall master planning process for Fort Belvoir (see Figure 2.1). DAAF is located in the northwest quadrant of the Main Post of Fort Belvoir. In contrast to the other ADPs, DAAF is separated from other parts of the Post by major roadways making it a discrete entity.

The Airfield ADP study limit has well-defined boundaries comprising of the Fairfax County Parkway to the north and east, and U.S. Route 1 to the south. The installation boundary forms the western limit. The study limits do not include the fenced parcel located near the Fairfax County Parkway currently occupied by United States Army Intelligence & Security Command (INSCOM).

The airfield study limit includes about 455 acres. However, the environmental study will focus on the area within the existing DAAF fence line (about 350 acres).

Figure 2.1 - Sub-Area Map



2.2 Site Context

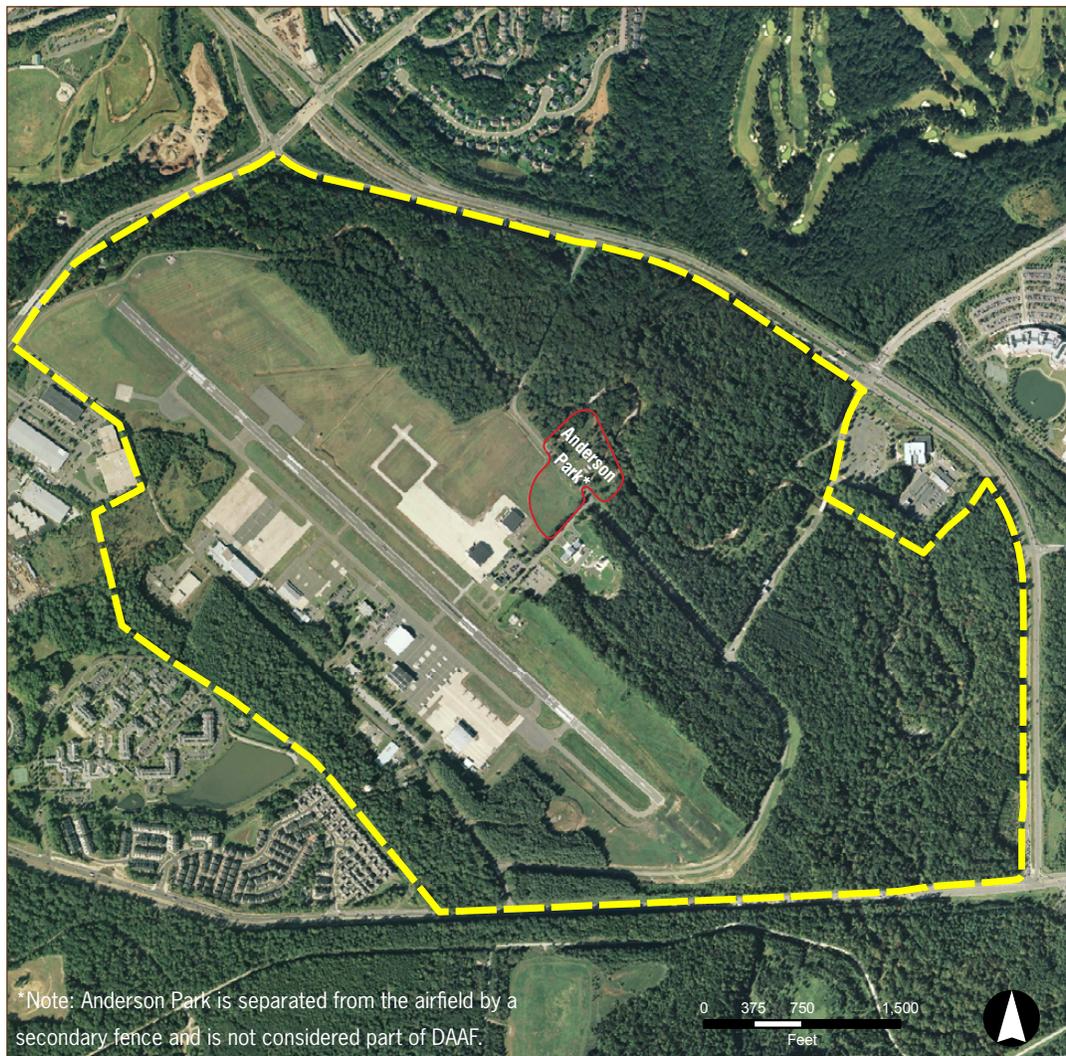
Although DAAF is the largest of the ADP areas, a large part of the site is constrained by environmental and operational factors.

Accotink Creek runs across the whole length of the study area between the existing DAAF development and Fairfax County Parkway. Perennial drainage waterways run through DAAF's development on either side of the runway and to the south of the existing fence near U.S. Route 1. Resource Protection Areas (RPAs) and 100-year flood zones are associated with these waterways and form a major constraint to development. Wetlands occur on the edges of the existing development and constrain expansion areas.

Special habitat for threatened and endangered species, Partners in Flight (PIF) priority areas and the wildlife migration corridor occur within the ADP study area.

Operational constraints associated with the DAAF limit the type and height of development surrounding the airfield, both on Post and within the surrounding community. Some existing DAAF facilities do not meet the Unified Facilities Criteria (UFC) and obstruct the safe operation of the airfield. Other potential obstructions include the Defense Logistics Agency (DLA), the golf course clubhouse located on the North Post, and off Post development located under the flight path to the northwest of the airfield (see table 3.9).

Figure 2.2 - Existing airfield setting/ study area (2007 aerial)



According to the Fort Belvoir Long Range Component (LRC), the existing and proposed land use classification of this area is Airfield. This classification includes all uses related to the airfield including runways, hangars, administration, fueling, arms storage, information systems, simulators, aircraft testing and maintenance, fire rescue, medical clinic, and weather stations. For a complete listing of all uses allowed, see Appendix A Land Use Matrix.

Since the area was originally designed as an airfield and continues to serve this purpose to this day, the site character is quite distinct from other parts of the Post. With the exception of the DC Air National Guard (DC ANG) and fire department's facilities, the majority of the airfield facilities were constructed over 35 years ago. A number of these facilities are either in poor repair, do not adequately meet space requirements, or are located within the airfield surfaces associated with the runway.

Existing off Post residential units lie within close proximity to the airfield on the west and north side. Residential and industrial land uses that abut the installation boundary to the west may require buffering or screening if airfield expands into these areas.

Primary access to the airfield is from the Fairfax County Parkway through the Farrar Gate on John J. Kingman Road. This gate is open 24 hours 7 days a week. Other gates exist on U.S. Route 1 and Telegraph Road but are currently closed. A gate on Ehlers Road allows public access to Anderson Park adjacent to the airfield, but does not connect to DAAF.



Aircraft Hangars and Other Support Facilities



Airfield Fire Station



Adjacent Neighborhood Southwest of the Airfield

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Existing Conditions

3

CHAPTER

This chapter describes the existing character of the site by analyzing the existing conditions, buildable area, facilities, infrastructure, and circulation patterns.

3.1 Development Constraints

The natural, cultural, and operational resources and constraints impacting the ADP study area are discussed here. Figure 3.1 shows a composite of these constraints.

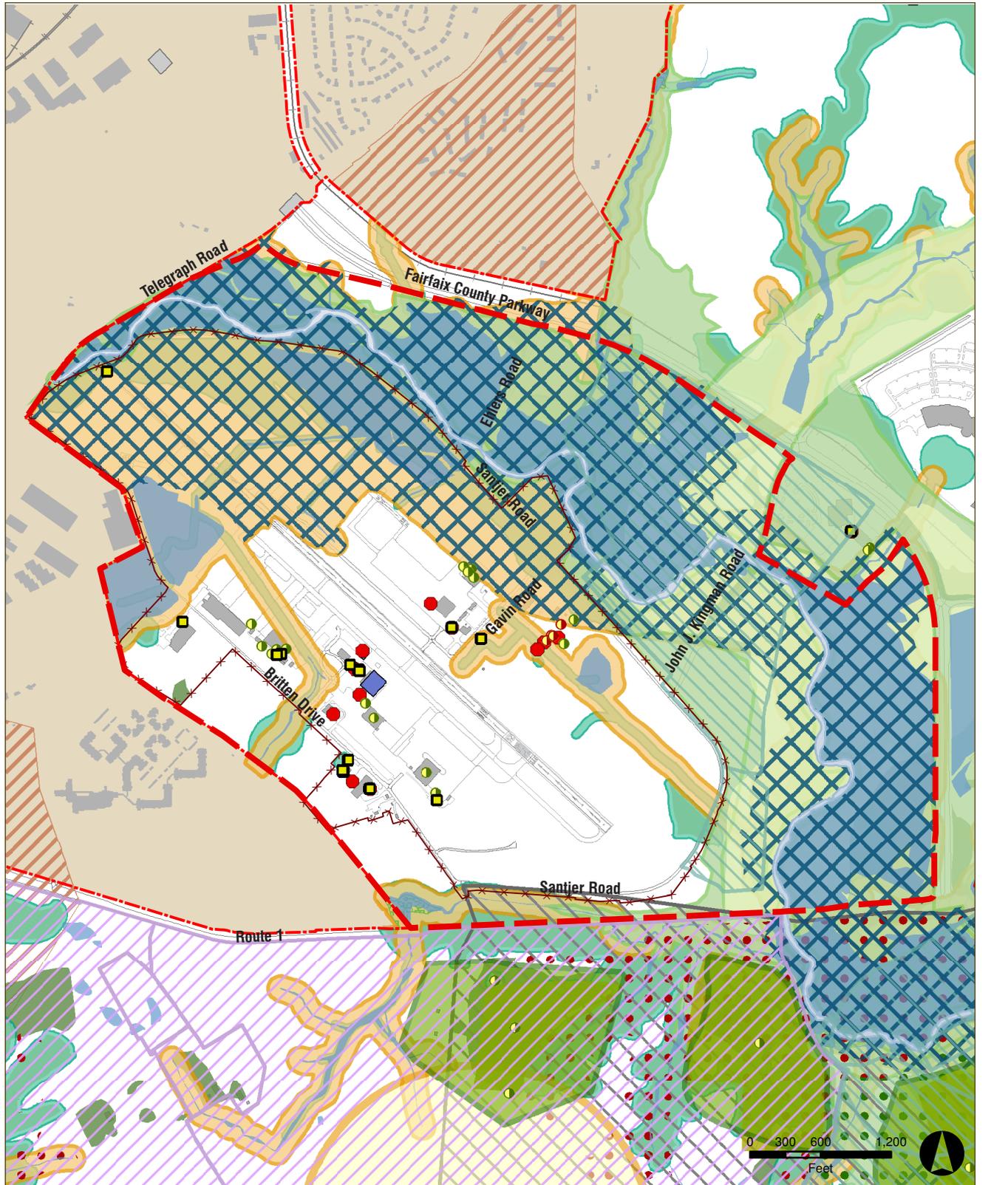
Within the existing DAAF fenceline approximately 48% of the land has development constraints. Identifying areas that are suitable to build upon becomes important due to the anticipated expansion of the airfield development based on updated space requirements of the various tenants and compliance with (Unified Facilities Criteria (UFC), Facility Planning System (FPS) and Army Criteria Tracking System (ACTS). Preferred expansion areas will include land free from development constraints and, if necessary, areas with constraints that can be mitigated at a low cost or risk. Within the study area, most areas free from constraints are located adjacent to existing development.

The methodology used to evaluate constraints involved populating a constraints matrix. This was accomplished utilizing a GIS-based tool that calculates the acreage or number of each constraint within the footprint of the study area. The methodology identified the following constraints that could affect development within the ADP study area limits:

- 100-year Floodplain
- Resource Protection Areas
- Wetlands
- Riparian Buffers
- Special Species Areas
- Conservation Areas
- Partners In Flight Areas
- Grassland Management Areas
- Steep Slopes (greater than 15 percent)
- Airfield 150 ft. Building Height Restrictions
- Noise Zone
- Former Training Range
- Solid Waste Management Units
- Hazardous Waste Management Units
- Petroleum Storage Areas
- Petroleum Release Sites
- Air Quality Permits
- Construction Permits

The constraint and the extent of their impacts are summarized in Table 3.1, 3.5, 3.6, and 3.7. These acreages are based on the existing DAAF fence line, not the entire study area.

Figure 3.1 - Composite Resources Map



- | | | | | | |
|-----------------------|------------------------|-------------------|---------------------|-----------------------|----------------------------|
| Airfield Study Limits | SWMU | Explosive Area | Wetland Refuge Area | Fauna Special Species | Grassland Management Areas |
| Existing Fenceline | HWMU | Flood Zone | Wildlife Area | Flora Special Species | Historic District Area |
| MMRP | Restoration Site | Wetland | Mitigation Corridor | RPA Boundary | Historic Structures |
| Training Areas | Landfill | Conservation Area | Steep Slopes | Riparian Buffer | |
| Fuel Tanks | Potential Concern Site | | | | |

Natural Constraints

Fort Belvoir's natural environment is a complex area where several ecological sub-regions converge, resulting in a diversity of environmental conditions, habitats, and climate (see Figure 3.2).

100 Year Floodplain

Approximately 122 acres of the existing DAAF site is located within the 100-year floodplain boundaries. This area includes the northern half of DAAF's main runway, as well as some aviation support buildings located on the south eastern side of Gavin Rd. These areas should be avoided as habitable structures cannot be constructed in floodplains.

Resource Protection Areas (RPAs)

The existing DAAF site area includes about 163.7 acres of RPAs. Most of the RPAs border the Accotink Creek. Habitable development in these areas must be avoided. Any proposed road and bridge corridor crossing that would go through the RPAs are permitted but should be minimized. The RPAs are used for planning purposes only and have not been field verified for perenniality. Because the affected RPAs are near the headwaters of streams, a perenniality determination would be conducted to determine which of these RPAs are associated with perennial streams. Those not associated with perennial streams may be available for development.

Wetlands

The existing DAAF site area includes about 29.1 acres of wetlands. The wetlands are located along small perennial streams located in the western portion of the airfield off Britten Dr. and along the northern border along the Fairfax County Parkway. Another smaller wetland is located off of Santjer Rd. in the southwestern corner of the existing DAAF site. The wetlands shown in Figure 3.2 are used for planning purposes only and have not been jurisdictionally delineated. Construction in jurisdictional wetlands is possible but requires obtaining a Section 404 permit from the Corps, and mitigation such as wetland creation or banking.

Riparian Buffer Areas

The existing DAAF site includes about 72.5 acres of riparian areas that generally overlap the wetlands along perennial drainages and Accotink Creek. Due to the importance of riparian areas as buffers for runoff filtration for water quality and habitat, development in these areas should be avoided. If development in riparian areas is unavoidable, Low-Impact Development (LID) practices should be incorporated into the design.

Special Species Areas

The existing DAAF site area includes about 1.1 acres of sensitive fauna habitat for the wood turtle (*Glyptemys insculpta*) located in the northern part of the existing DAAF site. A negligible impact on this resource would be expected by development in this area. It is important to note that about 432 acres of additional wood turtle habitat surrounds the entire northern, western, and southern borders of the existing DAAF site. Other special species areas exist around the existing DAAF site, including bald eagle foraging area to the west, and rare plant communities to the north.

Conservation Area

There are 1.6 acres of conservation areas within the existing DAAF site. This area is included within the Accotink/Pohick Wetland Conservation Area designated by Fort Belvoir. A negligible impact on this resource would be expected, however, ideally, no net impact would be expected if similar habitat elsewhere on Fort Belvoir were to be designated for preservation.

Partners In Flight (PIF) Areas

About 66.4 acres of PIF avian buffers are located in the northern half of the existing DAAF site. No net impact would be expected if potential PIF habitat elsewhere on Fort Belvoir were to be set aside for preservation.

Grassland Management Areas

About 0.7 acres of grassland management areas are located in the western portion of the existing DAAF site, off Britten Dr. A negligible impact on this resource would be expected, however, ideally, no net impact would be expected if similar habitat elsewhere on Fort Belvoir were to be designated for preservation.

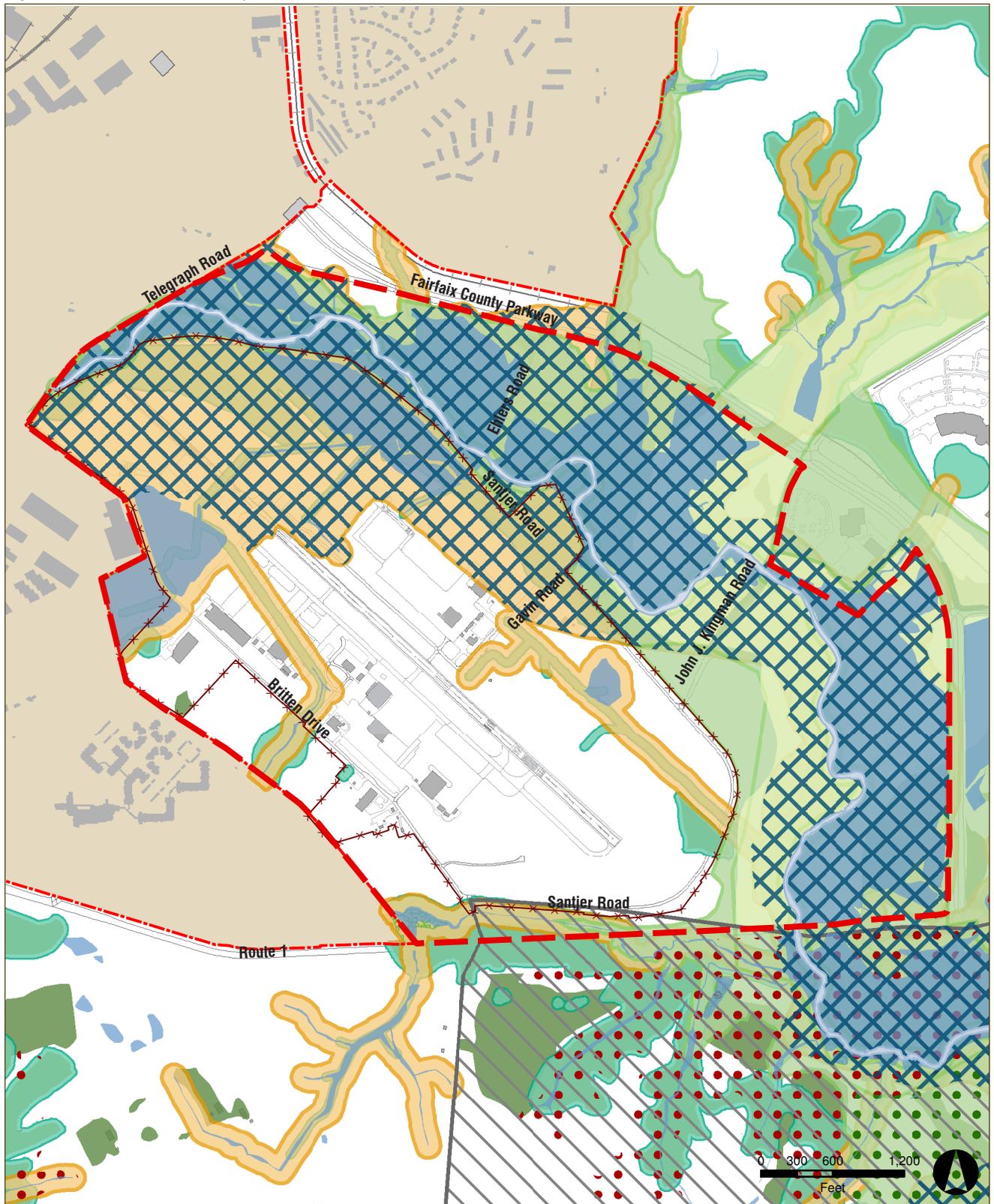
Steep Slopes

Steep slopes are defined as grades larger than 15 percent. The existing DAAF site includes 2.5 acres of steep slopes, which are located off Britten Dr. and an unnamed tributary of Accotink Creek in the southeastern portion of the parcel. Development on steep slopes should be avoided, however use of appropriate engineering practices may allow for construction in these areas if necessary.

Table 3.1 - Natural Development Constraints Located in the Study Area

Resource	Size or Number	Units	Comment/Description
100-year Floodplain	122.0	Acres	Avoid where possible. Construction of habitable structures not permitted in these areas.
RPAs	163.7	Acres	Avoid where possible. Coordinate with Fort Belvoir ENRD to be in compliance with the Chesapeake Bay Program.
Wetlands	29.1	Acres	Avoid where possible. Permit may be required if impacting wetlands. Costs for wetland banking as mitigation. Jurisdictional review by the USACE and VDEQ.
Riparian Buffers	72.5	Acres	Implement Low-Impact Development (LID) in these areas in avoiding completely is not possible.
Special Species Area	1.1	Acres	Area should be avoided for development.
Partners in Flight	66.4	Acres	Negligible impact on this resource would be expected, however, ideally, no net impact would be expected if similar habitat elsewhere on Fort Belvoir were to be set aside for preservation.
Conservation Areas	1.6	Acres	Negligible impact on this resource is expected, however, ideally, no net impact would be expected if similar habitat elsewhere on Fort Belvoir were to be set aside for preservation.
Grassland Management Areas	0.7	Acres	Negligible impact on this resource would be expected, however, ideally, no net impact would be expected if similar habitat elsewhere on Fort Belvoir were to be set aside for preservation.
Steep Slopes	2.5	Acres	Engineering practices that allow for construction on steep slopes may be permitted, if the unconstrained land nearby is not available.

Figure 3.2 - Natural Resources Map



- | | | | |
|-----|-----------------------|----------------------------|------------|
| —x— | Conservation Area | Flora Special Species | Wetland |
| —x— | Mitigation Corridor | RPA Boundary | Flood Zone |
| ••• | Steep Slopes | Riparian Buffer | |
| ••• | Fauna Special Species | Grassland Management Areas | |
| ••• | Refuge Area | | |

Operational Constraints

Airfield 150 ft. Building Height

Restriction Zone

The entire development area for the existing DAAF site is situated within the 150 ft. building height restriction zone (see Figure 3.8 and section 3.4 for more information on Imaginary Surfaces). However, if the parcel were to be developed for uses other than an airfield, this restriction would not apply.

Noise Zone

About 232 acres of the existing DAAF site fall into the hazardous noise zone category. This area is categorized as a level II noise zone, due to the amount of air traffic flying in and out of DAAF daily. Expansion of DAAF, such as proposed with this ADP, will result in a change of existing noise levels that will require further study.

Former Training Ranges

The existing DAAF site includes approximately 314.3 acres of former training range. A part of this land falls within the active Operation Training area and it would have to be deactivated to allow development to occur. DAAF also borders an inactive mounted pistol range, as well as mines and booby traps range on the southeastern border. Development would need to take into account that initial site investigations indicated elevated lead in soil and further investigation is required to delineate the environmental impacts. Based on the use of the ranges as small arms ranges, costly Unexploded Ordinance (UXO) removal is not warranted. Depending on the time frame of development for this area, this range may be addressed under the Military Munitions Response Program (MMRP) prior to development. If possible, the pending investigation of the area should be prioritized to aid in determining the unconstrained areas available for development.

Hazardous Waste Management Unit (HWMU)

One HWMU is located within the existing DAAF site. It is the Fire Training Area at Davison Army Airfield (daa-hcps). Virginia Department of Environmental Quality (VDEQ) has issued letters of concurrence with the no further action determination for the HWMU site at Fort Belvoir. However, disturbance of this site could result in a complete exposure pathway to human health and the environment. It is likely VDEQ will require reopening the site to properly protect human health and the environment.

Table 3.2 - Summary of HWMUs for the Existing DAAF Site

Hazsite ID	Site Description
daa-hcps	Fire Training Area at DAAF

Petroleum Storage Areas (PSAs)

36 PSAs have been identified within the existing DAAF site (15 active; 21 inactive). Mitigating these PSA constraints is a straightforward decommissioning process. The location of these PSAs are illustrated on Figure 3.5 and summarized in Table 3.3. Many of the open PSAs are unregulated, so a costly formal closure process can be avoided. On average, 1 in 3 Underground Storage Tank (UST) at Fort Belvoir is an old single-walled steel UST, so it can be expected that some USTs will have a release previously undiscovered. This mitigation measure could be integrated into the construction phase of the project in concert with the site preparation and earthwork features for minimal impact to the overall construction schedule.

Table 3.3 - Summary of PSAs for the Existing DAAF Site

Tank ID of Petroleum Storage Areas - Active			
03239A	03128A	03160A	03165A
03138H	03138I	03138J	03123A
03128B	03153A	03162A	03233B
03160B	03162B	03185A	
Tank ID of Petroleum Storage Areas - Inactive			
03146A	01358A	03161A	03138C
01312A	01332C	03161B	03230A
03250B	03138E	03165B	03233A
03250A	03138D	03161C	03230B
03138A	03138F	01359A	
03138B	03138G		

Petroleum Release Sites (PRs)

11 PRs have been identified in the existing DAAF site. Figure 3.5 illustrates the locations of the PRs. Table 3.4 presents a summary of these PRs. Petroleum releases were discovered at these locations, pollutant complaint numbers (PC #s) were assigned by the VDEQ, and various corrective actions/remediation occurred at the sites. Any disturbance to the subsurface soil at these sites may require environmental remediation actions. Intrusive activities at the sites would require a Health and Safety Plan be prepared specifying construction workers protection and monitoring requirements at the site(s).

PRs located within a proposed building envelope could be aggressively addressed as part of the site preparations. Mitigation measures if required could be integrated into the construction phase of the project in concert with the site preparation and earthwork features for minimal impact to the overall construction schedule. Excavation and sampling of petroleum impacted soils areas will likely be the most effective manner to address any residual contamination associated with these PRs within an aggressive time frame.

This constraint can be mitigated by employing a Health and Safety Program including qualified industrial hygienists and a HSP. Most large construction firms are experienced in this area. The cost estimates for a Health and Safety Program to adequately address this issue are not considered significant as the specifications of the construction project itself will likely require a HSP. This requirement can be incorporated into the construction program without adding significant costs.

Table 3.4 - Summary of PRs for the Existing DAAF Site

Site ID		
ca_03230_1	ca_03250_1	ca_01332_1
ca_03233_1	ca_03200_1	ca_03140_1
ca_03138_1	ca_03200_2	ca_03146_1
ca_03161_1	ca_03165_1	

Solid Waste Management Units (SWMUs)

There are 19 SWMUs scattered throughout the existing DAAF site. Table 3.5 summarizes the SWMUs. Mitigation for these SWMUs range from administrative closure to site investigation, including soil and groundwater sample collection and analysis. Estimated cost for the investigation of these SWMUs is about \$300,000 and, if fully funded, would take about a year to complete. However, for those sites requiring confirmation sampling or site investigation, subsequent cleanup requirements can only be determined following analysis of the samples to determine if additional corrective action is required (see Figures 3.3, 3.4, and 3.5 for locations of SWMUs).

Table 3.5 - Summary of SWMUs for the Existing DAAF Site

SWMU ID	Description
L-12	Empty Used Barrels NW of current building 3232
L-27	Floor trench drains located within the hangar of Building 3151
K-02	Former site of pile of waste material from cleaning the former Fire Control Training Area Burn Pit
K-05	Former burning pit, approximately 15 square feet, used for the destruction of classified documents
L-28	Trench drains located inside the hangar doors of Building 3232
C-05	Concrete surface where rotary-wing aircraft are washed. NW of Building 3232
E-01	Waste petroleum, oil, and lubricant storage area was a six square-foot undiked area SW of Building 1357
L-26	Site consists of a trench drain and floor drains inside Building 3145
N-20	Active 55 gal drum storage unit with secondary containment located behind Building 3140
E-12	Inactive unit was a storage area for 55 gallon drums containing waste petroleum and solvents
E-04	Raised storage area of 55 gal drums containing waste materials located on the SW of Building 312
E-07	Active unit used for drum storage area for small amounts of waste JP-4, waste petroleum, and solvents
C-04	Site of form wash rack located south of Building 3126
L-04	Former site of concrete pad and 3 electrical transformers
C-06	96- by 70-ft graded concrete pad at the southeastern side of Building 3126

Figure 3.3 - Operational Resources Inset - 1

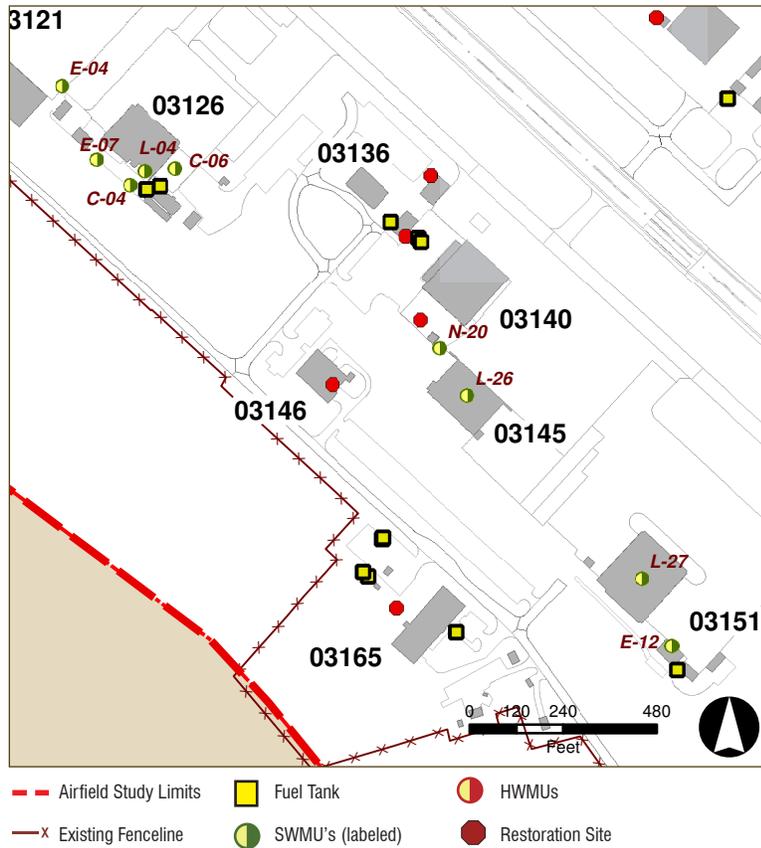


Figure 3.4 - Operational Resources Inset - 2

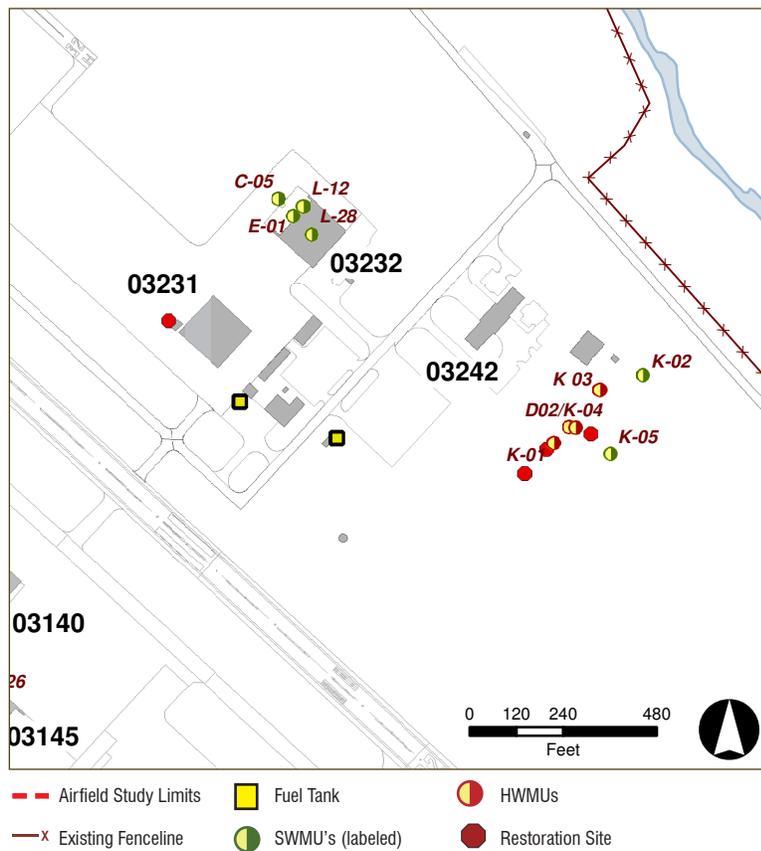
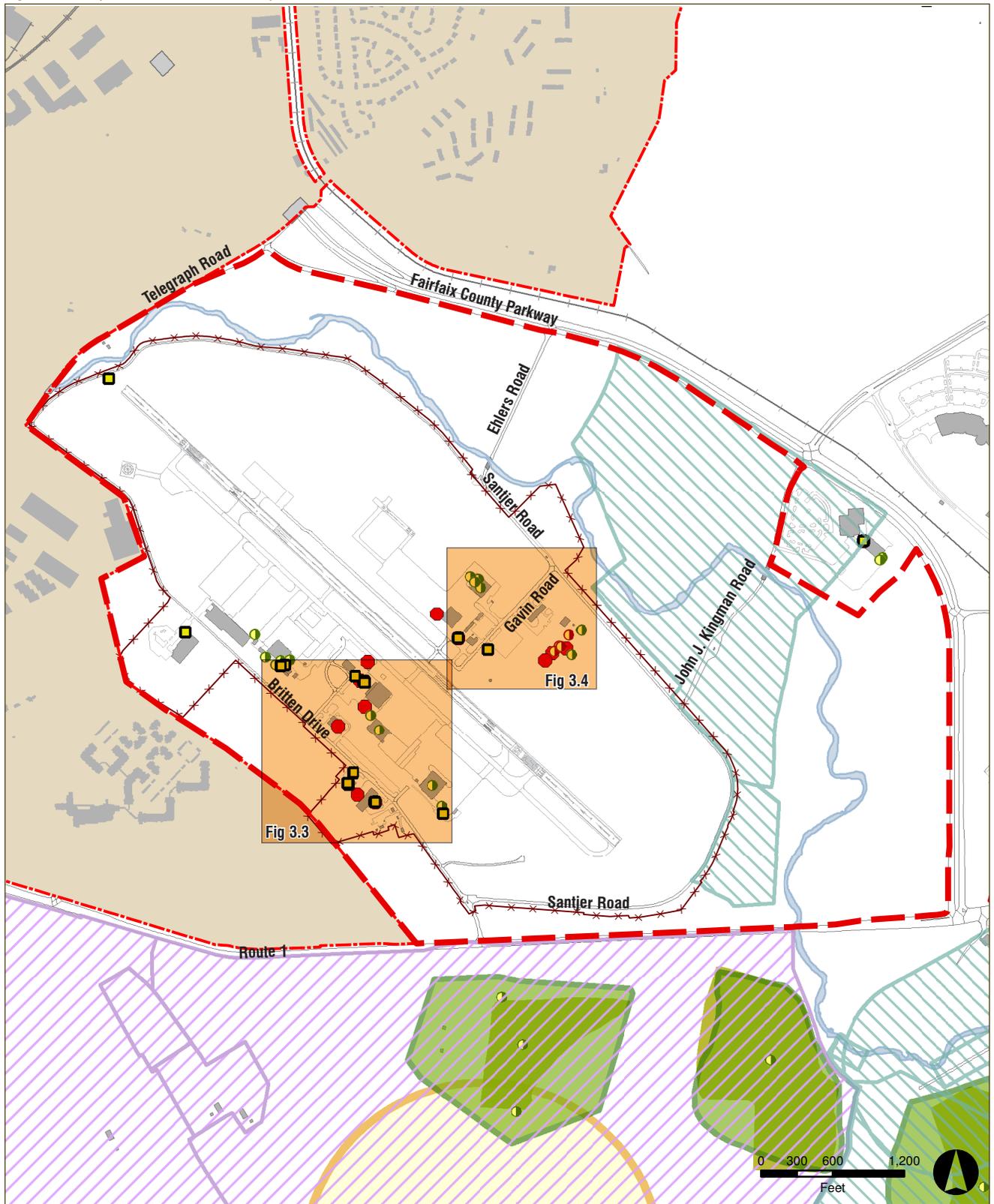


Table 3.6- Operational Resources Located in the Existing DAAF Site

Resource	Size or Number	Units	Comment/Description
Operational Resources			
Airfield 150 ft. Building Height Restriction	353.4	Acres	Entire parcel is within the 150 ft. building height restriction zone, however, if the parcel were to be developed for uses other than an airfield, this restriction would not apply (see Section 2.4).
Noise Zone	232.0	Acres	If the parcel were to be developed for other uses other than airfield, noise from airfield activities would cease.
Former Training Range	314.3	Acres	An active operational training area is located within the existing DAAF site parcel as well as small tracts of the deactivated mine and booby trap range and the mounted pistol range. Additional investigations are required to delineate the impacts.
Solid Waste Management Units (SWMUs)	19	Each	Many SWMUs will require environmental investigations to determine the nature and extent of impacts. Investigation work plans will require EPA and VDEQ approval. Site investigations can be performed concurrently with site preparation activities.
Hazardous Waste Management Units	4	Each	Investigation work plans will require EPA and VDEQ approval. Site investigations can be performed concurrently with site preparation activities. Additional investigation can be performed to determine if and where residual impacted soils exist.
Petroleum Storage Areas (PSAs)	36	Each	There are 15 active and 21 inactive PSAs within the existing DAAF fence line. These could be aggressively addressed as part of the site preparations. A closure process involving administrative and decontamination process will be required. Confirmation samples collected beneath USTs and potentially some Above-ground Storage Tanks (ASTs) will likely be required to demonstrate no release has occurred. It can be expected that some USTs will have a release previously undiscovered. Mitigation measures could be integrated into the construction phase of the project in concert with the site preparation and earthwork features for minimal impact to the overall construction schedule.
Petroleum Release Sites (PRSS)	11	Each	Petroleum releases were discovered at these locations, pollutant complaint numbers (PC #s) were assigned by the VDEQ, and various corrective actions/remediation occurred at the sites. Any disturbance to the subsurface soil at these sites may require environmental remediation actions. Intrusive activities at the sites would require a Health and Safety Plan be prepared specifying construction workers protection and monitoring requirements at the site(s). PRSS located within a proposed building envelope could be aggressively addressed as part of the site preparations. Mitigation measures could be integrated into the construction phase of the project in concert with the site preparation and earthwork features for minimal impact to the overall construction schedule. Excavation and sampling of petroleum impacted soils areas will likely be the most effective manner to address these PRSS within an aggressive time frame.

Figure 3.5 - Operational Resources Map



- - - Airfield Study Limits
- x - Existing Fenceline
- Fuel Tank
- SWMU
- HWMU
- Landfill
- Potential Concern Site
- Explosive Area
- MMRP Ranges
- Training Areas
- Restoration Site

Cultural Constraints

Cultural sites are protected under the National Historic Preservation Act (NHPA). Sites of historic significance on Fort Belvoir include the Main Post Historic District, and nearly 300 other historic structures, of which 191 are listed, eligible, or potentially-eligible archaeological sites, including seven cemeteries. Cultural constraints within the study area are depicted on Figure 3.6.

Development must avoid all National Register of Historic Places (NRHP) that are listed as eligible archaeological sites, buildings, historic districts, and cemeteries. Historic buildings and cemeteries should generally be avoided. Should any proposed development encroach upon archaeological sites, they must be evaluated for eligibility. These surveys will need to be coordinated with the state and may take several months to complete. Ineligible archaeological sites can be developed.

Other Environmental Constraints

Air Quality

If the pollution loads of a single proposed development in the Airfield ADP exceed the threshold standard of 100 tons of NOx per year, a Nonattainment New Source Review (NSR) would be required. The reviews typically take 18-24 months to complete. If engineering controls such as selective catalytic recovery can be specified in the design of the backup power generator the pollution load can be lowered. The issue is installation-wide so Fort Belvoir should work with future tenants to address this critical path issue. Fort Belvoir is currently near the threshold of their current Title V permit. Disaggregating emissions sources and permitting processes is a novel approach that requires support from VDEQ. However, disaggregation should be examined further for this program as a possible form of mitigation.

Construction Permits

Construction activities that disturb wetlands and stream crossing would require a wetland permit. Fort Belvoir's development contractor would also need to prepare and submit a sediment and erosion control plan to Fort Belvoir Director of Public Works, Environmental and Natural Resource Division (DPW-ENRD) for approval as Fort Belvoir holds a MS4 Permit and self-regulates in this arena.

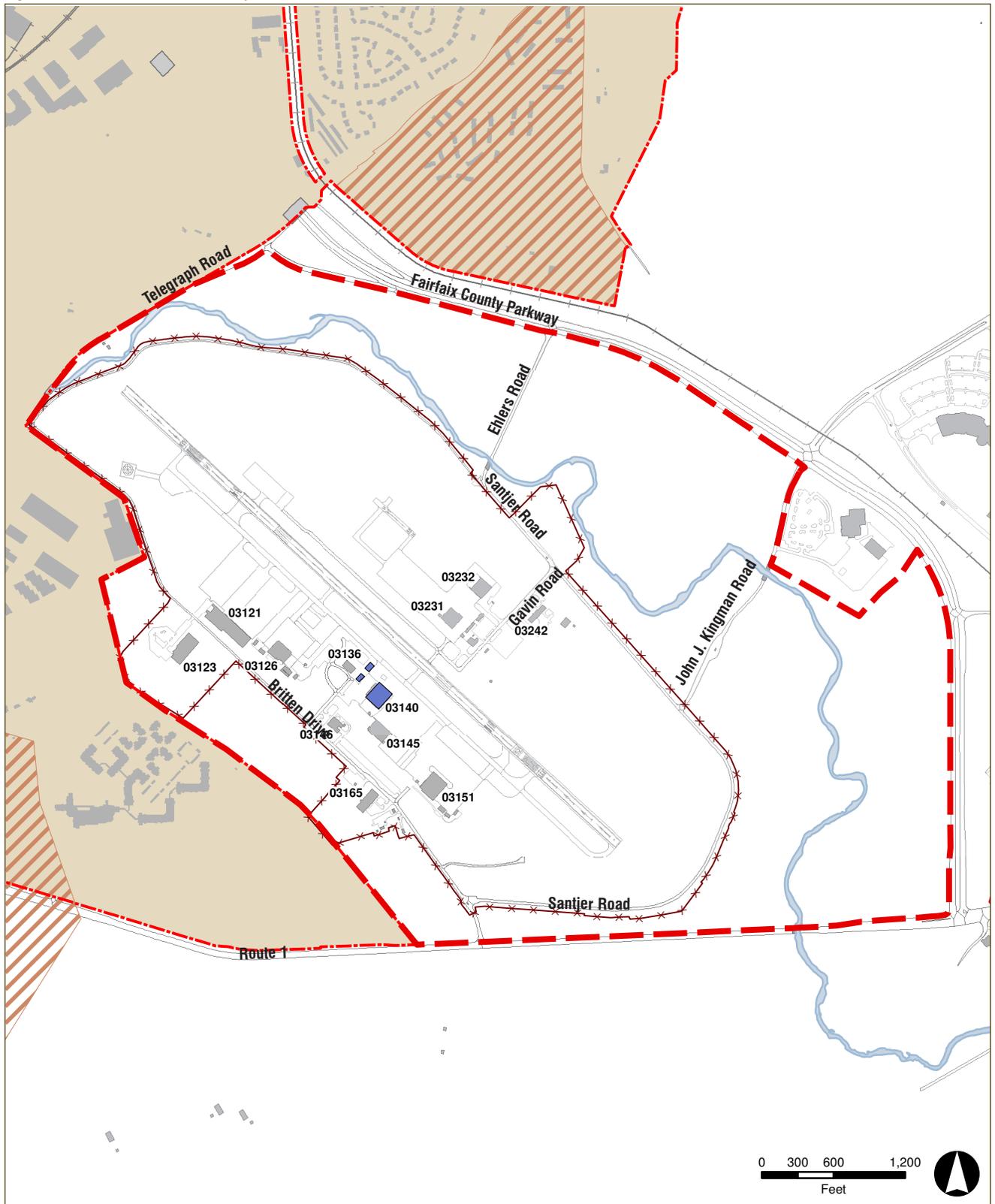
Table 3.7 - Cultural Constraints Located in the Study Area

Resource	Size or Number	Units	Comment/Description
Cultural and Historic Resource Constraints			
Historic Buildings	3	Each	There is no historic district associated with these structures.

Table 3.8 - Other Environmental Regulatory Considerations for the Study Area

Resource	Size or Number	Units	Comment/Description
Air Quality	N/A	Not Applicable	Air quality permitting requirements will require all development be involved in calculating pollution loads and determining most prudent air permitting course of action. Exceedence of the threshold value of 100 tons of NOx per year would trigger additional permitting requirements for large Fort Belvoir development projects.
Construction Permits	TBD	Not Applicable	Sediment and Erosion Plan and a Registration Statement also required for development projects.

