Community Support Area Development Plan

January 2008

Final

Belvoir
NEW VISION

Community Support
Area Development Plan

January 2008

Prepared by:

BELVOIR
NEW VISION
PLANNERS

Contents

1 Introduction

Purpose

The intent of this Area Development Plan (ADP) is the creation of a North Post that is home to a more effectively developed Post Exchange (P/X) and Commissary as well as other community programs. The present area in the North Post that is occupied by some P/X and Commissary functions will become inadequate with the increase of activity on the post itself, as well as anticipated growth in the amount of customers at the P/X and Commissary coming from retired and off-post military members.

In addition to analysis, drawings, and plans, the ADP will also include details or sketches that illustrate important features of the plan - such as architectural character, recommended solutions to circulation problems, etc. It will also indicate construction phasing and development priorities, which will correlate with the facility programming contained in the Short-Range Component (SRC), Military Construction (MILCON), and other project funding documentation.

Shopping -Amenity

Process

Developing an ADP is an inherently flexible process. While each ADP has its own unique focus, there are eight key steps that are general to creating an ADP. The intent is to use these steps in coordination with the Leadership in Energy and Environmental Design (LEED) for Neighborhood Development (ND) Rating System administered by the US Green Building Council (USGBC). At the time of publication LEED ND was in pilot form. The use of this program within the ADP will encourage and raise awareness of best practices in sustainable design.

— STEP 1: Set goals.
— STEP 2: Define area boundary.
— STEP 3: Define program requirements.
— STEP 4: Collect and analyze data.
— STEP 5: Develop alternative plans.
— STEP 6: Evaluate alternative plans.
— STEP 7: Develop final plan.
— STEP 8: Develop implementation plan.

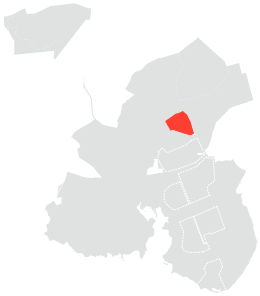
Vision

The Community Support Area of Fort Belvoir, and any post, is a place where families, soldiers, civilians, and retirees alike come to the installation and enjoy what the P/X, Commissary and other services and amenities offer. This area and the Town Center are the heart of non-training activity at the post, and it is important for the morale and welfare of all who are a part of the installation and part of the military.

The vision for the community support area is to:

— Develop a new regional center for destination shopping and amenities
— Provide an incremental redevelopment of the area
— Build compact to enable future higher density uses
— Emphasize a sense of place and the pedestrian character of the regional shopping center