Figure 3.6 - Cultural Resources Map



- - - Airfield Study Limits
- Historic Structures
- x - Existing Fenceline
- Historic District Areas

Table 3.9 - Level of Environmental Constraint Pertaining to the Area Within the Existing DAAF Fence line

Limited Development
Natural Resources
Resource Protection Areas (RPAs)
100-year Flood Zones
Riparian Areas
Wetlands
Sensitive Flora Species
Sensitive Fauna Species
Restricted Development
Natural Resources
Grassland Management Areas
Steep Slopes
Other Conservation Areas
Cultural Resources
Historic Structures
Operational Resources
Ranges*
Solid Waste Management Units (SWMUs)**
Hazardous Waste Management Units (HWMUs)**
Petroleum Storage Areas (PSAs)**
Petroleum Release Sites (PRSS)**

Notes:

* *Require OE clearance or removal*

** *Require investigation and remediation*

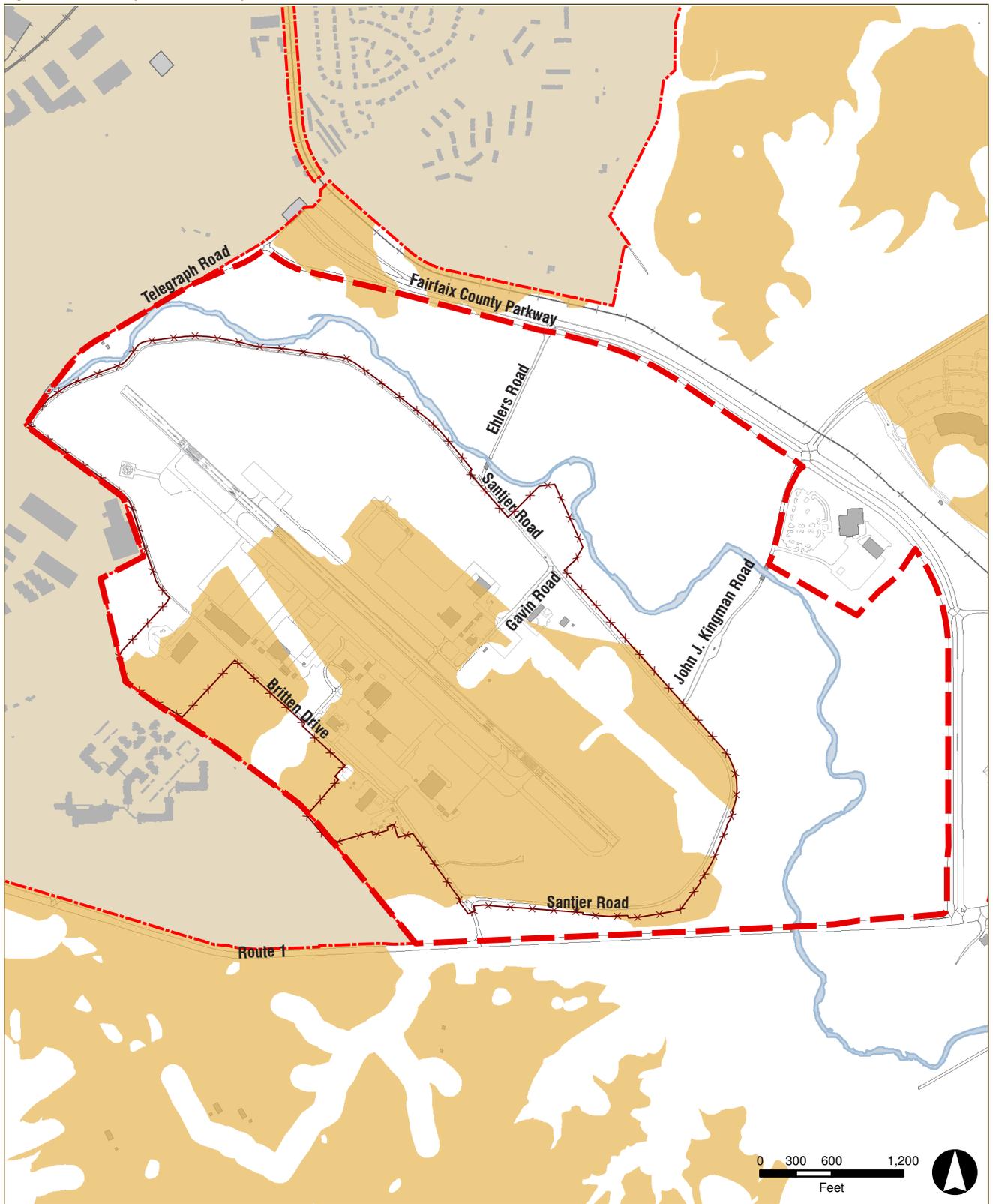
3.2 Developable Areas

Identifying the location and extent of the constraints makes the developable areas apparent. While it is most convenient, cost-effective and quicker to develop areas without any constraints, such land is in short supply within the study area. Should constrained land be required to be developed, development should be planned on land with constraining factors that are more easily mitigated than others. Table 3.8 classifies the constraints identified in the previous section into two levels.

The developable areas map (see Figure 3.7) combines the two levels of constraints. The “Limited Development” and “Restricted Development” areas have constraints associated with them that require mitigation before development can occur. The non-shaded areas of Figure 3.7 are designated as “Ideal for Development” as it has no development constraints, allowing development within these areas.

Of the 350 acres within the existing DAAF fence line, 185 acres are considered developable.

Figure 3.7 - Developable Areas Map



- x Existing Fenceline
- Installation Boundary
- Airfield Study Limits
- Developable Areas

3.3 Operations

DAAF is a joint operational airfield comprised of five independent operational flying units that are primarily responsible for supporting Military District Washington/National Capital Region (MDW/NCR) missions, Continental United States (CONUS) senior leadership shuttles, and transient aircraft. The five operational flying units are:

- 12th Aviation Battalion – Rotary wing
- Operational Support Airlift Agency (OSAA/OSACOM) – Fixed wing
- DC Air National Guard – Rotary wing
- Aviation Night Vision Lab - Rotary/Fixed wing
- Civil Air Patrol - Fixed wing

DAAF also supports a training unit of the District of Columbia Air National Guard. Additionally, DAAF supports various special operations missions (fixed wing), and is used for training by organizations such as the Federal Bureau of Investigations (FBI), local police, and the Air Force. For more details on missions and operations of the various units, see Appendix B.

DAAF is the closest emergency landing field to Washington DC and plays a key role in the National Emergency Response plan. In the event of a National Emergency, DAAF will provide for simultaneous operations, such as evacuation of the Secretary of Defense and other key personnel. The airfield complex will be in “lockdown”, restricting personnel from leaving or accessing the airfield until the Emergency has passed. To avoid conflict during lockdown conditions, other land uses must not be planned within the airfield complex.

Currently DAAF supports training and operations by both helicopter and fixed wing aircraft. DAAF Air Traffic Services Staff’s monthly activity records show that there were a total of 50,181 fixed wing and helicopter operations from April 2005 to April 2006. Helicopter operations account for approximately 60 percent of the total annual flight operations. For more details on operations, see Appendix C.

Aircraft

DAAF is required to comply with guidelines and regulations to meet a Class A airfield as outlined in the UFC 203-260-01, Airfield and Heliport Planning and Design. The maximum aircraft size which can be safely accommodated at DAAF is UC-35 (Citation 560). Operations at the DAAF accommodate a helicopter fleet ranging from small OH-6s to large UH-60 Blackhawks and CH-53 Stallions, while fixed wing aircraft operations range from small Cessna 182s to large C-130 Hercules aircraft. Although C-130 operations exceed the design weights and pavement geometry parameters of this Class A regulated airfield, they have occurred frequently and resulted in the rapid deterioration of the airfield pavements.

Existing facility layout often results in the interaction of helicopter and fixed wing aircraft operations, which reduces the operational safety and capacity of the airfield. Lastly, the existing airfield taxiways and some of the existing facilities do not meet the 500 foot primary surface setback from the airfield (see Appendix I for further technical information regarding the UFC setback criteria).

DAAF operations are an integral component of the current and future mission envisioned for Fort Belvoir. Therefore, facility upgrades will occur in order to maintain its mission and these future improvements must meet current UFC standards.

Impacts to Development

Figure 3.8 maps the imaginary surfaces associated with the runway at DAAF. No man-made structures or natural features are allowed on the primary surface and clear zones. Height restrictions are imposed on the development and landscape below the rest of the surfaces. The DAAF runway elevation is +74 ft. Mean Sea Level (MSL). The associated imaginary surfaces are calculated based on this level.

Maximum allowed height for development on any given parcel is determined by the topography and the imaginary surface the parcel falls under. Figure 3.9 depicts the maximum allowed height for development surrounding the airfield.

On-Post Impacts

Current and future facilities should not penetrate the imaginary surfaces which are detailed in Figure 3.8, so that DAAF may operate at its full capacity. Table 3.9 lists the existing facilities which conflict with the imaginary surfaces. While height restrictions apply to the entire Post and Engineer Proving Ground (EPG), restrictions of 100 ft. or lower only apply to parts of the North Post and Southwest area (Figure 3.9). Severe restrictions of 40 ft. or lower apply to small areas within the North Post Golf Course and the eastern portion of the Southwest area. It is extremely important that existing obstructions are removed and potential future obstructions are prohibited. This will help DAAF regain lost operational capacity and protect against further loss of overall airfield functionality.

Off-Post Impacts

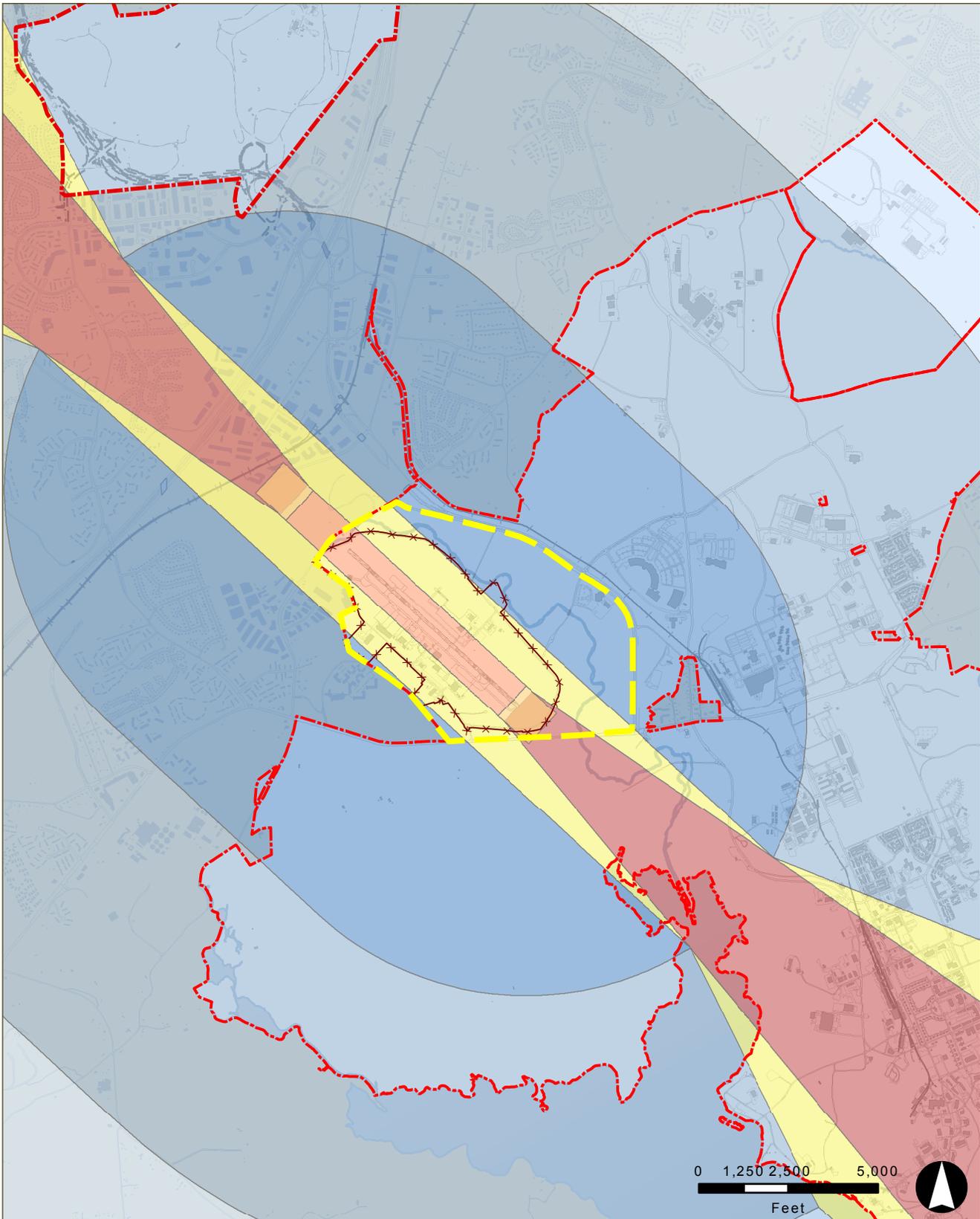
Figure 3.9 shows that safe operation of the airfield would impose height restrictions on off Post development to the north of the airfield along the flight path and on either side of the flight path. An updated Air Installation Compatible Use Zone (AICUZ) study would identify the limitations on the type of development and the land uses that are compatible in this area. A Joint Land Use Study (JLUS) would help DAAF and Fairfax County to work together to avoid adverse impacts on the surrounding community and prevent encroachment to preserve the operational capacity of the airfield.

Table 3.10 - DAAF Imaginary Surfaces, Existing On-Post Obstructions and Impacts on Development

Imaginary Surface	Definition	Development Impacts and Existing Obstructions*
Primary Surface	A surface longitudinally centered on the runway and extending 200 feet beyond each runway end and 500' from the centerline of the runway. The width of the primary surfaces varies depending on the class of runway and coincides with the lateral clearance distance.	No manmade or natural features are allowed. Obstructions include building nos. 3136, 3137, 3138, 3140, 3141, 3230, 3231, 3233, 3234, 3237, and 3239.*
Clear Zone (graded area only)	A surface located on the ground at the runway end and symmetrical about the runway centerline extended.	No manmade or natural features are allowed. No obstructions identified.
Approach-Departure Surface	An inclined plane arranged symmetrically about the extended runway centerline. The beginning of the inclined plane starts at the end of the primary surface and the elevation of the centerline at the runway end. The surface flares outward and upward from these points at a uniform slope.	No structure must puncture this surface. No obstructions identified.
Inner Horizontal Surface	An imaginary plane that is oval in shape and is located at a height of 150 feet above the established airfield elevation.	No structure must puncture this surface. Obstructions include building no. 2462* (DLA).
Conical Surface	An imaginary surface that extends from the periphery of the inner horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 7,000 feet and a height of 500 feet above the established airfield elevation.	No structure must puncture this surface. Obstructions include building nos. 2901, 2902, 2903, 2905, and 2907.*
Outer Horizontal Surface	An imaginary plane located at a height of 500 feet above the established airfield elevation, extending outward from the edge of the conical surface a horizontal distance of 30,000 feet.	No structure must puncture this surface. No obstructions identified.
Transitional Surface	An imaginary surface that extends outward and upward at right angles to the runway centerline at a slope of 7 to 1 and connects the primary and approach departure surfaces to the inner horizontal, conical and outer horizontal surfaces.	No structure must puncture this surface. No obstructions identified.

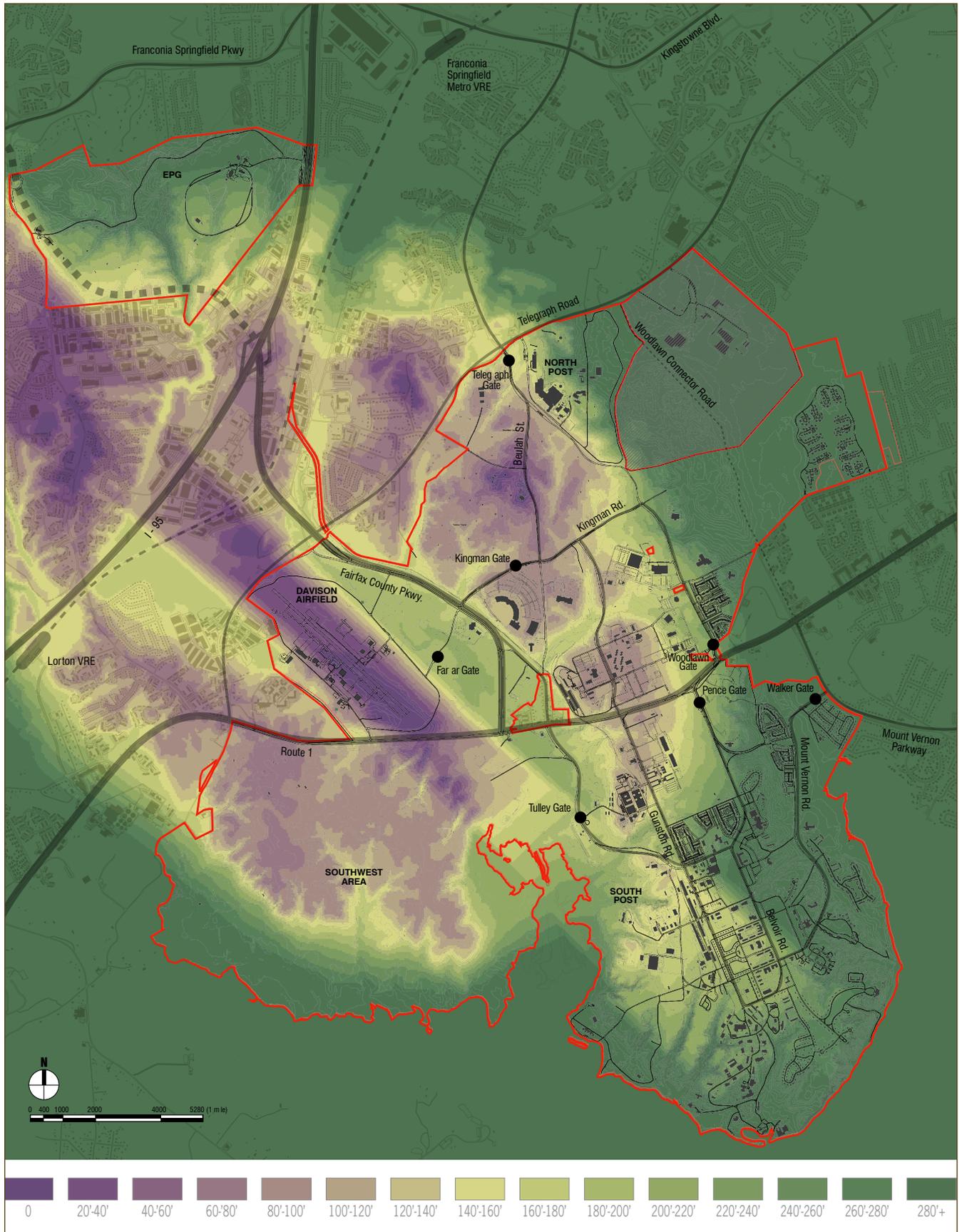
Note: * Existing Obstructions were calculated based on Fort Belvoir Geographic Information System (GIS) data provided. Field investigations are required to verify these conclusions.

Figure 3.8 - Airfield Operational Constraints



- | | | | | |
|-----------------------|-----------------|--------------------------------------|---------------------------------|-----------------|
| Airfield Study Limits | Primary Surface | Approach/Departure Clearance Surface | Outer Horizontal Surface (500') | Conical Surface |
| Installation Boundary | Clear Zone | Inner Horizontal Surface (150') | Transitional Surface | |

Figure 3.9 - Maximum Building Heights based on Airfield Imaginary Surfaces Restrictions



3.4 Facilities

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

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

Source:
1. Department of the Army, Pamphlet 415-28: Guide to Army Real Property Category Codes, 11 April 2006

Building Quantity

As of 13 July 2007, the Real Property Inventory (RPI) for Fort Belvoir listed about 50 buildings within the study area, totalling almost 300,000 GSF (see Figure 3.10). DAAF was built in the 1950s and 1960s and majority of the buildings (about 153,000 GSF) were built prior to 1970. Newer construction includes about 40,000 GSF occupied by Operational Support Airlift Command (OSACOM) and 78,000 GSF occupied by DC ANG.

The study area also has about 50 structures including runways, taxiways, aprons, landing pads, lighting and fueling facilities. Recreational facilities are located within the airfield complex and in Anderson Park. Appendix B lists each existing building, its tenants, and functional use.



Airfield Facilities



Airfield Facilities

Figure 3.10 - Airfield Site Map

* See Appendix B for total SF of all existing facilities and parking aprons



03121 AC MAINT HGR	03131 WK ANIMAL BLDG	03145 AC MAINT HGR	03155 AC PARTS STR	03172 XMITTER BLDG	03232 AC MAINT HGR	03238 TRANSFORMERS
03123 ARNG ARMORY	03136 AFLD OPS BLDG	03146 SIM BLDG MOTION	03161 AC TRK FUEL LDG	03176 FLAM MAT STR IN	03233 HEAT PLANT OIL	03239 NAV BLDG, AIR
03125 AC PROD PARTS I	03137 AFLD OPS BLDG	03150 ORG STR BLDG	03162 JET FUEL UNGD	03177 RAPPEL TRN AREA	03234 BN HQ BLDG	03240 FIR FIGHT/RESCU
03127 ORG STR BLDG	03138 HEAT PLANT OIL	03151 AC MAINT HGR	03165 ADMIN GEN PURP	03178 RAPPEL TRN AREA	03235 BN HQ BLDG	03241 STORAGE GP INST
03128 AVN UNIT OPS	03140 AC MAINT HGR	03153 AC COMP MAINT	03170 ORG STR BLDG	03230 FLT CONT TOWER	03236 FLAM MAT STR IN	03242 FIRE STATION
03130 VEH MAINT SHOP	03144 OXY STR INST	03154 ORG STR BLDG	03171 FLAM MAT STR IN	03231 AC MAINT HGR	03237 FIRE STATION	

Building Quality

The Installation Status Report (ISR) communicates installation conditions by using Q-ratings for facilities. The Q-ratings are based on a ratio of restoration cost estimates (“cost to fix”) to facility plant replacement value (PRV). Restoration cost is based on facility condition assessments conducted by facility occupants. These Q-ratings are used to derive an installation-wide Quality Rating at the Facility Class level. All military services report Q-ratings using the same DoD methodology. The four Q-ratings are defined in Table 3.11 below. This rating system is used to model and justify funding levels for the installation. It also indicates where facilities and infrastructure are inadequate and may negatively affect the Army’s overall mission. The ISR rating provides a standard, Army-wide system to support decision-making processes as they relate to operations, sustainment, modernization, revitalization, and re-stationing.

Figure 3.11 displays facility conditions based on the Installation Status Report (ISR) ratings downloaded on March 5, 2007.

Conclusions

The DAAF Future Year Development Plan, dated 21 December 2006, reports that:

- The air traffic control tower has been deemed structurally unsound by the Fort Belvoir Engineering and Safety Office. The approach lighting system is not repairable and must be replaced. The markings are not in compliance with Federal Aviation Administration (FAA) and UFC codes and are faded. The taxiways, runway, and paved aprons do not have sufficient weight-bearing capacity.

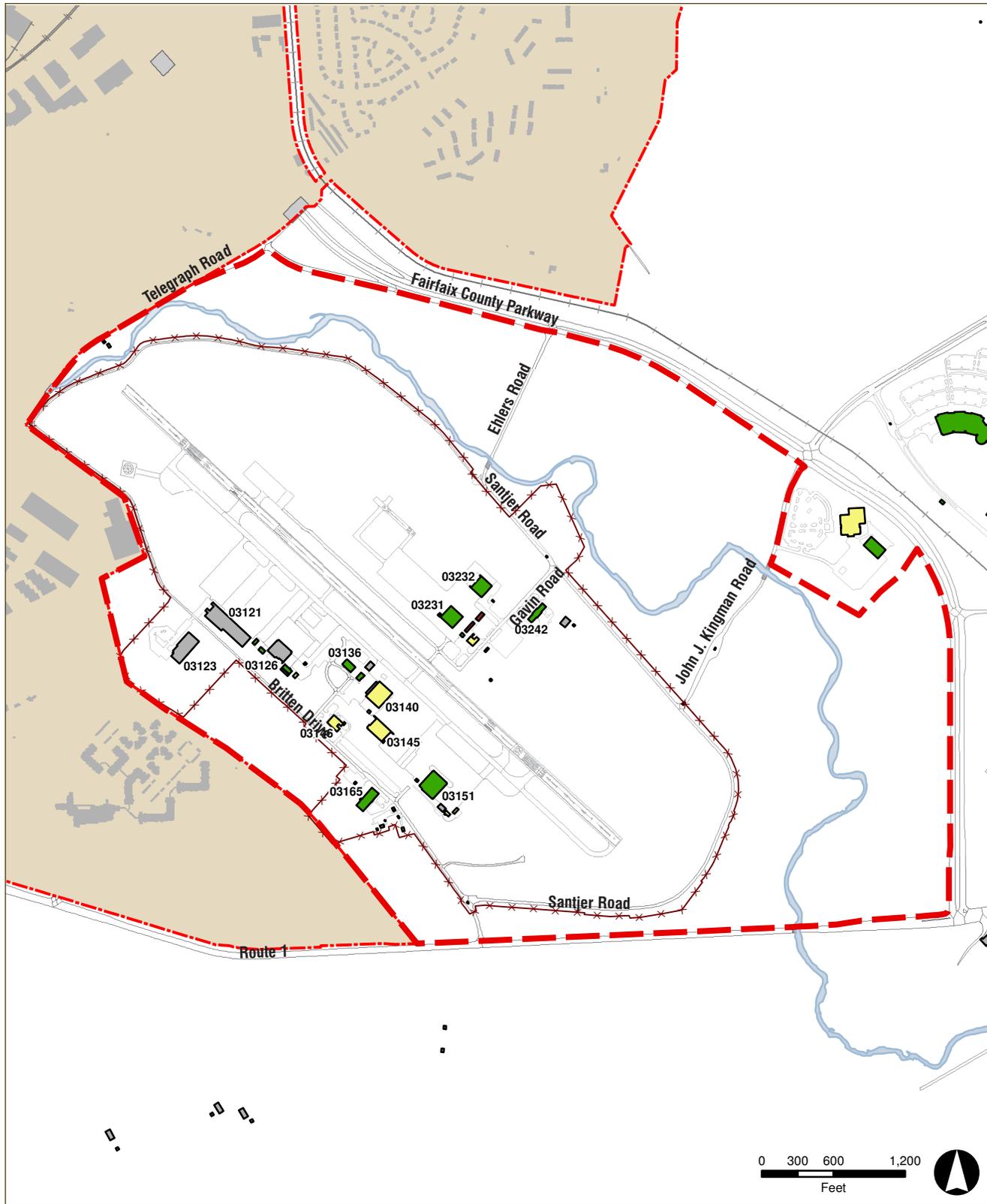
Rating	Definition
Q-1 (Green)	Minor facility condition deficiencies and no significant facility configuration deficiencies, with negligible impact on the capability to support the tenant organizations’ required missions.
Q-2 (Yellow)	Some facility condition deficiencies and/or configuration deficiencies that have limited impact on the capability to support the tenant organizations’ required missions.
Q-3 (Red)	Significant facility condition deficiencies and/or configuration deficiencies that impair the capability to support some of the tenant organizations required missions.
Q-4 (Black)	Major facility condition deficiencies and/or configuration deficiencies that present significant obstacles to the tenant organizations accomplishment of required missions.

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

Table 3.12 - ISR Ratings for Buildings in the ADP Study Area

Facility No.	ISR Rating	Structure Name	Built Date	Address ID	To Be Demolished
3125	Q-1	STORAGE HANDLING EQUIP	1976	6992 BRITTEN DRIVE	
3127	Q-1	STOREHOUSE, GEN PURP	1988	6990 BRITTEN DRIVE	
3128	Q-1	CECOM OPERATIONS BLDG	1984	6980 BRITTEN DRIVE	
3136	Q-1	AFLD OPNS BLDG	1966	6970 BRITTEN DRIVE	
3138	Q-1	HEAT PLANT	1955	6966 BRITTEN DRIVE	
3151	Q-1	AIRCRAFT HANGAR	1961	6910 BRITTEN DRIVE	
3165	Q-1	ADMIN, GEN PURP	1976	6921 BRITTEN DRIVE	
3231	Q-1	AIRCRAFT HANGAR	1958	8932 GAVIN ROAD	
3232	Q-1	AIRCRAFT HANGAR	1960	8920 GAVIN ROAD	
3233	Q-1	HEAT PLANT	1988	8940 GAVIN ROAD	
3238	Q-1	DISTR TRANSFORMER	1958	SANTJER ROAD	
3239	Q-1	AFLD LIGHTING, EQUIP VAULT	1959	8945 GAVIN ROAD	
3242	Q-1	AIRFIELD FIRE STATION	0	GAVIN ROAD	
03130	Q-2	MAINTENANCE SHED	1993	BRITTEN DRIVE	
03140	Q-2	AIRCRAFT HANGAR	1955	6956 BRITTEN DRIVE	
03145	Q-2	AIRCRAFT HANGAR	1970	6930 BRITTEN DRIVE	
03146	Q-2	ACFT FLIGHT SIMULATOR BLDG	1979	6950 BRITTEN DRIVE	
03153	Q-2	ACFT COMPONENT MAINT SHOP	1978	6900 BRITTEN DRIVE	
03154	Q-2	DEICER BUILDING	1992	2606 BRITTEN DRIVE	
03162	Q-2	ACFT FUEL STORAGE, JET FUEL	1961	BRITTEN DRIVE	
03171	Q-2	STOREHOUSE, FLAMMABLE MTRL	1960	BRITTEN DRIVE	
03172	Q-2	RADIO TRANSMITTER	1975	6901 BRITTEN DRIVE	
03237	Q-2	AFLD, FIRE AND RESCUE	1958	8946 GAVIN ROAD	
03150	Q-3	STORHOUSE, GEN PURP	1975	6914 BRITTEN DRIVE	
03170	Q-3	STOREHOUSE, GEN PURP	1958	6915 BRITTEN DRIVE	
03234	Q-3	AFLD OPNS BLDG	1958	8938 GAVIN ROAD	
03235	Q-3	AVN UNIT OPNS BLDG	1958	8926 GAVIN ROAD	
03236	Q-3	STOREHOUSE, FLAMMABLE MTRL	1960	SANTJER ROAD	
03144	Q-4	OXYGEN CART BUILDING	1944	6950 BRITTEN DRIVE	
03230	Q-4	AFLD FLIGHT CONTROL TOWER	1958	8934 GAVIN ROAD	■

Figure 3.11 - Facilities Conditions Map



- x Existing Fenceline - - - Installation Boundary ■ Q-1 ■ Q-3
- - - Airfield Study Limits ■ Not Rated ■ Q-2 ■ Q-4

3.5 Planned Projects

Fort Belvoir is continually undergoing the process of renovating and rehabilitating existing buildings, as well as construction of new facilities. This process ensures that conditions at the Post meet or exceed Army standards for habitation by personnel who live and work there.

Preparing for improvements at existing facilities involves inventory and analysis of current conditions to determine remediation needs. New construction necessitates preliminary planning and design work to establish basic construction parameters. In either situation, the background information gathered allows planning staff to prepare detailed descriptions and cost estimates for funding proposals. Proposals are then issued through the DD 1391 process, which is formally presented for congressional review.

The planned projects in Table 3.13 lists major airfield projects that underwent the 1391 process prior to BRAC. However, current BRAC legislation impacts each of these projects, which may alter their original intent. Careful consideration must be given to the siting of new Fort Belvoir BRAC facilities and those already planned for the Post.

In addition to these projects, the preferred site for the National Museum for the U.S. Army has been moved from EPG to the golf course adjacent to the airfield (see Figure 3.12).

Table 3.13 - Airfield Planned Projects

Project Number	Project Description
62779	Replace Flight Control Tower
70935	TEMP, COF, Motor Pool, 911th Engineer Complex
57532	Replace Airfield Hangar
57537	Replace Airfield Hangar
57533	Replace Maintenance Hangar
57534	Replace Airfield Hangar
43554	Replace Maintenance Hangar

Figure 3.12 - Proposed Museum Siting



3.6 Circulation Patterns

Roadways in and around the study area are categorized into primary roads, secondary roads, and alleys. These designations are defined by roadway characteristics and frequency of use.

DAAF is a discrete entity and is not connected to the rest of the Post. Due to the remoteness and the nature of the land use of the study area, there is very little hierarchy in the existing roadways and vehicular circulation patterns are not very organized. Majority of the on Post roads in the study area are secondary roads, with a few alleys connecting the buildings. Primary roads in the area are located off Post.

Primary Roads

Primary roads provide access into the Post and are heavily traveled. Primary roads in the study area include Fairfax County Parkway, Telegraph Road, and U.S. Route 1. The main access to the airfield is from Fairfax County Parkway through the Farrar Gate.

Secondary Roads

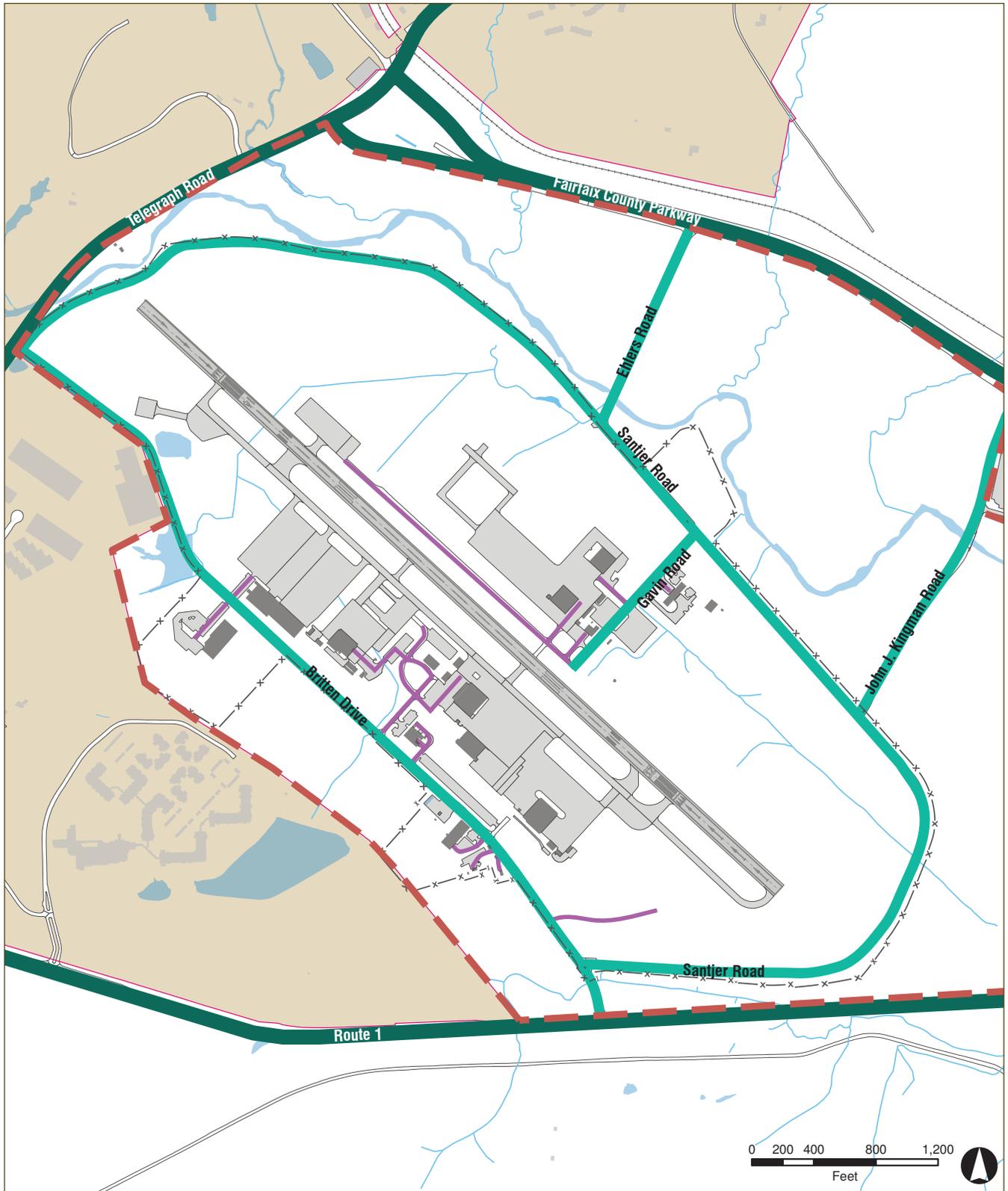
Secondary roads provide access to Post facilities and smaller roads. Secondary roads within the study area include John J. Kingman Road and Ehlers Road which allow access to the area from Fairfax County Parkway, as well as Santjer Road and Britten Drive which form a ring around the airfield development. Gavin Road is also a secondary road as it provides access to multiple facilities and the runway.

Alleys

Alleys are usually single-lane offshoots from secondary roads that provide access to individual buildings. There are a number of alleys in the study area that connect the facilities, aprons, and parking areas to the closest secondary road.

There are no signalized intersections within the study area.

Figure 3.13 - Circulation Map



- ADP Study Limits
- Installation Boundary
- Secondary Roads
- Existing Fenceline
- Primary Roads
- Alleys

3.7 Utilities

It is important to understand the impacts of additional growth on current utility systems. A map of the systems is provided in Figure 3.14 and below is a summary of the supply, distribution, and potential capacity for each of the utilities systems on DAAF.

Water

Existing System - Supply

Fairfax Water delivers potable water to Fort Belvoir at a metering station near Telegraph Road under a wholesale customer agreement. Fairfax County has several supply plants that feed the water system, providing redundancy and reliability to Fort Belvoir.

Existing System - Distribution

The majority of the distribution system was installed in 1940 and is approaching the end of its design life. The water capacity study for Main Post, prepared as a part of the Master Plan, indicates that water capacity and pressure at DAAF are adequate for existing conditions and anticipated expansion.

One known issue on DAAF is that the area is served by a dead end line, which has led to problems with water quality. One recommendation has been to install a loop system.

Natural Gas

Existing System - Supply

Washington Gas supplies natural gas to Fort Belvoir and the surrounding community. The gas company has a robust distribution system in the area that appears capable of providing adequate natural gas. Under a privatization agreement executed in 2006, Washington Gas operates and maintains the distribution system on Post.

Existing System - Distribution

At DAAF, the distribution system is adequate for existing functions. If additional supply is needed in the future, Washington Gas should be able to provide DAAF with additional capacity.

Sewer

Existing System - Trunk Capacity

The sanitary sewer from DAAF ties into the main post sewer system, which feeds to the Fairfax County Lower Potomac Treatment facilities.

Existing System - Collection

Existing sewage collection system is an eight inch main that ties to the Fairfax County trunk sewer on Route 1. A sewage capacity study for the entire Post, prepared as a part of the Master Plan, indicates that the average flows in this main may exceed its capacity. The report recommends that pipe size, slope, and existing flows be verified to determine if there is a capacity problem. If this pipe does not have adequate capacity, any further development around DAAF should provide for replacing this sewer.

Power

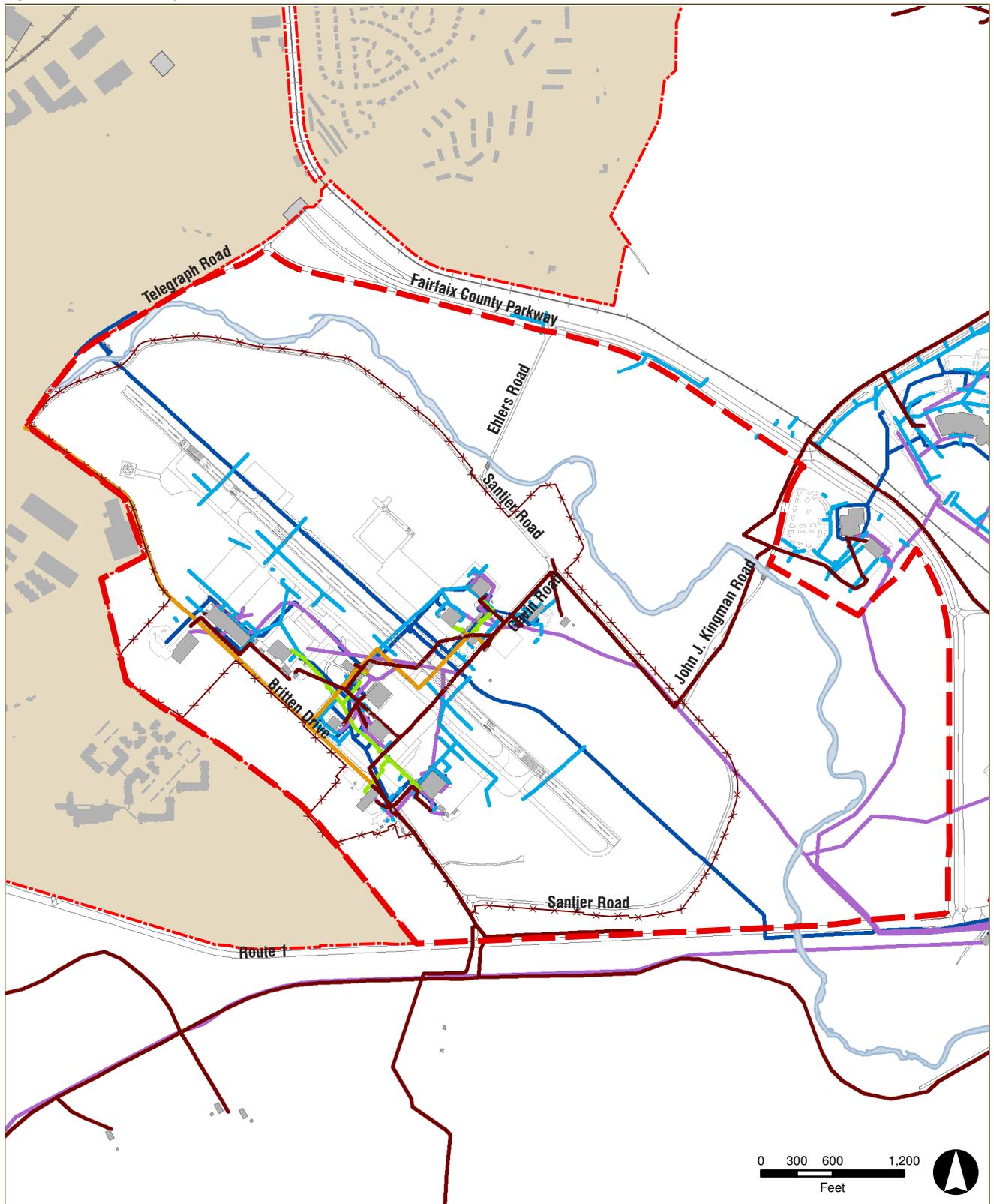
Existing System - Supply

The Main Post of Fort Belvoir is supplied power by Dominion Virginia Power under the rate schedule MS – Federal Government Installations. The power is delivered from a single main substation (Belvoir Substation) at 34.5 kV to four 34.5 kV feeders. Under a privatization agreement executed in 2006, Dominion Virginia Power operates and maintains the distribution system on Post, and is able to provide electrical service to individual facilities throughout the post.

Existing System - Distribution

At DAAF, the distribution system is currently adequate for existing functions. If additional supply is needed in the future, Dominion Virginia Power should be able to provide DAAF with additional capacity.

Figure 3.14 - Utilities Map



- x — Existing Fenceline
- ADP Study Limits
- Installation Boundary
- Water Line
- Waste Water Line
- Storm Water Line
- HCS Line
- Natural Gas Line
- Electrical Line
- Fuel Tank

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Program Requirements

4

CHAPTER

This chapter focuses on the program requirements for the Airfield ADP. To best determine anticipated needs and space projections, the requirements were gathered through a series of interviews and meetings with each tenant organization and the consultant team (see Appendix B and E).

4.1 Existing Tenants and Functions

Much of the land within the study area is constrained by environmental constraints and/or airfield restrictions (such as FPS, ACTS, and UFC standards). The airfield was constructed prior to the adoption of current design regulations, such as the UFC requirement for a primary surface requiring a 500 foot setback from the runway centerlines. Upgrading the airfield to modern design standards will actually require the relocation of several existing buildings that presently fall within the primary surface (see Figure 6.2). This situation reduces the number of facilities allowed to maintain their current condition.

Facilities/functions proposed to be retained in their current condition:

- Building 3121 - Aircraft maintenance hangar for DC ANG
- Building 3123 - Armory for the DC ANG
- Building 3201, 3260 - These facilities are associated with the existing access control point
- Building 3240, 3242 - These facilities house and support the DAAF's fire company

Discussions at the first Airfield ADP meeting held on 30 November 2006, generated a list of some of the facts, assets, and liabilities of the DAAF, and provided some recommendations for improving its continued service to the Military District of Washington (Minutes from this meeting are included as Appendix E).

Existing Assets:

- Proximity to other military locations/forces within the D.C. Metropolitan area's
- Access to regional roads

Existing Liabilities:

- Portions of the airfield's runway and taxiway are within a 100-year flood plain
- Aging utilities and infrastructure need to be replaced/upgraded
 - Air Traffic Control Tower needs to be replaced (currently a programmed 1391 project)
 - Water and sewer lines should be upgraded
- Parking
 - Parking on flight line, the area for servicing and conducting maintenance on airplanes (parking ramps and hangars), is a security issue
- Airfield operations can reduce the wild game population in the area
- Tree growth penetrates the horizontal space requirements reducing the capabilities of the airfield

Near-term Planning Recommendations:

- Tenant activities include: Civil Air Patrol, DC ANG, Night Vision & Electronic Sensor Directorate (NVESD), 12th Aviation Battalion, and OSAA/OSACOM, 911th Engineer Complex
- Funding needs to be assigned to safety and maintenance for new aircraft
- The water tower is to be demolished
- An additional hangar and a new flight tower is needed
- DC ANG needs storage
- Facilities need electrical upgrade, water pressure, and fire suppression
- Flooding should be mitigated on the NW end of DAAF
- A noise study needs to be funded (approximately \$50K), as the fleet has been modernized since the last study



Davison Army Airfield



Davison Army Airfield

Long-term Planning Recommendations:

- Tenant activities include: DC ANG, NVESD, 12th Aviation Battalion, and OSAA/OSACOM, 911th Engineer Complex.
- Aviation Med. Center - The AeroMed Clinic used to be on airfield. It is still being discussed if this facility should be relocated back to airfield.
- Anticipate growth and mission changes for 2050.
- Additional aircraft are anticipated for 2008. Plan for full authorization, build-out capacity and an additional 30 aircraft (* see note below).
- Plan for 911th Engineer Company, unless a more suitable site becomes available.
- Other missions/aircraft that need to be accommodated in the future are:
 - Emergency mission to stage and support other forces
 - Black Hawk helicopter
 - OSAA/OSACOM – going through modernization of fleet – need information and timeline
 - Light Utility Helicopter (LUH) – DC Army National Guard
 - All services train here, use rappel tower
 - Technical rescue with classified mission to respond (training site proposed for them here)

**Note: Plans for additional aircraft coming in 2008 are considered in the long term planning and require new parking aprons and hangars to be implemented for these numbers.*

4.2 Programmed Projects

The Airfield ADP is an integral part of the RPMP for Fort Belvoir. This study incorporates proposed projects described in various plans, including the SRC and LRC. Table 4.1 lists proposed SRC and LRC Projects.