Figure 1–1 The Setting: Community Support Center



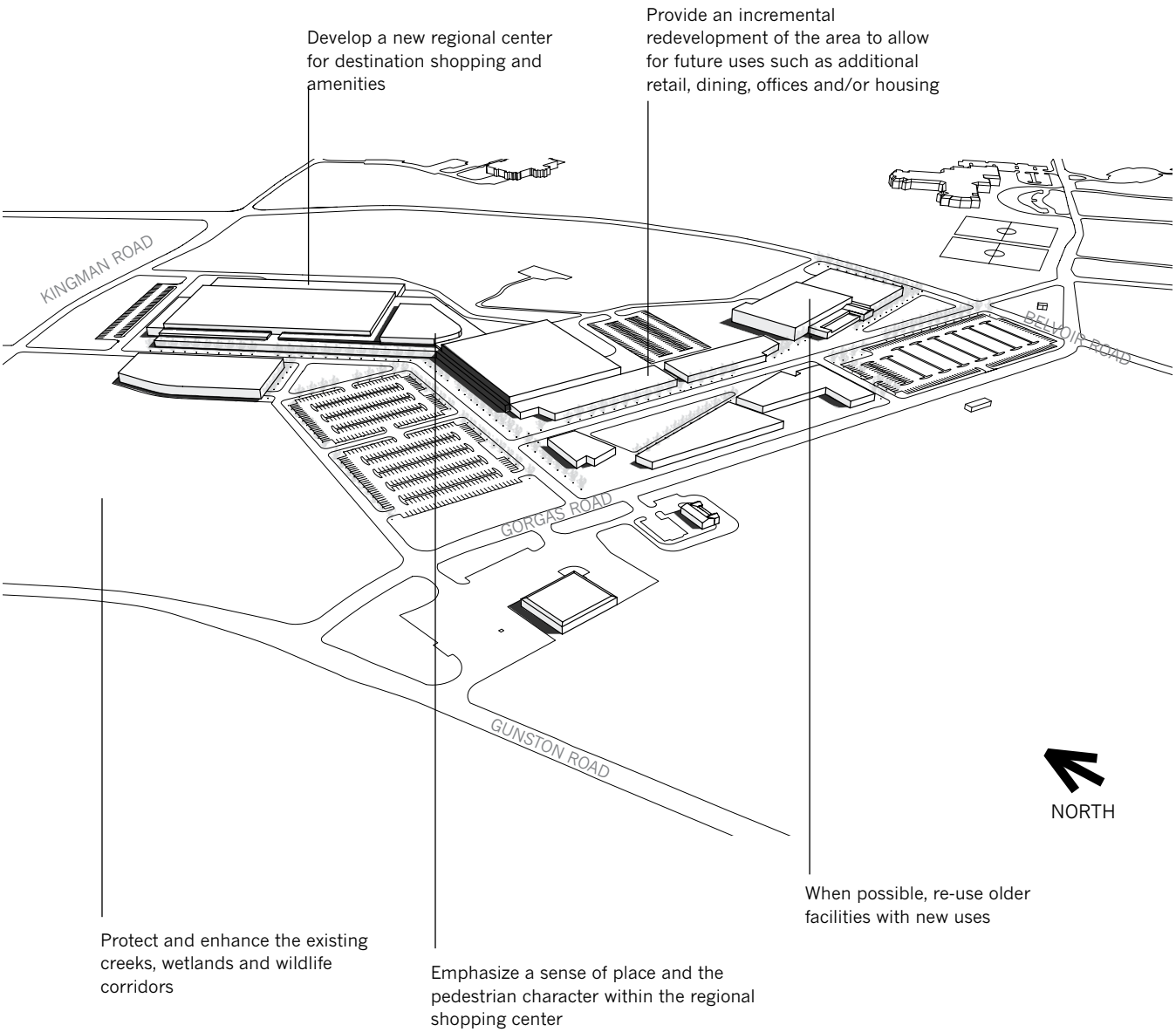
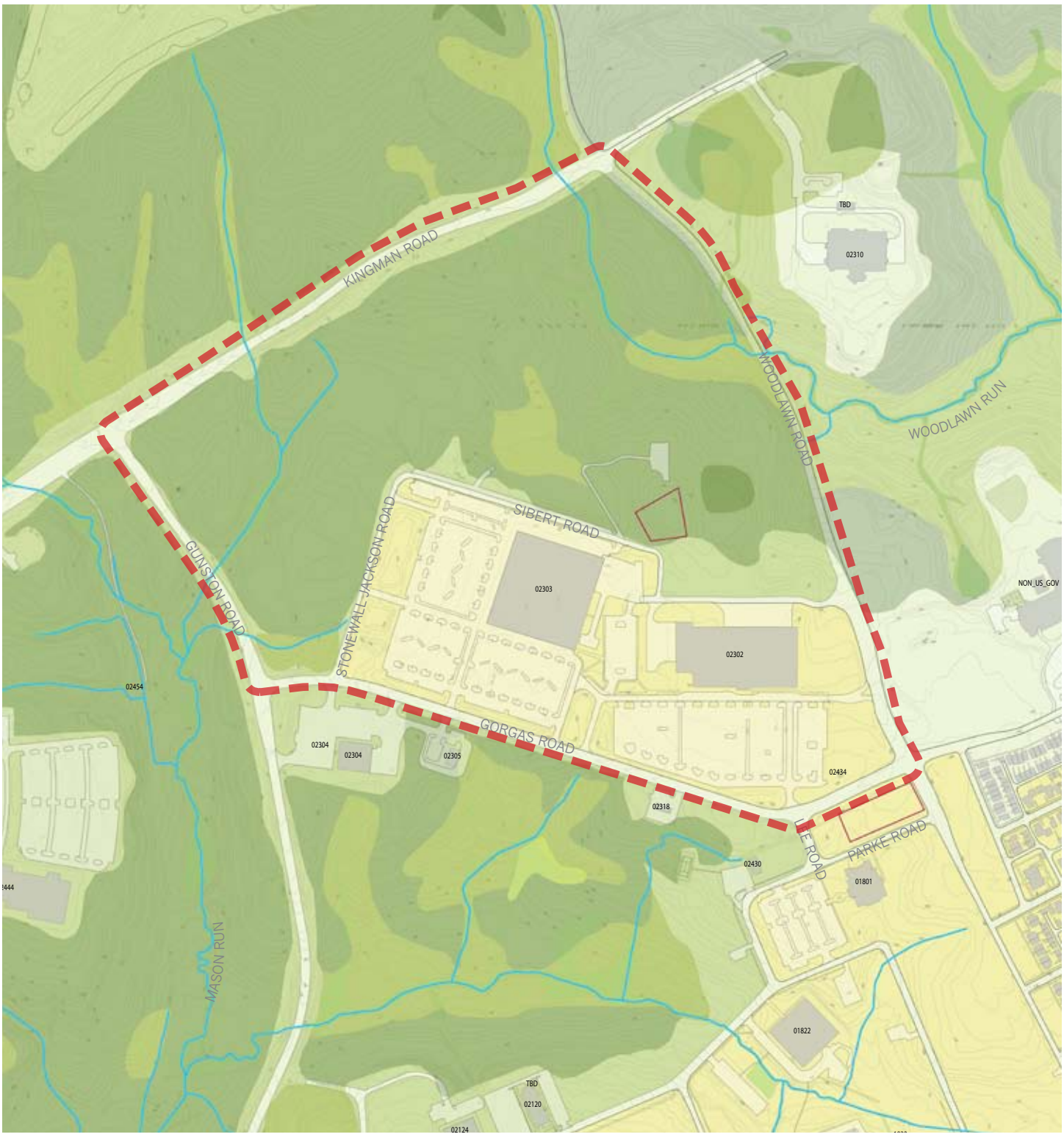