Table 4.1- Proposed SRC and LRC Projects to be located in the Airfield Study Area

1391 Project Number	Project Name	PROJECT DESCRIPTION/ (COMMENTS)	FUNDING SOURCE	OVERALL SIZE (GSF)	SIZE (GSF/ PN)	CWE	1391 PROGRAM YEAR (FY)
Short Range Projects							
62779	Flight Control Tower	Replace Flight Control Tower at DAAF. (Project submitted for Unspecified Minor Military Construction, Army (UMMCA) funding under health/safety criteria).	MCA	4,500		\$7.4 M	2014
70935	TEMP, COF, Motor Pool, 911th Engineer Complex	Construct an engineer company operations building and maintenance complex.	MCA	30,089 SF		\$8 M	2014
57532	AV MF, Aircraft Maintenance Hangar	Replace airfield hangar at DAAF	MCA	TBD		\$8.1 M	2014
57537	AV MF, Aircraft Maintenance Hangar	Replace airfield hangar at DAAF	MCA	TBD		\$8.3 M	2014
Long Range Projects							
57533	AV MF, Aircraft Maintenance Hangar	Replace maintenance hangar at DAAF	MCA	TBD		\$8.3 M	2015
57534	AV MF, Aircraft Maintenance Hangar	Replace airfield hangar at DAAF	MCA	TBD		\$8.3 M	2015
43554	Replace Maintenance Hangar	Replace maintenance hangar at DAAF	MCA	TBD			
Total				34,589 SF			

4.3 Tenant Requirements

To accommodate the future needs and missions at DAAF, the airfield personnel and airfield tenants provided initial planning and requirement documentation (see Appendix B). This initial information was the basis for determining the facility requirements for DAAF and the determination between the allowances and requirements for each tenant.

Allowances (Authorized Requirements)

Each criteria needed for DAAF has a trigger that generate specific allowances (i.e. the number of aircraft, number of pilots, number of aviation mechanics units with the airfield tenant). Triggers are based on the Facility Planning System (FPS), Army Criteria Tracking System (ACTS), and other reference documents. These documents define the GSF (Gross Square Feet) or SY (Square Yards) allowed for each trigger. These resulting numbers are the allowances.

Note: Calculating allowances can only be done for major facility categories.

Requirements

When criteria are not triggered by the assigned equipment or personnel, but are still needed, they are considered a requirement. These requirements are user-unique. For example, a tenant may need more covered parking than what is allowed because weather sensitive equipment needs to be protected. Allowances are first used as the base, then the requirement set by the user-unique needs is added, resulting in the requirement. The Requirements for DAAF were gathered from tenant interviews.

Summary

As developable land is limited within the Airfield Study Area, guidance was given to use both the allowances and requirements for planning, to enable all tenant facilities to be sited at DAAF. The next section defines each of DAAF's individual tenant's requirements in greater detail, including the number of personnel, aircraft, facility requirements.

Through the planning process it was determined only a certain amount of square footage could be sited around the runway and taxies. This resulted in standard footprints for each of the proposed options. These calculations are represented in the options column of Tables 4.3, 4.5, 4.7, 4.9, 4.11, and 4.13.

Additional detail on calculations leading to the allowances and requirements, including summary tables, are in Appendix F.

Description of Allowances & Requirements by Tenant

12th Aviation Battalion

Composed of 4 aviation companies and one engineer company (currently located outside DAAF's fence line), the 12th provides rotary wing aviation support to the Department of the Army, and other federal agencies in the Military District of Washington (MDW) area. Operations include conducting contingency operations as required, aircraft maintenance, airfield operations, and air traffic control at the DAAF and Pentagon Heliport. Tables 4.2 and 4.3 outline the specific requirements for the future needs of the 12th.

12th Avn Allowances

- Rotary wing (RW) parking is based on 85 percent of aircraft assigned.
- Four company headquarters in FPS.
- Allowance for Aviation Unit Maintenance (AVUM) hangar is 0 GSF because maintenance is performed by contractor. The presence of mechanics on Table of Distribution and Allowances (TDA) or Modification Table of Organization and Equipment (MTOE) will trigger maintenance facilities.

12th Avn Requirements

- Company Headquarters include GSF for relocating the engineer company to the airfield.
- Requirement for AVUM hangar is based on 20 percent of the assigned aircraft and includes space for special shops, parts storage, maintenance administration and hangar floor.
- Non-organizational parking is increased to accommodate fifth company.

Table 4.2 - 12th Aviation Battalion - Population and Aircraft

DESCRIPTION	TOTALS
Personnel Total	207
Military	110
Civilians	97
Contractors	0
Aircraft	
UH-60A Blackhawk	23

Table 4.3 - 12th Aviation Battalion - Summary of Allowances, Requirements, and Options' Program

CAT CODE	Description	UM	Allowed	Required	Option*
11320	RW Parking Apron	SY	34,489	34,489	34,489
11370	A/C Washing Apron	SY	970	970	970
14112	Avn Unit Opns	GSF	8,028	8,028	8,028
14183	BN Hq	GSF	8,590	8,590	8,590
14185	Co Hq	GSF	14,468	18,085	18,085
17119	Bn Classroom	GSF	4,119	4,119	4,119
21110	AVUM Hangar	GSF	0	110,837	110,837
44224	Org Storage	GSF	26,884	26,884	26,884
61050	Admin GP	GSF	7,290	7,290	7,290
85215	Non-Org Parking	SY	11,235	14,980	14,980
85210	Org Veh Parking	SY	2,938	2,938	2,938

*Note: Numbers represent the goal for development for all options

Night Vision and Electronic Sensor Directorate (NVESD)

The NVESD Aviation Test Facility is a major application area for developing technologies in both pilotage and target acquisition systems for current and future Army aircraft. To accomplish its mission, NVESD maintains facilities and personnel that can integrate system technology into various Army aircraft. Flight operations at DAAF, then enable the testing of those systems in an airborne environment. Table 4.4 and 4.5 outline the necessary aviation support facilities, equipment, and personnel needed for integration, development, test, data collections, and demonstrations of airborne assets.

NVESD Allowances

- Fixed Wing (FW) and RW parking are based on 85 percent of aircraft assigned.
- Allowance for AVUM hangar is based on 20 percent of the assigned aircraft and includes space for special shops, parts storage, maintenance administration and hangar floor.

NVESD Requirements

- Requirement for AVUM hangar is based on 100 percent of the aircraft and includes space for special shops, parts storage, maintenance administration and hangar floor.
- Increase in unmanned aerial vehicle (UAV) maintenance and storage GSF per user.

Table 4.4 - NVESD - Population and Aircraft

DESCRIPTION	TOTALS
Personnel Total	26
NCO	2
Civilians	10
Contractors	14
Aircraft	
DHC-6 Twin Otters	3
YEH Blackhawk	1
UH-60A Blackhawk	1
UH-1 Huey	2

Table 4.5 - NVESD - Summary of Allowances, Requirements, and Options' Program

CAT CODE	Description	UM	Allowed	Required	Option*
11310	FW Parking Apron	SY	9,289	9,289	9,289
11320	RW Parking Apron	SY	12,300	12,300	12,300
11370	A/C Washing Apron	SY	970	970	970
14112	Avn Unit Opns	GSF	5,877	5,877	5,877
21110	AVUM Hangar	GSF	29,401	41,142	29,401
21115	UAV Maint & Storage	GSF	1,800	5,000	1,800
44224	Org Storage	GSF	3848	3848	3848
85215	Non Org Parking	SY	500	735	500

*Note: Numbers represent the goal for development for all options

OSAA and OSACOM

The Operational Support Airlift Command (OSACOM) is one of the Detachments for the District of Columbia National Guard Army Aviation Command. This Detachment continues to provide support to the MDW area by supporting CONUS and Outside of the continental United States (OCONUS) operations as they are assigned. In a contingency scenario, DET 4 can revert to the control of the Commanding General, DC ANG, as necessary. Tables 4.6 and 4.7 show the necessary future requirements.

Table 4.6 - OSAA and OSACOM - Population and Aircraft

DESCRIPTION	TOTALS
Personnel Total	120
Commissioned	17
WO	18
Enlisted	43
AC WO Augmented	10
Civilian	32
Aircraft	
C-12	3
U-35	2
Transient Aircraft	5

OSAA and OSACOM Allowances

- FW parking is based on 85 percent of aircraft assigned.
- Allowance for AVUM hangar is based on 20 percent of the assigned aircraft and includes space for special shops, parts storage, maintenance administration and hangar floor.

Table 4.7 - OSAA & OSACOM - Summary of Allowances, Requirements, and Options' Program

CAT CODE	Description	UM	Allowed	Required	Option*
11310	FW Parking Apron	SY	11,000	21,267	11,000
11370	A/C Washing Apron	SY	733	733	733
14112	Avn Unit Opns	GSF	3,834	3,834	3,834
21110	AVUM Hangar	GSF	22,910	51,750	22,910
44224	Org Storage	GSF	17,520	17,520	17520
61050	Admin GP	GSF	18,306	18,306	18,306
85215	Non-Org Parking	SY	2,520	3,360	2,520

*Note: Numbers represent the goal for development for all options

OSAA and OSACOM Requirements

- FW parking is based on 85 percent of aircraft assigned and six transient parking spaces.
- Requirement for AVUM hangar is based on 100 percent of the aircraft and includes space for special shops, parts storage, maintenance administration and hangar floor.

DC ANG

The District of Columbia National Guard Army Aviation Command performs a variety of functions including pay and administrative support, unit training, readiness and supply operations, aviation safety, aircrew training, and aircraft maintenance/repair shops. Current missions are critical to national security, and the successful contingency operations at a national level. DC ANG must be able to assemble needed relief helicopters and cargo airplanes; load and off-load large numbers of people and supplies; and must house and support these vast operations. Tables 4.8 and 4.9 illustrate the needed requirements that will enable DC ANG to fulfill its mission as part of the Joint Reception, Staging, Onward movement and integration (JRSOI) concept within District of Columbia.

DC ANG Allowances

- FW and RW are based on 85 percent of aircraft assigned.

DC ANG Requirements

- FW parking is based on 85 percent of aircraft assigned and a change in aircraft type.
- RW parking is based on 85 percent of aircraft assigned and six transient spaces.

The DC ANG should continue to use their existing facilities.

Table 4.8- DC ANG - Population and Aircraft

DESCRIPTION	TOTALS
Personnel Total	146
Det B-1, 1-222th S&S Bn	23
121st Med Co	110
Det 4, OSACOM	8
JFHQ-Avn	5
Aircraft	
OH-58A (Det B-1, 1-224th S&S Bn)	2
UH-1 121st Med Co (-)	9
UH-1 121st Med Det (Delaware)	6
C-26B Det 4, OSACOM	1
UH-145 Future A/C assignment (UH-60 criteria) Det B-1, 1-224th S&S Bn	2
LUH-72A Future A/C assignment (UH-60A criteria) 121st Med Co (-)	12
C-27 Future A/C assignment (C-130 criteria) Det 4, OSACOM	1

Table 4.9 - DC ANG - Summary of Allowances, Requirements, and Options' Program

CAT CODE	Description	UM	Allowed	Required	Option*
11310	FW Parking Apron	SY	6,133	8,727	6,133
11320	RW Parking Apron	SY	20,267	23,111	20,267
11370	A/C Washing Apron	SY	970	970	0
14112	Avn Unit Opns	GSF	3,060	3,060	0
17180	NG Readiness Center	GSF	51,230	51,230	0
21110	AVUM Hangar	GSF	65,110	65,110	0
44224	Org Storage	GSF	21316	21,315	21,315
85215	Non-Org Parking	SY	3,080	4,095	0
85210	Org Parking	SY	2,938	2,938	0

*Note: Numbers represent the goal for development for all options

Civil Air Patrol

Civil Air Patrol (CAP) is comprised of volunteers that form the Mount Vernon Squadron, a sub unit of National Capital Wing. Because this is an auxiliary of the Air Force, CAP activities are granted authorized use of military installations. This is a small function at DAAF, and maintains a small ramp, and limited administrative space. Future requirements are not expected to increase in the future, and are outlined in tables 4.10 and 4.11.

Table 4.10 - CAP - Population and Aircraft

DESCRIPTION	TOTALS
Personnel Total	5
Civilian	5
Aircraft	
Cessna 172	2
Cessna 182	1

Table 4.11 - CAP - Summary of Allowances, Requirements, and Options' Program

CAT CODE	Description	UM	Allowed	Required	Option*
11310	Fixed Wing Parking Apron	SY	9,289	9,289	0
14112	Aviation Unit Operations	GSF	2,310	2,310	0
21110	AVUM Hangar	GSF	4,336	4,336	0
85215	POV Parking	SY	595	595	0

**Note: Numbers represent the goal for development for all options*

Davison AAF

The airfield is a joint operation comprised of five independent operational flying units. Each unit has a primary responsibility for supporting the Military District of Washington/National Capitol Region (MDW/NCR) missions, CONUS Senior Leadership shuttles, and transient aircraft. Special operations and training using, both fixed and rotary wing aircraft occur here, as well as providing the closest emergency landing airfield to Washington D.C. Tables 4.12 and 4.13 show the requirements for future growth.

DAAF Allowances

- With no aircraft assigned to DAAF, FW and RW parking allowance is 0 SY.
- Flight Control tower is based on DD Form 1391.
- Airfield Operations facility includes space for flight planning, weather briefings, flight surgeon and VIP waiting area.

DAAF Requirements

- Flight Control tower is based on DD Form 1391.
- FW parking is based on five spaces to accommodate up to a C-130 aircraft.
- RW parking is based on five spaces to accommodate up to a UH-60 aircraft.
- Organizational storage was identified by user (10K for GSE storage, 2.5K for ATC storage and 5K for Alert facility)
- Airfield Operations facility includes space for flight planning, weather briefings, flight surgeon and VIP waiting area.

To accommodate siting constraints, FW and RW parking were reduced to accommodate up to two C-130 aircraft and up to two UH-60 aircraft. These changes are reflected in the Option column.

Table 4.12 - Davison AAF - Population and Aircraft

DESCRIPTION	TOTALS
Personnel Total	Included in 12th Aviation Battalion
Aircraft	
Assigned to Davison	35
Transient Aircraft	7

Table 4.13 - DAAF Base Ops - Summary of Allowances, Requirements, and Options' Program

CAT CODE	Description	UM	Allowed	Required	Option*
	FW Parking Apron	SY	0	48,972	28,062
11320	RW Parking Apron	SY	0	11,100	7,500
	AC Compass Swing	SY	1,600	1,600	**
	Flight Control Tower	SF	4,500	4,500	4,500
14110	Airfield Opns	GSF	7,785	7,785	7,785
44224	Org Storage	GSF	0	17,500	17,500
85215	Non-Org Parking	SY	700	1,680	1,680

*Note: Numbers represent the goal for development for all options

** The AC Compass Swing will be sited by the airfield at an appropriate location and time as development occurs

4.4 Displaced Facilities

There are no airfield facilities that will be displaced from other areas of the installation that need to be located at the airfield. The only use which would be beneficial in siting at the airfield is the 911th Engineering Company's vehicle maintenance shop.

4.5 Program Summary

The following tabulation is a summary of uses and facilities provided by the airfield personnel and tenants, and as modified by the authorized requirements.

Hangars w/Avn Unit Ops.	180,887 GSF
Admin Functions	68,675 GSF
Storage/Maintenance*	118,089 GSF
Total New Construction	368,518 GSF
Total Buildings Retained	88,000 GSF
Documented Program (Tenant Requirements)	456,518 GSF

* Includes 911th Engineer Complex

4.6 Building Type Recommendations

Discussion with the stakeholders and the user survey results indicate that many of the existing tenants require aircraft hangars, aircraft maintenance, administrative, and enclosed storage space to support their current mission. Belvoir's future growth of its workforce population will have a minimal impact to DAAF. As mission requirements grow, new hangars, parking aprons, and support buildings will need to be designed in a manner that the tenants can efficiently use their facilities. In summary, DAAF area requires a variety of facilities consisting of mostly hangar space and storage space designed to support the aircraft housed within.

Table 4.14 - Program Summary

Tenant	Hangars w Avn Unit Ops.	Admin Functions	Storage/Maintenance	Apron	Parking
12th Aviation Battalion	118,865 GSF	38,084 GSF	26,884 GSF	35,459 SY	14,173 SY
NVESD	35,278 GSF	0 GSF	5,648 GSF	22,559 SY	500 SY
OSAA & OSACOM	26,744 GSF	18,306 GSF	17,520 GSF	11,733 SY	2,520 SY
DC ANG	0 GSF	0 GSF	21,315 GSF	26,400 SY	0 SY
Civil Air Patrol	0 GSF	0 GSF	0 GSF	0 SY	0 SY
DAAF	0 GSF	12,285 GSF	17,500 GSF	35,562 SY	1,680 SY
Total	180,887 GSF	68,675 GSF	*118,089 GSF	131,713 SY	18,873 SY

* Includes 911th Engineer Complex

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Planning Principles

5 CHAPTER

5.1 Overview

Only airfield functions are to be located in the ADP study area. This limits the opportunity to use all of the Leadership in Energy and Environmental Design for Neighborhood Development (LEED ND) principles as a basis for planning and development. Although, typical LEED building principles are still applicable.

5.2 LEED Principles

The Belvoir New Vision master plan embraces many principles from appropriate and compact development organized by connected street grids to accessible open space. The recently established LEED ND pilot program is aligned with these principles and provides a open forum to further organize and raise awareness of these complex and comprehensive issues. The LEED ND system emphasis is to:

- Revitalize existing urban areas
- Reduce land consumption
- Reduce automobile dependence
- Promote pedestrian activity
- Improve air quality
- Decrease polluted stormwater runoff

Each project greater than 20 acres should meet the requirements of the LEED ND certification based on the criteria established in the checklist. A sample checklist is included in Appendix G as a guide.

Airfield Areas & LEED ND

Locating all airfield buildings and related uses to one centralized area allows for greater efficiency of the land for shared facilities and building designs to support airfield functions. Collocating facilities with similar uses or facilities used by the same tenant also contributes to an efficient design and use of the land.

The reuse of old buildings (outside the 500' restricted area) instead of building new is an established sustainable practice. Determining which existing buildings in the Airfield Study Area can be reused will require an assessment of the building's condition and the cost to renovate it to meet specific tenant criteria.

Options 1, 2, 3, and the preferred plan all provide for the reuse of existing buildings. Although none preserve the historic buildings as they are located within the restricted areas set by airfield constraints, specifically the primary surface. This UFC design criteria requires that they be demolished so that airfield operations are not inhibited and proper safety is maintained.

5.3 Sustainable Principles

The following are LEED standards that relate to the Airfield Study Area and should be considered during the implementation phase:

- Evaluate existing airfield facilities for continued use and reuse
- Evaluate new construction implementation methods for:
 - Green roofs on new large storage buildings
 - Erosion and sedimentation control
 - Fundamental building systems commissioning
 - Minimum energy performance
 - Chlorofluorocarbons (CFC) reduction in Heating, Ventilating, Air Conditioning, & Refrigeration (HVAC&R) equipment
 - Storage and collection of recyclables
 - Minimum Indoor Air Quality (IAQ) performance
 - Environmental Tobacco Smoke (ETS) control
 - Porous paving for surface parking
- Enforce site planning strategies for new development that:
 - Reduce environmental impacts of surface parking for aircraft and POVs
 - Provide alternative transportation
 - Protect open space and reduce site disturbance by reducing development footprint
 - Implement stormwater management to control flow-rate and treatment
 - Landscaping to reduce heat impacts
 - Create water-efficient landscaping
 - Reduce water use
 - Use renewable energy
- Identify suitable existing building facilities that can be renovated to meet the following sustainable principles:
 - Whole-building cleaning and maintenance issues, including chemical use
 - On-going indoor air quality

- Energy efficiency
- Water efficiency
- Recycling programs and facilities
- Exterior maintenance programs
- Systems upgrades to meet green building energy, water, IAQ, and lighting performance standards

Sources:

1. www.usgbc.org downloaded on May 17, 2007
2. The U.S. Green Building Council, LEED NC Application Guide for Multiple Buildings and On-Campus Building Projects, October 2005
3. The U.S. Green Building Council, Green Building Rating System for New Construction and Major Renovations (LEED NC), Version 2.1, March 2003
4. The U.S. Green Building Council, Green Building Rating System for Existing Buildings, Upgrades, Operations and Maintenance, Version 2, July 2005

5.4 Land Use & Building Development Principles

The following standards relate to the Airfield Study Area and should be considered during the future planning and implementation phases:

- Organize airfield mission essential uses (i.e. aircraft hangars) closest to the runway and establish more office/storage/community uses further from the runway. These zones are shown in Figure 6.3.
- Develop an efficient street and open space patterns (i.e. street block) that can support airfield functions.
- Utilize existing facilities wherever practical (including infrastructure, utilities, road access, and renovation of existing buildings).
- Minimize paved areas through efficient use of parking, vehicular access, and outdoor loading areas. Incorporate green islands to reduce heat, glare and stormwater runoff.
- Minimize operational impacts on adjacent uses by creating landscape buffers between different uses.
- Integrate flexible planning solutions that accommodate unforeseen requirements of diverse users.
- Comply with UFC Criteria on security measures and stand-off requirements.
- Comply with FPS and ACTS Criteria.
- Provide locations for near-term facilities in accordance with 1391 program requirements.
- Provide adequate buffering and screening along installation boundary.

5.5 Transportation Principles

- To facilitate traffic flow through DAAF with a new and improved service road.
- Maintain and improve existing Access Control Points (ACPs) to accommodate increased traffic volumes and prevent queuing onto Fairfax County Parkway.
- To improve traffic flow of aircraft on the airfield.

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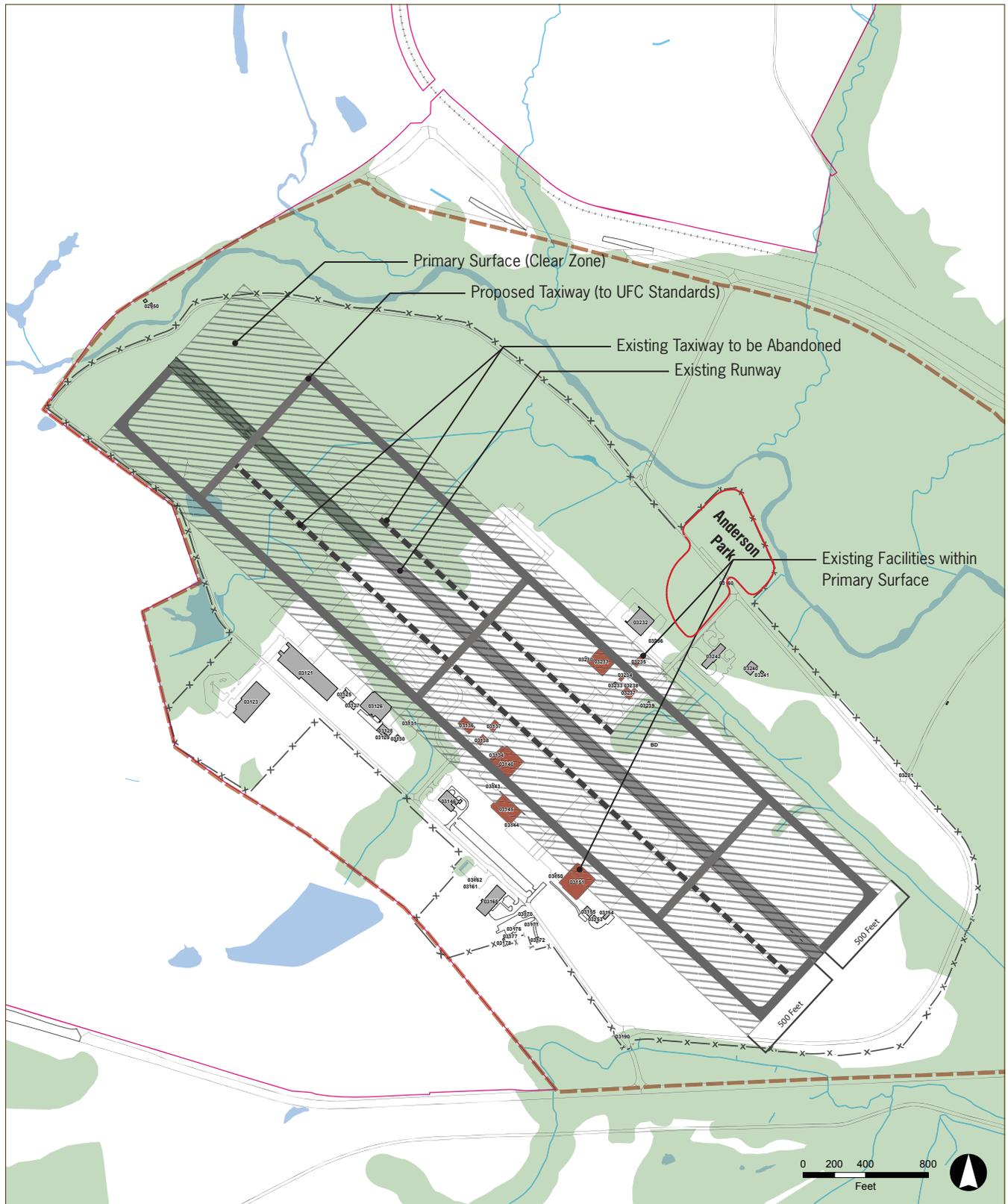
Planning Framework

6 CHAPTER

6.1 Overview

Before arriving at the preferred plan, several alternatives were explored in order to ensure all implications of a siting decision were understood and different means of achieving the common planning principals were illustrated. Each alternate scheme generates varying amounts of new building construction based on the amount of space designated for outdoor motor pools and storage. New building efficiencies are also affected by the building size and the amount of existing buildings that may be preserved. Evaluation criteria for the alternative plans is based on the planning principles which were discussed in Chapter 5. This criteria is further discussed in Chapter 7, Evaluation of Alternatives.

Figure 6.2 - UFC Airfield Constraints

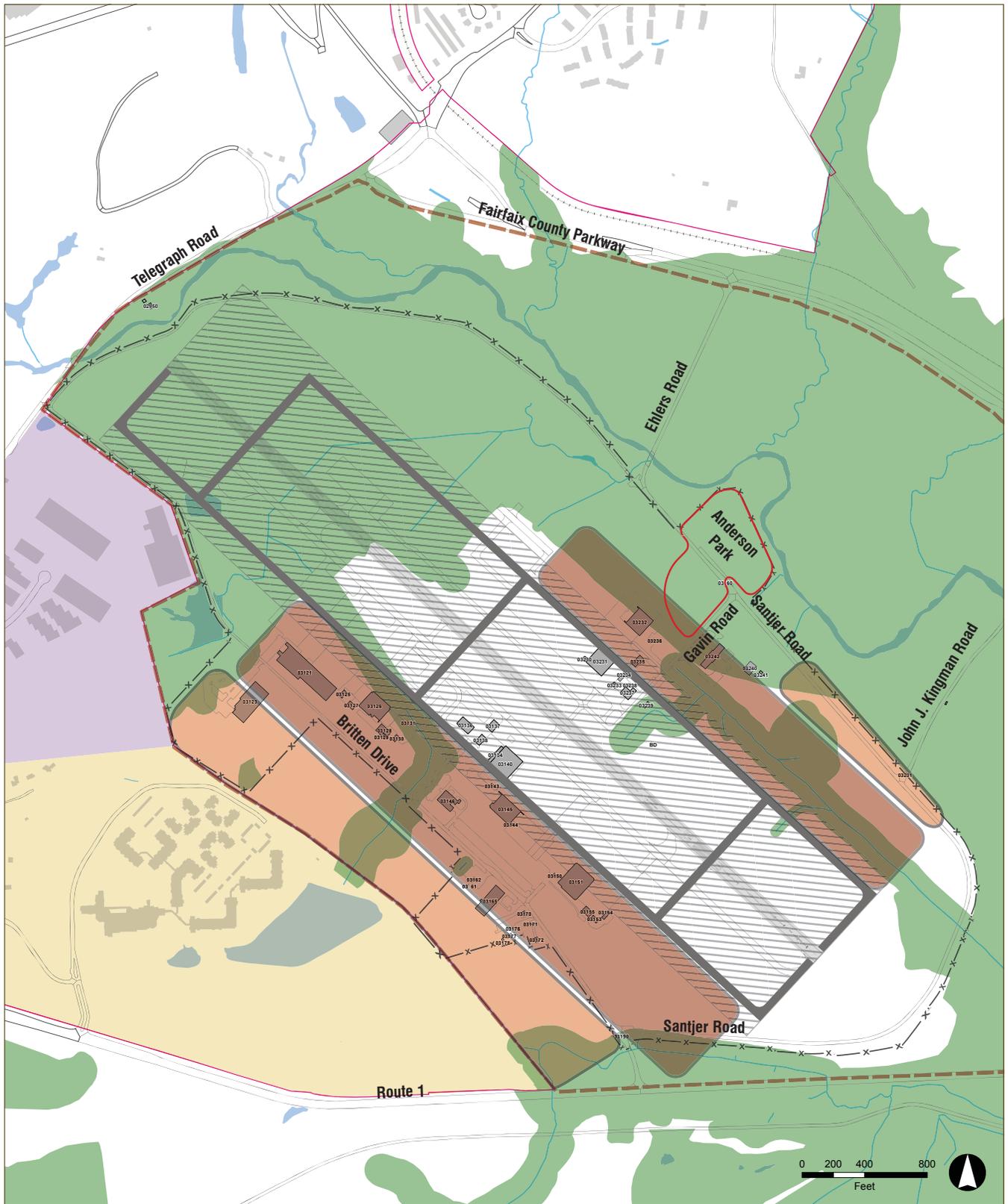


- | | | |
|-----------------------------|----------------------------------|---|
| Installation Boundary | Environmental Constraints | Existing Buildings (to be removed) |
| Existing Airfield Fenceline | Existing Building | Note: Existing buildings within the 500' clear zone need to be removed. |
| Study Area | Airfield Constraints (500' zone) | |
| Proposed Taxiway | Existing Taxiway | |

6.4 Framework Plan Options 1, 2, and 3

All options focus on trying to accommodate the required program while complying with regulatory standards for a Class A airfield. The limited land available for expansion at the airfield impacted the planning approach by minimizing the variety between options. The hierarchy of all the plans focuses on the frequency which a function is needed for airfield operations. Functions transition from important to daily airfield operations (Airfield Essential) to functions not needed on a daily basis (Airfield Support). These areas are shown in Figure 6.3 Functional Land Use.

Figure 6.3 - Functional Land Use Diagram



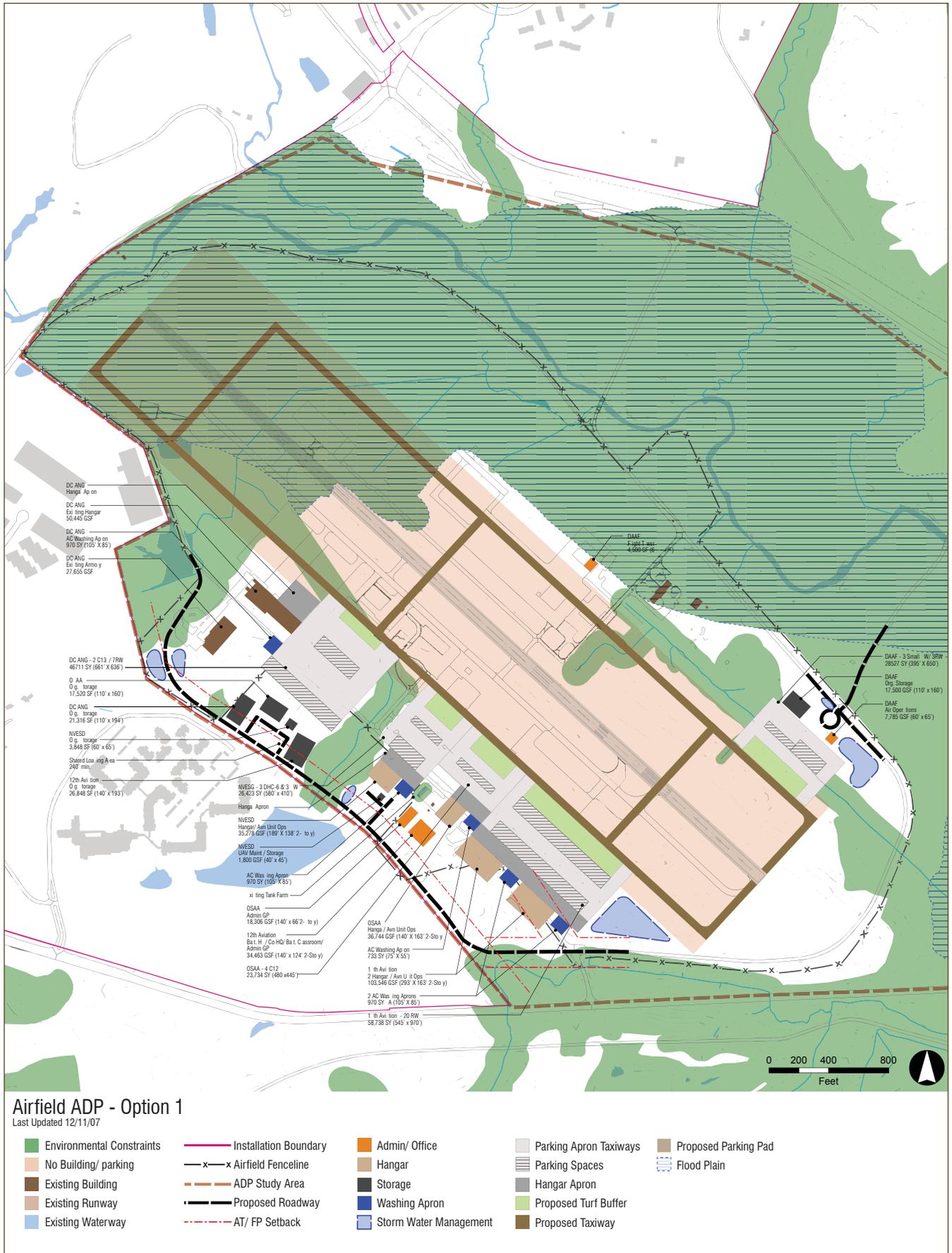
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|-----------------------------|---------------------------|---------------------------|-------------------------|------------------------------|
| Installation Boundary | Environmental Constraints | Airfield Essential | Airfield Support | Adjacent Neighborhood |
| Existing Airfield Fenceline | Existing Building | - Hangar | - Admin | - Industrial |
| Study Area | Airfield Constraints | - Parking Apron | - Storage | - Residential |
| Proposed Taxiway | | - Taxiways | - POV Parking | |
| | | - Washing Apron | | |

Option “1” Description:

Organizing elements of this option are: the existing road network; some existing buildings; environmentally constrained land (the majority being impacted by flood plains and RPA boundaries); and use of the facilities.

Table 6.1 - Pros & Cons for Option 1	
Pros	Cons
Land Use & Building Strategy	
Consolidated storage on west site	No area for expansion on west side
Base operations is in an ideal location at entrance for easy access by VIPs and guests	Development on hillside will result in increased cost and possibly the use of retaining walls
Centralized tenant admin	
Operations	
Meets UFC guidelines for runway and taxiway	Mixed RW and FW parking
Maintains existing fuel storage	
Environmental/Sustainable	
Floodplains are impacted only by paved surfaces	RPA and floodplains are impacted
	Sloped areas are impacted
	Clearing & grading associated with development will result in loss of natural buffers
	Proposed taxiways will affect noise contours
Program	
Allowances were accommodated	Some Requirements were not met

Figure 6.4 - Option 1 Conceptual Plan

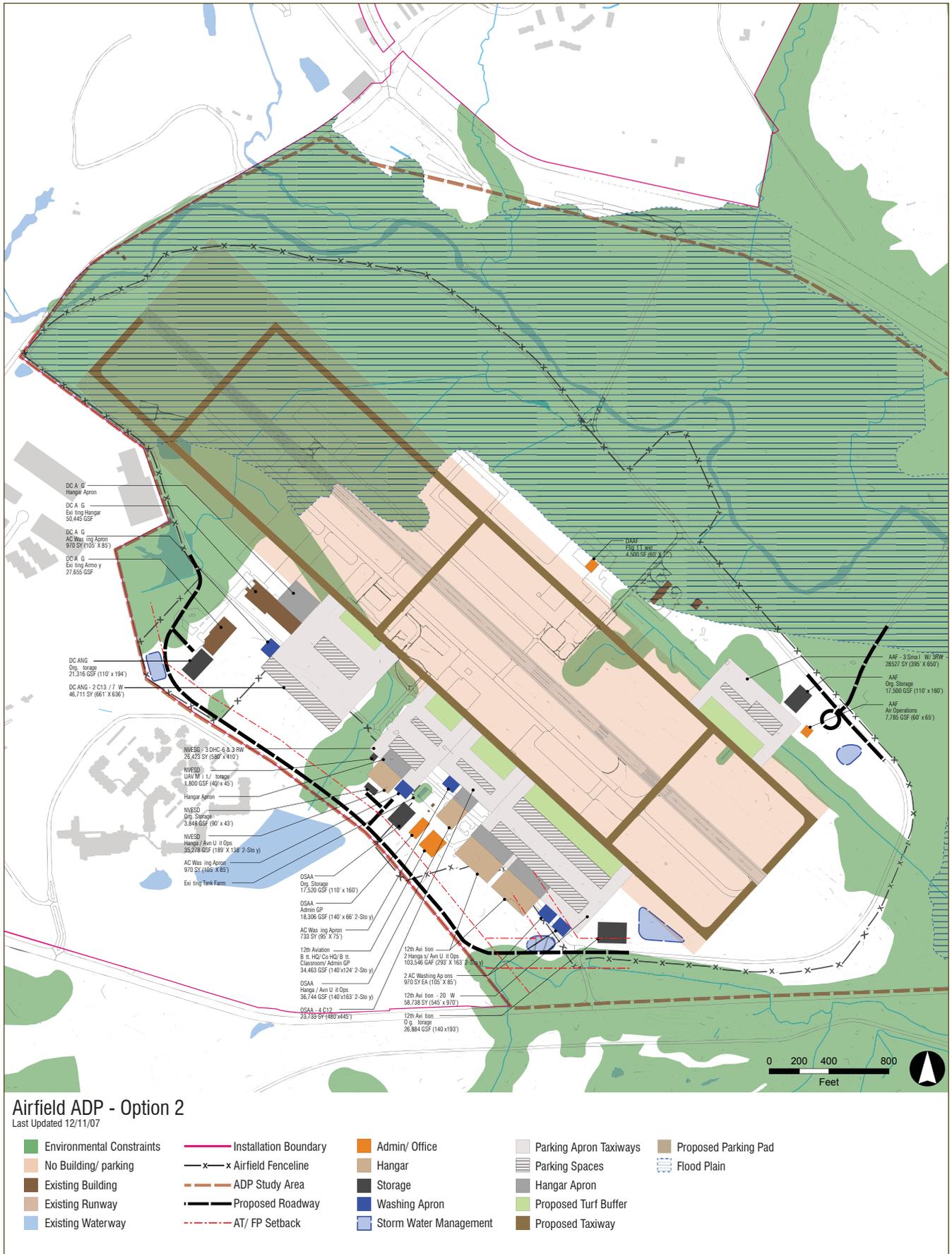


Option “2” Description:

Organizing elements of this option are: the existing road network; some existing buildings; environmentally constrained land (the majority being impacted by flood plains and RPA boundaries); and tenants of the facilities.

Table 6.2 - Pros & Cons for Option 2	
Pros	Cons
Land Use & Building Strategy	
Area for expansion on west side	Dispersed storage on west side
Base operations is in an ideal location at entrance for easy access by VIPs and guests	Development on hillside will result in increased cost and possibly the use of retaining walls
Centralized tenant admin	
Storage and facilities for operations are co-located	
Operations	
Meets UFC guidelines for runway and taxiway	Mixed RW and FW parking
Maintains existing fuel storage	
Environmental/Sustainable	
Floodplains are impacted only by paved surfaces	RPA's and floodplains are impacted
	Sloped areas are impacted
	Clearing & grading associated with development will result in loss of natural buffers
	Proposed taxiways will affect noise contours
Program	
Allowances were accommodated	Some Requirements were not met

Figure 6.5 - Option 2 Conceptual Plan

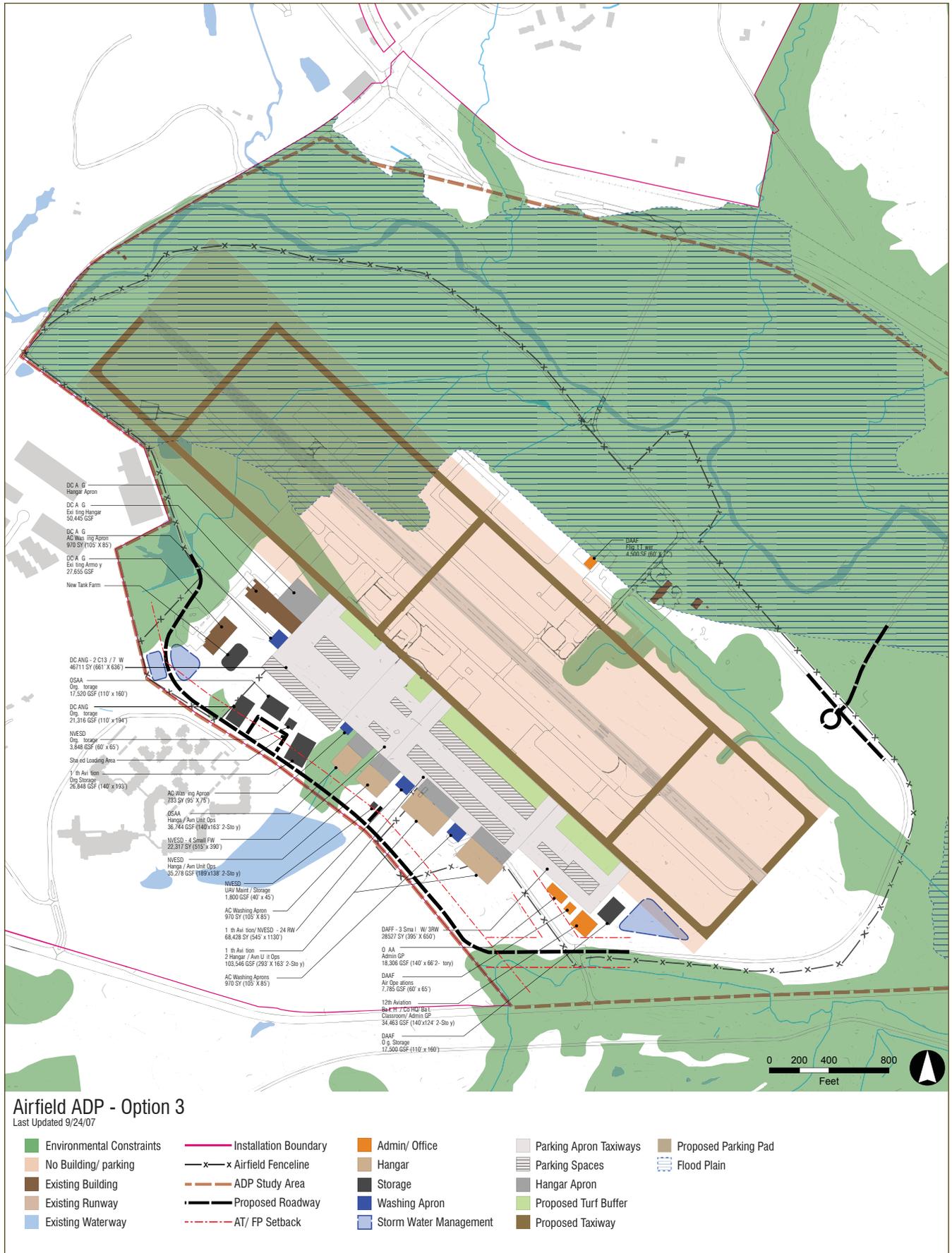


Option “3” Description:

Organizing elements of this option are: the existing road network; some existing buildings; environmentally constrained land (the majority being impacted by flood plains and RPA boundaries); use of the facilities; and parking aprons so that they are joined.

Table 6.3 - Pros & Cons for Option 3	
Pros	Cons
Land Use & Building Strategy	
Consolidated storage on west side	No area for expansion on west side
	Base operations / VIP at south end of DAAF
	Dispersed storage on west side
	Consolidated admin area
	Development on hillside will result in increased cost and possibly the use of retaining walls
Operations	
Meets UFC guidelines for runway and taxiway	Replaces and relocates existing fuel storage
Separation between RW and FW parking	Sloped areas are impacted
	Clearing & grading associated with development will result in loss of natural buffers
Environmental/Sustainable	
Flood plains are impacted only by paved surfaces	RPAs and floodplains are impacted
	Sloped areas are impacted
	Clearing & grading associated with development will result in loss of natural buffers
	Proposed taxiways will affect noise contours
Program	
Allowances were accommodated	Some Requirements were not met

Figure 6.6 - Option 3 Conceptual Plan



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Evaluation of Alternatives

7.1 Evaluation Criteria

Each of the three alternatives were evaluated on criteria established from material in Chapter 5, Planning Principles. The criteria is broken into five categories:

- Building program
- Land use and building strategy
- Transportation
- Environmental and Sustainable Impacts

Specific criteria and ratings are listed in the evaluation matrix (see Table 7.1).