Figure 1–2 Existing Community Support Center



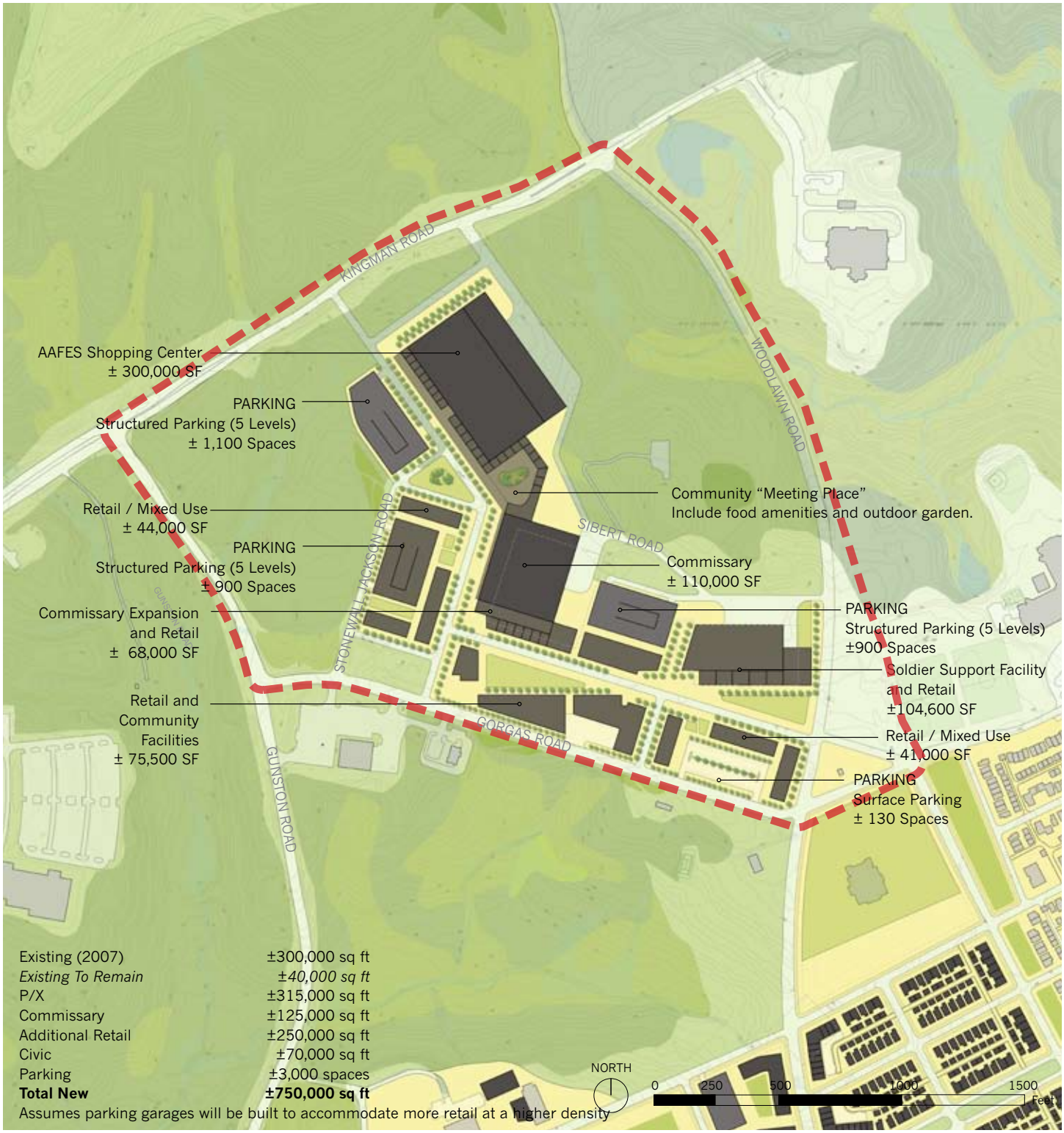
Existing Facilities (2007) **±300,000 sq ft**

1801	CHAPEL	2318	CAR WASH
2302	COMMISSARY	2430	BATH HOUSE
2303	NORTH POST MAIN EXCHANGE	2434	PUMP STATION
2304	AAFES CONVENIENCE STORE		
2305	SUNTRUST BANK		

NORTH

0 250 500 1000 1500 Feet

Figure 1–3 Long Term Proposal for the Community Support Center



2 The Setting

Location of ADP Study Limits

The Community Support Center (CSC) is located in the North Post with Kingman Road to the North; Woodlawn Road to the East; Gunston Road to the West and Gorgas to the South. It is located in a cleared area that is surrounded by forest and Resource Protection Areas (RPAs).

Character of ADP Study Limits

The area is mostly buildings (the P/X and Commissary) with large adjacent parking lots. Surrounding the site is mostly green and/or forested areas that also contain RPAs. These are areas that should remain natural since the post has agreed not to develop in any RPA areas when possible. There are large spaces in the area to expand upon the existing services without having to encroach upon the green areas.