7.2 Evaluation Matrix

Table 7.1 - Evaluation Matrix			
Criteria	Option 1	Option 2	Option 3
Building Program			
Allowances were accommodated	■	■	■
Land Use & Building Strategy			
Expansion of planned functions is possible		■	
Storage is consolidated	■		■
Administrative functions are centralized	■	■	
Base Operations is in an ideal location for hosting VIPs	■	■	
Operations			
Meets UFC, FPS, and ACTS standards	■	■	■
There is a separation between RW and FW operations			■
Fuel storage is maintained	■	■	
Environmental/Sustainable Impacts			
Flood Plains are only impacted by paved surfaces	■	■	■
Sloped areas are only minimally impacted		■	

Note: "■" denotes that the criteria is achieved best

Preferred Plan

8

CHAPTER

8.1 Overview

After discussions with the Fort Belvoir Garrison Staff, tenants, and users of the Airfield, the preferred alternative was developed taking the best aspects of the three previously drawn alternatives and discarding those aspects in the three alternatives that proved to have deficiencies.

The general concept of dividing the DAAF into two land use zones was supported during discussions with key stakeholders. The two areas are based on the principle that core airfield activities need to be as close to the runway as possible. With this in mind the Mission Essential zones are directly adjacent to the runway with the Mission Support zone abutting it. Although beneficial, a transitional zone between airfield operations and the installation boundary along the southwest side should be planned, but is not possible due to land constraints (see Figure 6.3).

Fixed Assets

While the plan allows flexibility for future uses, certain existing activities and facilities would be difficult to relocate and/or redevelop due to their operation and are presently fixed and should remain so at this time. These facilities include:

- ACP
- Fire company & associated facilities
- DC ANG's hangar & armory

Assets that Should Move

Most of the remaining assets within the Davison Army Airfield should be demolished, removed, or replaced as a part of the long term plan. They include:

- Civil Air Patrol - to be relocated and building demolished
- Taxiways - new taxiways will be constructed and the old demolished/replaced with turf
- Parking Aprons - new parking aprons are to be constructed, and the old parking aprons demolished/replaced with turf
- 12th Aviation Hangar - a new hangar will be constructed and the old demolished
- NVESD Hangar - a new hangar will be constructed and the old demolished
- OSAA Hangar - a new hangar will be constructed and the old demolished
- Any function not associated with airfield operations should be relocated to an appropriate location

8.2 Preferred Alternative

The runway, primary surface, and taxiways are brought into compliance and replacement facilities are sited on both sides of the runway. Base operations and transient aircraft parking are located on the northeast side of the airfield near the entrance to DAAF. This provides easy access for passenger drop off and pick up. The existing Fire station will remain in its current location and will have immediate access to the airfield.

The majority of the aircraft operations and maintenance is located on the southwest portion of the airfield. Aircraft parking and maintenance aprons are adjacent to the parallel taxiway providing easy access to the runway. These aprons can accommodate the tenant rotary wing and fixed wing requirements. There is transient parking for two C-130 aircraft adjacent to the DC ANG armory. Replacement aviation unit maintenance hangars and aviation operations space are adjacent to the parking aprons.

Administrative space was consolidated for the OSAA/ OSACOM and 12th Avn adjacent to their maintenance hangar on the southwest side of the airfield. Unit storage was sited near or adjacent to operational functions.

The perimeter road on the southwest will be relocated to provide access to the operational facilities along this portion of the airfield. This will require grading of the hillside to all the roadway to adjust to inlet roadway design standards for vertical curves.

Recommended Site Locations

The preferred alternative supports the concept of activities essential to airfield activities be located closest to the runway, transitioning to other support functions. Recommended site locations:

Northeast of Runway

- New taxiways
- New flight control tower
- Existing fire company and supporting facilities
- New DAAF facilities
 - Air operations
 - Organizational storage
 - Parking apron for 2 small FW and 2 RW aircraft

Southwest of Runway

- New taxiways
- DC ANG hangar (building 3121)
- DC ANG armory (building 3123)
- New temporary parking pad (another is located at the south end of the runway)
- New DC ANG facilities
 - Organizational storage
 - Hangar apron
 - Washing apron
 - Parking apron for 2 C-130s and 7 RW aircraft
- New NVESD facilities
 - Hangar w/ aviation unit operations
 - Hangar apron
 - UAV maintenance storage
 - Organizational storage
 - Washing apron
 - Parking apron for 3 DHC-6s and 3 RW aircraft
- New OSAA facilities
 - Hangar w/ aviation unit operations
 - Hangar apron
 - Admin GP
 - Organizational storage
 - Washing apron
 - Parking apron for 4 C-12 aircraft
- New 12th Aviation facilities
 - 2 hangars w/ aviation unit operations
 - 2 hangar aprons
 - Battalion HQ, company HQ, battalion classroom, admin GP
 - Organizational storage
 - 2 washing aprons
 - Parking apron for 20 RW aircraft

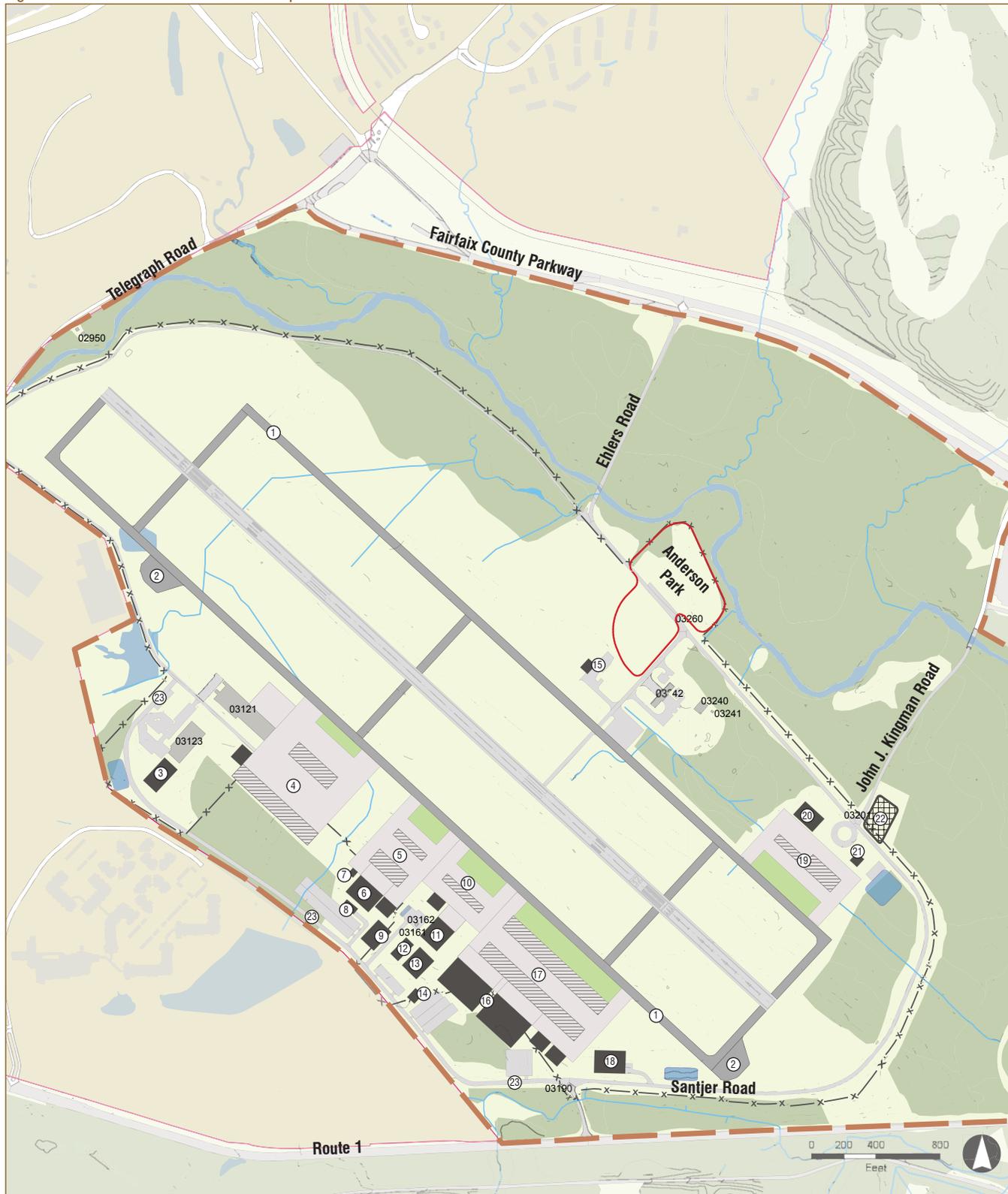
8.3 Relationship to Long Range Development Plan

The Fort Belvoir LRC strives to develop the Post as a number of walkable neighborhoods, with a rich program of uses in each cluster. Strategies to enhance walkability include: encouraging compact development, increasing connectivity between clusters and neighboring land uses, providing active uses on the ground floor, and paying special attention to streetscapes and interconnected open spaces. Respect for historic facilities and environmentally sensitive areas are also important principles guiding this development.

Development of the Airfield Study Area will also adhere to these important guiding principles, specifically:

- Cluster functions used by the same tenant to reduce traffic
- Develop a perimeter road around the new development to allow for expansions and new development between the proposed construction
- Minimize impacts to the environmentally constrained areas when possible, with the most importance on flood plains and RPAs
- All new development will meet Airlift Total/Force Plan (AT/FP), UFC, ACTS, and FPS standards to create a safe environment for people that may be affected by airfield operations
- Allow areas for environmental mitigation if required

Figure 8.1 - Full Buildout Facilities Site Map



Existing Facilities

- 2950 WTR SUP/TRT BLD
- 3121 AC MAINT HGR
- 3123 ARNG ARMORY

- 3161 AC TRK FUEL LDG
- 3162 JET FUEL UNGD
- 3190 ACCESS CNT FAC

- 3201 ACCESS CNT FAC
- 3240 FIR FIGHT/RESCU
- 3241 STORAGE GP INST

- 3242 FIRE STATION/ ORG PARK PAVED
- 3260 ACCESS CNT FAC

Proposed Facilities

- ① New Taxiways
- ② New Parking Pads
- ③ DC ANG Org. Storage
- ④ DC ANG Parking & Washing Apron
- ⑤ NVESD Parking & Washing Apron

- ⑥ NVESD Hanga /Avn Unit Ops
- ⑦ UAV Maintenance & Storage
- ⑧ NVESD Org. Storage
- ⑨ OSAA Org. Storage
- ⑩ OSAA Parking & Washing Apron
- ⑪ OSAA Hanga /Avn Unit Ops
- ⑫ OSAA Admin GP
- ⑬ 12th Avn Admin GP/Batt. HQ/ Co HQ/Batt. Classroom
- ⑭ Flight Control Tower

- ⑮ Flight Control Tower - Alt. Location
- ⑯ 12th Avn 2 Hangars/Avn Unit Ops
- ⑰ 12th Avn Parking & Washing Aprons
- ⑱ 12th Avn Org. Storage
- ⑲ DAAF Parking & Washing Apron
- ⑳ DAAF Org. Storage
- ㉑ DAAF Air Operations
- ㉒ TEMP, COF, Motor Pool, 911th Engineer Complex
- ㉓ New Road

Table 8.1 - Pros & Cons for Preferred Plan

Pros	Cons
Land Use & Building Strategy	
Area for expansion on west side	Dispersed storage on west side
Base operations / VIP at entrance	Development on hillside will result in increased cost and possibly the use of retaining walls
Centralized Tenant Admin	
Operations	
Meets UFC guidelines for runway and taxiway	Mixed RW and FW parking
Maintains existing fuel storage	
Environmental/Sustainable	
Flood plains are impacted only by paved surfaces	RPA's and floodplains are impacted
	Sloped areas are impacted
	Clearing & grading associated with development will result in loss of natural buffers
	Proposed taxiway will affect noise
Program	
Allowances were accommodated	Some Requirements were not met

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Implementation

9 CHAPTER

Redevelopment of the Airfield Study Area allows for the relocation of existing airfield facilities that currently do not meet UFC, ACTS, and FPS criteria. The migration and timing of some new uses to the Airfield Study Area are called out in the Short Range Component and are also described in the master plans. As a result of the staggered timing of the programmed projects (as per Table 4.1) and due to availability of funding for some of the programmed projects, it will take many years to complete the development at DAAF. Recognizing that development will occur over time, this section presents recommendations for the phasing of near term programmed projects and establishes the framework for long-term redevelopment of DAAF.

9.1 Phasing and Funding

Near Term (2030) Development Strategy

Project phasing and funding sources for facilities within the Airfield Study Area are broken out by fiscal year (FY), beginning in 2008 and continuing to 2013 (see Chapter 4 of the January 2008 SRC). These programmed projects include:

- Flight control center (FY 2014)
- TEMP, COF, Motor Pool, 911th Engineer Complex (FY 2014)
- AV MF, Aircraft Maintenance Hangar (FY 2014)
- AV MF, Aircraft Maintenance Hangar (FY 2014)

Other programmed projects not yet identified in the Future Years Defense program but noted in the SRC include the following:

- AV MF, Aircraft Maintenance Hangar (FY 2015)
- AV MF, Aircraft Maintenance Hangar (FY 2015)
- Replace Maintenance Hangar (FY TBD)

Facilities that are to be relocated or demolished as a part of the near term development strategy include:

- Civil Air Patrol facilities to be relocated to another installation
- Demolish existing flight control tower
- Demolish all existing structures with the exception of the ACP, fire company, and the DC ANG hangar and armory
- Demolish existing taxiways and parking aprons and construct new facilities to meet UFC standards

Note: The flight control tower should be demolished within the next 3 years as the facility is in extremely poor condition. The timing for the demolition for the other buildings are based on future demands and the exact time frame is unknown.

Site Constraints

- Demolition of facilities which are considered historic will require appropriate documentation and may require mitigation.
- Demolition and redevelopment of airfield land will require environmental cleanup based on the numerous SWMUs and PSAs/PRs that are scattered throughout DAAF (see Figure 3.5). The extent of the impacts to these areas and cleanup required will be determined with a more complete definition of the site project boundary.
- The existing taxiways do not meet UFC criteria because they lie within the 500 foot primary surface and will at some point require construction of new taxiways and abandonment.

Roads & Utilities

No new roads are required to support the near term industrial uses. During the utilities study, it was identified that a large portion of the sewer line needs further study to determine if the capacity needs to be improved. This should be considered for the near term development strategy and further studied in the long term. All other utilities should be upgraded as a part of the future development. Storm water management facilities are required for redevelopment and locations as graphically shown on Figure 9.1.

Program

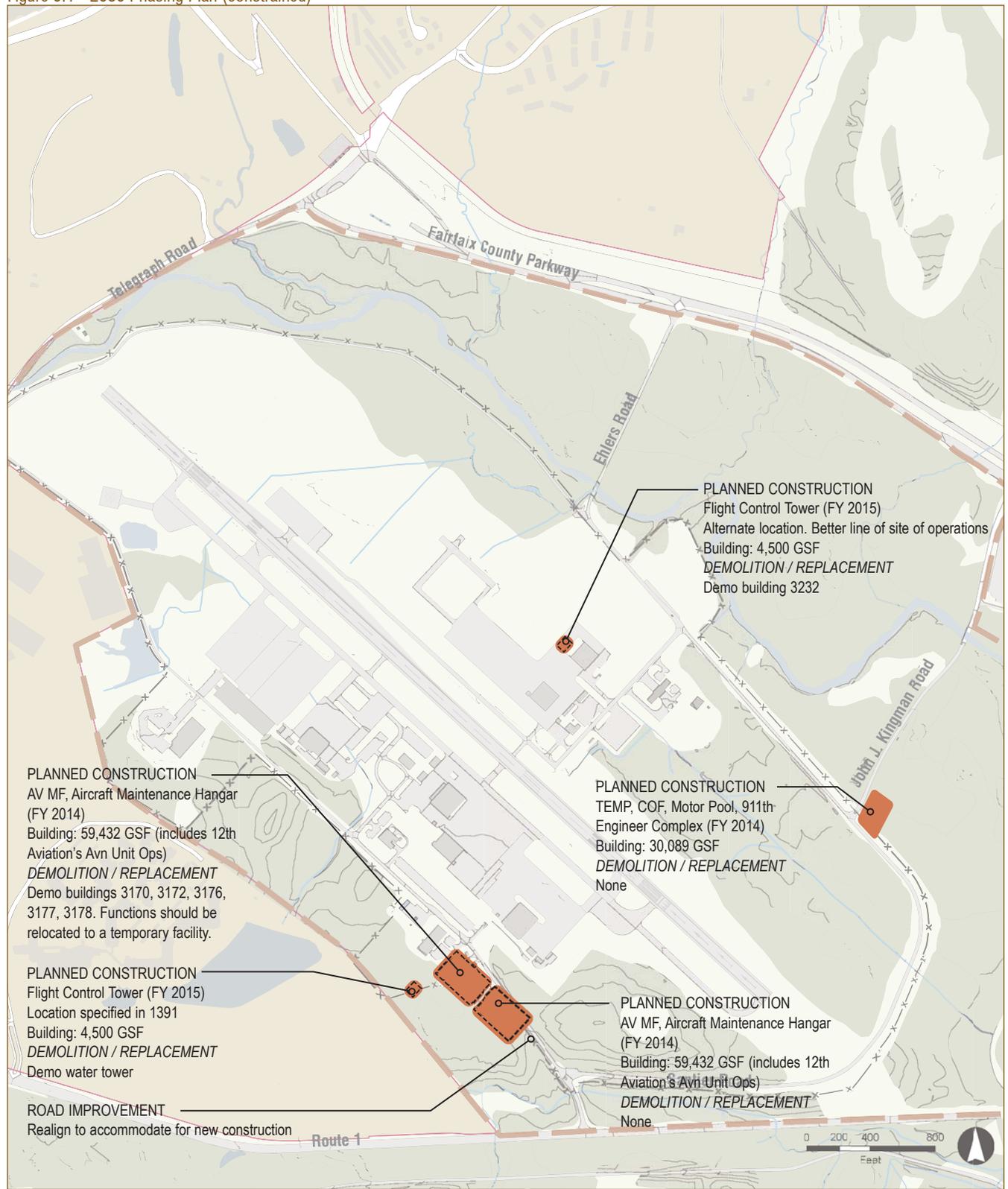
New Construction

911th Engineer Complex	30,089 GSF
Flight Control Tower	4,500 GSF
Hangar Space w/Avn Unit Ops	118,865 GSF
<hr/>	
New Construction	153,454 GSF

Total Airfield Development

Existing Buildings Maintained	303,303 SF
Existing Buildings Demolished	4,429 SF
<hr/>	
Retained	298,874 SF
New Construction	153,454 SF
<hr/>	
Total	452,328 SF
Documented Program	456,518 SF

Figure 9.1 - 2030 Phasing Plan (constrained)



- ADP Study Limits
- Roads/Parking
- Proposed Parking Aprons
- Forest
- Existing Building
- Proposed Building
- Proposed Development Area
- Streams

Long Term Development Strategy- beyond 2030

A long term plan is provided for projects that are not known or funded but can be anticipated in the event that demands become identified. These projects demonstrate the expansion capability of the land and are constrained by limits to area roads and infrastructure (see Expansion Capability Assessment submitted separately).

The framework for the long term plan is presented in Figure 9.2.

Site Constraints

The short term site constraints are also applicable to the long term development strategy.

- Demolition of facilities which are considered historic will require appropriate documentation and may require mitigation.
- Demolition and redevelopment of airfield land will require environmental cleanup based on the numerous SWMUs and PSAs/PRSs that are scattered throughout DAAF (see Figure 3.6). The extent of the impacts to these areas and cleanup required will be determined with a more complete definition of the site project boundary.

In addition to these constraints, the long term development strategy will be impacted by these site constraints:

- Environmentally constrained areas are impacted by new construction. As a result there will need to be studies to determine the severity and mitigation needed.
- Earthworks needed to grade the two sloped areas along the western boundary for new construction will need to be considered.
- Grading may affect the airfield's noise contours. A study should be completed to determine the impacts and mitigation needed.
- The close proximity of the residential areas will need to be evaluated and buffered accordingly.

Roads & Utilities

The following need to be considered or improved for the long term development strategy:

- New perimeter road for access to new construction
- Improve the water line to convert it to a loop system
- Improve the sewer line after a study has indicated the capacity needs
- Storm water management facilities are required for redevelopment and locations as graphically shown on Figure 9.2.

Program:

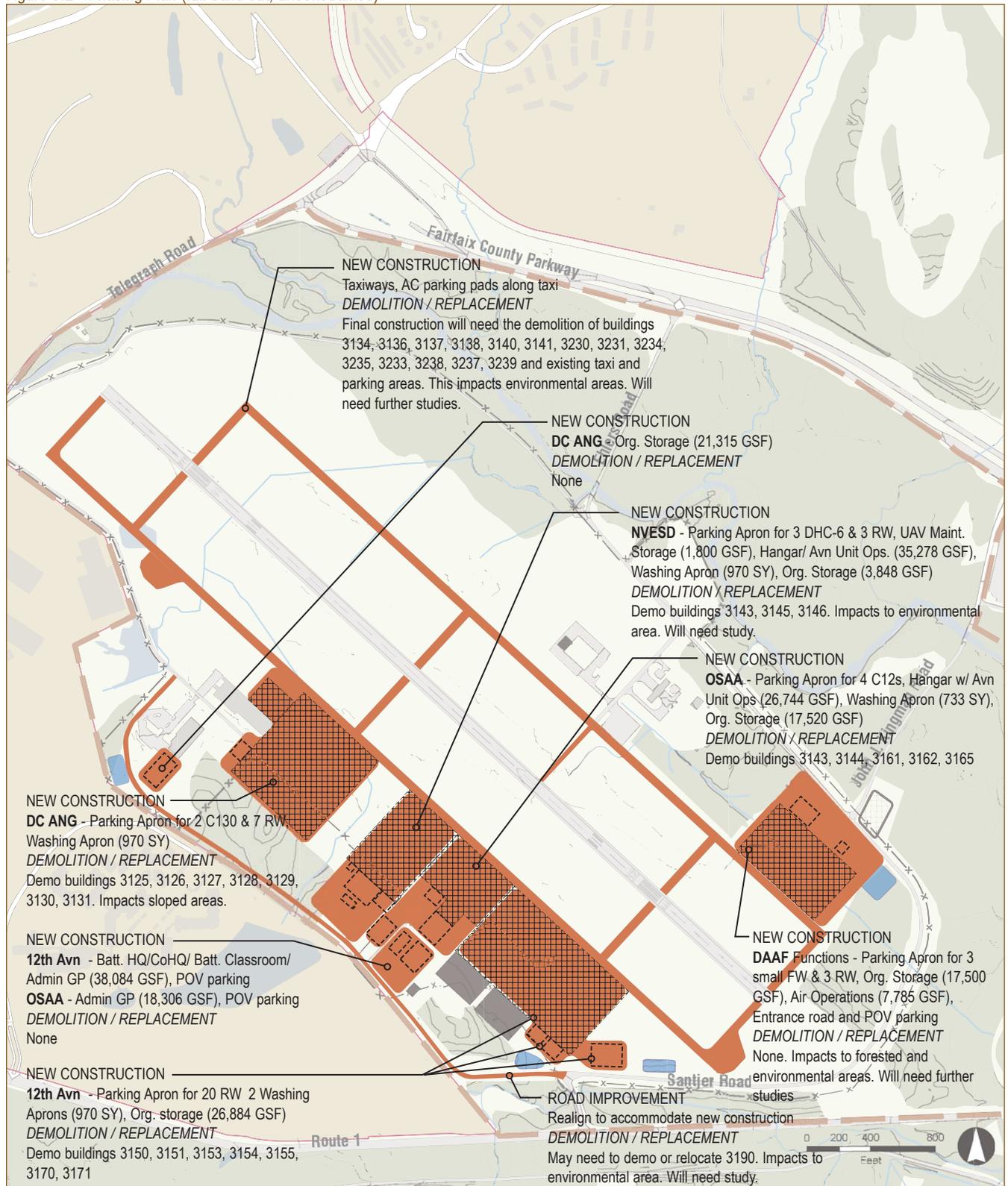
New Construction

Hangars w/Avn Unit Ops	62,022 GSF
Admin Functions	64,175 GSF
Storage/Maintenance	88,867 GSF
New Construction	215,064 GSF

Total Airfield Development

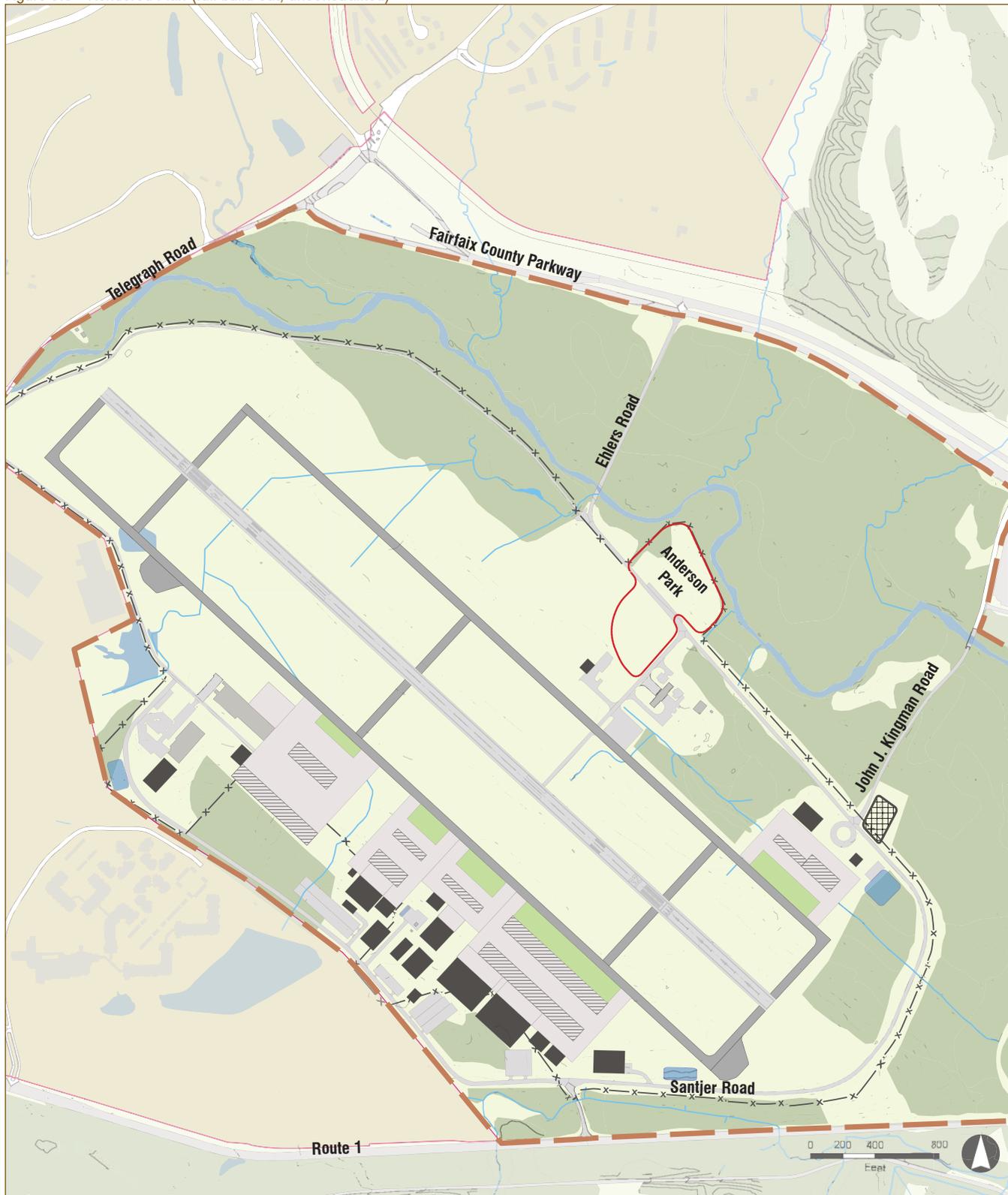
Existing Buildings Maintained	298,874 SF
Existing Buildings Demolished	210,796 SF
Retained	88,000 SF
Previous Development	153,454 SF
New Construction	215,064 SF
Total	456,518 SF
Documented Program	456,518 SF

Figure 9.2 - Phasing Plan (full build out, unconstrained)



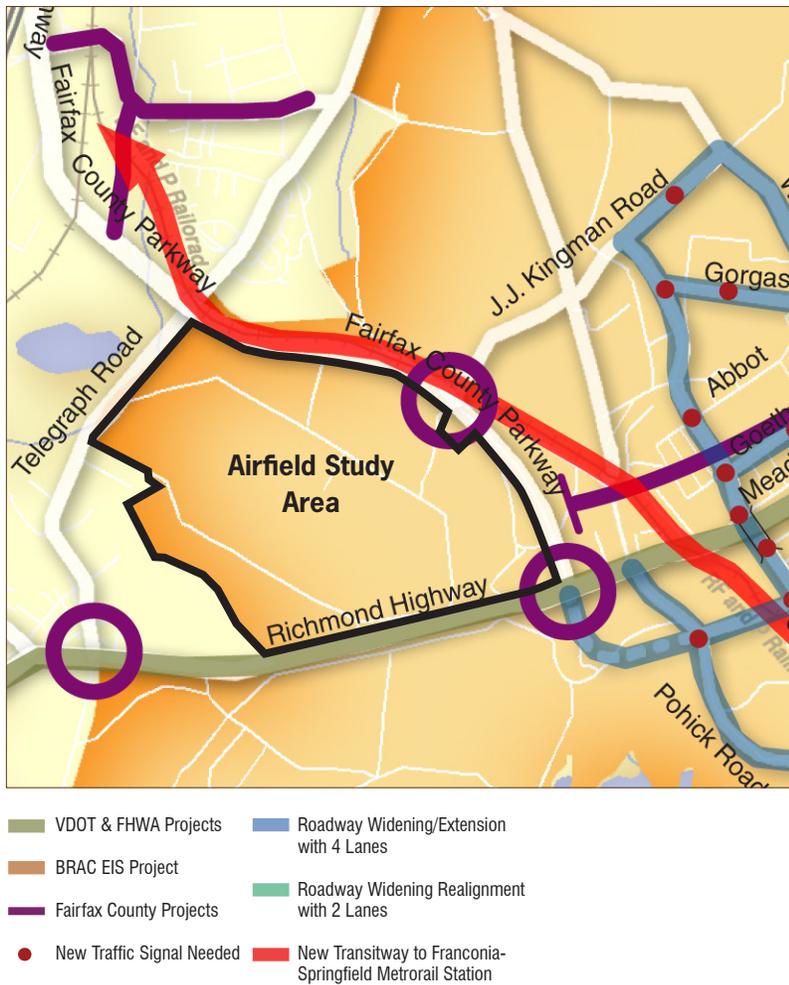
- ADP Study Limits
- Phase 1 Buildings
- Proposed Building
- Proposed Parking Aprons
- Streams
- Existing Building
- Roads/Parking
- Proposed Development Area
- Storm Water Management
- Forest

Figure 9.3 - Rendered Plan (full build out, unconstrained)



- | | | | |
|-------------------|--|------------------------|---------|
| ADP Study Limits | Proposed Building | Proposed Taxiways | Streams |
| Existing Building | Proposed Roads/Parking/Parking & Hangar Aprons | Storm Water Management | Forest |

Figure 9.4 - All roadway improvements planned for Full Expansion (2050)



9.2 Transportation Management Recommendations

There are no transportation improvements proposed on or immediately adjacent to the Airfield Study Area. The following information is provided as a reference from the LRC to describe efforts to reduce POV transit with commuter transit.

The Master Plan establishes the road pattern for long term growth for Fort Belvoir. It includes recommendations for roadway widening, signalization, and pedestrian/bicyclist circulation (see Figure 9.5).

A comprehensive Transportation Management Plan (TMP) has been developed for Fort Belvoir. The TMP outlines various strategies that the Fort Belvoir Employee Transportation Coordinator can use to reduce the rate of single occupancy vehicle trips by encouraging, but not limited to, carpooling/ride-sharing, vanpool programs, transit services, and bicycling/walking. These strategies would reduce the total daily trips to/from Fort Belvoir, reducing the daily parking requirements.

The TMP can be applied as a tool to reduce employee trips to the office and storage areas. The strategies for Fort Belvoir are laid out in the full Transportation Management Plan in the LRC (see Chapter 4 of the LRC dated January 2008). The strategies include, but are not limited to, the following:

- Parking management
- Carpooling and ride-share matching
- Vanpool programs
- Transit services
- Economic incentives - subsidies
- Guaranteed ride home
- Bicycling/walking
- Telecommuting/teleworking
- Alternate work schedules
- Commuter centers

9.3 General Recommendations

Environmental Safeguards

The planning principles endorsed with LEED ND encourage compact growth, promote pedestrian activity, and improve air quality, etc. to create a framework that can be adjusted over time in response to future needs of industrial tenants. The increase in the demand for new airfield construction uses will create a greater burden on the existing natural systems (i.e. storm water runoff, heat buildup, and airborne emissions, etc.); therefore, adherence to LEED ND, Leadership in Energy and Environmental Design for New Construction (LEED NC) guidelines, and other environmental regulatory requirements will be necessary to expand the industrial area. The following implementation safeguards are recommended:

- Implement LEED ND as a planning tool to evaluate future plans.
- Request future tenants complete LEED ND checklist for projects 20 acres or more in size.
- Weigh the checklist results against goals of the LRC, SRC, IDG, and ADPs before approving plans for new construction.
- Periodically update and review the checklist as new projects are planned/ constructed/ renovated.

Security Recommendations

The proposed Airfield ADP depicts future building and street setbacks that meet the minimum UFC criteria. Some agencies require specialized forms of security measures that separate them from Main Post activities and require enhanced security measures, although no agency has specified this information for the purpose of this ADP.

Updating the Plan

The Airfield ADP plan should be periodically updated to reflect work completed, and re-mapped in the Belvoir GIS system in order to assess and monitor possible conflicts with planned uses. The ADP should be updated every five years.

Design Integration

The IDG and other guiding aesthetic principles should be fully integrated into any final plan for new projects. Design elements that directly relate to the airfield study area include:

- Standard dimensions and screening measures for truck loading spaces/docks.
- Outdoor lighting levels.
- Sound walls and building design to mitigate high noise levels
- Streetscaping including landscaping, site furnishings, and walkway standards.

9.4 106 Consultation

The three potentially historic buildings (building numbers 3137, 3138, and 3140) on DAAF are within the clear zone of the airfield runway as defined by UFC 3-260-1, Airfield and Heliport Planning and Design. Redevelopment of DAAF to a Class A airfield, DAAF will not allow for waivers on its design and operation. All obstructions within the primary surface will therefore have to be demolished and removed including the historic structures.

In order to demolish a historic structure, a historic building survey will be required in consultation with the State Historic Preservation Office (SHPO) to determine if the building or facility is eligible for the National Register of Historic Places (NRHP). If eligible, consultation with the SHPO will determine the best course of action that is mutually agreeable between the SHPO and the installation. The SHPO process cannot stop the process of removing obstructions and waivers from the airfield; however, costs and time to complete the process must be budgeted prior to building demolition. Cost and time to work through the historic review process between the SHPO and other public agencies is called "Section 106 Consultation".

9.5 Required NEPA Documentation

The Airfield Study Area includes programmed projects through FY 2014, as well as long term strategies for development based on the program requirements of the tenants. None of these new projects were included in the larger Environmental Impact Statement (EIS) that covers all BRAC projects and “cumulative impacts” for future growth. Construction of new facilities will also trigger the need to build a new taxiway to bring the airfield into compliance with UFC standards; construction of the new taxiway is a necessary safety improvement to support current airfield operations and requires NEPA approval.

Construction of the new taxiway in environmentally constrained areas such as the 100-year floodplain, Resource Protection Area (RPA), and possible wetland areas poses several obvious challenges. The NEPA action required for the Airfield ADP would be more stringent than projects in the other ADP areas. NEPA actions would either be in the way of a Mitigated Environmental Assessment (EA) that would lead to a Finding of No Significant Impact (FONSI) or it may require the submission of an Environmental Impact Statement (EIS).

The preferred course of action would be a mitigated EA. The submission of the EA would require extensive engineering and environmental studies in order to demonstrate the impacts associated with the airfield development. These technical studies would also identify the types of mitigation required to support the project. Studies anticipated to support the mitigated EA would include, but not necessarily limited to the following:

- Hydraulic and hydrologic studies to establish existing 100 year floodplain elevations (predevelopment conditions)
- Floodplain alteration study for proposed development (post-development conditions)
- Wetland delineations and Corps Confirmation
- Resource Protection Area Plan
- RPA exceptions
- Noise Studies
- FAA approval
- Archeological Studies
- Drainage and Outfall Studies

Lastly, approval of the mitigated EA would require close coordination and public interface with National Capital Park and Planning (NCPP), Fairfax County Officials, US Army Corps of Engineers (USACE), Virginia Department of Environmental Quality due to the nature of the improvements proposed.

The entire Master Plan documentation needs to have an NEPA approval once it is completed.

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Land Use Matrix

A

Appendix

FCG INFORMATION				LAND USE CLUSTERS
CLASS	FCG	Facility Category Group Description	UM	Airfields
		Series 1		
P	F11110	RUNWAYS, FIXED WING	SY	A
S	F11111	RUNWAYS, UNSURFACED	SY	A
D	F11120	RUNWAYS, ROTARY WING	SY	A
S	F11131	ROTARY WING RUNWAY, UNPAVED	SY	A
S	F11151	RUNWAY OVERRUN AREAS	SY	A
S	F11210	TAXIWAYS, FIXED WING	SY	A
S	F11220	TAXIWAYS, ROTARY WING	SY	A
P	F11310	PARKING, FIXED WING AIRCRAFT	SY	A
P	F11320	PARKING, ROTARY WING AIRCRAFT	SY	A
S	F11330	MAINTENANCE APRONS, AIRCRAFT	SY	A
S	F11340	ACCESS APRONS, HANGAR	SY	A
S	F11350	HOLDING APRONS, AIRCRAFT	SY	A
S	F11370	WASH APRONS, AIRCRAFT	SY	A
S	F11380	LOADING APRONS, AIRCRAFT	SY	A
S	F11610	SWING BASE, AIRCRAFT	SY	A
P	F12100	AIRCRAFT FUELING FACILITIES	GM	A
P	F12300	VEHICLE FUELING FACILITIES	OL	A
S	F12410	AIRCRAFT FUEL STORAGE	GA	A
S	F12440	MARINE FUEL STORAGE	GA	A
S	F12450	LAND VEHICLE FUEL STORAGE	GA	A
P	F12460	MISC FUEL STORAGE	GA	A
S	F12500	POL PIPELINE/SUPPORT FACILITIES	MI	A
S	F12600	MISC FUEL LOAD/UNLOAD FACILITIES	OL	A
D	F13115	INFORMATION SYSTEMS FACILITIES	SF	A
D	F13131	INFO PROC CTR	SF	A
P	F13300	NAVIGATION AIDS, BUILDINGS, AIR	SF	A
P	F13310	FLIGHT CONTROL TOWER	SF	A
S	F13400	NAVIGATION AIDS, NON-BUILDING, AIR	EA	A
S	F13500	COMMUNICATION LINES	MI	A
S	F13600	AIRFIELD PAVEMENT LIGHTING	LF	A
S	F13700	SHIP NAVIGATION BUILDINGS	SF	A
S	F13800	LIGHTED BEACON SHIPS	EA	A
P	F14110	OPERATIONS BUILDINGS, AIRFIELD	SF	A
P	F14112	AVIATION UNIT OPERATIONS BUILDINGS	SF	A
S	F14113	ACCESS CONTROL FACILITIES	SF	A
D	F14115	WEATHER STATION	SF	A
P	F14121	MISSILE LAUNCHERS/STORAGE	SF	A
D	F14161	EOC/SCIF FACILITIES	SF	C

A = Allowed P = Primary
N = Not allowed S = Supporting Use
C = Conditional U = Utilities & Infrastructure
S = Special D = Dual Use

S	F14163	OPERATIONS SUPPORT BUILDINGS	SF	C
S	F14164	MISC OPS FACILITIES	SF	C
S	F14169	PRODUCTION PLANT SUPPORT FACILITIES	SF	C
S	F14170	PRODUCTION PLANT SUPPORT STRUCTURES	SF	C
D	F14182	HEADQUARTERS BUILDINGS, BRIGADE	SF	C
D	F14183	HEADQUARTERS BUILDINGS, BATTALION	SF	C
D	F14185	HEADQUARTERS BUILDINGS, COMPANY	SF	C
D	F17120	GENERAL INSTRUCTION BUILDINGS	SF	C
D	F17134	AIRCRAFT MAINTENANCE INSTRUCTIONAL BUILDINGS	SF	C
D	F17140	TRAINING CENTERS—RESERVES	SF	C
D	F17142	TRAINING CENTERS—ARNG/USAR	SF	C
D	F17180	TRAINING CENTERS—NATIONAL GUARD	SF	C
D	F17200	SIMULATOR FACILITIES	SF	A
P	F17981	FIRE FIGHT/RESCUE	EA	A
FCG INFORMATION				LAND USE CLUSTERS
CLASS	FCG	Facility Category Group Description	UM	Airfields
		Series 2		
P	F21110	AIRCRAFT MAINTENANCE FACILITIES	SF	A
P	F21140	AIRCRAFT ENGINE TEST FACILITIES	SF	A
S	F21141	AIRCRAFT ENGINE TEST STRUCTURE	SF	A
P	F21407	ARNG MAINTENANCE FACILITIES	SF	C
P	F21409	ARMY RESERVE MAINTENANCE FACILITIES	SF	C
D	F21900	INSTALLATION MAINTENANCE/REPAIR FACILITIES	SF	C
FCG INFORMATION				LAND USE CLUSTERS
CLASS	FCG	Facility Category Group Description	UM	Airfields
		Series 3		
P	F31100	AIRCRAFT RDT&E FACILITIES	SF	A
FCG INFORMATION				LAND USE CLUSTERS
CLASS	FCG	Facility Category Group Description	UM	Airfields
		Series 4		
D	F44210	ENCLOSED STORAGE, INSTALLATION	SF	C
D	F44215	OXYGEN/ACETYL STORAGE	SF	C
S	F44216	STORAGE SILOS	SF	C
P	F44222	COVERED STORAGE, INSTALLATION	SF	A
D	F44223	ARMS STORAGE—BN	SF	C
S	F44224	ORGANIZATIONAL STORAGE	SF	C
S	F44228	HAZARDOUS STORAGE, INSTALLATION	SF	C
P	F44230	HUMIDITY CONTROLLED STORAGE, INSTALLATION	SF	C
S	F44262	VEHICLE STORAGE	SF	C

A = Allowed P = Primary
N = Not allowed S = Supporting Use
C = Conditional U = Utilities & Infrastructure
S = Special D = Dual Use

P	F44288	INSTALLATION STORAGE OTHER THAN DEPOT OR ORGANIZATIONAL	SF	C
S	F45100	OPEN STORAGE, DEPOT	SY	C
S	F45200	OPEN STORAGE, INSTALLATION	SY	C
S	F45220	LAND FARMS	SY	C
FCG INFORMATION				LAND USE CLUSTERS
CLASS	FCG	Facilty Category Group Description	UM	Airfields
		Series 5		
P	F55000	DISPENSARIES AND CLINICS	SF	A
FCG INFORMATION				LAND USE CLUSTERS
CLASS	FCG	Facilty Category Group Description	UM	Airfields
		Series 7		
P	F73010	FIRE AND RESCUE FACILITIES	SF	A
S	F73012	FIRE TOWER	SF	A
S	F73013	BUS STATION	SF	A
D	F74051	EXCHANGE EATING FACILITIES	SF	C
D	F74052	EXCHANGE SERVICE STATIONS	SF	C
D	F74053	EXCHANGE RETAIL FACILITIES	SF	C
P	F76020	MONUMENTS AND MEMORIALS	EA	A
FCG INFORMATION				LAND USE CLUSTERS
CLASS	FCG	Facilty Category Group Description	UM	Airfields
		Series 8		
U	F81100	ELECTRIC POWER SOURCE	KV	
U	F81150	STANDBY POWER	KV	
U	F81200	POWER LINES	LF	
U	F81230	EXTERIOR LIGHTING	LF	
U	F81242	UNDERGROUND ELECTRIC LINES	LF	
U	F81300	SUBSTATION	KV	
U	F81350	ELECTRIC SWITCHING STATION	KV	
U	F81360	TRANSFORMERS	KV	
U	F82100	HEAT SOURCE	MB	
U	F82200	HEAT TRANSMISSION AND DISTRIBUTION LINES	LF	
U	F82310	GAS GENERATION FACILITIES	MB	
U	F82400	GAS TRANSMISSION LINES	LF	
U	F82600	REFRIGERATION AND AIR/CONDITIONING FACILITIES	TN	
U	F82710	CHILLED WATER LINES	LF	
U	F83110	WASTE WATER TREATMENT, PRIMARY	KG	
U	F83112	WASTE WATER TREATMENT, SECONDARY	KG	
U	F83113	WASTE WATER TREATMENT, ADVANCED	KG	
U	F83120	WASTE TREATMENT SUPPORT FACILITIES	KG	

A = Allowed P = Primary
N = Not allowed S = Supporting Use
C = Conditional U = Utilities & Infrastructure
S = Special D = Dual Use

U	F83140	WASTE WATER TREATMENT, INDUSTRIAL	KG	
U	F83150	SEWAGE LIFT STATIONS	KG	
U	F83180	WATER-GRIT-OIL-GREASE SEPARATORS	KG	
U	F83200	SEWAGE/WASTE COLLECTION LINES	LF	
U	F83300	GARBAGE AND REFUSE FACILITIES	TN	
U	F83310	INCINERATOR	TN	
U	F83410	LANDFILLS, SANITARY	AC	
U	F83420	LANDFILLS, HAZARDOUS WASTE	AC	
U	F84100	WATER SUPPLY/TREATMENT SUPPORT, POTABLE	KG	
U	F84110	WATER TREATMENT FACILITIES	KG	
U	F84125	FILTER PLANT FACILITIES	KG	
U	F84130	WATER SOURCE, POTABLE	KG	
U	F84150	CHLORINATOR FACILITIES	KG	
U	F84200	WATER DISTRIBUTION LINES, POTABLE	LG	
U	F84300	FIRE PROTECTION SYSTEM LINES, NONPOTABLE	LF	
U	F84410	WATER SOURCE, NONPOTABLE	KG	
U	F84450	CHLORINATOR FACILITIES, NONPOTABLE	KG	
U	F84472	WATER SUPPLY SUPPORT, NONPOTABLE	KG	
U	F84500	WATER DISTRIBUTION LINES, NONPOTABLE	LF	
U	F84600	WATER STORAGE, POTABLE	GA	
U	F84620	RESERVOIR, POTABLE	GA	
U	F84700	WATER STORAGE, NONPOTABLE	GA	
U	F84720	RESERVOIR, NONPOTABLE	GA	
U	F84730	FIRE PROT POND	GA	
U	F84740	WATER RETAINING BASINS	GA	
S	F85100	ROADS, CANTONMENT AREA, SURFACED	SY	
S	F85120	BRIDGES, VEHICLE	SY	
S	F85130	ROADS, CANTONMENT AREA, UNSURFACED	SY	
S	F85150	TANK TRAILS, CANTONMENT AREA	SY	
P	F85210	PARKING, ORGANIZATIONAL	SY	A
S	F85211	PARKING UNSURFACED	SY	A
S	F85215	PARKING, NONORGANIZATIONAL	SY	A
S	F85218	NONORGANIZATIONAL VEHICLE PARKING GARAGE	SY	A
S	F85220	WALKWAYS	SY	A
S	F85225	PADS	SY	A
S	F85230	BRIDGES, PEDESTRIAN	SY	
S	F85710	ROADS, TRAINING AREA, SURFACED	SY	
S	F85715	ROADS, TRAINING AREA, UNSURFACED	SY	
S	F85720	TANK TRAILS, TRAINING AREA, SURFACED	SY	
S	F85725	TANK TRAILS, TRAINING AREA, UNSURFACED	SY	
S	F85730	BRIDGES, TRAINING AREA	SY	
P	F86000	RAILROAD TRACKS	MI	A

A = Allowed P = Primary
N = Not allowed S = Supporting Use
C = Conditional U = Utilities & Infrastructure
S = Special D = Dual Use

S	F86100	CRANE TRACKS	LF	A
S	F86110	BRIDGES, RAILROAD	LF	A
S	F86130	RAILROAD SCALES	LF	A
U	F87100	GROUNDS, DRAINAGE	LF	A
U	F87110	STORM SEWER	LF	A
U	F87130	IRRIGATION FACILITY	LF	A
U	F87140	DIKES	LF	A
U	F87150	RETAINING STRUCTURE	LF	A
U	F87200	FENCING AND GATES	LF	A
U	F89100	PLANT/UTILITIES BUILDINGS	SF	A
U	F89112	INSTALLATION GAS PRODUCTION	SF	A
U	F89200	MISCELLANEOUS UTILITIES FACILITIES	EA	A
U	F89220	ENERGY MANAGEMENT CONTROL SYSTEM	EA	A
U	F89225	GAS STORAGE TANKS	EA	A
U	F89230	TRAFFIC SIGNALS	EA	A
U	F89270	DAMS	EA	A
U	F89300	MISCELLANEOUS UTILITY LINES	LF	A
U	F89340	UTILIDORS	LF	A
U	F89400	COOLING TOWER	CM	A
U	F89500	MISCELLANEOUS TANKS	GA	A
FCG INFORMATION				LAND USE CLUSTERS
CLASS	FCG	Facilty Category Group Description	UM	Airfields
		Series 9		
U	F91100	LAND OWNED ARMY	AC	
U	F91200	PUBLIC DOMAIN	AC	
U	F91300	LAND TEMP USE	AC	
U	F91370	MANEUVER RIGHTS	AC	
U	F91400	PUBLIC LAND	AC	
U	F91500	LAND OWN STATE	AC	
U	F92100	EASEMENTS	AC	
U	F92200	LAND IN LEASE	AC	
U	F92300	FOREIGN RIGHTS	AC	

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Base Supplied Planning and Requirements Information

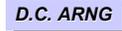
B

Appendix

B.1 DAA DEVELOPMENT PLAN 21 DEC 06



DAVISON ARMY AIRFIELD (DAA) YEAR DEVELOPMENT PLAN 21 DECEMBER 2006

 Ft Belvoir Regional Fit Fac	 12th Avn Bn	 Civil Air Patrol
 Operational Support Airlift Agency Fort Belvoir, VA 22060		 UNITED STATES AIR FORCE AUXILIARY CIVIL AIR PATROL
 Avn Night Vision Testing Lab	 D.C. ARNG	 ARMY NATIONAL GUARD

Davison Army Airfield



TABLE OF CONTENTS

INTRODUCTION

- Current Davison Army Airfield (DAA) Layout
- DAA Missions
- DAA Customers

PLANNING PROCESS:

- Compile Based DAA Unit "Wish List"
- Design Joint Requirements Plan
- Submit Plan For MACOM Approval
- Incorporate Into Ft Belvoir Master Plan
- Short Term: 2-4 Years
- Long Term: 5-10 Years

Davison Army Airfield



TABLE OF CONTENTS - CONTINUED

PLANNING GOALS: Enhance Safety and Airfield Environment

- Upgrade/Replace Aged Structures
- Upgrade/Replace Early 1950s Pavements
- Upgrade Airfield Lighting Infrastructure
- Update Pavements Markings
- Obstruction Removal Inside Runway/Taxiway Safety Zones
- Noise Abatement: Complete Air Installation and Compatibility Use Zone (AICUZ) Study

CONSTRAINTS TO DEVELOPMENT

- Funding: Limited, prioritization
- Environmental: Wetlands, Noise Abatement
- Timing Flow: Must build before demolition
- Mission Interruptions: Temporary closures for pavements
- Current Design and Safety Issues

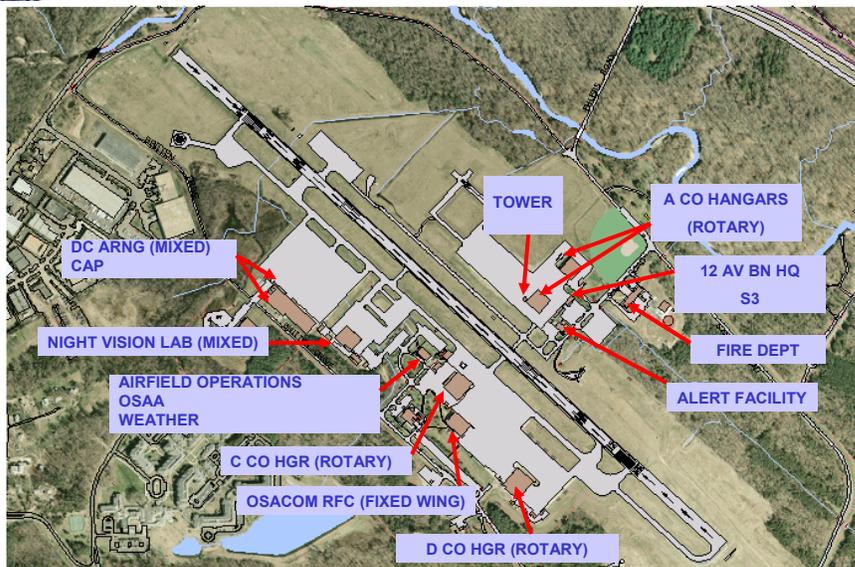
DESIGN RECOMMENDATIONS

- 12th Aviation Battalion
- Operational Support Airlift Agency (OSACOM/OSACOM)
- Civil Air Patrol (CAP)
- Aviation Night Vision Testing Lab

Davison Army Airfield



CURRENT DAA AIRFIELD LAYOUT



Davison Army Airfield



DAA MISSIONS

DAVISON ARMY AIRFIELD (DAA) IS A JOINT OPERATION AIRFIELD COMPRISED OF FIVE (5) BASED INDEPENDENT OPERATIONAL FLYING UNITS. THEY ARE PRIMARILY RESPONSIBLE FOR SUPPORTING MILITARY DISTRICT WASHINGTON/NATIONAL CAPITOL REGION (MDW/NCR) MISSIONS, CONUS SENIOR LEADERSHIP SHUTTLES, AND TRANSIENT AIRCRAFT. THEY ARE

- 12TH AVIATION BATTALION ROTARY
- OPERATIONAL SUPPORT AIRLIFT AGENCY (OSAA/OSACOM) FIXED WING
- DC ARMY NATIONAL GUARD ROTARY/FIXED WING
- AVIATION NIGHT VISION LAB ROTARY/FIXED WING
- CIVIL AIR PATROL FIXED WING

NOTES

- DAA ALSO SUPPORTS A VARIETY OF SPECIAL OPS MISSIONS (FIXED WING)
- DAA IS USED FOR TRAINING BY QUANTICO, FBI, LOCAL POLICE AND AIR FORCE (ROTARY/FIXED)
- DAA IS THE ONLY EMERGENCY LANDING AIRFIELD CLOSEST TO DC

Davison Army Airfield



DAA CUSTOMERS

- DAA USERS
- Secretary of Defense
- Secretary of the Army
- Chairman Joint Chiefs
- Members of Congress
- Foreign Ministers of Allied Nations
- Army Staff
- Army MACOM Commanders
- Secret Service
- Law Enforcement Agencies (Federal and Local)
- Army Chief of Staff
- Local Medical Flights and MEDEVAC
- DoD Passenger Transport Shuttles
- Marine One (Executive Flight Detachment)
- First Helo Squadron (Air Force Helos)
- Operational Units in support of Contingency Missions for the National Capital Area

Davison Army Airfield



PLANNING PROCESS

- Compile a DAA combined comprehensive requirements “wish list” to meet forecast future mission demands
- Design an initial joint development plan that reflects DAA customer forecast of future facilities requirements
- Submit plan to 12 AV BN CDR for review
- Submit plan to AOG/MACOM for approval
- Incorporate into Ft Belvoir Master Plan
- Obtain initial design funding (estimated \$400K)
- Short Term: 2-4 Years (planning, funding, design)
- Long Term: 5-10 Years (planning, funding, execution, review)

Davison Army Airfield



PLANNING GOALS

- Enhance mission safety and upgrade airfield environment
- Provide commanders with a viable planning tool for future development
- Develop a living document that accurately reflects future mission requirements
- Design a logical time flow that allows for project completion on time, on budget
- Upgrade facilities and aircraft movement areas
 - Demolish and replace structurally unsound facilities: Control Tower
 - Upgrade/Replace Early 1950s Pavements: Runway, taxiway, ramps
 - Upgrade airfield lighting infrastructure: Approach Lights, Security Lights
 - Upgrade airfield pavements markings: Compliance with FAA/DoD guidance
 - Remove obstructions violating runway and taxiway safety zones: Airfield Services facility, Trees
 - Enhance Noise Abatement Program: Complete Air Installation and Compatibility Use Zone (AICUZ) Study; estimated cost \$50K

Davison Army Airfield



DEVELOPMENT CONSTRAINTS

- **Funding:** MILCON dollars limited, careful planning around mission priorities, very little room for flexibility, mission diversity, ownership
- **Airfield Layout:** Taxiway and ramp designs not conducive to efficiency of operations
- **Environmental:** Wetlands both sides of airfield; require Army Corps of Engineer assessment and approval
- **Land Use:** Separate rotary/fixed wing ops; enhances efficiency of operations

Davison Army Airfield



DAA DESIGN AND SAFETY ISSUES

- **Structures**
 - Air Traffic Control Tower determined to be structurally unsound by Ft Belvoir Engineering and Safety Office, within the runway safety zone (awaiting funds)
 - Leaking roofs, ceilings falling in
- **Lighting** Approach lighting system is not repairable, must be replaced (awaiting funds, estimated cost \$358K)
- **Markings (not in compliance with FAA/Unified Facilities Code)**
 - Not conducive to mixed rotary/fixed wing ops
 - Faded, obsolete, incorrect
- **Pavements**
 - Strengthen All Early 1950s Pavements Pavements Condition Number (PCN) inadequate to meet forecast OSACOM/MDW contingency mission demands (awaiting funds)
 - Redesign to meet larger capacity aircraft Runway short, access & taxiway too short and/or too narrow to safely accommodate aircraft larger than UC-35
- **Obstructions (not in compliance with FAR Part 77/Unified Facilities Code)**
 - RWY 14 Tree encroachment into approach path (awaiting funds)
 - RWY 32 Tree encroachment into Instrument Landing System (ILS) glidepath
 - TAXIWAY Airfield Services facility too close
- **Community Encroachment** Surrounding housing areas, noise complaints
- **Air Installation Compatibility Use Zone (AICUZ) study outdated (awaiting funds)** Must be conducted when you change based mission aircraft, operating times and/or local procedures such as hours of operation/traffic altitudes

Davison Army Airfield



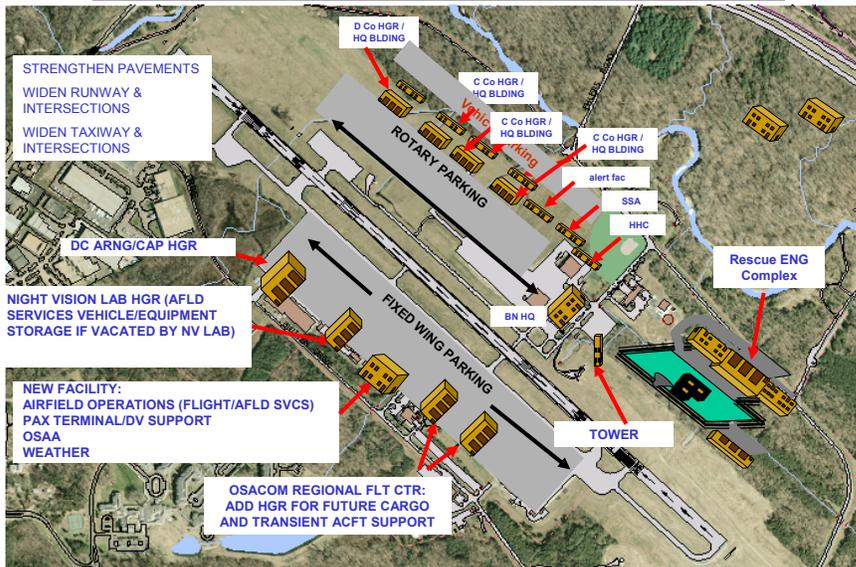
INITIATIVES

- **DAA Development Plan:** Designed to accurately reflect known mission requirements for all DAA based units 5-10 years in the future
- **DAA 5-10 Year Projects Plan:** Designed as a snapshot living document tool to be used as a decision making aid for MDW leadership in conjunction with the DAA Development Plan, Belvoir Master Plan and MDÉP POM
- **Update Aircraft Parking Plan:** Enhance customer service to accommodate existing missions, enhance safety and provide better flexibility for future missions
- **Airfield Safety Council:** Working group forum for all unit safety reps, users and support agencies to jointly work issues
- **Incorporated GEOBASE into new airfield design program** to be used for future airfield enhancements
- **Enhance community relations:** Working with Public Affairs Office and DPTMS to work noise abatement issues
- **Established Pilot Liaison Program:** Designed to enhance communications across the board between flying units and airfield operations services

Davison Army Airfield



PROPOSED 5-10 YEAR DEVELOPMENT PLAN



Davison Army Airfield



PROPOSED PLAN INPUTS

- BASED ON COMBINED “WISH LIST” FROM BASED DAA CUSTOMERS
- 12 AVN BN: SEE ATTACHED
- OSACOM/OSAA: SEE ATTACHED
- CIVIL AIR PATROL: SEE ATTACHED
- AVIATION NIGHT TESTING LAB: SEE ATTACHED
- DC ARMY NATIONAL GUARD: NO INPUTS

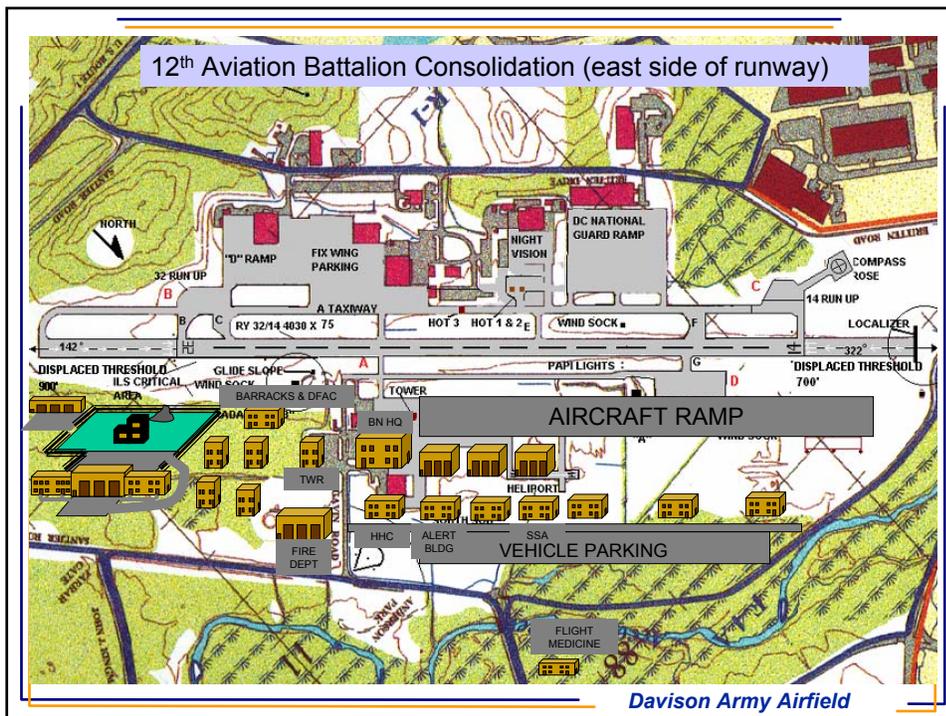
Davison Army Airfield



12TH AVIATION BATTALION CONCEPT

- RELOCATE NEW FACILITIES OUTSIDE RUNWAY PRIMARY SAFETY ZONE
- NEW CONSTRUCTION INCLUDES BARRACKS, HANGARS, TOWER AND ADMINISTRATIVE FACILITIES
- DEMOLISH ALL FACILITIES INSIDE TAXIWAY SAFETY ZONE
- CONSOLIDATE ALL FACILITIES AND AIRCRAFT ON THE EAST SIDE OF THE RUNWAY
- RELOCATE CONTROL TOWER ADJACENT TO FIRE DEPARTMENT
- CONSTRUCT NEW MDWEC COMPLEX SOUTH OF FIRE DEPT (SEE ATTACHED)
- RELOCATE AIRFIELD SERVICES TO VACATED NIGHT VISION LAB FACILITY

Davison Army Airfield



Battalion Headquarters

- Separate Office for CDR and CSM
- XO Office
- Reception area
- S1 Office for OIC, NCO with separate PAC
- S4 Office for clerk, NCO, OIC
- S2 Office
- S3 Office
- Plans office
- Flight Operations Office
- Flight Operations Service area
- Storage Space
- Supply Room
- Latrines / showers

Davison Army Airfield

Headquarters and Headquarters Company Building

- Separate Office for CDR and 1SG
- Orderly room
- Arms room
- Supply room
- Conference room
- Storage Space
- Latrines / showers

Davison Army Airfield

Flight Company Headquarters Building

- Separate Office for CDR and 1SG
- Platoon leaders office
- Safety and Stands office
- Conference room
- Flight planning room
- Latrines / showers

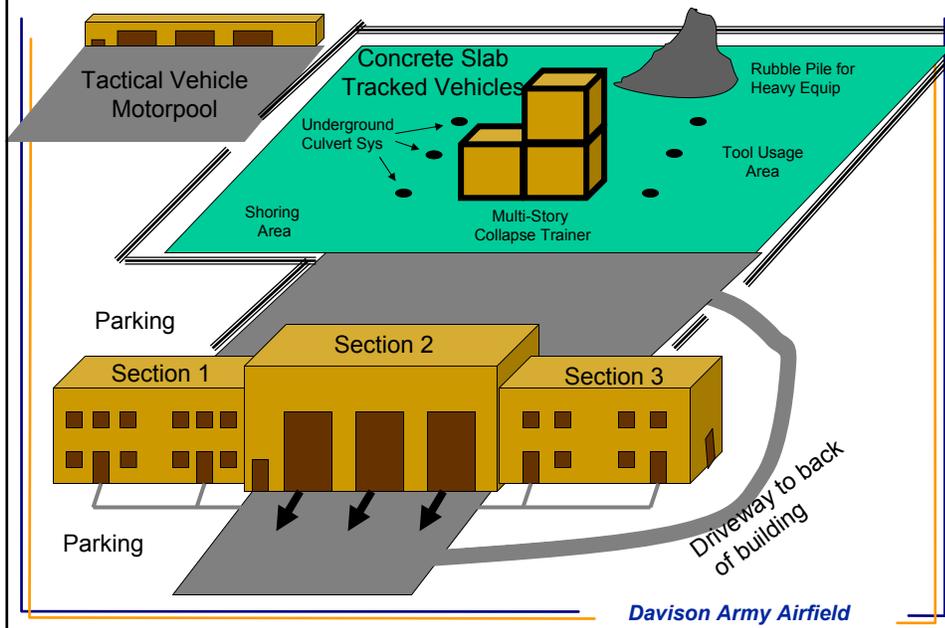
Davison Army Airfield

Seven Hangars

- 5-10 Years: Space required for 8 UH-60s is four (4) hangars
- 10-30 Years: TDA may add 5-12 UH-60s that will require approx 3 more hangars
- Hydraulic lifts on ceilings
- Office space for: Crew chiefs / Platoon Sergeants
- Latrines / Showers
- Storage space for tools and equipment

Davison Army Airfield

MDWEC Complex Concept Sketch (Aug 05)



Davison Army Airfield



12 AV BN MDWEC CONCEPT-CONT

Section 1

Two story Office section of the building

1st Floor Contains

- Orderly Room
- Cdr Office
- 1SG Office
- XO Office
- Op NCO Office
- Conference Room
- M&F Latrine

2nd Floor Contains

- 1stPLT Office
- 1stPLT Counseling Office
- 2ndPLT Office
- 2ndPLT Counseling Office
- Commo Office/Storage
- Male Latrine -Showers
- Female Latrine -Showers

Davison Army Airfield



12 AV BN MDWEC CONCEPT-CONT

Section 2

Open Bay for Rescue Trucks, elevated catwalk for type training/d

1st Floor Contains

- Space for 3 Rescue Trucks
- Front and Rear Rollup doors and roadway to the rear of the building to prevent backing trucks in

Davison Army Airfield



12 AV BN MDWEC CONCEPT-CONT



Section 3

Two-story Logistics and Training section

1st Floor Contains

Special Equip Room (adj to bays)
Supply Room (exterior double door)
Arms Room
Laundry/ Utility Sinks with drainage
NBC Room
M&F Latrine

2nd Floor Contains

Classroom 80 Pax
Alert Room/ Alert lockers
M&F Latrine
State Funeral Storage
Rescue Systems Storage
Enhanced Rescue Storage

Davison Army Airfield



12 AV BN MDWEC CONCEPT-CONT



Training Area

Adjacent Multi-Use Technical Rescue Training Facility (Perimeter Fence)

Multi-story Building

- Simulated damaged walls for rakers and shoring
- Sloped floors for shoring
- Underground culvert and vault system for confined space
- Concrete wall, floor cutouts for breaching
- Rope Training wall with pickoff trainer for vertical training
- Complex Utility room to train Lockout Tagout
- Concrete Trench for trench rescue
- Highline anchors for vertical and horizontal training
- Rollup doors for Bobcat exercise build up

Concrete Training Surface

- Lifting and moving obstacles
- Vehicle extrication
- Concrete slab lift
- Tool Usage area
- Above ground confined space trainer maze
- capable of driving tracked vehicles (dozer hyex)

Large Rubble pile for heavy equip and rigging

Davison Army Airfield

Tactical Vehicle Motorpool

Open bays for work on tactical vehicles with storage space

- Building similar to Bldg 1950 for ground vehicle maintenance within the tactical vehicle motor pool.
- Include provisions for a oil-water separator, overhead lift, and hydraulic lifts like you see at Jiffy Lube to inspect and work under vehicles.
- Space to properly store petroleum, oil and lubricants with secondary storage.

Davison Army Airfield

Additional Building Requirements

- Four barracks buildings for E4 and below requiring housing
- DFAC capable of feeding 350 soldiers at once.

Davison Army Airfield



OSAA/OSACOM CONCEPT

- CONSOLIDATE HQ ADMINISTRATION, SCHEDULING, OPERATIONS CONTROL AND TRAINING IN ONE LOCATION
- ADD HANGAR TO ACCOMMODATE ASSIGNED REGIONAL FLIGHT CENTER AIRCRAFT (10,000SF) AND OFFICE SPACE (3000SF)
- ADD HANGAR FOR PROPOSED FUTURE ASSIGNED CARGO AIRCRAFT (25,000SF) AND OFFICE SPACE (12,000SF)
- ADD FIXED WING PARKING WITH TIE-DOWN/GROUNDING POINTS FOR TRANSIENT AIRCRAFT
- ADD FACILITY FOR SHARED COMMUNITY FITNESS CENTER
- REJUVENATE THE DETERIORATED AIR ASSAULT COURSE THAT IS CURRENTLY CLOSED FOR SAFETY

Davison Army Airfield



CIVIL AIR PATROL CONCEPT

- CAP IS AN AUXILIARY OF THE AIR FORCE THUS AUTHORIZED USE OF MILITARY INSTALLATIONS AS AGREED TO AND PERMITTED BY EACH INDIVIDUAL MILITARY DEPARTMENT
- USE OF AND ASSIGNMENT TO REAL PROPERTY IS USUALLY GOVERNED BY REAL ESTATE LICENSING AGREEMENTS
- MAINTAINS A SMALL RAMP AREA ADJACENT TO THE DC ARNG RAMP AND HAS LIMITED OFFICE SPACE IN THE AIRFIELD SERVICES FACILITY CURRENTLY ON THE DEMO LIST BECAUSE IT IS WITHIN THE TAXIWAY SAFETY ZONE
- FUTURE REQUIREMENTS INCLUDE:
 - AIRCRAFT PARKING RAMP (2300SF) TO ACCOMMODATE 3 CESSNA 182s
 - HANGAR (2300SF), LIGHTED, POWER, HEAT, FIRE SUPPRESSION
 - OFFICE SPACE (UP TO 1000SF) FOR ADMINISTRATION, TRAINING, OPERATIONS AND SCHEDULING

Davison Army Airfield



SUMMARY

- THE CURRENT AND FUTURE MISSION OF DAA IS TO PROVIDE 24/7/365 SUPPORT OF THE MDW/NCR MISSION
- THE OBJECTIVE OF THE DAA DEVELOPMENT PLAN IS THREE-FOLD:
 - ENSURE FULL COMPLIANCE WITH AR 210-20, REAL PROPERTY MANAGEMENT: EXISTING FACILITIES ARE EFFECTIVELY USED
 - DEVELOP A VIABLE “WISH LIST” LIVING DOCUMENT THAT CAPTURES THE REAL NEEDS OF DAA USERS FOR FUTURE DEVELOPMENT THAT WILL MEET FORECAST MISSION DEMANDS
 - DEVELOP A DECISION MAKING TOOL FOR LEADERS TO USE IN ENHANCING THE SAFETY AND ENVIRONMENTAL QUALITY OF DAVISON ARMY AIRFIELD, NOW AND IN THE FUTURE
- PLANNING PROCESS: SPECIFIC SHORT AND LONG TERM GOALS TO DEAL ADEQUATELY WITH FUNDING, MISSION AND ENVIRONMENTAL CONSTRAINTS
- OBTAIN FUNDING FOR IMMEDIATE PLANNING & DESIGN (\$400K): 1-2 YEARS
- OBTAIN MILCON FUNDING FOR PROJECTS EXECUTION: 3-8 YEARS

Davison Army Airfield

B.2 CAP - Facility Requirements

CAP - Facility Requirements 1.txt
From: Operations - National Capital Wing [do@natcapwg.cap.gov]
Sent: Monday, December 18, 2006 1:38 PM
To: Stotzky, Jay L Mr.
Subject: RE: CAP Facility Requirements

>
> Civil Air Patrol, the National Capital wing, currently occupies 2
> rooms and a storage closet in the Airfield Services Building. We also
> operate
> 3 aircraft, 2 Cessna 172 and 1 Cessna 182, currently parked on the
> National Guard ramp. As we are all volunteers, we do not have set
> office hours or manning, but generally, 3-5 people use the office
> space nearly daily for various durations of time (2 minutes to 5
> hours...) On training activity periods, it is possible to have 40-70
> personnel in and around the facility for 8-16 hours.
>
> Civil Air Patrol, the Mt Vernon Squadron, a sub unit of National
> Capital Wing, houses its cadet training activities from the DC ARNG
> armory building.
> They occupy 2 small offices on a sole use basis and share training
> classrooms. They park a 15 PAX van in the parking lot as well.
> They meet every Thursday evening for 2 hours, and have 5-25 people at
> a time. I do not know if development plans call for ARNG relocation.
> If so, this unit needs to be considered. If not, they are fine where
> they are, now and the future.
>
> As for future plans, numbers of personnel and frequencies of use do
> not differ from described in the first descriptive paragraph. We
> expect to trade a 172 for a 182 in the near future, but that is
> minimal impact. So what we envision is:
>
>
> 6000 SF hangar capable of parking 3 aircraft. Low bay hangar is
> descriptive construction - obviously on/adjacent/connected to aircraft
> ramp
>
> 400 SF maintenance shop/storage space
>
> 1600 SF general administrative support space/classroom space
>
> Standard facility requirements to include utilities and fire
> protection/detection, electric hangar door, phone, internet, and radio
> antennae
>
> Estimated total cost is \$1.3M
>
> CAP receives no MILCON or facility SRM appropriation from the Air Force
> so no funds for the vision are brought to the table. Funds could be
> brought to the table through Congressional earmark through the CAP
> corporate side of the house. Donation is another potential funding
> source but nothing in the queue. I doubt CAP corporate funds would be
> allocated for such either.
>
> Please let me know if I can address anything further. Thanks for the
> opportunity.
>
> Mark
>

B.3 DCNG Belvoir New Vision Plan & Power Point



DEPARTMENTS OF THE ARMY AND THE AIR FORCE
JOINT FORCES HEADQUARTERS, DISTRICT OF COLUMBIA NATIONAL GUARD
2001 EAST CAPITOL STREET
WASHINGTON, DC 20003-1719

DCNG-SAAO

18 December 2006

MEMORANDUM FOR FORT BELVOIR NEW VISION PLANNERS

SUBJECT: District of Columbia National Guard Army Aviation Command New Vision Plan

1. The District of Columbia National Guard (DCNG) Army Aviation Command is housed in its entirety at Davison Army Airfield in Building 3121, the Army Aviation Support Facility (AASF) and building 3123, the Aviation Personnel Support Center (APSC). The 43 full time support personnel perform a variety of functions for the total of 146 authorized personnel within the units, including pay and administrative support, unit training, readiness and supply operations, aviation safety, aircrew training and aircraft maintenance. The APSC houses unit administrative offices, Supply rooms, two vaults/Arms room facilities, classrooms, an indoor range, multi-purpose drill floor and kitchen. The AASF provides AVUM, AVIM and limited depot level maintenance for aircraft assigned to supported units. The facility houses Flight Operations, a 50-seat briefing room and various individual staff offices. Shops include a Prop and Rotor Shop, Avionics/Electrical Shop, Battery Shop, Aviation Life Support Equipment Shop, Paint Shop, Welding Shop, Sheet Metal Shop, Engine Shop, Ground Support Equipment maintenance and repair shop, and facilities for the Army Fixed Wing Maintenance Contractor.

2. Units assigned to DCNG Army Aviation:

a. **Detachment B-1, 1-224th Security & Support Battalion.** Better known as the S&S Detachment the unit fills a critical role for the MDW area. The S&S works closely with local and federal law enforcement agencies such as the Drug Enforcement Agency (DEA), Department of Justice (DOJ), Park Police and the Washington, DC Metropolitan Police Department (MPD). A driving force for the District in the war against drugs, the S&S is also assuming a greater role in the Homeland Defense/ Homeland Security arena. The exceptional communication and surveillance capabilities of the S&S airframe also make the unit uniquely suited for air security and command and control during contingency operations. Many federal agencies and the District depend on the S&S to perform a wide variety of specialized missions to fulfill their federal charter. These missions include, but are not limited, to convoy security operations, perimeter security, intelligence gathering and search and rescue. Current resources in the S&S Detachment include 2 OH-58A+ helicopters, 3 vehicles, and 23 MTOE-authorized personnel.

b. **121st Medical Company (Air Ambulance).** The 121st Med Co (AA) is a 15-ship Air Ambulance company. The headquarters, two forward support teams and one area support team (9 aircraft) are assigned to the DCARNG Aviation Command. The unit's 6-ship detachment is located in Delaware. When the next event occurs, the entire company will come together as one force to support assigned missions for disaster relief. The 121st Med Co (AA) serves a critical role for the contingency missions within the MDW area, and is a keystone element in the master plan of the District in the event of attack or natural disaster. The 121st recently participated successfully in the Capital Shield/Vigilant Shield C-MAX. In 2005, the 121st self-deployed and safely/effectively supported the Hurricane Katrina/Rita relief operations in southwestern Louisiana. The 121st is trained to conduct a wide range of missions, including hoist operations, night vision goggle (NVG) operations, and operations in a nuclear / biological / chemical (NBC) environment. This allows response planners and commanders of contingency/relief operations the ability to flex to meet most air requests. Current resources in the 121st Med include 9 UH-1 Medevac helicopters (4 with external fuel systems for extended range) 6 internal rescue hoist systems that can be installed in any available aircraft, 22 vehicles, and 110 authorized aircrew members and operational support personnel.

c. **Detachment 4, Operational Support Airlift Command (OSACOM)** rounds out the DCNG Aviation Command flight units by adding one 14-passenger C-26B to our fleet. The DET 4 continues to provide support (through JOSAC and OSAC) to the MDW area by supporting operations in Guantanamo Bay, Cuba and other mission as assigned, both CONUS and OCONUS. In a contingency scenario, DET 4 can revert to the control of the Commanding General, DCNG, as necessary. The DET 4 has proven itself as a valuable war fighting asset by being the first unit to deploy a C-26 in support of operations Enduring Freedom and Iraqi Freedom in Africa with the Combined Joint Task Force-Horn of Africa (CJTF-HOA) in 2005. Current resources include 1 C-26B and 8 authorized personnel.

d. **Joint Forces Headquarters Aviation Section(JFHQ-Avn):** The JFHQ houses the leadership and senior advisors for other aviation units within the DCARNG. The JFHQ is typically associated with the full time AASF staff, as well, including the State Army Aviation Officer (SAAO) (also the Aviation Forces Commander), State Standardization, Training, Safety and Maintenance Officers. The assigned senior aviators and support personnel make the JFHQ uniquely suited to conduct OSA and specialized missions requiring expertise and discretion. These missions are classified but are essential to national security within the District. The JFHQ Aviation Section currently consists of 5 authorized personnel.

2. **Current operations.** DCNG currently conducts rotary wing OSA for reserve component personnel within the DC area, and fixed wing OSA through OSAC/JOSAC. The S&S actively supports numerous federal and local law enforcement agencies in

counter-drug operations. Units train for missions that include medical evacuation and disaster relief. The DCNG Army Aviation units will play a large role in the event contingency operations are required in the District of Columbia. Operational plans reach across several federal agencies to include; the DHS, FEMA, U.S. Marshall Service, and others. These missions are critical to national security and are key to successful contingency operations at a national level. The permanent/non-transient nature of the DCNG Army Aviation staff provides stability and continuity for operational support, and generates the institutional and local area knowledge that can only be gained through experience. The State Army Aviation Officer (SAAO) will be the Aviation Task Force Commander in the event of attack or natural disaster within the District of Columbia. When this happens the DCNG must be able to accommodate a large number of relief helicopters and large cargo airplanes (up to C130). The AASF must be able to load and off-load large numbers of people and supplies and perform Joint Reception, Staging, Onward movement and integration (JRSOI) of incoming assets to effectively deal with any disaster. DCNG facilities must also house and support the large number of people that will be supporting these types of operations. The DCNG plans on being the cornerstone for the JRSOI concept within District of Columbia and to cooperate with Davison Army Airfield for other JSROI within the region.

3. Future Operations 2010.

The AASF DCARNG will house no fewer than 12 Light Utility Helicopters named 72A Lakota (LUH). These helicopters are four-bladed and will require more hangar space than the two bladed UH-1s and OH-58s. The DCARNG expects this fielding to be complete by 2010. When it is the AASF will require a great deal more ramp and hanger space. The LUH presents new challenges and requirements. First the AASF will have to increase manning to match the training and maintenance requirements of the newer helicopter. The AASF Maintenance section will grow to include hydraulics and flight control systems. The current Aviation Section of the DCARNG has tremendous capabilities, but must grow to meet the operations needs of fielding a new airframe and an ever growing and changing mission. The integration of the National Guard and Active Duty plans are critical to effective and efficient mission execution and will only be met today by looking into tomorrow. The vision of the AASF and DCARNG Aviation Section is to become an A-POE/D facility that is capable of supporting the missions that are implied by the RSOI concept. By 2010, we expect to be in process on several expansions and improvements to current facilities, to include the additions of an alert facility, shower facility, storage shed and motor maintenance bay.

4. Future Operations 2020 and beyond.

The DCARNG aviation section will be at the tip of the spear with regard to emerging army aircraft. In addition to fielding the LUH, the Army will be retiring the C-26B in 2011. DET 4 will be fielding the new Cargo/Passenger aircraft (C-27) sometime during the transition. Aircraft, equipment, and personnel are important considerations in future

planning. More important is the need to understand the direction and intent of future missions. The DCARNG, along with other agencies within the District, is continuing to develop plans that will provide stability to our nation for the next crisis within the District of Columbia. Our proven ability to execute a wide variety missions, coupled with a unique set of capabilities, makes the DCARNG Aviation Section well suited to execute priority missions within the NCR. In this time frame, the AASF expects to expand to a full APOE/D facility using the currently undeveloped land adjacent to current facilities.

5. Today's mission is ever changing and constantly evolving. It is critical that the National Guard be able to work with Fort Belvoir and Davison Army Airfield to grow and adapt in order to respond the emerging threats of the future. Any questions should be addressed to CW4 Sweet at (703) 806-7690 or LTC Bellamy at (703) 806-7702.

MAUREEN E. BELLAMY
LTC, AV, DCARNG
State Army Aviation Officer



District of Columbia Army National Guard

BELVOIR NEW VISION PLAN

POC: LTC Maureen Bellamy (703) 806-7702

DCNG ASSETS

- 121st Medical Company (Air Ambulance)
- Detachment B-1, 1/224th Security and Support Battalion
- Detachment 4, Operational Support Airlift Command
- Army Aviation Support Facility

121st Medical Company (Air Amb.)



121st Medical Company (Air Amb.)