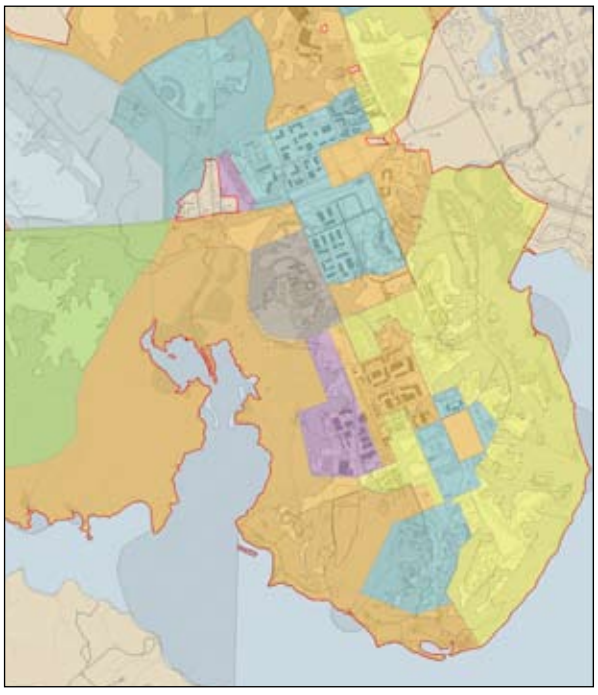
LRC Land Use Designation

The land use designation for the existing site is community; the area remains designated as community in both 2015 and 2030.

Community land use encourages a mix of uses. Facilities allowed include religious, family support, personnel services, professional services, medical, community, housing, commercial and recreational services. Users live both on- and off-post and may include soldiers, dependents, retirees, and other civilian personnel.