9 UH- 1 helicopters provide:

- Contingency MEDEVAC support to NCR
- Rotary wing Operational Support Airlift for Reserve Component leadership in the NCR
- DAA location allows timely response and adequate fuel reserve for all areas within NCR

DET B-1, 1/224th Sec & Spt BN



DET B-1, 1/224th Sec & Spt BN

2 OH-58 A+ helicopters provide:

- Timely Counter-Drug support to federal and local law enforcement agencies (RAID)
- Homeland Defense / Contingency Support (Observation / C&C / Real-time Tactical Downlink/ FLIR / Wulfsberg communication w/civilian LEA)
- Scheduled to be the first ARNG unit to receive the new UH-145 in FY 08

DET 4 OSACOM



DET 4, OSACOM

One C26-B (Fairchild Metro 23, twin turbo-prop) airplane provides:

- Fixed-wing Operational Support Airlift for AC/RC
- Supports Continuity of Operations Plan (COOP) for Chief, NGB
- DAA location allows timely contingency response and efficient OSA support

Joint Forces Headquarters (JFHQ-DC) Aviation Section

- **State Army Aviation Officer**
 - Senior Aviation advisor to CG
 - Commander of Aviation units
 - Commands Aviation Contingency Task Force of organic and attached National Guard Aviation assets (EMAC)
- **State Aviation Standardization, Safety and Maintenance staff**
 - Aviation Support Facility key personnel
 - Provides training and maintenance to supported units
 - Provides core of District Aviation Contingency Task Force staff

Army Aviation Support Facility



Army Aviation Support Facility

- Fixed-base AVUM / AVIM aircraft repair capability
- 49 authorized full-time personnel conduct on-going support of assigned DCNG aviation units (training and maintenance)
- FTS aircrews available for short-notice response to contingencies within the NCR
- AASF serves as base for incoming RC disaster response assistance to NCR

Future Development

- Alert facility for standby crews
- Storage facility for deployable unit equipment
- Storage facility for ground support equipment
- APOE/D facility for contingency RSOI

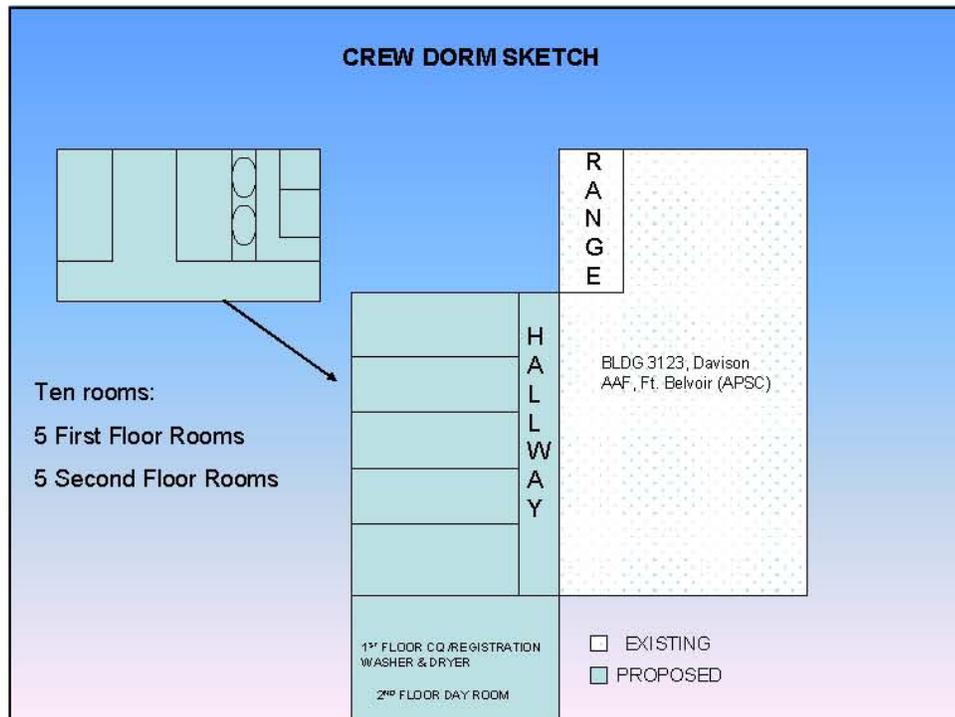


Aviation Proposal 1: Alert Facility



Justification:

- Aviation operations governed by strict crew rest guidelines in AR 95-1
- 24+ Hour operations increase risk from fatigue
- AASF lacks adequate quiet space
- AASF lacks adequate locker/shower facilities
- AASF does not meet fire code requirements for troop occupancy



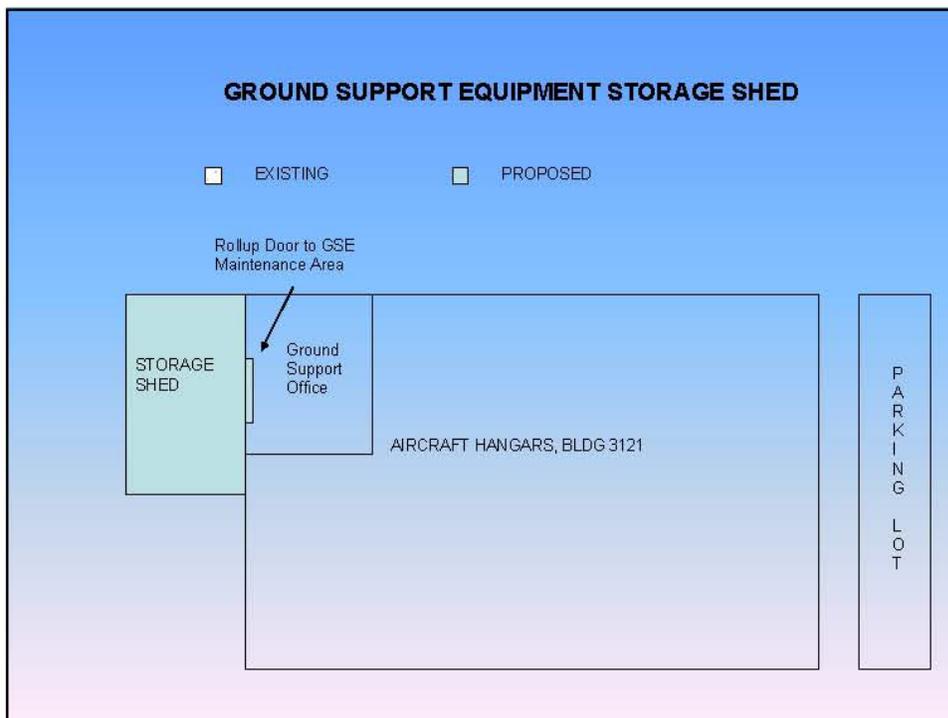


Aviation Proposal 2: Ground Support Equipment Storage



Justification:

- Plans completed several years ago
- Outdoor storage of GSE decreases lifespan and increases maintenance workload
- Aviation slated to begin receipt of 4-bladed helicopters in FY07 – reduced space in hangar for GSE storage





Aviation Proposal 3: Locker Room/Storage Facility

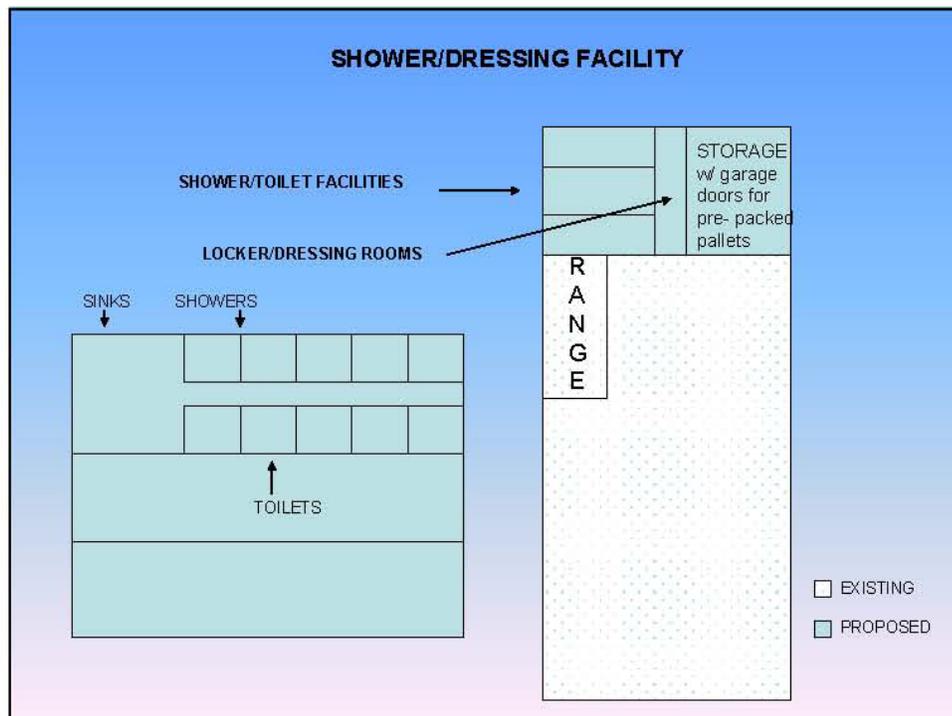


Justification of Storage Area:

- Units are upsizing and changing from TDA to MTOE; more equipment must be stored

Justification of Locker Room:

- AASF and APSC lack adequate facilities for unit personnel on contingency duty
- Use of DAAF for contingency RSOI will require support of temporarily lodged personnel
- Can be used for support of RC APFTs



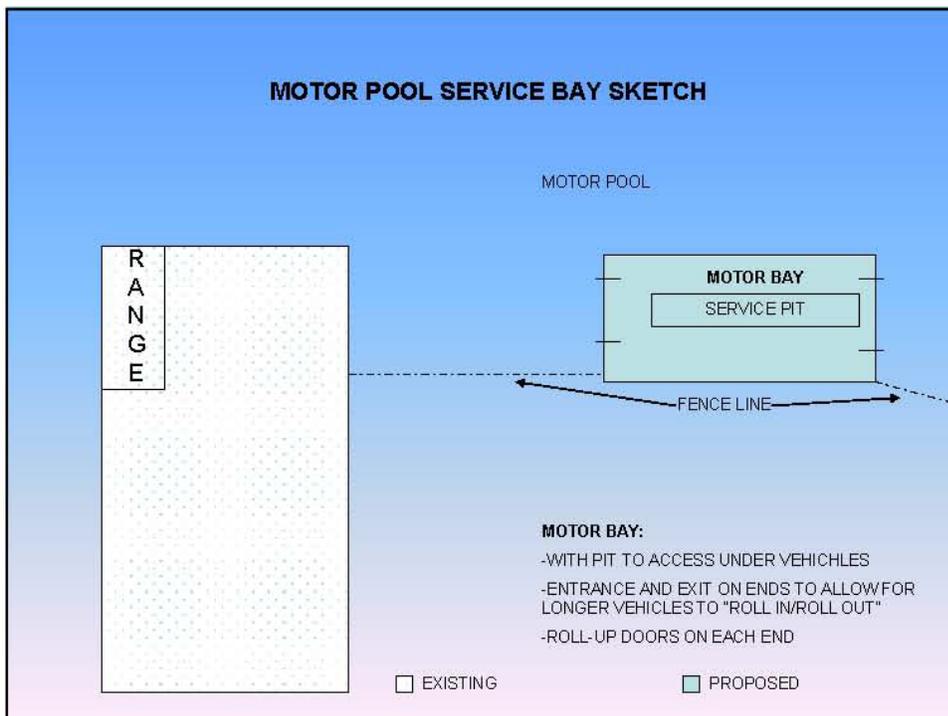


Aviation Proposal 4: Motor Maintenance Facility



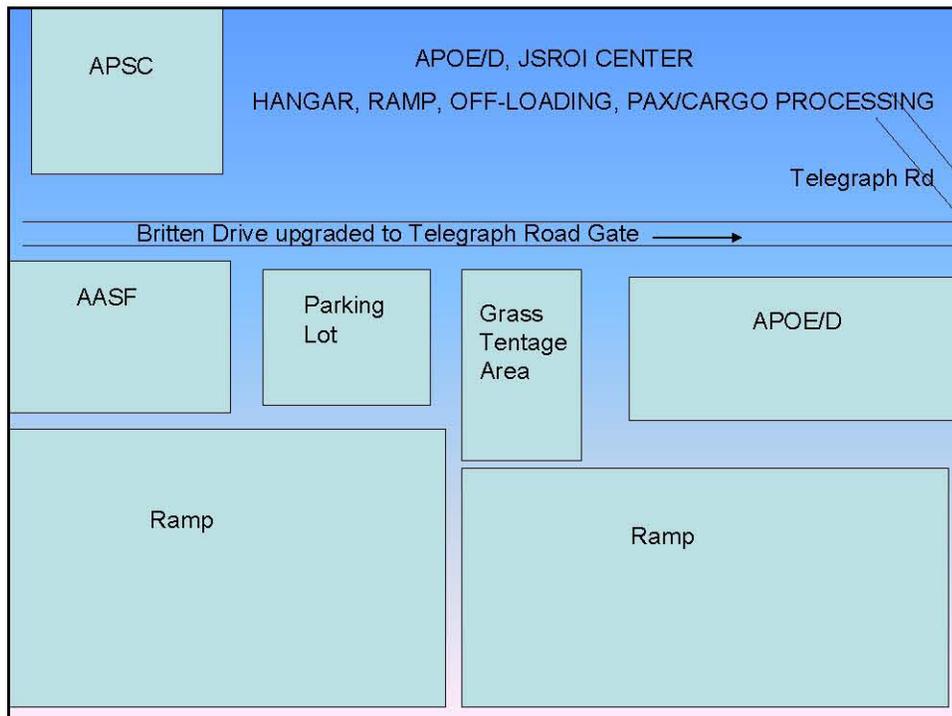
Justification:

- Unit changes have increased vehicle numbers. A facility will allow full time support and reduce the workload on CSMS
- Units are upsizing and changing from TDA to MTOE; more equipment must be stored
- When DAAF is used for RSOI, the Facility will be available to support arriving vehicles



APOE/D Facilities Proposal

- Should be part of DAA Development Plan
- Should Include:
 - Runway upgrade (ongoing)
 - Off-load ramp, warehousing area / covered storage / forklift capability
 - Facility for administration of personnel
 - Space for tentage / crew rest areas
 - Parking plan



B.4 NVESD - ASD Airfield Future Plan revA12 Dec 06

NVESD Division Airfield Operations

NVESD Aviation Test Facility

Description: The NVESD Aviation Test Facility at the Davison Army Airfield, Fort Belvoir, VA. Army Aviation is a major application area for NVESD's technologies. NVESD is developing both pilotage and target acquisition systems for current and future Army aircraft. To accomplish this mission, NVESD maintains a unique in-house capability in the Building 3128 Hangar to integrate system technology into various Army aircraft and to test those systems in an airborne environment. Test flight operations are conducted at the Davison Army Airfield, Ft. Belvoir, VA, and Ft. A.P. Hill, VA. These facilities contain the infrastructure specializing in aviation support for integration, development, test, data collections and demonstrations of airborne assets. NVESD maintains a number of different aircraft including Twin Otters, Blackhawk helicopters, and Huey helicopters. In addition, NVESD is leasing a King Air aircraft for a specific project need. Each aircraft is reconfigurable for systems integration and flight-testing of airborne system technologies.

Personnel: Current NVESD Personnel Assigned to the Airfield: 7 Government/2 NCOs/12 Contractors

Manned Aircraft:

- 2 DHC-6 Twin Otters
- 1 YEH Blackhawk Helicopter
- 1 UH-60A Blackhawk Helicopter
- 2 UH-1 Huey Helicopters
- 1 C-12 King Air 200 (temporary lease)

Aircraft Hangar: The current aircraft hanger has a combination of open space to store aircraft and shop and storage space to support maintenance and light manufacturing. Until recently, NVESD had 5 operational aircraft: 2 Twin Otters, 1 Blackhawk, and 2 Hueys. These aircraft were housed in 13,000 sq. ft. of open hanger space. The addition of a planned ramada will add 7,200 sq. ft. of covered storage area to accommodate the new Blackhawk. No new provisions are planned for the leased King Air aircraft. The current hanger includes another 7,500 sq. ft. of associated work space used for maintenance and manufacturing. A list of special purpose areas within the associated work space is listed below.

- Sheet Metal and Manufacturing Shop
- Avionics and Electronics Shop
- Tool Room
- Parts Room
- Technical Library and Aircraft Records Room

The utilities required for the hanger include 3-phase 60 Hz at 30 Amps electrical power and multiple 220 VAC connections in the metal shops used to power large shop equipment. Also required is compressed air with multiple connections throughout hanger and work centers equired for pneumatic tools. In addition, water, heating and cooling for the associated work space, and forced heat for the open hanger area

The equipment within the hanger includes the following:

- 2 1-ton Shaw boxes
- 1 40 KVA 3-phase 208 Volt to 28 Volt DC/115 Volt power inverter

- 1 30 KVA 3-phase 208 Volt to 28 Volt DC/115 Volt power inverter
- 2 10 KVA 3-phase 208 Volt to 28 Volt DC/115 Volt power inverter
- 1 Diesel powered 28 Volt/10 KW DC Generator
- 1 Forklift
- 2 Warehouse Tractors/Tugs for moving Aircraft
- 1 Commercial Utility Cargo Vehicle (CUCV)
- 1 150 Gallon Compressor

The Sheet Metal and Manufacturing Shop include the following:

- 1 Vertical Milling Machine
 - 1 4-Foot Sheet Metal Brake
 - 1 2-Foot Sheet Metal Brake
 - 1 4-Foot Hydraulic Metal Shear
 - 1 3-Foot Metal Shear
 - 1 Hand Shear
 - 1 Hydraulic Press
 - 1 Manual Press
 - 1 Chassis Punch
 - 1 Sheet Metal Corner Notcher Assembly
 - 1 Band Saw
 - 1 Drill Press
 - 1 Grinder
 - 1 Belt Sander
- Numerous Vises and Benches

The Avionics and Electronics shop, the Avionics and Electronics shop, the tool room, the parts room, and the Technical Library and Aircraft Records room all have numerous cabinets, shelves, and benches.

Ramp Space: The ramp space is an 88,000 sq. ft. paved area surrounding the hanger on three sides. It is used to maneuver aircraft in and out of hanger, lift off and landing of rotary wing aircraft and a staging area for fixed wing aircraft before and after takeoff. The ramp space is reinforced to accommodate aircraft up to 100,000 lbs. and is equipped with tie downs around the periphery for overnight parking.

Aircraft Integration Shop: The Aircraft Integration Shop is a 1300 sq. ft. climate controlled building used to prepare sensor and instrumentation for flight test. It has numerous benches and storage cabinets. It also has an array of electronic test equipment, electronic parts, and electronic/wiring fabrication equipment.

Integration Equipment and Large Part Building: The Integration Equipment and Large Part Building is an 1150 sq. ft. climate controlled building used to store high value electronic test articles as well as larger aircraft spare parts.

Ground Support Building: The Ground Support Building is a 1600 sq. ft. climate controlled building used to store general equipment.

Flight Operations Building: The Flight Operations Building is a 2650 sq. ft. climate controlled building used for office space and conference rooms.

Unmanned Aerial Vehicle (UAV) Laboratory: The Unmanned Aerial Vehicle (UAV) Laboratory is a recent, 2004, addition to the complement of NVESD facilities. It is a 2,150 sq. ft. climate controlled

building. UAVs are an emerging, and ever growing part of the Army's acquisition and war fighting missions. As an essential part of many UAV systems NVESD is in the development of advanced sensor applications for Reconnaissance, Surveillance, and Target Acquisition (RSTA) missions, Command, Control, Communications, Computing, and Intelligence (C4I) missions, as well addressing the many other UAV missions, and requirements. In direct support of the UAV sensor development programs, NVESD maintains a UAV laboratory at Davison Army Airfield that is an augmented capability to the manned aviation assets. The UAV laboratory acts as the primary support facility for the integration, maintenance, and support of UAV sensor experimentation. NVESD maintains a number of in-house UAV test-bed aircraft including Small UAV's such as the Army's Raven and Pointer, and larger VTOL UAV, and fixed wing UAVs prototypes. Each of the UAV aircraft is special purpose modified for the purposes of experimentation, flight-testing, and demonstration of various types of sensors, and other UAV technologies.

Within the UAV laboratory, there is a shaker table to test vibration effects on equipment and a collimator to test electro-optic sensors. There are also 2 UAV simulators/trainers. In addition, there are a number of shelving units, work benches, and equipment cabinets located within the building.

Evaluation of Current Facilities

Aircraft Hangar: The current hanger is not large enough to accommodate the current aircraft and workload. The open space within the hanger is barely large enough to accommodate 2 Twin Otter aircraft comfortably. Typically a 10 foot buffer is allotted to each aircraft to minimize the probability of damage when maneuvering aircraft. Maintaining anything close to a standard buffer is not possible even if the new ramada is provided. As the number of aircraft has grown, so has the requirement for associated work space used for maintenance and manufacturing. The current hanger work space is used to capacity and more is needed.

Ramp Space: The current ramp space is used to capacity.

Aircraft Integration Shop: The aircraft integration shop is adequate for current needs.

Integration Equipment and Large Part Building: The aircraft integration shop is adequate for current needs.

Ground Support Building: The Ground Support Building needs a new roof in the very near future.

Flight Operations Building: The Flight Operations Building is large enough to accommodate the current staff, but has no more room for growth. It is poorly insulated and the HVAC system is insufficient for the current configuration.

Unmanned Aerial Vehicle (UAV) Laboratory: The UAV Laboratory is adequate for current needs

Utilities: With the recent addition of available power, available electricity is adequate for current needs. The water pressure is inadequate

Parking: Recent changes in policy have reduced parking, which is now inadequate.

NVESD Aviation Test Facility Needs by 2010

Personnel: 8 Government/2 NCOs/13 Contractors

Addition of major equipment: None

Near term needs for the NVESD Aviation Test Facility include the following:

- Build 85' x 85' ramada to store aircraft
- Re-roof the Ground Support Building
- Address low water pressure
- Increase parking to 40 spaces
- Address HVAC needs for the Flight Operations Building

NVESD Aviation Test Facility Needs by 2020

Personnel: 10 Government/2 NCOs/14 Contractors

Addition of major equipment: Add DHC-6 Twin Otter and undetermined UAVs

Needs of NVESD Aviation Test Facility by 2020 include the following:

- Replace the Aircraft Hangar with one that has 35,000 sq. ft. of open hanger space and 15,000 sq. ft. of associated work space used for maintenance and manufacturing. Remove the ramada and the aircraft integration shop
- Increase the ramp space to 180,000 sq. ft. paved area surrounding the hanger on three sides.
- Replace the Integration Equipment and Large Part Building and the Ground Support Building with a single 5000 sq. ft. climate controlled building for store equipment.
- Replace the Flight Operations Building a 5,000 sq. ft. climate controlled building used for office space and conference rooms.
- Replace the UAV Laboratory with a 5,000 sq. ft. climate controlled building.
- Upgraded utilities commensurate with new buildings
- Increase parking to 50 spaces

NVESD Aviation Test Facility Needs by 2030

Personnel: 10 Government/2 NCOs/14 Contractors

Addition of major equipment: None past that projected for 2030

Needs of NVESD Aviation Test Facility by 2030 are the same as that for 2020

B.5 OSAA - Info Paper OSAA/OSACOM Mission and Equipment & OSAA - Info Paper OSAA/OSACOM Personnel and Equipment

INFORMATION PAPER

OSAA-PS-MP
18 December 2006

SUBJECT: OSAA and OSACOM Equipment and Mission Projections

1. Purpose. To identify projected equipment, building and mission projections at Davison Army Airfield (DAAF) in support of the Fort Belvoir BNVP meeting.

2. Facts.

a. OSAA, OSACOM and the Fort Belvoir Regional Flight Center (FBRFC), currently operate three C-12U cargo airplanes and two UC-35 passenger jets from DAAF. These aircraft flew 2245 hours in support of over 260 DoD missions in FY 2006. These missions are expected to increase throughout the next two decades. Transient missions to DAAF were xxx in FY 2006 and are expected to increase by 3% annually.

b. Equipment Projections:

Current C-12U Airplanes – 3

Required by 2020 – 3

Current UC-35 Jets – 2

Required UC-35 Jets by 2020 – 2

Current Future Cargo Aircraft Requirement – TBD

Required FCA by 2020 - TBD

c. Building and Ramp Projections:

Current Buildings – 3; 2 Office buildings and 1 Hangar/office building (Currently only able to hangar 3 of 5 aircraft at one time)

Required Buildings – 4; 3 Office buildings and 1 Hangar/office building (Hangar must be expanded or an additional hangar built to accommodate all aircraft and two transient aircraft simultaneously (22,000sq ft). In addition, the maintenance contactors (DynCorp) require space for offices and equipment storage (6,000 sq ft)

SUBJECT: OSAA and OSACOM Equipment and Mission Projections
18 December 2006

Current Ramp Space – Can accommodate all five aircraft simultaneously.

Required Ramp Space – Accommodate all five aircraft and five transient aircraft simultaneously.

d. Transient Mission Projections:

2006 – 1390
2020 – 2091
2030 – 2809

e. Issues and Opportunities:

Issue 1 – With the proposed addition of over 18,000 new personnel to Fort Belvoir based on BRAC, the current number of athletic facilities (3), which are already operate at capacity, will be overwhelmed. Soldiers assigned to units on DAAF will find it impossible to use these facilities, especially during duty hours.

Opportunity 1 – Construction of a state-of-the-art athletic facility on DAAF which will accommodate all personnel, DoD civilian, military and Government contractor such as Dynacorp. At a minimum, this facility should include all amenities already provided on the main post of Fort Belvoir and operated by MWR.

Issue 2 – With the proposed addition of over 18,000 new personnel to Fort Belvoir based on BRAC, the current number of military dining facilities (DFAC) and commercial dining establishments, both on and off-post, will be overwhelmed. Soldiers assigned to units on DAAF will find it impossible to use these facilities, especially during duty hours.

Opportunity 2 – Construction of either a DFAC or a commercial dining establishment such as McDonalds, Subway, Burger King, etc. would accommodate all personnel, DoD civilian, military and Government contractor such as Dynacorp.

Issue 3 – The proposed addition of over 18,000 new personnel to Fort Belvoir based on BRAC, the current number of service facilities (dry cleaners, clothing sales, class VI, gas station services, PX, etc.) which are already operating at capacity on post, will be overwhelmed. Soldiers assigned to units on DAAF will find it impossible to use these facilities, especially during duty hours.

**SUBJECT: OSAA and OSACOM Equipment and Mission Projections
18 December 2006**

Opportunity 3 – Construction of a consolidated PX Plaza which would incorporate PX, gas, dry cleaning, clothing sales, etc. would accommodate all personnel, DoD civilian, military and Government contractor such as DynCorp and operated by AFEES. All of these initiatives would alleviate traffic congestion on main post and minimize time lost during the duty day accomplishing basic necessities of service.

Issue 4 – The HHC of OSAA currently occupies space in the FBRFC hangar and facilities with, which is extremely overcrowded and grossly inefficient.

Opportunity 4 – Construction of an additional office building or an addition to the existing FBRFC hangar would alleviate the overcrowded conditions and provide the necessary space to store and secure the organizational equipment of both the HHC and FBRFC.

Issue 5 – OSAA and OSACOM are dealing with multi-million dollar un-funded requirements (UFR) through 2013 and beyond in maintenance and fuel funds.

Opportunity 5 – As the OPTEMPO of OSAA and OSACOM increases in the out years, every opportunity to become more efficient and reduce waste, and conserve resources will assist in reducing the impacts of the projected UFRs. Implementation of the above requests will greatly assist in this endeavor.

Encls:

1. OSAA UFRS
2. OSACOM MISSION PROJECTIONS

LTC VALENTINE/806-7506
APPROVED BY: LTC WOLF

**SUBJECT: OSAA and OSACOM Personnel and Equipment Authorizations (Unclassified)
18 December 2006**

SECTION II - PERSONNEL

P P G T S A A L L B I P P P P P P T S
 A E R P Q S S I P R D P S P R R R D W
 R R A A I I I C I N E S I S M M M U C M
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001 OFC OF THE CDR
 01 COMMANDER O5 15B00 E5 AV K Y Y Y 1 1 89 SA 431G1000 DAB J501 A WGDC
 02 CSM E9 00Z50 NC I Y Y Y 1 1 89 SA 431G1000 DAB J501 A WGDC
 03 HR SERGEANT E5 42A20 NC I Y Y Y 1 1 89 SB 431G1000 PUU Y810 A WGDC
 TOTAL OTHER-PERS 001 3 3
 003 FT BELVOIR RFC W3G202
 01 COMMANDER O4 15B00 E5 AV K Y Y Y 1 1 89 SA 431G1000 XEA J501 A WGDC
 02 OPS OFFICER O3 15B00 E5 AV K Y Y Y 1 1 89 SA 431G1000 XEA J501 A WGDC
 03 STDZN IP W4 155FH AV P Y Y Y 1 1 SB 431G1000 XEA J501 A QATC
 03A STDZN IP W4 155FF AV P Y Y Y 1 1 89 431G1000 XEA J501 A PRAG
 04 AVN SAFETY OFF W4 155FB AV P Y Y Y 1 1 SB 431G1000 XEA J501 A QATC
 05 AVN MAINT OFF W4 155EG AV P Y Y Y 1 1 SB 431G1000 XEA J501 A QATC
 07 PILOT W3 155E0 AV P Y Y Y 1 1 SB 431G1000 XEA J501 A QATC
 08 INSTR PILOT W3 155FC AV P Y Y Y 3 3 SB 431G1000 XEA J501 A QATC
 09 AV SAFETY W2 155EB AV P Y Y Y 1 1 SB 431G1000 XEA J501 A QATC
 10 DET SGT E7 15P40 A2 NC I Y Y Y 1 1 89 SB 431G1000 XHD J501 A WGDC
 11 AVN OPS SPEC E6 15P30 Q2 NC I Y Y Y 1 1 89 SB 431G1000 XEA J501 A WGDC
 12 AVN OPS SPEC E5 15P20 NC I Y Y Y 2 2 89 SB 431G1000 XEA J501 A WGDC
 13 STAFF ACT SPEC 07 00301 GS C Y Y Y 1 1 SB 431G1000 XEA Y810 K NGFB
 TOTAL FOR PARA 003 9 9
 TOTAL OTHER-PERS 003 7 7

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 DOCUMENT STATUS - APPROVED CUASC GB REPCO R

SECTION III - EQUIPMENT

P T P E E T
 A P P R R D
 R A A M M U
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 003 FT BELVOIR RFC W3G202 KF
 A30062 AIRPLANE CARGO-TRAN: C-12F 3 3*
 D78555 DATA TRANSFER DEVICE: AN/CYZ-10 3 3
 P04582 PROGRAM LOADER RADIO SET: KY-913/PRC-112 1 1
 R82903 RADIO SET: AN/PRC-112 7 7
 X22266 TRANSPONDER COMPUTER: KIT-1A/TSEC WITH Z-ACA/1 PS 2 2

*Equipment not captured on this TDA are two UC-35 jets.

SUBJECT: OSAA and OSACOM Personnel and Equipment Authorizations (Unclassified)
18 December 2006

b. Personnel Roll-up:

Civilian Personnel – 32
Commissioned Officers – 17
Warrant Officers – 18
Enlisted Soldiers – 43
AC WO Augmentees – 10

Total – 120

c. Aircraft Roll-up:

C-12 Airplanes – 3
UC-35 Jets – 2

Total – 5

d. Building Roll-up:

Bldg 3136
Bldg 3145
Bldg 3165

Total – 3

Encls:

1. OSAA TDA
2. OSACOM TDA
3. Personnel Authorizations by Bldg

CW3 BAXLEY/806-7516
APPROVED BY: LTC VALENTINE

Planning Needs Assessment

(June 2006)

Appendix C

Introduction

The Davison Army Airfield (DAA), located within the Fort Belvoir complex, serves multiple functions in the Washington/National Capitol Region. The goal of this report is to convey an understanding of and summarize:

- DAA's mission
- DAA's current operating conditions and facilities
- Improvements required to allow DAA to continue fully serving its missions
- Rough Order-of-Magnitude costs expected to be incurred in the implementation of the required improvements
- Airspace compliance/ penetration issues and how they affect any potential development in DAA's vicinity

This information will be used as PBS&J, as part of the Belvoir New Vision Planners, begins work on the land-use issues of the Fort Belvoir Master Plan.

Five operational flying units are based at DAA. These units have the primary responsibility within the Washington/National Capitol Region Military District for supporting aviation missions. The five operational units, and the type of aircraft (rotary or fixed wing) each uses at DAA, are:

- 12th Aviation Battalion: Rotary
- Operational Support Airlift Agency (OSAA/OSACOM): Fixed wing
- DC Army National Guard: Rotary/ Fixed wing
- Aviation Night Vision Lab: Rotary/ Fixed wing
- Civil Air Patrol: Fixed wing

General information on the missions of DAA was provided by William Dodson, Air Traffic Manager at DAA, via a telephone conversation on May 30, 2006. On a daily basis, DAA provides:

- Mission support for all military services
- Installation support
- Transportation services to various users such as Cabinet members, Law Enforcement Agencies, and Department of Defense Passenger Transport Shuttles
- Support of training and contingency plans practice

DAA is a key part of the National Emergency Response plan. In the event of a National Emergency, Andrews Air Force Base will be used to launch fighter aircraft and the Presidential Command Control Berth. Andrews will be locked down to all other operations; DAA will provide for simultaneous operations, such as evacuation of the Secretary of Defense and other key personnel. DAA's assets will be used primarily within the DC area Beltway.

These National Emergency Response plans will have to be taken into account during land-use development planning. During a National Emergency, DAA will be in "lock-down", meaning that anybody not currently within the airfield will not be allowed in, and those within the airfield property will not be allowed out until the Emergency has passed. Because of this, Mr. Dodson mentioned that "parkway access", with controlled access,

would likely be the most acceptable form of entry and exit to the airfield, if additional development were to occur in the airfield area.

Additionally, the National Emergency Response contingency plans are practiced on an approximately weekly basis. Some of these contingency plans involve evacuating large numbers of people from within the National Capital Region. The contingency plans include both fixed wing and rotary aircraft. This activity must also be incorporated into any development plans.

Background

DAA is located in Fort Belvoir, Virginia, approximately 15 miles southwest of Washington DC. The airfield covers over 500 acres and is comprised of one runway (Runway 14-32), which is approximately 5,600 feet long with a minimum usable length of roughly 4,700 feet, due to displaced thresholds from obstructions in the approach areas. The runway is 75 feet wide and appears to be a Class A IFR Army runway according to Unified Facilities Criteria (UFC), *Airfield and Heliport Planning and Design* guidelines. The runway has one parallel taxiway (Taxiway 'A') on the west side, which includes seven entrance/exit taxiways that provide access to and from the runway and the west apron areas. Two entrance/exit taxiways on the east provide direct access from adjacent east apron areas to the runway. **Figure 1-1** illustrates the existing airfield layout.

Currently DAA supports operations by both helicopter and fixed wing aircraft. The total aircraft operations data presented in this report are based on monthly activity records provided by DAA Air Traffic Services Staff. The break-down of the operations data by aircraft type results from estimates provided by Mr. Williams Dodson, Air Traffic Manager, based on his years of experience at DAA and institutional knowledge. Helicopter operations account for approximately 60 percent of the total annual flight operations. Fixed wing and helicopter operations for the previous twelve months ending April 2006 totaled 50,181 operations. The helicopter fleet ranges from small OH-6s to large UH-60 Blackhawks and CH-53 Stallions, while fixed wing aircraft operations range from small Cessna 182s to large C-130 Hercules aircraft. **Tables 1-1** and **1-2** present the monthly airfield activity over the past 12 months for fixed wing and helicopter operations.

Figure 1-1 Existing Airfield Layout

Table 1-1. Fixed wing Aircraft Operations

	Total Monthly Operations Count	Fixed-Wing Operations (40% of total ops) ^{1/}	DAA's Largest Fixed-wing Aircraft =C-130 Hercules. Accounts for approx. 4% of fixed-wing activity.	DAA's Highest Ops Fixed-wing Aircraft = C-12 Huron (Military version of the Beech 200 King Air). Accounts for approx. 50% of total fixed-wing operations.	DAA's 2nd Highest Ops Fixed-wing Aircraft = UC35. Accounts for approx. 25% of total fixed-wing operations.	Other Fixed-wing Aircraft = DeHavilland Twin Otter (DHC-6). Accounts for approx. 5% of total fixed-wing operations.
May-05	5,108	2,043	82	1,022	511	102
Jun-05	4,143	1,657	66	829	414	83
Jul-05	4,589	1,836	73	918	459	92
Aug-05	4,882	1,953	78	976	488	98
Sep-05	4,068	1,627	65	814	407	81
Oct-05	3,466	1,386	55	693	347	69
Nov-05	3,286	1,314	53	657	329	66
Dec-05	4,443	1,777	71	889	444	89
Jan-06	3,494	1,398	56	699	349	70
Feb-06	4,036	1,614	65	807	404	81
Mar-06	4,827	1,931	77	965	483	97
Apr-06	3,839	1,536	61	768	384	77
Annual Operations	50,181	20,072	803	10,036	5,018	1,004

1/ Percentages of total operations provided by William Dodson, DAA Air Traffic Manager, via phone conversation 5/30/06

Other Fixed-wing aircraft that regularly use Davison Army Airfield:

- C-23 Sherpa
- Israeli aircraft (similar to Gulfstream II) - comes in once a year
- Gulfstream II
- Cessna Caravan

Table 1-2. Helicopter Operations

	Total Monthly Operations Count	Helicopter Operations (60% of total ops) ¹	DAA's Largest Helicopter = CH-53 Stallion. Accounts for approx. 2% of helicopter activity	DAA's Highest Ops Helicopter = UH60 Blackhawk. Accounts for approx. 60% of total helicopter operations	Other: V-22 Osprey (Tilt rotor). Accounts for approx. 2-3% of total aircraft operations
Apr-05	4,353	2,612	52	1,567	109
May-05	5,108	3,065	61	1,839	128
Jun-05	4,143	2,486	50	1,491	104
Jul-05	4,589	2,753	55	1,652	115
Aug-05	4,882	2,929	59	1,758	122
Sep-05	4,068	2,441	49	1,464	102
Oct-05	3,466	2,080	42	1,248	87
Nov-05	3,286	1,972	39	1,183	82
Dec-05	4,443	2,666	53	1,599	111
Jan-06	3,494	2,096	42	1,258	87
Feb-06	4,036	2,422	48	1,453	101
Mar-06	4,827	2,896	58	1,738	121
Apr-06	3,839	2,303	46	1,382	96
Annual Operations	50,181	30,109	602	18,065	1,255

1/ Percentages of total operations provided by William Dodson, DAA Air Traffic Manager, via phone conversation 5/30/06

Other Helicopters that regularly use Davison Army Airfield:

- Bell 412 (from Andrews)
- HH-65A Dolphin (Coast Guard)
- CH-46 Sea Knight (Marines)
- H-3 Sea King (Presidential Helicopter - Marines)
- OH-58 Kiowa
- OH-6 (just one comes in and out)

Based on available operational and aircraft type information, the specifications of the current critical aircraft and helicopter (the largest, most demanding fixed wing aircraft and helicopter) are presented in **Table 1-3** below.

Table 1-3. Current Critical Aircraft / Helicopter Specifications

	C-130 Hercules (Fixed Wing)	CH-53 Stallion (Helicopter)
Dimensions:		
Wingspan	132' 7"	--
Length	112' 9"	99' 0.5"
Height	38' 9"	28' 4"
Main Rotor Diameter (blades)	--	79' (7)
Weight:		
Max Takeoff Weight (MTOW)	175,000 lbs	--
Max Gross Weight		73,500 lbs.
Min. Takeoff Runway at MTOW*	5,500'	--

* Based on 59°F at sea level with zero runway gradient and a clean dry runway

The airfield is currently designed to meet Class A guidelines with the C-12 Huron (King Air 200) as the design aircraft. Available information from DAA indicates aircraft sizes up to a maximum of a UC-35 (Citation 560) can be safely accommodated. However, C-130 operations, which exceed the design weights and pavement geometry parameters of both the C-12 and UC-35, occur frequently and have resulted in rapid deterioration of the airfield pavements, as well as incidences of aircraft inadvertently running off taxiways. Further, the existing facility layout often results in the interaction of helicopter and fixed wing aircraft operations, which reduces the operational safety and capacity of the airfield.

Other problems also currently exist with the airfield facilities and approach airspace, resulting in nonstandard operations that do not comply with design guidelines as well as reduced and/or eliminated approach and operational capacity. Specifically, the following nonstandard, failing and/or inadequate items have been identified at DAA:

1. Runway 14-32 pavement failing; existing dimensions and weight bearing capacity inadequate to safely accommodate existing (C-130) and forecast aircraft operations
2. Taxiway pavements failing; existing geometry, dimensions and weight bearing capacity inadequate to safely accommodate existing (C-130) and forecast aircraft operations
3. Apron areas failing; existing pavement design inadequate to safely accommodate existing (C-130) and forecast aircraft operations
4. Runway, taxiway and approach lighting systems largely inoperable and antiquated
5. Pavement markings do not meet design guidelines and are not visible in many areas
6. Several existing structures are old and in need of repair, upgrade, or replacement

7. Air Traffic Control Tower determined to be structurally unsound and obstruction to runway safety zone
8. Several obstructions to FAR Part 77 / UFC surfaces exist, including the Airfield Services facility and significant trees/vegetation within the runway approaches
 - a. Trees are currently obstructions at both ends of the runway
 - b. Trees are currently obstructions to the Runway 14 flight path
 - c. Trees are currently obstructions to the Runway 32 ILS approach
9. Roadway at the 14 end of the Runway. Because the trees are currently more noticeable obstructions in this vicinity, the roadway has not been given much attention. However, when the trees are removed, this roadway will also have to be addressed in order to allow full use of Runway 14. The required approach surface clearance is either 10 or 15 feet at this point. To have full use of the runway, this roadway would either have to be closed, or re-located, or a traffic control device installed that would clear traffic from a section of the road when aircraft are approaching Runway 14.

Several of the above items significantly impact the operational safety and capacity of the airfield, such as the obstructions to FAR Part 77 / UFC surfaces. These obstructions limit the use of the full runway length for landing and takeoff and likely reduce the availability and level of instrument approach capabilities. The specific Part 77 / UFC surfaces that apply to DAA and their requirements for compliance are discussed further in the following section.

FAR Part 77 and UFC Imaginary Surfaces

All civil and military airports have guidelines and regulations to protect airspace from obstructions to air navigation and help ensure the safe operation of aircraft. These guidelines and regulations are outlined in Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*, for civil and military airports and further defined for each specific branch of the military in Unified Facilities Criteria (UFC), *Airfield and Heliport Planning and Design*. General obstruction identification and construction reporting requirements on and/or near airports are established in FAR Part 77. These guidelines are further refined into specific airport/runway related imaginary surfaces in both FAR Part 77 and Chapters 3 and 4 of the UFC guidelines. Specifically, the airport imaginary surfaces are established with relation to the airport and to each runway in order to identify and protect against existing and potential obstructions and/or hazards to air navigation.

The imaginary surfaces that apply to DAA include: the primary surface, approach-departure surface, inner horizontal surface, conical surface, outer horizontal surface, transitional surface, and the graded portion of the clear zone. The imaginary surfaces for a Class A IFR runway are illustrated in **Figures 1-2** and **1-3** and further defined in the following sub-sections based on the most recent UFC guidelines.

Primary Surface: A surface longitudinally centered on the runway and extending 200 feet beyond each runway end. The width of the primary surfaces varies depending on the class of runway and coincides with the lateral clearance distance. Further, the elevation of the primary surface is the same as that of the runway centerline.

Figure 1-2 Class A IFR Runway Imaginary Surfaces

Figure 1-3 Class A IFR Runway Plan and Profile Imaginary Surfaces

Approach-Departure Surface: An inclined plane arranged symmetrically about the extended runway centerline. The beginning of the inclined plane starts at the end of the primary surface and the elevation of the centerline at the runway end. The surface flares outward and upward from these points at a uniform slope depending on the class of runway.

Inner Horizontal Surface: An imaginary plane that is oval in shape and is located at a height of 150 feet above the established airfield elevation. The outer boundary is formed by constructing arcs with a radius of 7,500 feet from the centerline of each runway end and interconnecting those arcs with tangents. The inner boundary intersects the approach-departure clearance surface and the transitional surface.

Conical Surface: An imaginary surface that extends from the periphery of the inner horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 7,000 feet and a height of 500 feet above the established airfield elevation.

Outer Horizontal Surface: An imaginary plane located at a height of 500 feet above the established airfield elevation, extending outward from the edge of the conical surface a horizontal distance of 30,000 feet.

Transitional Surface: An imaginary surface that extends outward and upward at right angles to the runway centerline at a slope of 7 to 1 and connects the primary and approach departure surfaces to the inner horizontal, conical and outer horizontal surfaces.

Clear Zone (graded area only): A surface located on the ground at the runway end and symmetrical about the runway centerline extended.

The specific dimensions and associated requirements for each of the imaginary surfaces identified above vary depending on the class of runway and the type of approach. The applicable dimensions and surface details for each of the imaginary surfaces at DAA are illustrated in **Figure 1-4** and further outlined in **Table 1-4**.

An existing object is, and a future object would be, an obstruction to air navigation if it has a top elevation higher than any of the heights or surfaces listed in **Table 1-4**, thus penetrating the associated imaginary surface. Such obstructions can have significant adverse impacts to airfield operations including, but not limited to:

- Limiting the size and type of aircraft that may operate on the runway
- Reducing the usable runway length by requiring displaced thresholds
- Limiting instrument approach minimums and reducing the instrument capacity of the runway
- Completely eliminating precision approach capabilities due to obstructions in the approach path

It is the basic function of FAR Part 77 imaginary surfaces to protect the airport operating environment by avoiding and/or limiting airspace obstructions that may adversely impact the safe operation of aircraft or limit airport operational capabilities. The impacts of existing and/or potential penetrations to the imaginary surfaces are evaluated on a case by case basis specific to the individual obstruction. Typical obstruction evaluations/determinations consider many factors such as; the obstruction's location,

height and size, airport activity, approach/departure and traffic pattern flight tracks, and instrument and missed approach procedures. The end result of this evaluation will determine the level of impact (i.e. obstruction or hazard to air navigation) and what limitations or modifications to airport operations will be required. Also, penetrations to the imaginary surfaces typically have a compounding affect on airport and operational restrictions so other existing obstructions are evaluated and considered in determining the impact of any potential obstruction.

Obstructions that are located within the transitional, conical, inner horizontal, and/or outer horizontal surfaces often require obstruction lighting at a minimum and can impact the traffic pattern altitude and/or approach/departure path alignment for arriving and departing aircraft. Obstructions in these areas could cause the traffic pattern altitude and/or initial segments of the approach path descent slope to be increased to ensure safe clearance of the obstruction. Additionally, shifting the alignment or complete redesign of the approach/departure path and/or instrument missed approach procedures may be required in order to meet the minimum separation requirements between the flight path and the obstruction.

Obstructions in the approach/departure surface are typically the most significant and can have severe, adverse impacts on airport operations. As outlined previously, obstructions in this surface can reduce the available runway length, which could limit the size and type of aircraft that can safely operate at the airfield. Further, obstructions in the approach surface of an instrument approach almost always either increase the descent altitudes and/or visibility minimums of the approach, or worse, render the instrument approach useless and eliminate its availability at the airport. This action would result in a loss of instrument operations capacity at the airport.

In the civilian arena the FAR Part 77 regulations serve primarily as guidelines. The FAA asks that zoning boards or the local government with building approval jurisdictions take into account the Part 77 restrictions when approving development, but there is no binding and enforceable measure behind the guidelines. If a building is built that penetrates the Part 77 surfaces and is determined to be an obstruction, the FAA will have no choice but to declare that the operating capacity of the airport is diminished in one of the ways listed previously. In the case of Fort Belvoir and DAA the UFC guidelines are likely to be more closely observed. It is expected that the Department of Defense will be involved in all stages of planning. It is unusual for a Federal Agency to allow development by one group that negatively affects the operation of a different Federal entity. The imaginary surfaces described in this report should not be penetrated if DAA is to operate at the full desired capacity. Penetrations of the Imaginary Surfaces will have to be considered on a case by case basis. Conversations with Department of Defense staff will be key at all steps of planning.

For DAA to operate at the full capacity described by DAA staff as being necessary for their missions, it is extremely important that existing obstructions are removed per the required Part 77 and/or UFC clearing guidelines and potential future obstructions are prohibited. This can be accomplished by ensuring future development complies with the applicable imaginary surface criteria and is evaluated by the proper FAA and/or DOD officials through submittal of Form 7460-1, Notice of Proposed Construction or Alteration per FAR Part 77 guidelines. This will help DAA regain lost operational capacity and protect against further loss of overall airfield functionality.

Table 1-4. Current Imaginary Surface Dimensions at DAA

Runway 14-32 Imaginary Surfaces	Class A IFR Army Runway Dimensions / Specifications
Primary Surface	
Width	1,000' (500' either side of centerline)
Length beyond RW end	200' beyond each runway end
Approach-Departure Surface	
Inner width (start of slope)	1,000'
Outer width (end of slope)	7,000'
Length	20,000'
Slope	40 to 1
Clear Zone Surface (graded)	
Width	1,000'
Length	1,000'

Source: Unified Facility Criteria (UFC), Airfield and Heliport Planning and Design

Figure 1-4 DAA Airspace and Imaginary Surfaces

Proposed Airfield Improvements and Estimated Costs

As discussed previously, much of the current airfield infrastructure and facilities do not meet design standards, are not adequate for existing and forecast activity, are old and in need of repair or upgrade, are located too close to the airfield safety areas and are obstructions to the airfield imaginary surfaces. These conditions have likely caused reductions in operational capacity and efficiency, as well as impacted the overall safety of operations at DAA.

In an effort to eliminate the existing design, safety and facility issues at DAA, several airfield improvements have been identified in order to bring the airfield up to standards, upgrade or replace deteriorated facilities and regain lost operational capacity due to obstructions in the approaches and airport imaginary surfaces. The list of improvements outline the most significant projects that are required to address critical design, capacity and safety issues at DAA, but does not constitute a comprehensive list of all necessary facility improvements and/or expansions. It does, however, identify the most significant improvements necessary to meet minimum design and safety guidelines and the existing and forecast activity. The specific airfield improvements required at DAA, based on available information from DAA operational units and a review of existing airfield data, are listed below in no particular order:

1. Runway 14-32 Rehabilitation – Design and construct a runway rehabilitation of the full 5,600 feet long runway pavement and increase the runway width to 100 feet wide to meet the forecast critical aircraft demand (currently C-130). Include precision approach runway markings and runway lighting to support instrument landing system (ILS) approaches to Runway 32.
2. Relocate Parallel Taxiway A – Design and construct a relocation of the parallel taxiway outside of the primary surface and runway lateral clearance distance. The taxiway should be designed and constructed to meet the forecast critical aircraft demand (currently C-130) and include appropriate pavement markings and taxiway lighting. This project should also include the extension and rehabilitation of the associated entrance/exit taxiways.
3. Rehabilitate Primary Apron Areas – Design and construct an apron rehabilitation of the primary fixed wing aircraft apron to meet the forecast critical aircraft demand (currently C-130). The apron should be located outside of the applicable runway and taxiway safety and clear zones and should include the appropriate pavement markings and overhead lighting.
4. Precision Approach Lighting – Design and construct a precision approach lighting system to support precision ILS approaches to Runway 32.
5. Instrument Landing System – Repair or replace the existing instrument landing system (ILS) for Runway 32 to enable precision instrument landing operations on the runway.
6. Clear Obstructions to Imaginary Surfaces – Remove all obstructions to the airports imaginary surfaces, particularly those located in the approach-departure surfaces, in order to regain full use of the current displaced thresholds for

landing. This project should be coordinated with the runway rehabilitation in order to ensure proper marking of the runway for full unrestricted use.