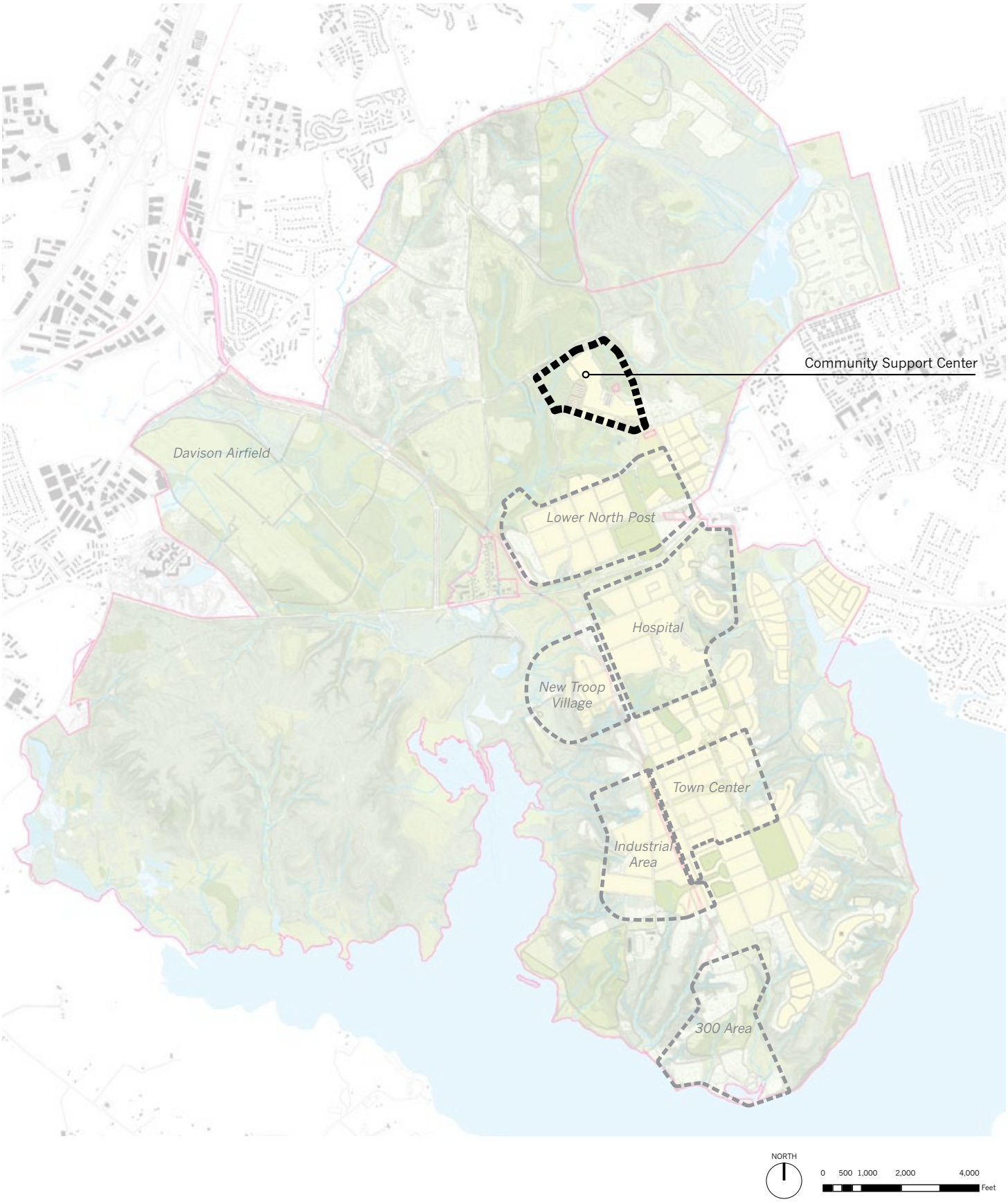
Land Use Legend

- Constrained Areas Overlay
- Main Post Installation Boundary
- Airfields (AIR)
- Community (CMY)
- Industrial (IND)
- Professional Institutional (PRO)
- Residential (RES)
- Ranges and Training (TNG)
- Troop (TRP)



Land Use Map 2030

Figure 2–1 Main Post Neighborhoods



3 Existing Site Character

Overview

This section describes the existing character of the site by analyzing its existing natural constraints, buildable areas, structures, and circulation patterns.

Fort Belvoir is a significant part of the local and regional ecosystem. All decisions affecting Fort Belvoir's wealth of natural resources have a critical impact on the surrounding environment. It is important for the CSC Area Development Plan to uphold the land-use planning goals as established by the post.

The way in which Fort Belvoir manages its ecosystem requires all proposed development to understand the delicate interrelationships that exist within and outside the installation boundaries.

Existing P/X/Commissary

Existing P/X/Commissary

Figure 3–1 Aerial Today (2007)

Development Constraints

From an environmental perspective, much of the plateau areas on the Community Support Center Area Development Plan (CSC) parcel are developable as these areas have been disturbed by previous development. The location of the CSC parcel is illustrated in Figure 3–1. However, there are natural, cultural, historical, and operational environmental constraints within the CSC parcel. The methodology used to evaluate the environmental constraints on the CSC parcel was to populate a constraints matrix using a GIS-based tool that calculates the acreage or number of each environmental constraint within the footprint of the CSC parcel. Using this methodology identified the following environmental characteristics and variables that could be affected by developing within the CSC parcel:

— Resource Protection Areas
— Wetlands
— Riparian Buffers
— Grassland Management Areas
— Partners In Flight (PIF)
— Steep Slopes
— Petroleum Release Sites
— Former Training Range
— Petroleum Storage Areas
— Airfield 500 ft Building Height Restriction
— Cemeteries
— Air Quality Permits
— Construction Permits

The constraint and the extent of these impacts are summarized in Table 3–1.

Table 3–1 Development Constraints Located in the Study Area