7. Relocate Air Traffic Control Tower (ATCT) – Design and construct a new ATCT to replace the existing facility that has been determined to be structurally unsound and is currently located within the runway safety zone. The new ATCT should be located outside of the applicable runway and taxiway safety and clear zones and airport imaginary surfaces.
8. Relocate Airfield Services Facility – Relocate the airfield services facility outside of the runway and taxiway safety and clear zones as well as airport imaginary services.

The improvements identified above represent the most significant projects required as the beginning of amounts to rehabilitating the entire airfield and support facilities at DAA. In order to understand the level of investment required with this magnitude of development and the proportionate share of each of the required airfield improvements, rough order-of-magnitude estimates of potential development costs were calculated. It should be noted that the estimates developed were based on available preliminary information and do not represent accurate estimates of project costs, but rather planning level estimates of the potential required investment required and overall level of effort anticipated for each project. The estimates will facilitate comparison of the proposed improvements and overall rehabilitation of the airfield to other potential development alternatives.

The planning level order-of-magnitude estimates of development costs are presented in **Table 1-5**.

Table 1-5. Planning Level Estimates of Development Costs

Airfield Improvement	Estimated Development Cost
Runway 14-32 Rehabilitation	\$6,563,000
Relocate Parallel Taxiway A	\$7,015,000
Rehabilitate Primary Apron Areas	\$11,923,000
Precision Approach Lighting	\$525,000
Instrument Landing System (ILS)	\$2,500,000
Clear Obstructions to Imaginary Services	\$420,000 ¹
Relocate Air Traffic Control Tower (ATCT)	\$8,750,000
Relocate Airfield Services Facility	\$5,500,000

1/ The cost to clear obstructions is based on trees being the only obstacles to be cleared. The number of trees to be cleared is estimated very roughly. On-site field surveys will be required for more accurate costing.

In order to accommodate the planning scenarios being considered by the BNVP team, a cursory review of the costs involved in moving the DAA operations to a different location was performed. These costs and analyses are extremely preliminary and a great deal of refinement would be required if this option was to be explored further.

No particular airport was identified as the potential new location for DAA operations, however, it should be noted that finding an appropriate site for re-locating DAA would be a challenge. There are several general aviation (GA) airports in the Washington DC vicinity that could possibly prove acceptable as a new location for DAA, but there would be many questions and potential obstacles to be addressed. All of these GA airports have runways of no more than 3,000 feet. The first question would be whether any of these GA airports have the necessary land available in order to expand the runway to the required 5,500 feet. There would be many other issues such as environmental and community concerns as well.

The costs presented in **Table 1-6** are based on re-developing an existing GA airport with a 3,000-foot long and 75-foot wide runway. The paving and lighting cost estimates, which assume demolishing any existing runway and taxiway, can be considered fairly accurate estimates. The new apron areas are calculated to be approximately the same size as the aprons that currently exist at DAA. Because grading and elevation are unknown, the site work cost estimates are very rough estimates, as are the approach clearing estimates. Information is too limited to allow for accurate ATCT and airfield service facility estimates. If it is necessary to build a new tower, it can be assumed the cost will be similar or higher in costs to re-locating the ATCT at DAA. Similarly, the cost of new airfield facilities is likely to be similar or higher to the necessary work at DAA. A significant cost not included in these estimates, which must ultimately be included and considered, is the cost of purchasing or leasing the proposed airport.

Relocation of DAA to another DOD facility was also identified as a potential scenario for evaluation. However the most obvious option, Andrews Air Force Base, may not be an acceptable choice due to incompatibilities in mission and aircraft type. Bollings Air Force Base appears to be a largely administrative base with only a heliport and no runway. In The Marine Corps Base at Quantico may prove acceptable from an operations perspective, however, the runway at Quantico is currently 4,279 feet, which is approximately 1,221 feet short of the minimum runway length required by DAA's C-130 critical aircraft. Additionally, there may be other issues such as airspace clearance that would further reduce the usable length of the Quantico runway. Thus, the potential costs/requirements associated with relocation of DAA to another DOD facility were not evaluated and would require further investigation to develop. However, if potential conflicts with operations at Andrews AFB could be resolved or another facility with adequate airfield infrastructure could be identified, it is anticipated that the relocation costs could be limited to access taxiways, apron area, hangars and support facilities. This would make relocation of DAA to another DOD airfield much less costly than the other two development scenarios discussed previously.

**Table 1-6. Planning Level Estimates of Development Costs at a New Location
(Existing GA airport)**

Airfield Improvement	Estimated Development Cost
Runway Redevelopment	\$7,591,000
Parallel Taxiway	\$7,053,000
New Aircraft Parking Aprons	\$12,236,000
Precision Approach Lighting (MALSR)	\$675,000
Instrument Landing System (ILS)	\$2,625,000
Clear Obstructions to Imaginary Services	\$188,000 ¹
New Air Traffic Control Tower (ATCT)	\$8,750,000 or higher
Relocate Airfield Services Facility	\$5,500,000 or higher

¹The cost to clear obstructions is based on trees being the only obstacles to be cleared. The number of trees to be cleared is estimated very roughly. On-site field surveys will be required for more accurate costing.

Preliminary Development Alternative – Helicopter Operations Only

As part of the overall planning study for the Ft. Belvoir facility, potential development solutions to accommodate the influx of additional personnel and required support facilities are being developed, reviewed and analyzed. As part of this effort, potential development alternatives for future development of DAA have been discussed and an evaluation of potential options will ultimately be conducted. These development options will likely seek to reduce the impact of the airfield on adjacent development areas within the base and to help accommodate the additional facilities that will be necessary as part of the mission realignments.

One such preliminary alternative that has been identified is the relocation of fixed wing aircraft to another nearby facility. DAA would continue operations as a helicopter only facility, thus reducing the required rehabilitation costs of the existing airfield and its overall land requirements. The focus of this development option would be to reduce the airspace and general footprint requirements of the current fixed wing airfield to allow additional adjacent development without impacting the land use and airspace protection requirements of the new heliport facility. The new facility would be designed and constructed utilizing a portion of the current airfield infrastructure and support facilities to meet the current and forecast demand for helicopter operations.

Based on the preliminary development alternative outlined above, a cursory analysis and example layout of a potential helicopter only facility was developed using the operations information presented previously and the heliport planning and design guidelines presented in UFC, *Airfield and Heliport Planning and Design*. It should be noted that the heliport facility developed and outlined in the following text utilized existing available

operational information to establish a potential design helicopter and the minimum helipad and airspace requirements for such a facility. However, specific requirements regarding support facilities, apron area and launch/recovery capabilities were not available. This type of information must ultimately be included to fully evaluate the needs of DAA customers and the facility and land requirements of a new heliport facility. The evaluation included in this report is intended to provide an initial evaluation of a potential/example heliport facility and the associated airspace and land use impacts on adjacent areas of Ft. Belvoir. The overall specifications for the example heliport facility are presented below:

Example IFR Heliport Specifications

- UFC Heliport Type: Standard IFR Helipad
- Number of Helipads: One (1)
- Design Helicopter : CH-53 Stallion
- Helipad Dimensions: 100' x 100'
- Paved Shoulder Width: 25'
- Primary Surface Dimensions: 1,550' L x 750' W
- Clear Zone Dimensions: 400' L x 750' W
- Accident Protection Zone I: 800' L x 750' W

A detailed diagram of a standard IFR helipad is presented in **Figure 1-5** while the imaginary surfaces associated with a standard IFR helipad are illustrated in **Figure 1-6**. Further, a potential layout of the above example heliport on a portion of the existing airfield is illustrated in **Figure 1-7**. **Figure 1-8** illustrates the impacts of the airspace and imaginary surface requirements associated with this layout.

The helicopter facility outlined in this report includes only one IFR helipad for launch and recovery operations at DAA. It is unknown, based on available information, if this level of capacity will meet the forecast demand at DAA. If operational and forecast data indicates a higher level of capacity is required, or if current or projected mission requirements demanded, a larger heliport facility with the ability to process increased numbers of operations should be evaluated to determine the best use of the existing runway and associated infrastructure. Such helicopter landing facilities could include rotary-wing runways and landing lanes. These type of facilities offer more efficient and rapid launch and recovery operations than could be provided by a single helipad facility. Such analysis of alternative rotary-wing facilities should be completed before any final helicopter only development alternative is identified for DAA.

Figure 1-5 Standard IFR Helipad

Figure 1-6 IFR Airspace Imaginary Surfaces – IFR Helicopter Runway / Helipad

Figure 1-7 Example IFR Helipad Layout at DAA

Figure 1-8 Example IFR Helipad Airspace Requirements at DAA

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Existing Building Tabulation

Appendix D

Table B.1 Existing Buildings in ADP Study Area

FACNO	EXISTING GROSS	UNIT	DESCRIPTION	CONST	TYPE	YRBLT	CUCC	NAME
03121	50,445	SF	AC MAINT HGR	P	B	1981	21110	DC NATIONAL GUARD
03123	27,655	SF	ARNG ARMORY	P	B	1992	17180	DC NATIONAL GUARD
03125	969	SF	AC PROD PARTS I	P	B	1976	44210	NIGHT VISION LAB
03126	19,158	SF	AC COMP MAINT	T	B	1960	21120	NIGHT VISION LAB
03127	1,527	SF	ORG STR BLDG	S	B	1988	44224	NIGHT VISION LAB
03128	2,647	SF	AVN UNIT OPS	S	B	1984	14112	NIGHT VISION LAB
03130	986	SF	VEH MAINT SHOP	S	B	1993	21410	CMDAVIATION
03131	345	SF	WK ANIMAL BLDG	T	B	1960	14126	CMDAVIATION
03135			FLAGPOLE	P	S	1977	69010	HQ CMD FT BELVOIR
03136	6,416	SF	AFLD OPS BLDG	P	B	1966	14110	OSAC
03137	2,966	SF	AFLD OPS BLDG	P	B	1955	14110	CMDAVIATION
03138			HEAT PLANT OIL	S	U	1955	82120	HQ CMD FT BELVOIR
03140	25,365	SF	AC MAINT HGR	P	B	1955	21110	CMDAVIATION
03141	2,600	SF	AVN UNIT OPS	P	B	1955	14112	CMDAVIATION
03142	1,092	SF	AC PROD PARTS I	P	B	1992	44210	CMDAVIATION
03144	230	SF	OXY STR INST	P	S	1992	44215	CMDAVIATION
03145	19,423	SF	AC MAINT HGR	P	B	1970	21110	OSAC
03146	7,491	SF	SIM BLDG MOTION	P	B	1979	17210	CMDAVIATION
03150	320	SF	ORG STR BLDG	P	B	1975	44224	OSAC
03151	31,458	SF	AC MAINT HGR	P	B	1961	21110	CMDAVIATION
03152			TRANSFORMERS	P	U	1962	81360	HQ CMD FT BELVOIR
03153	1,584	SF	AC COMP MAINT	S	B	1978	21120	OSAC
03154	1,122	SF	ORG STR BLDG	P	B	1992	44224	CMDAVIATION
03155	2,700	SF	AC PARTS STR	P	B	2004	21113	CMDAVIATION
03160			AC TRK FUEL LDG	P	S	1961	12120	CMDAVIATION
03161			AC TRK FUEL LDG	P	S	1961	12120	CMDAVIATION
03162			JET FUEL UNGD	P	S	1961	12411	CMDAVIATION
03163	560	SF	REC SHELTER	P	S	1996	75052	HQ CMD FT BELVOIR
03164	110	SF	REC SHELTER	S	S	1993	75052	HQ CMD FT BELVOIR
03165	15,332	SF	ADMIN GEN PURP	P	B	1976	61050	OSAC
03170	595	SF	ORG STR BLDG	P	B	1958	44224	OSAC
03171	200	SF	FLAM MAT STR IN	P	B	1960	44240	OSAC
03172	600	SF	XMITTER BLDG	P	B	1975	13160	CMDAVIATION
03174			TOWER	P	S	1975	14940	CMDAVIATION
03176	65	SF	FLAM MAT STR IN	T	B	1984	44240	HQ CMD FT BELVOIR
03177			RAPPEL TRN AREA	T	S	1987	17966	HQ CMD FT BELVOIR
03178			RAPPEL TRN AREA	T	S	1985	17966	HQ CMD FT BELVOIR
03180			WAT STR TK POT	P	U	1958	84610	HQ CMD FT BELVOIR
03186	74,052	SF	CONFIDENCE CSE	S	S	1987	17950	HQ CMD FT BELVOIR
03190	84	SF	ACCESS CNT FAC	P	B	1976	14113	HQ CMD FT BELVOIR
03191			ENTRANCE GATE	P	S	1996	87250	HQ CMD FT BELVOIR
03200	22,500	SF	RUNWAY OVERRUN	P	S	1954	11151	CMDAVIATION
03201	131	SF	ACCESS CNT FAC	P	B	1998	14113	HQ CMD FT BELVOIR
03202	649,395	SF	FW PK APRN PAVE	P	S	1961	11310	CMDAVIATION
03203	380,241	SF	RW PK APRN PAVE	P	S	1962	11320	CMDAVIATION

FACNO	EXISTING GROSS	UNIT	DESCRIPTION	CONST	TYPE	YRBLT	CUCC	NAME
03210			INST LAND SYS	P	S	1967	13440	CMDAVIATION
03211			WIND DIR IND	P	S	1960	13470	CMDAVIATION
03212			GND CNT APP SYS	P	S	1959	13430	CMDAVIATION
03213			INST LAND SYS	P	S	1964	13440	CMDAVIATION
03214			WIND DIR IND	P	S	1989	13470	CMDAVIATION
03215			WIND DIR IND	P	S	1989	13470	CMDAVIATION
03216			RADIO BEACON	P	S	1989	13410	CMDAVIATION
03217			INST LAND SYS	T	S	1989	13440	CMDAVIATION
03230	2,814	SF	FLT CONT TOWER	P	B	1958	13310	CMDAVIATION
03231	16,426	SF	AC MAINT HGR	P	B	1958	21110	CMDAVIATION
03232	14,047	SF	AC MAINT HGR	P	B	1960	21110	CMDAVIATION
03233			HEAT PLANT OIL	P	U	1988	82120	HQ CMD FT BELVOIR
03234	2,170	SF	BN HQ BLDG	P	B	1958	14183	CMDAVIATION
03235	4,596	SF	BN HQ BLDG	P	B	1958	14183	CMDAVIATION
03236	200	SF	FLAM MAT STR IN	P	B	1960	44240	CMDAVIATION
03237	4,152	SF	FIRE STATION	P	B	1958	73010	CMDAVIATION
03238			TRANSFORMERS	P	U	1958	81360	HQ CMD FT BELVOIR
03239	570	SF	NAV BLDG, AIR	P	B	1959	13320	CMDAVIATION
03240	1307	SF	FIR FIGHT/RESCU	P	S	1997	17981	HQ CMD FT BELVOIR
03241	144	SF	STORAGE GP INST	T	B	2001	44220	CMDAVIATION
03242	8,535	SF	FIRE STATION	P	B	2003	73010	HQ CMD FT BELVOIR
TOTAL	1,405,325	SF						

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Meeting Minutes

Appendix E



Belvoir New Vision Planners
 200 Daingerfield Road • Suite 201 • Alexandria, VA 22314
 1-888-535-6982 • Fax (703) 535.1031

Davison Army Airfield Area Development Plan Meeting

RE: Determine Airfield tenants, information gathering in preparation for draft Area Development Plan.

Date: Thursday, 30 November 2006

Time: 9:00 (am)

Location: Fort Belvoir, Davison Army Airfield, Bldg. 3136

Notes by: Connie Myers, BNVP/PBS&J

Attendees:

NAME	ORGANIZATION	EMAIL	PHONE
Dan O'Brien	Fort Belvoir	Daniel.d.obrien@us.army.mil	703-806-0043
LTC William Crozier	12 Avn. Bn./Airfield mgmt.	William.crozier@belvoir.army.mil	
Jay Stotzky	Davison Army Airfield	Jay.stotzky@belvoir.army.mil	
Kevin Brady	300 Area Fac. Mgr.	Kevin.brady@nvl.army.mil	
Tyrone Kidd	12 Avn. Bn.	Tyrone.kidd@belvoir.army.mil	
William Dodson	Air Traffic Control	William.g.dodson@belvoir.army.mil	703-806-7054
Ronald N. Gause	NEASD	RGause@nvl.army.mil	703-704-1472
Doug Baker	BNVP/BearingPoint	douglas.baker@bearingpoint.com	703-253-2693
Melinda Pagliarello	BNVP/PBS&J	mzpagliarello@pbsj.com	703-471-7275
Larry Lisle	BNVP/PBS&J	ldlisle@pbsj.com	703-535-3008
Ken Kost	BNVP/PBS&J	klkost@pbsj.com	703-535-3008
Connie Myers	BNVP/PBS&J	crmyers@pbsj.com	703-535-3008

Meeting Agenda:

- Introduction
- Overview of Scope / Program Requirements
- Issues and Opportunities
- Developments to date
- Next Steps

Meeting Discussion:

- Introduction
 - Initial planning focus has been to identify sites, work through issues (transportation, political fall-out of 22,000 additional people)
 - ACSIM managed the contract, management transferred this week to the garrison (Bill Sanders, COTR)
- Overview of Scope / Program Requirements
 - BNVP now focusing on rest of planning including 8 ADP's (Airfield, 300 Area)
 - Addressing current and future issues, upgrades needed
 - Can distribute initial report that was done in June (was not intended as final client product, but to give BNVP better understanding of airfield requirements)

- Will come up with plan of what Airfield can and should be, will later apply funding considerations
- BNVP not charged to look at another location; looking at 21st century airfield in current site
 - MDW feels another location is non-starter for BRAC
 - Garrison feels even for long-term (2030) should look at Airfield in present location
 - Any other density/use for this location would delay EIS
 - BNVP will request clarification from garrison that its charge is to consider only this location
- Airport Master Plan documents do not include Part 77
 - Using Airfield and garrison information for building heights
 - Vertical limits of airspace are very constrained
 - ◆ Hospital – on South Nine golf course
 - ◆ WHS – could be 12 stories on EPG
 - ◆ NGA – 8 stories high on EPG
- Airfield Program Requirements
 - Proximity to area's military (15 miles from downtown)
 - Aging utilities and infrastructure, would like to fund an additional hanger
 - Air Traffic Control Tower – can be replaced under current funding
 - D.C. National Guard – on airfield, looking for storage
 - Aviation Med. Center: AeroMed Clinic used to be on airfield – relocated back to airfield?
 - Electrical upgrade, water pressure, fire suppression
 - Other contacts for tenant activities:
 - Bill Dodson and Jay Stotzky will provide names
 - Civil Air Patrol, National Guard, Night Vision, 12th Aviation Battalion, Operational Support Airlift Command (OSA Com)
 - Other missions/aircraft that need to be accommodated
 - Emergency mission to stage and support other forces
 - Black Hawk helicopter
 - OSA Com – going through modernization of fleet – will provide information and timeline
 - LUH – LTC Bellamy (Air National Guard)
 - All services train here, use rappel tower (technical rescue with classified mission to respond – training site proposed for them here)
- Issues and Opportunities
 - Challenge – how to anticipate growth, mission changes 20 years from now
 - Additional aircraft in '08 – possibly 30 – plan for full authorization, build-out capacity
 - Need to fund safety, maintenance for new aircraft
 - Plan for 911 Engineer Company team here (unless there is a better site)
 - They are on north post now, west of Gunston
 - Priority will be to get them in new facilities
 - Other needs:
 - Water tower is on demo list
 - Tree growth penetrates horizontal space requirements
 - OE survey done every 5 years (2007 will be next survey); shows trees penetrating horizontal surface, problem with trees around rim of hill
 - How to mitigate flooding on NW end of airfield (man-made watershed area there)
 - Access (Route 1 was flooded; prevented access)
 - Reduction of wild game (attracted to wetland)
 - LTC Crozier will provide documentation that is hazard to aviation safety
 - Parking
 - Tower will take up parking spaces
 - Parking on flight line is security issue
 - Funding needed for Noise study (approx. \$50K)

- Fleet has been modernized since last study
- Noise monitoring is most effective for EIS
- V-22 Osprey is noisiest aircraft
- Runway length is inadequate for what is housed here: 5600' length, 4040' usable threshold
- Next Steps
 - Melinda Pagliarello to email BNVP report on Airfield to Davison personnel (and PowerPoint to Kevin Brady)
 - Dennis Bennett and Jay Stotzky will request the following from each tenant:
 - TDA/facility requirements/list of equipment and personnel (unclassified extract)
 - Projected equipment and personnel, including transient missions (2011 and 2030)
 - Buildings each organization occupies.
 - LTC Crozier will provide QC and add anything new coming to airfield and will send to BNVP by 15 December
 - BNVP will provide list of items needed for Airport Layout Plan (ALP) – showing exact locations
 - GIS, Google Earth maps show some, NGA has done imaging, Garrison has imagery
 - A more current picture will give more accurate tree coverage
 - BNVP will put together a deficiency list, then outbrief with other key players (January)
 - BNVP to present straw man site layout – end of January
 - 15 February 2007 – ADP due
 - Access to other airfield data (Fort Drum just upgraded airfield)
 - DPW inquired about any trigger that would cause airfield to move
 - Notice of Proposed Construction that goes to FAA (Part 77 Review)
 - Provide to Bill Dodson

Authorized/ Allowable Facilities Criteria

Appendix

F

Table F.1 - Summary of Airfield Program (ALLOWANCES)

CAT CODE	DESCRIPTION	UM	12th AVN	NVESD	OSAA/ OSACOM	DC ANG	CAP	DAVISON AAF	TOTAL
11310	Fixed Wing Parking Apron	SY	0	9,289	11,000	6,133	9,289	48,972	84,683
11320	Rotary Wing Parking Apron	SY	34,489	12,300	0	20,267	0	11,100	78,156
11370	A/C Washing Apron	SY	970	970	733	970	0	0	3,643
11610	A/C Compass Swing	SY	0	0	0	0	0	1,600	1,600
13310	Flight Control Tower	GSF	0	0	0	0	0	4,500	4,500
14110	Airfield Operations	GSF	0	0	0	0	0	7,785	7,785
14112	Aviation Unit Operations	GSF	8,028	5,877	3,834	3,060	2,310	0	23,109
14183	Battalion Headquarters	GSF	8,590	0	0	0	0	0	8,590
14185	Company Headquarters	GSF	14,468	0	0	0	0	0	14,468
17119	Battalion Classroom	GSF	4,115	0	0	0	0	0	4,115
17180	National Guard Readiness Center	GSF	0	0	0	51,230	0	0	51,230
21110	AVUM Hangar	GSF	43,955	29,401	22,910	65,110	4,336	0	165,712
21115	UAV Maintenance & Storage	GSF	0	1,800	0	0	0	0	1,800
44224	Organizational Storage	GSF	26,884	3,848	17,520	21,316	0	17,500	87,068
61050	General Purpose Administration	GSF	7,290	0	18,306	0	0	0	25,596
85215	POV Parking	SY	11,235	560	2,520	3,080	595	700	18,690
85210	Organizational Vehicle Parking	SY	2,938	0	0	2,938	0	0	5,876

Note: Highlighted cells denote the Requirements is not met

Table F.2 - Summary of Airfield Program (REQUIREMENTS)

CAT CODE	DESCRIPTION	UM	12th AVN	NVESD	OSAA/ OSACOM	DC ANG	CAP	DAVISON AAF	TOTAL
11310	Fixed Wing Parking Apron	SY	0	9,289	11,000	8,727	9,289	48,972	87,277
11320	Rotary Wing Parking Apron	SY	34,489	12,300	0	23,111	0	11,100	81,000
11370	A/C Washing Apron	SY	970	970	733	970	0	0	3,643
11610	A/C Compass Swing	SY	0	0	0	0	0	1,600	1,600
13310	Flight Control Tower	GSF	0	0	0	0	0	4,500	4,500
14110	Airfield Operations	GSF	0	0	0	0	0	7,785	7,785
14112	Aviation Unit Operations	GSF	8,028	5,877	3,834	3,060	2,310	0	23,109
14183	Battalion Headquarters	GSF	8,590	0	0	0	0	0	8,590
14185	Company Headquarters	GSF	18,085	0	0	0	0	0	18,085
17119	Battalion Classroom	GSF	4,115	0	0	0	0	0	4,115
17180	National Guard Readiness Center	GSF	0	0	0	51,230	0	0	51,230
21110	AVUM Hangar	GSF	110,837	41,142	51,750	65,110	4,336	0	237,175
21115	UAV Maintenance & Storage	GSF	0	5,000	0	0	0	0	5,000
44224	Organizational Storage	GSF	26,884	3,848	17,520	0	0	17,500	65,752
61050	General Purpose Administration	GSF	7,290	0	18,306	0	0	0	25,596
85215	POV Parking	SY	14,980	735	3,360	4,095	595	16,680	40,445
85210	Organizational Vehicle Parking	SY	2,938	0	0	2,938	0	0	5,876

12th Aviation

11320 Rotary Wing Parking

Number of RW aircraft spaces (85% of assigned aircraft rounded)	20
2 rows of parking	
Width	80 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
Frontage for 10 AC	970 FT
Depth	320 FT
Depth Row 1	100 FT
Depth Row 2	100 FT
Through Taxilane (1 each 120 FT)	120 FT
Peripheral Taxilane	0 FT
TOTAL	310,400 SF
	34,489 SY

11370 A/C Washing Apron

One apron per hangar	
Light Helicopter	970 SY

14112 Aviation Unit Operations

Personnel	13
Admin Space (# Personnel X 162 GSF)	2,106 GSF
Pilots	50
Pilot area (# Pilots x 60 GSF)	3000 GSF
TOTAL	5,106 GSF

14183 Battalion Headquarters

Standard Definitive Size	Number of Staff Personnel	Building Size
Small	Fewer than 35	8,590
Medium	35-50	10,931
Large	50-66	13,362
TOTAL		8,590 GSF

14185 Company Headquarters

Number of TDA Companies	4
Area per TDA Company	3,617 GSF
TOTAL	14,468 GSF

17119 Battalion Classroom

TDA battalions allowable organizational classroom space	4,115 GSF
TOTAL	4,115 GSF

21110 Aviation Unit Maintenance

(AVUM) Hangar*

* FPS Authorization is 0 SF for this CatCode - User requirement

The hangar floor space (aircraft maintenance space) authorized for a unit AVUM hangar is 20 percent of the authorized unit aircraft (25% of 23 assigned UH-60 = 5 UH-60)	
A minimum of one bay will be allowed for all groups present, and the number of modules will be rounded to the nearest whole increment.	
AVUM Shop Space	7,500 GSF
AVUM Special Space	3,750 GSF
Hangar Floor Space	26,880 SF
Hangar Floor Space - 5 FT Buffer	3,825 SF
Aircraft Parts and TOE Consolidated Storage Area (2,000 GSF for every 25 AC)	2,000 GSF
TOTAL	43,955 GSF

44224 Organizational Storage

GSF is determined by the application of the appropriate facility conversion factors as follows: [(Cubic feet of materiel / DOD standard storage utilization rate of 0.75) / stack height of 7.5 feet] = storage space needed. Add layout and circulation space (storage space * 0.33) to arrive at the calculated Organizational Storage Building square feet allowance value.

TOTAL 26,884 GSF

61050 General Purpose Administration

GSF per person	162 GSF
Personnel	45
TOTAL	7,290 GSF

POV Parking

Parking is calculated based on 60% of Assigned Personnel x 35 SY per parking space

Aviation Unit Ops (60% of 63=38)	1,330 SY
Battalion HQ (60% of 26=16)	560 SY
Company HQ (60% of 400=240)	8,400 SY
Admin Parking (60% of 45=35)	945 SY
TOTAL	11,235 SY

85210 Organizational Vehicle Parking

Organizational Vehicle Parking	2,122 SY
44224 Org. Storage Bldg. Apron	816 SY
TOTAL	2,938 SY

NVESD

11310 Fixed Wing Parking

Number of FW aircraft spaces (85% of assigned aircraft rounded)	3
2 rows of parking	
Width	70 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
Frontage for AC	380 FT
Depth	50 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
TOTAL	83,600 SF
	9,289 SY

11320 Rotary Wing Parking

Number of RW aircraft spaces (85% of assigned aircraft rounded)	3
1 rows of parking	
Width	80 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
Frontage for AC	410 FT
Depth	100 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
TOTAL	110,700 SF
	12,300 SY

11370 A/C Washing Apron

One apron per hangar	
Light Helicopter	970 SY
Fixed Wing	733 SY
TOTAL	970 SY

14112 Aviation Unit Operations

Personnel	26
Admin Space (# Personnel X 162 GSF)	4,212 GSF
Pilots	14
Pilot area (# Pilots x 60 GSF)	840 GSF
Conference Room (15 PN x 15 GSF/PN)	225 GSF
TOTAL	5,277 GSF

POV Parking

Parking is calculated based on 60% of Assigned Personnel x 35 SY per parking space	
Occupants (60% of 26=16)	560 SY
TOTAL	560 SY

21110 AVUM Hangar

The hangar floor space (aircraft maintenance space) authorized for a unit AVUM hangar is 20 percent of the authorized unit aircraft

A minimum of one bay will be allowed for all groups present, and the number of modules will be rounded to the nearest whole increment.

AVUM Shop Space	7,500 GSF
AVUM Special Space	3,750 GSF
Hangar Floor Space (UH-60: 20% of 2=1)	5,376 SF
Hangar Floor Space - 5 FT Buffer for UH-60	765 SF
Hangar Floor Space (UH-1: 20% of 2=1)	4,620 SF
Hangar Floor Space - 5 FT Buffer for UH-1	560 SF
Hangar Floor Space (DHC-6: 20% of 3=1)	4,160 SF
Hangar Floor Space - 5 FT Buffer for DHC-6	670 SF
Aircraft Parts and TOE Consolidated Storage Area (2,000 GSF for every 25 AC)	2,000 GSF
TOTAL	29,401 GSF

The following calculation reflects hangar space if provided for all assigned aircraft.

AVUM Shop Space	7,500 GSF
AVUM Special Space	3,750 GSF
Hangar Floor Space (UH-60: 100% of 2=2)	10,752 SF
Hangar Floor Space - 5 FT Buffer for UH-60	1,530 SF
Hangar Floor Space (UH-1: 100% of 2=2)	9,240 SF
Hangar Floor Space - 5 FT Buffer for UH-1	1,120 SF
Hangar Floor Space (DHC-6: 100% of 3=3)	12,480 SF
Hangar Floor Space - 5 FT Buffer for DHC-6	2,010 SF
Aircraft Parts and TOE Consolidated Storage Area (2,000 GSF for every 25 AC)	2,000 GSF
TOTAL	41,142 GSF

21115 UAV Maint. and Storage Facility

One 1800 GSF facility is allowed for any OTOE organization with a UAV mission. In accordance with UFC 4-214-02, these facilities will support only Class I and Class II UAVs in the Tactical Equipment Maintenance Facility (TEMF) complex; other classes of UAVs are to be accommodated at an airfield. Provide an 1800 GSF (40 by 45 foot) facility with an overhead coiling door 24 feet-wide by 14 feet tall to accommodate Field Level Maintenance and Storage of assigned UAV systems.

UAV Maintenance and Storage Facility	1,800 GSF
User ID Unique Space	3,200 GSF
TOTAL	5,000 GSF

44224 Organizational Storage

GSF is determined by the application of the appropriate facility conversion factors as follows: [(Cubic feet of materiel / DOD standard storage utilization rate of 0.75) / stack height of 7.5 feet] = storage space needed. Add layout and circulation space (storage space * 0.33) to arrive at the calculated Organizational Storage Building square feet allowance value.

TOTAL	3,848 GSF
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OSAA

11310 Fixed Wing Parking

Number of FW aircraft spaces (85% of assigned aircraft rounded)	4
1 row of parking	
Width	70 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
Frontage for AC	450 FT
Depth	50 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
TOTAL	99,000 SF
	11,000 SY

The following calculation reflects hangar space if provided for all assigned aircraft.

Number of FW aircraft spaces (100% of assigned aircraft rounded)	10
1 row of parking	
Width	70 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
Frontage for AC	870 FT
Depth	50 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
TOTAL	191,400 SF
	21,267 SY

11370 A/C Washing Apron

One apron per hangar	
Fixed Wing	733 SY
TOTAL	733 SY

14112 Aviation Unit Operations

Personnel	5
Admin Space (# Personnel X 162 GSF)	810 GSF
Pilots	22
Pilot area (# Pilots x 60 GSF)	1320 GSF
TOTAL	2,130 GSF

21110 AVUM Hangar

The hangar floor space (aircraft maintenance space) authorized for a unit AVUM hangar is 20 percent of the authorized unit aircraft

A minimum of one bay will be allowed for all groups present, and the number of modules will be rounded to the nearest whole increment.

AVUM Shop Space	7,500 GSF
AVUM Special Space	3,750 GSF
Hangar Floor Space (C-12: 20% of 3=1)	4,160 SF
Hangar Floor Space (U-35: 20% of 2=1)	4,160 SF
Hangar Floor Space (5 FT buffer for C-12, U-35)	1,340 SF
Aircraft Parts and TOE Consolidated Storage Area (2,000 GSF for every 25 AC)	2,000 GSF
TOTAL	22,910 GSF

The following calculation reflects hangar space if provided for all assigned aircraft.

AVUM Shop Space	7,500 GSF
AVUM Special Space	3,750 GSF
Hangar Floor Space (C-12: 100% of 3=3)	12,480 SF
Hangar Floor Space (U-35: 100% of 2=2)	8,320 SF
Hangar Floor Space (Transient: 100% of 2=2)	8,320 SF
Hangar Floor Space - 5 FT Buffers	9,380 SF
Aircraft Parts and TOE Consolidated Storage Area (2,000 GSF for every 25 AC)	2,000 GSF
TOTAL	51,750 GSF

44224 Organizational Storage

GSF is determined by the application of the appropriate facility conversion factors as follows: [(Cubic feet of materiel / DOD standard storage utilization rate of 0.75) / stack height of 7.5 feet] = storage space needed. Add layout and circulation space (storage space * 0.33) to arrive at the calculated Organizational Storage Building square feet allowance value.

TOTAL	17,520 GSF
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61050 General Purpose Administration

GSF per person	162 GSF
Personnel	93
TOTAL	15,066 GSF

POV Parking

Parking is calculated based on 60% of Assigned Personnel x 35 SY per parking space

Occupants (60% of 120=72)	2,520 SY
TOTAL	2,520 SY

DC ANG

11310 Fixed Wing Parking

Number of FW aircraft spaces (85% of assigned aircraft rounded)	1
1 row of parking	
Width	70 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
Frontage for AC	240 FT
Depth	60 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
TOTAL	55,200 SF
	6,133 SY

Number of FW aircraft spaces (future C-27 Aircraft)	1
1 row of parking	
Width	153 FT
Peripheral Taxilane (2 each @ 85 FT)	310 FT
Frontage for AC	463 FT
Depth	100 FT
Peripheral Taxilane (2 each @ 155 FT)	310 FT
TOTAL	189,830 SF
	21,092 SY

Number of FW aircraft spaces (Transient C-130 Aircraft)	5
1 row of parking	
Width	153 FT
Peripheral Taxilane (2 each @ 155 FT)	310 FT
Frontage for AC	1075 FT
Depth	100 FT
Peripheral Taxilane (2 each @ 85 FT)	310 FT
TOTAL	440,750 SF
	48,972 SY

11320 Rotary Wing Parking

Number of RW aircraft spaces (85% of assigned aircraft rounded)	9
1 rows of parking	
Width	80 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
Frontage for AC	890 FT
Depth	100 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
TOTAL	240,300 SF
	26,700 SY

Number of RW aircraft spaces (transient aircraft spaces for 121st Med Det)	6
1 row of parking	
Width	80 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
Frontage for AC	650 FT
Depth	100 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
TOTAL	175,500 SF
	19,500 SY

11370 A/C Washing Apron

One apron per hangar	
Light Helicopter	970 SY
Fixed Wing	733 SY
TOTAL	970 SY

14112 Aviation Unit Operations

Personnel	10
Admin Space (# Personnel X 162 GSF)	1,620 GSF
Pilots (assume 2 pilots per plane)	24
Pilot area (# Pilots x 60 GSF)	1440 GSF
TOTAL	3,060 GSF

17180 NG Readiness Center

The following is based on existing	
Building 3123	27,655 GSF
Alert Facility	3,900 GSF
Storage Facility	3,000 GSF
Motor Maintenance	5,000 GSF
Storage Facility for GSE	3,375 GSF
APOE/D	7,500 GSF
TOTAL	50,430 GSF

21110 AVUM Hangar

The hangar floor space (aircraft maintenance space) authorized for a unit AVUM hangar is 20 percent of the authorized unit aircraft. A minimum of one bay will be allowed for all groups present, and the number of modules will be rounded to the nearest whole increment.

AVUM Shop Space	7,500 GSF
AVUM Special Shop Space	3,750 GSF
AVIM Shop Space	15,000 GSF
AVIM Special Shop Space	7,500 GSF
AVIM Parts Storage	4,000 GSF
AVIM Accountable Parts	16,000 GSF
Hangar Floor Space (UH-1/OH-58A: 20% of 11=4)	9,240 SF
Hangar Floor Space (C-26B: 20% of 1=1)	10,925 SF
Hangar Floor Space (5 FT buffers for Aircraft)	3,315 SF
Aircraft Parts and TOE Consolidated Storage Area (2,000 GSF for every 25 AC)	2,000 GSF
TOTAL	79,230 GSF

The following calculation reflects hangar space for LUH-72A Fielding

AVUM Shop Space	7,500 GSF
AVUM Special Space	3,750 GSF
AVIM Shop Space	15,000 GSF
AVIM Special Shop Space	7,500 GSF
AVIM Parts Storage	4,000 GSF
AVIM Accountable Parts	16,000 GSF
Hangar Floor Space (LUH-72A: 30% of 12=4)	21,504 SF
Hangar Floor Space (C-26: 30% of 1=1)	10,925 SF
Hangar Floor Space (5 FT buffers for Aircraft)	4,135 SF
Hangar Floor Space - 5 FT Buffers	9,380 SF
Aircraft Parts and TOE Consolidated Storage Area (2,000 GSF for every 25 AC)	2,000 GSF
TOTAL	92,314 GSF

44224 Organizational Storage

GSF is determined by the application of the appropriate facility conversion factors as follows: [(Cubic feet of materiel / DOD standard storage utilization rate of 0.75) / stack height of 7.5 feet] = storage space needed. Add layout and circulation space (storage space * 0.33) to arrive at the calculated Organizational Storage Building square feet allowance value.

TOTAL	21,316 GSF
--------------	-------------------

POV Parking

Parking is calculated based on 60% of Assigned Personnel x 35 SY per parking space

Occupants (60% of 146=88)	3,080 SY
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TOTAL	3,080 SY
--------------	-----------------

85210 Organizational Vehicle Parking

Organizational Vehicle Parking	2,122 SY
--------------------------------	----------

44224 Org. Storage Bldg. Apron	816 SY
--------------------------------	--------

TOTAL	2,938 SY
--------------	-----------------

CAP

11310 Fixed Wing Parking

Number of FW aircraft spaces (85% of assigned aircraft rounded)	3
1 row of parking	
Width	70 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
Frontage for AC	380 FT
Depth	50 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
TOTAL	83,600 SF
	9,289 SY

14112 Aviation Unit Operations

Personnel	5
Admin Space (# Personnel X 162 GSF)	810 GSF
Pilots (assume 2 pilots per plane)	25
Pilot area (# Pilots x 60 GSF)	1500 GSF
TOTAL	2,310 GSF

21110 AVUM Hangar

User identified requirements is to accommodate all assigned aircraft.	
AVUM Shop Space	400 GSF
AVUM Special Space	0 GSF
Hangar Floor Space (Cessna: 100% of 3=3)	2,916 SF
Hangar Floor Space (5 FT buffers for Aircraft)	1,020 SF
TOTAL	4,336 GSF

POV Parking

Parking is calculated based on 60% of Assigned Personnel x 35 SY per parking space	
Occupants (60% of 27=17)	595 SY
TOTAL	595 SY

DAAF

11310 Fixed Wing Parking

Number of FW aircraft for transient based on C26, UV-20A, C-12J	5
Width	70 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
Frontage for AC	520 FT
Depth (one row of parking)	60 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
TOTAL	119,600 SF
	13,289 SY

11320 Rotary Wing Parking

Number of FW aircraft for transient based on C26, UV-20A, C-12J	2
Width	80 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
Frontage for AC	250 FT
Depth (one row of parking)	100 FT
Peripheral Taxilane (2 each @ 85 FT)	170 FT
TOTAL	67,500 SF
	7,500 SY

11610 Aircraft Compass Swing Base

The size of this facility is 120'x120' of rigid pavement centered in a 275' diameter circle.	1,600 SY
TOTAL	1,600 SY

14110 Airfield Operations

Number of AC Assigned (25-50)	3,000 GSF
Flight Surgeon (25-50)	800 GSF
AWS	1,500 GSF
VIP Area	700 GSF
Conference Room (15 SP x 15 GSF)	225 GSF
TOTAL	6,225 GSF

44224 Organizational Storage

User identified requirement to support Airfield GSE equipment	10,000 GSF
TOTAL	10,000 GSF

POV Parking

Parking is calculated based on 60% of Assigned Personnel x 35 SY per parking space	
Occupants (60% of 25=15)	525 SY
VIP Parking (5 Spaces)	175 SY
TOTAL	700 SY

LEED Neighborhood Development Checklist

Appendix G

The numerical rating presented in the checklist is based on the entire installation as one project the actual ratings based on individual projects will vary based on size and use.



LEED for Neighborhood Development Pilot Project Checklist

Project Name:
Primary Contact:

Instructions: In the Points Earned column, enter "Yes," "No," or "Maybe" for prerequisites and the expected number of points earned for credits. For prerequisites with more than one compliance path, enter the compliance path option # in column E, in the row under the prerequisite's name.