Resource	Size or Number	Units	Comment/Description
Natural Resource Constraints			
Resource Protection Areas (RPAs)	23.9	Acres	Avoid where possible Coordinate with Fort Belvoir ENRD to be in compliance with Chesapeake Bay Program.
Wetlands	3.1	Acres	Avoid where possible Permit may be required if impacting wetlands. Costs for wetland banking as mitigation.
Riparian Buffers	21.8	Acres	Implement Low Impact Development (LID) in these areas if avoiding completely is not possible.
Grassland Management Areas	2.4	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.
Partners In Flight	66.4	Acres	A negligible impact on this resource would be expected, however, ideally, no net impact would be expected if potential PIF habitat elsewhere on Fort Belvoir were to be set aside for preservation.
Steep Slopes	9.8	Acres	Engineering practices may allow for construction on steep slopes may be permitted should unconstrained land nearby not be available.
Operational Resource Constraints			
Airfield Restrictions	approx. 118-240	Feet	See Appendix for Airfield discussion. Further site studies should be done once the site is selected.
Former Training Range	64	Acres	Both ranges, the Gas Area and T-15, a small arms range, will require no further clean up action. No UXO or debris was found to warrant any type of further clean up or assessment programs. At both sites, investigations under MMRP were carried out which included soil and groundwater sampling, as well as visual site inspections. Based on the results of the site investigation, no additional corrective actions are required.
Petroleum Storage Areas (PSAs)	3	Each	There are 1 active and 2 inactive PSAs in the CSC ADP 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 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.
Cultural and Historic Resource Constraints			
Cemeteries	0.6	Acres	The cemetery must be avoided.
Other Environmental Regulatory Considerations			
Air Quality Permits	N/A	Not	Air quality permitting will require development to be involved in calculating pollution loads and determining most prudent air permitting course of action. The threshold value of 100 tons of NOx per year has proven to be troublesome on other Fort Belvoir development projects.
Construction Permits	TBD		Disturbance of wetland will require permit. Sediment and Erosion Plan and Registration Statement also required for development projects..