Points Earned

15	Smart Location & Linkage	30 Points Possible
-----------	-------------------------------------	---------------------------

Yes	Prereq 1	Smart Location	Required
1		Option #:	
Yes	Prereq 2	Proximity to Water and Wastewater Infrastructure	Required
1		Option #:	
Yes	Prereq 3	Imperiled Species and Ecological Communities	Required
2		Option #:	
Yes	Prereq 4	Wetland and Water Body Conservation	Required
3		Option #:	
Yes	Prereq 5	Farmland Conservation	Required
2		Option #:	
Yes	Prereq 6	Floodplain Avoidance	Required
2		Option #:	
2	Credit 1	Brownfield Redevelopment	2
1	Credit 2	High Priority Brownfields Redevelopment	1
6	Credit 3	Preferred Location	10
1	Credit 4	Reduced Automobile Dependence	8
1	Credit 5	Bicycle Network	1
	Credit 6	Housing and Jobs Proximity	3
	Credit 7	School Proximity	1
1	Credit 8	Steep Slope Protection	1
1	Credit 9	Site Design for Habitat or Wetlands Conservation	1
1	Credit 10	Restoration of Habitat or Wetlands	1
1	Credit 11	Conservation Management of Habitat or Wetlands	1

18	Neighborhood Pattern & Design	39 Points Possible
-----------	--	---------------------------

Maybe	Prereq 1	Open Community	Required
Yes	Prereq 2	Compact Development	Required
2	Credit 1	Compact Development	7
2	Credit 2	Diversity of Uses	4
3	Credit 3	Diversity of Housing Types	3
2	Credit 4	Affordable Rental Housing	2
	Credit 5	Affordable For-Sale Housing	2
1	Credit 6	Reduced Parking Footprint	2
4	Credit 7	Walkable Streets	8
	Credit 8	Street Network	2
	Credit 9	Transit Facilities	1
	Credit 10	Transportation Demand Management	2

1	Credit 11	Access to Surrounding Vicinity	1
1	Credit 12	Access to Public Spaces	1
	Credit 13	Access to Active Public Spaces	1
1	Credit 14	Universal Accessibility	1
1	Credit 15	Community Outreach and Involvement	1
	Credit 16	Local Food Production	1

22	Green Construction & Technology	31 Points Possible
-----------	--	---------------------------

Yes	Prereq 1	Construction Activity Pollution Prevention	Required
2	Credit 1	LEED Certified Green Buildings	3
1	Credit 2	Energy Efficiency in Buildings	3
3	Credit 3	Reduced Water Use	3
1	Credit 4	Building Reuse and Adaptive Reuse	2
1	Credit 5	Reuse of Historic Buildings	1
1	Credit 6	Minimize Site Disturbance through Site Design	1
1	Credit 7	Minimize Site Disturbance during Construction	1
1	Credit 8	Contaminant Reduction in Brownfields Remediation	1
5	Credit 9	Stormwater Management	5
	Credit 10	Heat Island Reduction	1
	Credit 11	Solar Orientation	1
	Credit 12	On-Site Energy Generation	1
1	Credit 13	On-Site Renewable Energy Sources	1
	Credit 14	District Heating & Cooling	1
	Credit 15	Infrastructure Energy Efficiency	1
1	Credit 16	Wastewater Management	1
1	Credit 17	Recycled Content for Infrastructure	1
1	Credit 18	Construction Waste Management	1
1	Credit 19	Comprehensive Waste Management	1
1	Credit 20	Light Pollution Reduction	1

1	Innovation & Design Process	6 Points
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	Credit 1.1	Innovation in Design: Provide Specific Title	1
	Credit 1.2	Innovation in Design: Provide Specific Title	1
	Credit 1.3	Innovation in Design: Provide Specific Title	1
	Credit 1.4	Innovation in Design: Provide Specific Title	1
	Credit 1.5	Innovation in Design: Provide Specific Title	1
1	Credit 2	LEED® Accredited Professional	1

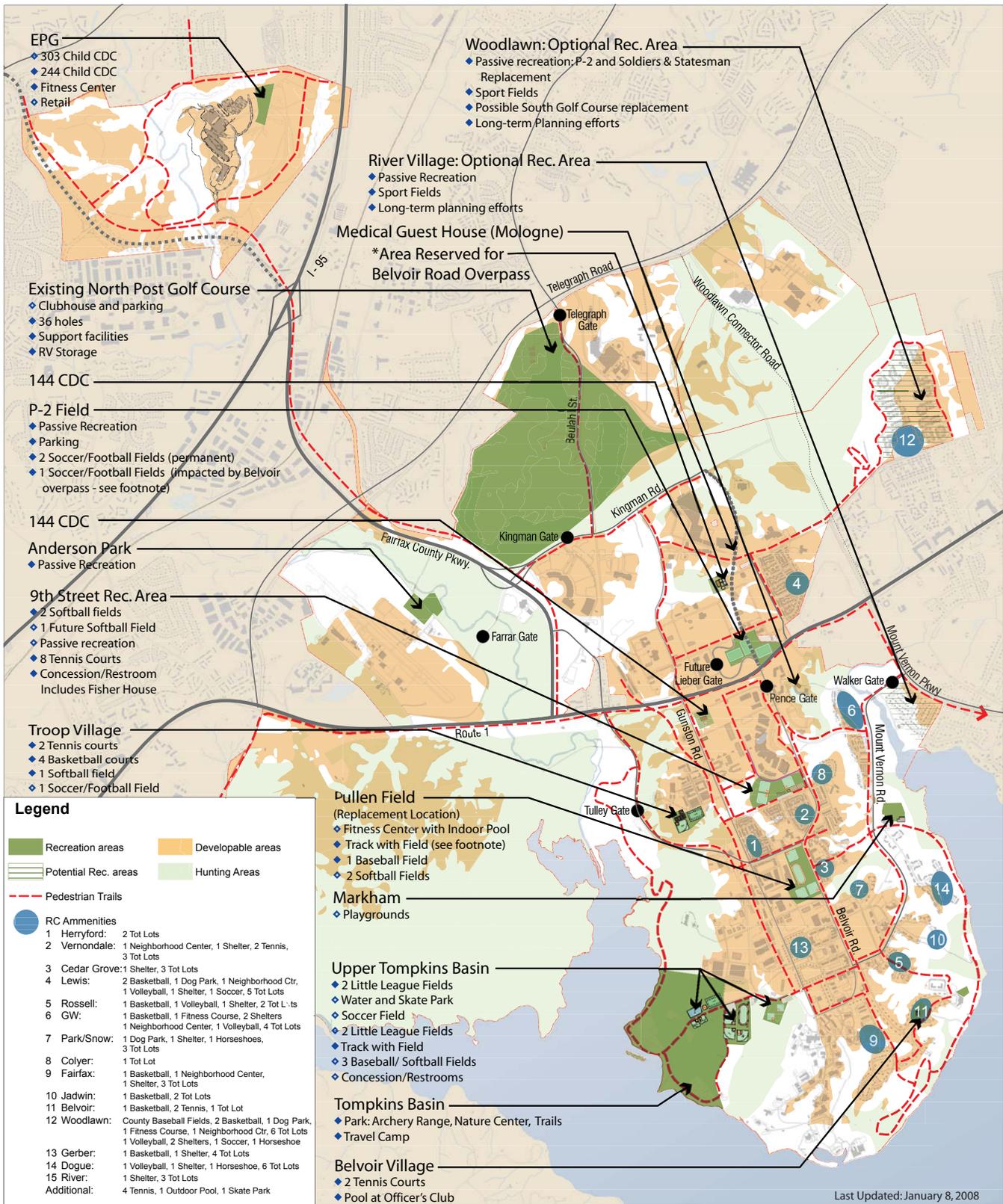
56	Project Totals (pre-certification estimates)	106 Points
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Certified: 40-49 points, **Silver:** 50-59 points, **Gold:** 60-79 points, **Platinum:** 80-106 points

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MWR Recreational Plan

H Appendix



Unified Facilities Criteria

Airfield & Heliport Planning & Design

Appendix

Chapter 3

RUNWAYS (FIXED-WING) AND IMAGINARY SURFACES

3.1. Contents. This chapter presents design standards and considerations for fixed-wing runways and associated imaginary surfaces.

3.2. Requirements. The landing and take-off design considerations for an airfield include mission requirements, expected type and volume of air traffic, traffic patterns such as the arrangement of multidirectional approaches and takeoffs, ultimate runway length, runway orientation required by local wind conditions, local terrain, restrictions due to airspace obstacles or surrounding community, noise impact, and aircraft accident potential.

3.3. Runway Classification. Runways are classified as either Class A or Class B, based on aircraft type as shown in Table 3.1. This table uses the same runway classification system established by the Office of the Secretary of Defense as a means of defining accident potential areas (zones) for the Air Installations Compatible Use Zone (AICUZ) Program. These runway classes are not to be confused with aircraft approach categories and aircraft wingspan in other DoD or FAA documents, aircraft weight classifications, or pavement traffic areas. The aircraft listed provide examples of aircraft that fall into these classifications and may not be all-inclusive.

Class A Runways		Class B Runways		
C-1	OV-1	A-6	C-141	P-3
C-2		A-10	E-3	S-3
C-12	T-28	AV-8	E-4	SR-71
C-20	T-34	B-1	E-6	T-1
C-21	T-44	B-2	R/F-4	T-2
C-23	U-21	B-52	F-5	T-6
C-26	UV-18	C-5	F-14	T-37
E-1	DASH-7	C-9	F-15	T-38
E-2	DASH-8	KC-10	F-16	T-39
		C-17	F/A-18	T-42
		C-130	F-22	T-45
		C-135	FB-111	TR-1
		C-137	F-117	U-2

Notes:

1. Only symbols for basic mission aircraft or basic mission aircraft plus type are used. Designations represent entire series. Runway classes in this table are not related to aircraft approach categories, aircraft weight, aircraft wingspan, or to pavement design classes or types.
2. These are examples of aircraft which fall into these classifications, and may not be all inclusive.
3. Rotary aircraft are not addressed in this table.
4. V-22 aircraft is a rotary aircraft which operates as a rotary-wing aircraft on a Class A runway and operates as either a fixed-wing or rotary-wing aircraft on taxiways associated with Class A runways.

3.3.1. Class A Runways. Class A runways are primarily intended for small light aircraft. These runways do not have the potential or foreseeable requirement for development for use by high performance and large heavy aircraft. Ordinarily, these runways are less than 2,440 meters [8,000

Chapter 3

feet] long and have less than 10 percent of their operations that involve aircraft in the Class B category. However, this is not intended to limit the number of C-130 and C-17 operations conducted on any Class A airfield.

3.3.2. Class B Runways. Class B runways are primarily intended for high performance and large heavy aircraft, as shown in Table 3.1.

3.3.3. Rotary-Wing and V-STOL Aircraft. Runways for Rotary-wing and Vertical Take-Off and Landing (V-STOL) (V-22) aircraft are not addressed in this chapter. Design standards and considerations for rotary-wing aircraft runways and landing lanes are found in Chapter 4 of this manual. Information on the design standards and considerations for the V-STOL aircraft may be obtained from:

Department of the Navy
LANTDIV Code 15C
1510 Gilbert St.
Norfolk, VA 23511-2699

3.3.4. Short Fields and Training Assault Landing Zones. Short Fields and Training Assault Landing Zones are special use fields. Design criteria are found in Air Force Engineering Technical Letter (ETL) 98-5, C-130 and C-17 Contingency and Training Airfield Criteria. When fully developed and approved, criteria for training airfields will be provided in Chapter 7 of this manual.

3.4. Runway Systems. As discussed in Chapter 2, an airfield normally has only one runway.

3.4.1. Single Runway. A single runway is the least flexible and lowest capacity system. The capacity of a single runway system will vary from approximately 40 to 50 operations per hour under IFR conditions, up to 75 operations per hour under VFR conditions.

3.4.2. Parallel Runways. Parallel runways are the most commonly used system for increased capacity. In some cases, parallel runways may be staggered with the runway ends offset from each other and with terminal or service facilities located between the runways. When parallel runways are separated by less than the distance shown in Item 15 of Table 3.2, the second runway will increase capacity at the airfield under VFR conditions, but due to the close distance, capacity at the airfield will not be increased under IFR conditions.

3.4.3. Crosswind Runways. Crosswind runways may be either the open-V or the intersecting type of runway. The crosswind system is adaptable to a wider variety of wind conditions than the parallel system. When winds are calm, both runways may be used simultaneously. An open-V system has a greater capacity than the intersecting system.

3.5. Runway Orientation/Wind Data. Runway orientation is the key to a safe, efficient, and usable aviation facility. Orientation is based on an analysis of wind data, terrain, local development, operational procedures and other pertinent data. Procedures for analysis of wind data to determine runway orientation are further discussed in attachment 5.

NOTE: Metric units apply to new airfield construction, and where practical, to modifications to existing airfields and heliports, as discussed in paragraph 1.4.4.

Chapter 3

Table 3.2. Runways.

Item No.	Item Description	Class A Runway	Class B Runway	Remarks
		Requirement		
1	Length	See Table 3.3	See Remarks	For Army airfields. For Army Class B runways, runway length will be determined by the Air Force MAJCOM for the most critical aircraft in support of the mission.
		See Remarks	See Remarks	For Air Force airfields, runway length will be determined by the MAJCOM for the most critical aircraft in support of the mission.
		See Remarks	See Remarks	For Navy and Marine Corps airfields, see NAVFAC P-80 for computation of runway lengths.
2	Width	30 m [100 ft]	46 m [150 ft]	Army airfields and Air Force airfields, not otherwise specified.
		NA	90 m [300 ft]	B-52 aircraft. AFI 11-202 V3 allows that B-52 aircraft may routinely operate on 60 m (200 ft) wide runways.
		23 m [75 ft]	N/A	Navy and Marine Corps class A runways. Runway width for T-34 and T-44 will be 45 m [150 ft].
		NA	60 m [200 ft]	Navy and Marine Corps airfields.
3	Total width of shoulders (paved and unpaved)	15 m [50 ft]	60 m [200 ft]	Army and Air Force airfields.
		7.5 m [25 ft]	46 m [150 ft]	Navy and Marine Corps airfields.
4	Paved shoulder width	7.5 m [25 ft]	7.5 m [25 ft]	Army airfields, and Air Force airfields not otherwise specified below.
		NA	3 m [10 ft]	Air Force airfields designed for Trainer, Fighter and B-52 aircraft.
		3 m [10 ft]	3 m [10 ft]	Navy and Marine Corps airfields.
5	Longitudinal grades of runway and shoulders	Maximum 1.0%		Grades may be both positive and negative but must not exceed the limit specified. Exception for shoulders: a 3.0 percent

Chapter 3

Table 3.2. Runways.

Item No.	Item Description	Class A Runway	Class B Runway	Remarks
		Requirement		
	shoulders			maximum is permitted where arresting systems are installed.
6	Longitudinal runway grade changes	No grade change is to occur less than 300 m [1,000 ft] from the runway end	No grade change is to occur less than 900 m [3,000 ft] from the runway end	Where economically feasible, the runway will have a constant centerline gradient from end to end. Where terrain dictates the need for centerline grade changes, the distance between two successive point of intersection (PI) will be not less than 300 m [1,000 ft] and two successive distances between PIs will not be the same.
7	Rate of longitudinal runway grade changes	Max 0.167% per 30 linear meters [100 linear feet] of runway		For Army and Air Force. Maximum rate of longitudinal grade change is produced by vertical curves having 180 meters [600 foot] lengths for each percent of algebraic difference between the two grades.
		Max 0.10% per 30 linear meters [100 linear feet] of runway		For Navy and Marine Corps. Maximum rate of longitudinal grade change is produced by vertical curves having 300 meters [1,000 foot] lengths for each percent of algebraic difference between the two grades.
		See Remarks		Exceptions: 0.4 percent for edge of runways at runway intersections.
8	Longitudinal sight distance	Min 1,500 m [5,000 ft]		Any two points 2.4 m [8 ft] above the pavement must be mutually visible (visible by each other) for the distance indicated. For runways shorter than 1,500 meters [5,000 ft], height above runway will be reduced proportionally.
9	Transverse grade of runway	Min 1.0% Max 1.5%		New runway pavements will be centerline crowned. Existing runway pavements with insufficient transverse gradients for rapid drainage should provide increasing gradients when overlaid or reconstructed.
		Slope pavement downwards from centerline of runway. 1.5% slope is optimum transverse grade of		

Chapter 3

Table 3.2. Runways.

Item No.	Item Description	Class A Runway	Class B Runway	Remarks
		Requirement		
				runway. Selected transverse grade is to remain constant for length and width of runway, except at or adjacent to runway intersections where pavement surfaces must be warped to match abutting pavements.
10	Transverse grade of paved shoulder	2% min 3% max		Paved Portion of Shoulder. Slope downward from runway pavement.
11	Transverse grade of unpaved shoulder	(a) 40 mm [1-1/2"] drop off at edge of paved shoulder (b) 5% slope first 3 m [10 ft] from paved shoulder and edge of runway without paved shoulder (c) beyond 3 m [10 ft] from paved shoulder and edge of runway without paved shoulder - 2% min, 4% max.		Unpaved Portion of Shoulder. Slope downward from shoulder pavement. For additional information, see Figure 3.1.
12	Runway lateral clearance zone	152.40 m [500 ft]	152.40 m [500 ft]	Army airfields.
		152.40 m [500 ft]	304.80 m [1,000 ft]	Air Force, Navy, and Marine Corps.
				The runway lateral clearance zone's lateral limits coincide with the limits of the primary surface. The ends of the lateral clearance zone coincide with the runway ends. The ground surface within this area must be clear of fixed or mobile objects, and graded to the requirements of Table 3.2, items 13 and 14. The zone width is measured perpendicularly from the centerline of the runway and begins at the runway centerline. (1) Fixed obstacles include manmade or natural features such as buildings, trees, rocks, terrain irregularities and any other features constituting possible hazards to moving aircraft. Navigational aids and meteorological

Chapter 3

Table 3.2. Runways.

Item No.	Item Description	Class A Runway	Class B Runway	Remarks
		Requirement		
				<p>equipment will be sited within these clearances where essential for their proper functioning. For Army and Air Force, this area to be clear of all obstacles except for the permissible deviations noted in Attachment 14. For Navy and Marine Corps, certain items that are listed in NAVFAC P-80.3 are exempted.</p> <p>(2) Mobile obstacles include parked aircraft, parked and moving vehicles, railroad cars, and similar equipment. Taxiing aircraft, emergency vehicles, and authorized maintenance vehicles are exempt from this restriction.</p> <p>(3) For Army and Air Force airfields, parallel taxiway (exclusive of shoulder width) will be located in excess of the lateral clearance distances (Primary Surface). \1\ For Navy and Marine Corps airfields, the centerline of a runway and a parallel taxiway shall be a minimum of 152.4 meters [500 feet] apart. For Class A Airfields, one-half of the parallel taxiway may be located within the runway lateral clearance zone. /1/</p> <p>(4) For Class A runways, except at Navy and Marine Corps airfields, above ground drainage structures, including head wall, are not permitted within 76.2 meters [250 feet] of the runway edge. For Class B runways, except at Navy and Marine Corps airfields, above ground drainage structures, including head walls are not permitted within 114.3 meters [375 feet] of the runway centerline. At Navy and Marine Corps airfields, above ground drainage structures will be individually reviewed. Drainage slopes of up to a 10 to 1 ratio are permitted for all runway classes, but swales with more gentle slopes are preferred.</p> <p>(5) Distance from runway centerline to helipads is discussed in Table 4.1.</p> <p>For Military installations overseas (other than bases located in the United States, its territories, trusts, and possessions), apply to the maximum practical extent.</p>

Chapter 3

Table 3.2. Runways.

Item No.	Item Description	Class A Runway	Class B Runway	Remarks
		Requirement		
		152.4 m (500 ft)	228.6 m (750 ft)	Navy airfields constructed prior to 1981.
13	Longitudinal grades within runway lateral clearance zone	Max 10.0%		Exclusive of pavement, shoulders, and cover over drainage structures. Slopes are to be as gradual as practicable. Avoid abrupt changes or sudden reversals. Rough grade to the extent necessary to minimize damage to aircraft.
14	Transverse grades within runway lateral clearance zone (in direction of surface drainage)	Minimum of 2.0% prior to channelization* Max 10.0%		Exclusive of pavement, shoulders, and cover over drainage structures. Slopes are to be as gradual as practicable. Avoid abrupt changes or sudden reversals. Rough grade to the extent necessary to minimize damage to aircraft.
15	Distance between centerlines of parallel runways	213.36 m [700 ft]	304.80 m [1,000 ft]	Visual flight rules (VFR) without intervening parallel taxiway between the parallel runways. One of the parallel runways must be a VFR only runway.
		632.46 m [2,075 ft]		VFR with intervening parallel taxiway.
		762.00 m [2,500 ft]		IFR using simultaneous operation (Depart-Depart) (Depart-Arrival).
		1,310.64 m [4,300 ft]		Instrument flight rules (IFR) using simultaneous approaches.
				For separation distance between fixed wing runways and rotary wing facilities, see Table 4.1.
16	Width of USAF Mandatory Zone of Frangibility	152.4 m (500 ft)		Centered on the runway centerline. All items sited within this area must be frangible (see Attachment 14).
17	Length of	Runway length plus		Centered on the runway. All items sited within

Chapter 3

Table 3.2. Runways.

Item No.	Item Description	Class A Runway	Class B Runway	Remarks
		Requirement		
	USAF Mandatory Zone of Frangibility	1,828.8m (6,000 ft)		this area to the ends of the Graded Area of the Clear Zone must be frangible (see Attachment 14). Items located beyond the Graded Area of the Clear Zone must be constructed to be frangible, low impact resistant structures, or semi-frangible (see Attachment 14).

* Bed of channel may be flat.

Notes:

1. Geometric design criteria in this manual are based on aircraft-specific requirements and are not direct conversions from inch-pound (English) dimensions. Inch-pound units are included only to permit reference to the previous standard.
2. Airfield and heliport imaginary surfaces and safe wingtip clearance dimensions are direct conversions from inch-pound to SI units.

3.6. Additional Considerations for Runway Orientation. In addition to meteorological and wind conditions, the following factors must be considered:

3.6.1. **Obstructions.** A specific airfield site and the proposed runway orientation must be known before a detailed survey can be made of obstructions which affect aircraft operations. Runways should be so oriented that approaches necessary for the ultimate development of the airfield are free of all obstructions.

3.6.2. **Restricted Airspace.** Airspace through which aircraft operations are restricted, and possibly prohibited, are shown on sectional and local aeronautical charts. Runways should be so oriented that their approach and departure patterns do not encroach on the restricted areas.

3.6.3. **Built-Up Areas.** Airfield sites and runway alignment will be selected and the operational procedures adopted which will least impact local inhabitants. Additional guidance for facilities is found in DoD Instruction 4165.57, Air Installations Compatible Use Zone (AICUZ) Program.

3.6.4. **Neighboring Airports.** Existing aircraft traffic patterns of airfields in the area may affect runway alignment.

3.6.5. **Topography.** Avoid sites which require excessive cuts and fills. Evaluate the effects of topographical features on: airspace zones, grading, drainage, and possible future runway extensions.

3.6.6. **Soil Conditions.** Evaluate soil conditions at potential sites to minimize settlement problems, heaving from highly expansive soils, high groundwater problems, and construction costs.

3.6.7. **Noise Analysis.** Noise analyses should be conducted to determine noise impacts to local communities and identify noise sensitive areas.

3.7. Runway Designation. Runways are identified by the whole number nearest one-tenth (1/10) the magnetic azimuth of the runway centerline. The magnetic azimuth of the runway centerline is measured clockwise from magnetic north when viewed from the direction of approach. For example, where the

Chapter 3

magnetic azimuth is 183 degrees, the runway designation marking would be 18; and for a magnetic azimuth of 117 degrees, the runway designation marking would be 12. For a magnetic azimuth ending in the number 5, such as 185 degrees, the runway designation marking can be either 18 or 19. Supplemental letters, where required for differentiation of parallel runways, are placed between the designation numbers and the threshold or threshold marking. For parallel runways, the supplemental letter is based on the runway location, left-to-right, when viewed from the direction of approach: for two parallel runways — "L", "R"; for three parallel runways — "L", "C", "R."

3.8. Runway Dimensions. The following paragraphs and tables present the design criteria for runway dimensions at all aviation facilities except Short Fields and Training Assault Landing Zones. The criteria presented in the tables are for all DoD components (Army, Air Force, Navy and Marine Corps) except where deviations are noted.

3.8.1. Runway Dimension Criteria, Except Runway Length. Table 3.2 presents all dimensional criteria, except runway length, for the layout and design of runways used primarily to support fixed-wing aircraft operation.

3.8.2. Runway Length Criteria:

3.8.2.1. Army. For Army Class A runways, the runway length will be determined in accordance with Table 3.3. Army Class B runways are used by Air Force aircraft, and therefore will have the runway length determined by the Air Force MAJCOM.

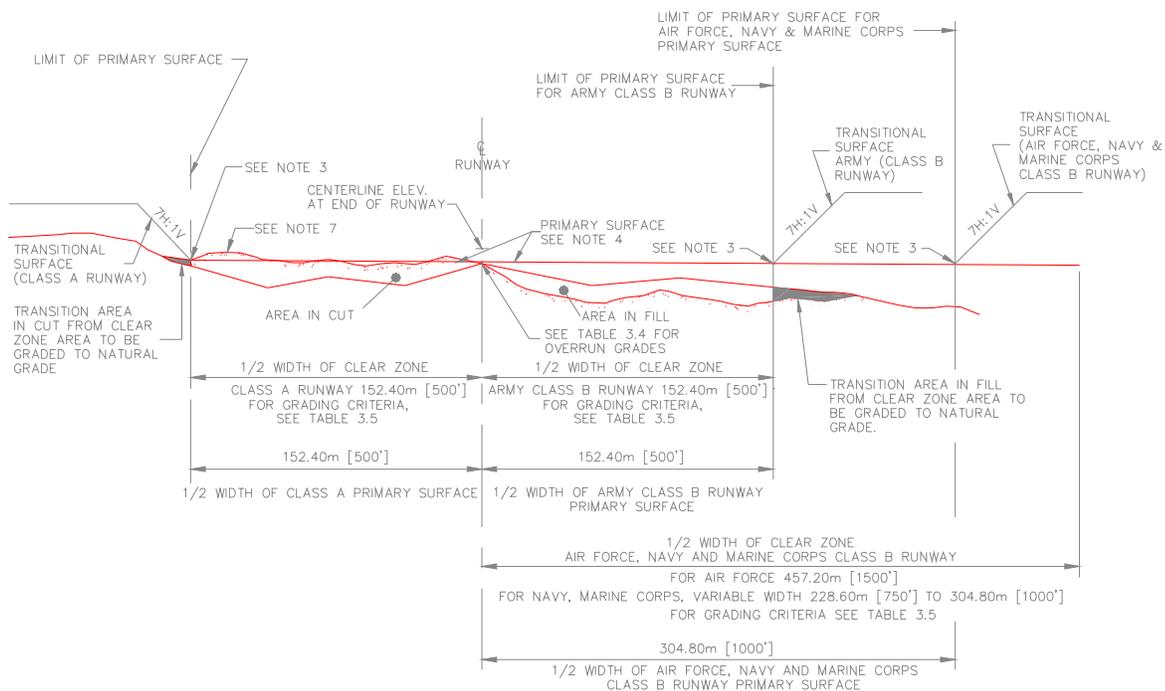
3.8.2.2. Air Force. For Air Force Class A and Class B runways, the length will be determined by the MAJCOM.

3.8.2.3. Navy and Marine Corps. Runway length computation for Navy and Marine Corps Class A and Class B runways is presented in NAVFAC P-80.

3.8.3. Layout. Typical sections and profiles for Army, Air Force, Navy and Marine Corps airfield runways and the associated airspace surfaces are shown in Figures 3.1 through 3.19.

Chapter 3

Figure 3.2. Clear Zone Transverse Section Detail.



NOTES

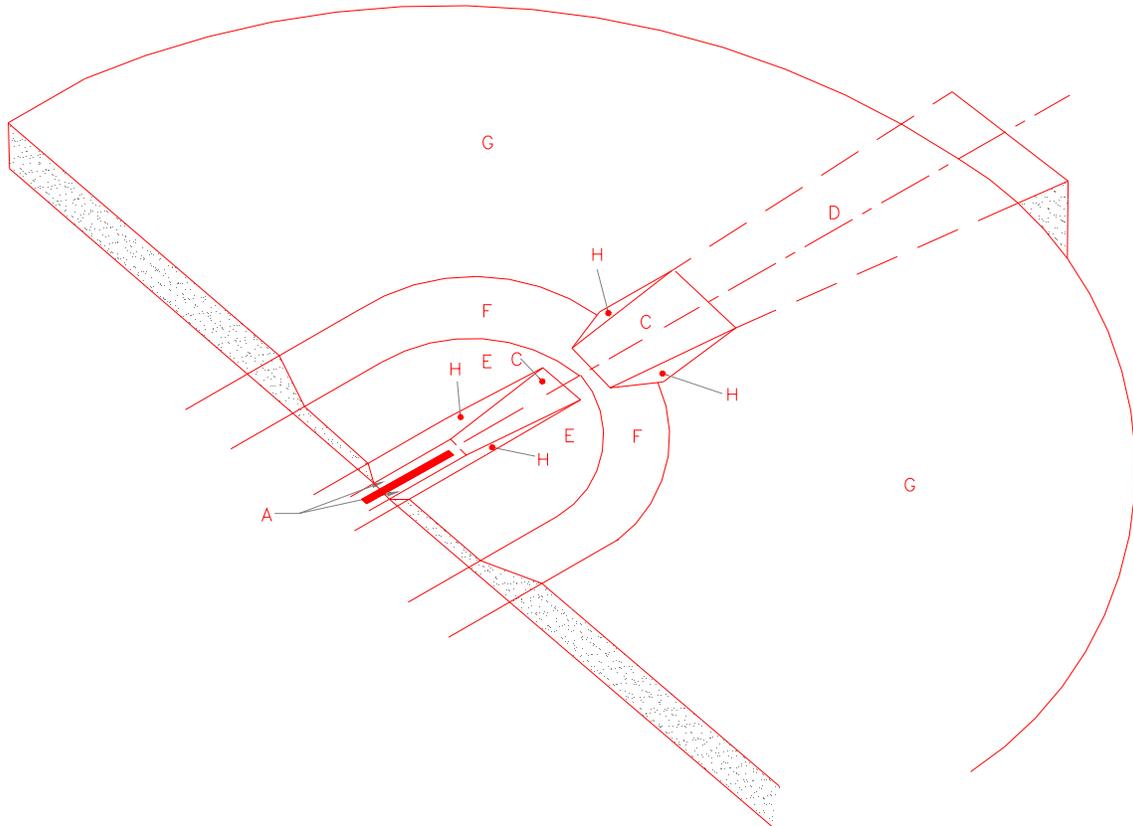
1. TAKEN BEYOND END OF RUNWAY.
2. PRIMARY SURFACE APPLY ONLY TO FIRST 60.96m [200'] BEYOND END OF RUNWAY.
3. THE STARTING ELEVATION FOR THE 7:1 TRANSITIONAL SLOPE IS THE ELEVATION OF THE PRIMARY SURFACE ELEVATION. REFER TO TABLE 3.7.
4. ELEVATION OF ANY POINT ON THE PRIMARY SURFACE IS THE SAME AS THE ELEVATION OF THE NEAREST POINT ON THE RUNWAY CENTERLINE.
5. AT NAVY AND MARINE CORPS FACILITIES, THE PRIMARY SURFACE MAY BE 228.60m [750']
6. DISTANCES ARE SYMMETRICAL ABOUT CENTER OF RUNWAY.

HALF SECTION IN CUT

HALF SECTION IN FILL

Chapter 3

Figure 3.11. Class A IFR Runway Airspace Imaginary Surfaces.



LEGEND

- A PRIMARY SURFACE
- B CLEAR ZONE SURFACE (NOT SHOWN)
- C APPROACH-DEPARTURE CLEARANCE SURFACE (SLOPE) (40H:1V RATIO)
- D APPROACH-DEPARTURE CLEARANCE SURFACE (HORIZONTAL)
- E INNER HORIZONTAL SURFACE (45.72m [150'] ELEVATION)
- F CONICAL SURFACE (20H:1V)
- G OUTER HORIZONTAL SURFACE (152.40m [500'] ELEVATION)
- H TRANSITIONAL SURFACE (7H:1V)
- I NOT USED
- J ACCIDENT POTENTIAL ZONE (APZ) (NOT SHOWN)

ISOMETRIC

Chapter 3

Table 3.6. Accident Potential Zones (APZ).					
Item No.	Item Description	Class A Runway	Class B Runway	Remarks	
		Requirement			
			[3,000 ft]		
3	APZ II Length	762.00 m [2,500 ft]	2,133.60 m [7,000 ft]	APZ II starts at the end of the APZ I, and is centered and measured on the extended runway centerline. Modifications will be considered if: <ul style="list-style-type: none"> - The runway is infrequently used. - Prevailing wind conditions are such that a large percentage (that is, over 80 percent) of the operations are in one direction. - Local accident history indicates consideration of different areas. - Most aircraft do not overfly an APZ area as defined here during normal flight operations (modifications may be made to alter these zones and adjust them to conform to the line of flight). - Other unusual conditions exist. 	
4	APZ II Width	304.80 m [1,000 ft]	304.80 m [1,000 ft]	Army airfields.	
			914.40 m [3,000 ft]	Air Force, Navy and Marine Corps airfields.	

Notes:

1. Applicable to aviation facilities of the Military Departments in the United States, its Territories, trusts, and possessions. For military facilities overseas, other than in locations designated, follow guidance of the individual service component.
2. For guidance on land use within the APZ's, see land use compatibility guidelines in DoD Air Installations Compatible Use Zone (AICUZ) guidelines (Attachment 4). For USAF, see AFI 32-7063 and AFH 32-7084..
3. Metric units apply to new airfield construction, and where practical, to modifications to existing airfields and heliports, as discussed in Paragraph 1.4.4.
4. Airfield and heliport imaginary surfaces and safe wingtip clearance dimensions are shown as a direct conversion from inch-pound to SI units.

Table 3.7. Airspace Imaginary Surfaces.						
Item No.	Item Description	Legend	Class A Runway Requirement		Class B Runway Requirement	Remarks
			VFR	IFR	VFR & IFR	
1	Primary surface width	A	304.80 m [1,000 ft]	304.80m [1,000ft]	304.80 m [1,000 ft]	Army airfields

Chapter 3

Table 3.7. Airspace Imaginary Surfaces.						
Item No.	Item Description	Legend	Class A Runway Requirement		Class B Runway Requirement	Remarks
			VFR	IFR	VFR & IFR	
					[1,000 ft]	
					609.60 m [2,000 ft]	Air Force, Navy, and Marine Corps airfields
			See Remarks			Centered on the runway centerline. At airfields where the lateral clearance was established according to the previous 750 ft [228.60 m] from centerline criterion, the 1500 ft [228.60 m] distance may remain. For USAF, the Primary Surface width was expanded 10 Nov 64 For Navy and Marine Corps, this surface was expanded on 12 May 81
2	Primary surface length	A	Runway Length + 60.96 m [200 ft] at each end			Primary surface extends 60.96 m [200 ft] beyond each end of the runway.
3	Primary surface elevation	A	The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.			
4	Clear Zone Surface (Graded Area)	B	Also see Table 3.5			Graded Area only. For land use outside the graded area of the Clear Zone, apply AICUZ standards.
5	Start of Approach-Departure Surface	C	60.96 m [200 ft]			Measured from the end of the runway.
6	Length of sloped portion of Approach-Departure Surface	C	3,048.00 m [10,000 ft]	6,096.00 m [20,000 ft]	7,620.00 m [25,000 ft]	Measured horizontally.

Chapter 3

Table 3.7. Airspace Imaginary Surfaces.						
Item No.	Item Description	Legend	Class A Runway Requirement		Class B Runway Requirement	Remarks
			VFR	IFR	VFR & IFR	
7	Slope of Approach-Departure Surface	C	40:1	40:1	50:1	Slope ratio is horizontal: vertical. Example: 40:1 is 40 m [ft] horizontal to 1 m [ft] vertical. For clearances over highway and railroads, see Table 3.8.
8	Width of Approach-Departure Surface at start of sloped portion	C	304.80 m [1,000 ft]	304.80 m [1,000 ft]	NA	
					304.80 m [1,000 ft]	Army airfields.
					609.60 m [2,000 ft]	Air Force, Navy, and Marine Corps airfields.
			See Remarks			Centered on the extended runway centerline, and is the same width as the Primary Surface. For Navy and Marine Corps airfields where the lateral clearance distance has been established according to the previous 750 foot [228.60 m] from centerline criterion, the 457.20 m [1,500 foot] distance at the start of the Approach-Departure Clearance Surface may remain.
9	Width of Approach-Departure Surface at end of sloped portion	C	762.00 m [2,500 ft]	2,133.60 m [7,000 ft]	2,743.20 m [9,000 ft]	Centered on the extended runway centerline.

Chapter 3

Table 3.7. Airspace Imaginary Surfaces.						
Item No.	Item Description	Legend	Class A Runway Requirement		Class B Runway Requirement	Remarks
			VFR	IFR	VFR & IFR	
10	Elevation of Approach-Departure Surface at start of sloped portion	C	0 m [0 ft]	0 m [0 ft]	0 m [0 ft]	Same as the runway centerline elevation at the threshold.
11	Elevation of Approach-Departure Surface at end of sloped portion	C	76.20 m [250 ft]	152.40 m [500 ft]	152.40 m [500 ft]	Above the established airfield elevation.
12	Start of horizontal portion of Approach-Departure Surface	D	NA	6,096.00 m [20,000 ft]	7,620.00 m [25,000 ft]	Measured from the end of the primary surface. The end of the primary surface (start of the approach-departure surface) is 60.96 m [200 ft] from the end of the runway.
13	Length of horizontal portion of Approach-Departure Surface	D	NA	9,144.00 m [30,000 ft]	7,620.00 m [25,000 ft]	Measured horizontally along the ground.
14	Width of Approach-Departure Surface at start of horizontal portion	D	NA	2,133.60 m [7,000 ft]	2,743.20 m [9,000 ft]	Centered along the runway centerline extended.
15	Width of Approach-Departure Surface at end of horizontal portion	D	NA	4,876.80 m [16,000 ft]	4,876.80 m [16,000 ft]	Centered along the runway centerline extended.

Chapter 3

Table 3.7. Airspace Imaginary Surfaces.

Item No.	Item Description	Legend	Class A Runway Requirement		Class B Runway Requirement	Remarks
			VFR	IFR	VFR & IFR	
16	Elevation of horizontal portion of Approach-Departure Surface	D	NA	152.40 m [500 ft]	152.40 m [500 ft]	Above the established airfield elevation.
17	Radius of inner horizontal surface	E	NA	2,286.00 m [7,500 ft]		An imaginary surface constructed by scribing an arc with a radius of 2,286 m [7,500 ft] about the centerline at each end of each runway and inter-connecting these arcs with tangents.
18	Width of inner horizontal surface	E	NA	4,572.00 m [15,000 ft]		
19	Elevation of inner horizontal surface	E	NA	45.72 m [150 ft]		Above the established airfield elevation.
20	Horizontal width of conical surface	F	NA	2,133.60 m [7,000 ft]		Extends horizontally outward from the outer boundary of the inner horizontal surface.
21	Slope of conical surface	F	NA	20:1		Slope ratio is horizontal:vertical. Example: 20:1 is 20 meters [feet] horizontal to 1 meter [foot] vertical
22	Elevation of conical surface at start of slope	F	NA	45.72 m [150 ft]		Above the established airfield elevation.
23	Elevation of conical surface at end	F	NA	152.40 m [500 ft]		Above the established airfield elevation.

Chapter 3

Table 3.7. Airspace Imaginary Surfaces.						
Item No.	Item Description	Legend	Class A Runway Requirement		Class B Runway Requirement	Remarks
			VFR	IFR	VFR & IFR	
	of slope					
24	Distance to outer edge of conical surface	G	NA		4,419.60 m [14,500 ft]	
25	Width of outer horizontal surface	G	NA		9,144.00 m [30,000 ft]	Extending horizontally outward from the outer periphery of the conical surface.
26	Elevation of outer horizontal surface	G	NA		152.40 m [500 ft]	Above the established airfield elevation.
27	Distance to outer edge of outer horizontal surface	G	NA		13,563.60 m [44,500 ft]	An imaginary surface formed by scribing an arc with a radius of 13,563.6m about the centerline at each end of each runway, and interconnecting the arcs with tangents.
28	Start of Transitional Surface	H	152.40 m [500 ft]		152.40 m [500 ft]	At Army airfields.
			304.8 m (1,000 ft)			Air Force, Navy, and Marine Corps.
29	End of Transitional Surface	H	See Remarks			The Transitional Surface ends at the Inner Horizontal Surface, Conical Surface, Outer Horizontal Surface, or at an elevation of 45.72 m [150 ft].

Chapter 3

Table 3.7. Airspace Imaginary Surfaces.						
Item No.	Item Description	Legend	Class A Runway Requirement		Class B Runway Requirement	Remarks
			VFR	IFR	VFR & IFR	
30	Slope of Transitional Surfaces	H	7:1			<p>Slope ratio is horizontal:vertical.</p> <p>7:1 is 7 meters [feet] horizontal to 1 meter [foot] vertical.</p> <p>Vertical height of vegetation and other fixed or mobile obstacles and/or structures will not penetrate the transitional surface. Taxiing aircraft are exempt from this requirement. For Navy and Marine Corps airfields, taxiway pavements are exempt from this requirement. For USAF, ATCT is exempt from this requirement if the height will not affect TERPS criteria.</p>

Notes:

1. Approach-Departure Surfaces are based on Instrument Approach-Departure procedures. Verify Instrument Approach-Departure procedures with Army Aeronautical Service Agency, Air Force Flight Standard Agency or Navy Flight Information Group (NAFIG), as appropriate, prior to using this table.
2. NA = Not Applicable
3. Airfield and heliport imaginary surfaces and safe wingtip clearance dimensions are shown as a direct conversion from inch-pound to SI units.

List of Figures

Figure #	Name	Page #
Figure 1.1	Airfield ADP Boundary	1-1
Figure 2.1	Sub-Area Map	2-1
Figure 2.2	Existing Airfield Setting/Study Area (2007 Aerial)	2-2
Figure 3.1	Composite Resources Map	3-2
Figure 3.2	Natural Resources Map	3-5
Figure 3.3	Operational Resources Map Inset - 1	3-9
Figure 3.4	Operational Resources Map Inset - 2	3-9
Figure 3.5	Operational Resources Map	3-11
Figure 3.6	Cultural Resources Map	3-13
Figure 3.7	Developable Areas Map	3-15
Figure 3.8	Airfield Operational Constraints	3-18
Figure 3.9	Maximum Building Heights based on Airfield Imaginary Surfaces Restrictions	3-19
Figure 3.10	Airfield Site Map	3-21
Figure 3.11	Facilities Condition Map	3-24
Figure 3.12	Proposed Museum Siting	3-25
Figure 3.13	Circulation Map	3-27
Figure 3.14	Utilities Map	3-29
Figure 6.1	Initial Concept North of the Runway	6-2
Figure 6.2	UFC Airfield Constraints	6-3
Figure 6.3	Functional Land Use Diagram	6-5
Figure 6.4	Option 1 Conceptual Plan	6-7
Figure 6.5	Option 2 Conceptual Plan	6-9
Figure 6.6	Option 3 Conceptual Plan	6-11
Figure 8.1	Full Buildout Facilities Site Map	8-4
Figure 9.1	2030 Phasing Plan (constrained)	9-3
Figure 9.2	Phasing Plan (full buildout, unconstrained)	9-5
Figure 9.3	Rendered Plan (full buildout, unconstrained)	9-6
Figure 9.4	All Roadway Improvements Planned for Full Expansion (2050)	9-7

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List of Tables

K

Appendix

Table #	Name	Page #
Table 3.1	Natural Development Constraints located in the Study Area	3-4
Table 3.2	Summary of HWMUs for the Existing DAAF Site	3-6
Table 3.3	Summary of PSAs for the Existing DAAF Site	3-6
Table 3.4	Summary of PRSs for the Existing DAAF Site	3-7
Table 3.5	Summary of SWMUs for the Existing DAAF Site	3-8
Table 3.6	Operational Resources located in the Existing DAAF Site	3-10
Table 3.7	Cultural Constraints located in the Study Area	3-12
Table 3.8	Other Environmental Regulatory Considerations for the Study Area	3-12
Table 3.9	Level of Environmental Constraint Pertaining to the Area within the Existing DAAF Fence line	3-14
Table 3.10	DAAF Imaginary Surfaces, Existing On-Post Obstructions & Impacts on Development	3-17
Table 3.11	ISR Rating Definitions	3-22
Table 3.12	ISR Ratings for Buildings in the ADP Study Area	3-23
Table 3.13	Airfield Planned Projects	3-25
Table 4.1	Proposed SRC & LRC Projects to be located in the Airfield Study Area	4-3
Table 4.2	12th Aviation Battalion - Population & Aircraft	4-5
Table 4.3	12th Aviation Battalion - Summary of Allowances, Requirements, & Options' Program	4-5
Table 4.4	NVESD - Population & Aircraft	4-6
Table 4.5	NVESD - Summary of Allowances, Requirements, & Options' Program	4-6
Table 4.6	OSAA & OSACOM - Population & Aircraft	4-7
Table 4.7	OSAA & OSACOM - Summary of Allowances, Requirements, & Options' Program	4-7
Table 4.8	DC ANG - Population & Aircraft	4-8
Table 4.9	DC ANG - Summary of Allowances, Requirements, & Options' Program	4-8
Table 4.10	CAP - Population & Aircraft	4-9
Table 4.11	CAP - Summary of Allowances, Requirements, & Options' Program	4-9
Table 4.12	Davison AAF - Population & Aircraft	4-10
Table 4.13	DAAF Base Ops - Summary of Allowances, Requirements, & Options' Program	4-10
Table 4.14	Program Summary	4-11
Table 6.1	Pros & Cons for Option 1	6-6
Table 6.2	Pros & Cons for Option 2	6-8
Table 6.3	Pros & Cons for Option 3	6-10
Table 7.1	Evaluation Matrix	7-2
Table 8.1	Pros & Cons for Preferred Plan	8-5

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List of Acronyms

Acronym	Description
ACP	Access Control Point
ACTS	Army Criteria Tracking System
ADP	Area Development Plan
AICUZ	Air Installation Compatible Use Zone
AST	Above-ground Storage Tank
AT/FP	Airlift Total/Force Plan
BNVP	Belvoir New Vision Plan
BRAC	Base Realignment & Closure
CAP	Civil Air Patrol
CFC	Chlorofluorocarbons
CONUS	Continental United States
DAAF	Davison Army Airfield
daa-hcps	Fire Training Area at Davison Army Airfield
DC ANG	DC Air National Guard
DLA	Defense Logistics Agency
DPW-ENRD	Director of Public Works, Environmental & Natural Resource Division
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPG	Engineer Proving Ground
ETS	Environmental Tobacco Smoke
FAA	Federal Aviation Administration
FBI	Federal Bureau of Investigations
FONSI	Finding of No Significant Impact
FPS	Facility Planning System
FW	Fixed Wing
FY	Fiscal Year
GIS	Geographic Information System
GSF	Gross Square Feet
HSP	Health & Safety Program
HVAC&R	Heating, Ventilating, Air Conditioning, & Refrigeration
HWMU	Hazardous Waste Management Unit
IAQ	Indoor Air Quality
IDG	Installation Design Guideline
INSCOM	United States Army Intelligence & Security Command
ISR	Installation Status Report
JLUS	Joint Land Use Study
JRSOI	Joint Reception, Staging, Onward movement and Integration

LEED NC	Leadership in Energy and Environmental Design for New Construction
LEED ND	Leadership in Energy and Environmental Design for Neighborhood Development
LID	Low-Impact Development
LRC	Long Range Component
LUH	Light Utility Helicopter
MDW/NCR	Military District Washington/National Capital Region
MILCON	Military Construction
MMRP	Military Munitions Response Program
MSL	Mean Sea Level
MTOE	Modification Table of Organization and Equipment
NCPN	National Capital Planning Commission
NCPP	National Capital Park and Planning
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NSR	Non-attainment New Source Review
NVESD	Night Vision and Electronic Sensor Directorate
OCONUS	outside of the continental United States
OSAA	Operational Support Airlift Agency
OSACOM	Operational Support Airlift Command
PIF	Partners in Flight
PRS	Petroleum Release Site
PRV	Plant Replacement Value
PSA	Petroleum Storage Area
RPA	Resource Protection Area
RPI	Real Property Inventory
RPMP	Real Property Master Plan
RW	Rotary Wing
SHPO	State Historic Preservation Office
SRC	Short Range Component
SWMU	Solid Waste Management Unit
SY	Square Yards
TDA	Table of Distribution & Allowances
TMP	Transportation Management Plan
UAV	Unmanned Aerial Vehicle
UFC	Unified Facilities Criteria
UMMCA	Unspecified Minor Military Construction, Army
USACE	US Army Corps of Engineers
UST	Underground Storage Tank
UXO	Unexploded Ordinance
VDEQ	Virginia Department of Environmental Quality