Natural Constraints

Resource Protection Areas. The CSC parcel includes 23.9 acres of Resource Protection Areas (RPAs), which is shown on Figure 3–3. The RPAs are along tributaries of Mason Run and are situated in the northeast corner of the CSC, and as well as along the northwestern and southwestern border which are tributaries of Accotink Creek. The tributaries eventually flow into Accotink Creek (southeastern streams), and into tributaries of Dogue Creek (northerwest streams). Development in these areas must be avoided. Any proposed road and bridge corridor crossing that would go through the RPAs could be permitted, but disturbance 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 areas not associated with perennial streams may be available for development.

Wetlands. The development areas for the CSC parcel include 3.1 acres of wetlands (Figure 3–3). The wetland areas are located in small areas along the streams in the northern half to the development area as well as along Kingman Rd, located on the northern boundary of the CSC parcel.

The wetlands on Figure 3–3 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 development areas for the CSC parcel include 21.8 acres of riparian areas (Figure 3–3), which generally overlap the RPAs along perennial drainages. Because of the importance of riparian areas as buffers for runoff filtration for water quality and habitat, these areas should be avoided. If development in riparian areas is unavoidable, Low Impact Development (LID) practices should be incorporated into design.

Grassland Management Areas. The development areas for the CSC parcel include 2.4 acres of grassland management areas north of the existing P/X (Figure 3–4).

This area is included within the boundaries of designated avian habitat and established riparian buffer zones. 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 Areas (PIF). The development area for the CSC parcel includes about 66.4 acres of PIF avian habitat (Figure 3–4) in the north half of the proposed development area. PIF is priority bird species habitat and ideally should be avoided. However, no net impact would be expected if potential PIF habitat elsewhere on Fort Belvoir were to be set aside for preservation.

Steep Slopes. The development areas for the CSC parcel include 9.8 acres of steep slopes, which are mostly located in the northeastern corner of the parcel that borders the intersection of Kingman Rd and Woodlawn Rd, as well as along unnamed tributaries of Accotink Creek in the western portion of the CSC parcel. (Figure 3–4). Steep slopes should be avoided, however engineering practices that allow for construction on steep slopes may be permitted should unconstrained land nearby not be available.

Operational Constraints

Airfield 500 ft Building Height Restriction. The entire development area for the CSC parcel (111.7 acres) occur within the building height restriction surface buffers for Davison

Army Airfield. This represents 60 to 180 feet above the ground surface in the development areas for this option. The restrictions are relative to the airfield runway elevation of 73 feet above mean sea level (Figure 3–5). Designs for the CSC parcel should reflect the site-specific ceiling limits for each portion of the development areas.

Former Training Range. The development area for the CSC parcel includes 64 acres of former training range. The location of the Range area is illustrated on Figure 3–5. The Military Munitions Response Program MMRP Historical Records Review (Malcolm Pirnie, 2006) as well as historical aerial photography and record searches indicate two former ranges existed in the northern half of the development area. These areas include the T-15 Range and "Gas Area" in the vicinity of currently existing Kingman Road and Woodlawn Road. About 68 acres of T-15 are within the northern portion of the development area. The T-15 Range was used for small arms training until 2002. The "Gas Area" overlaps about 16 acres of T-15 in the northeast corner of the footprint. The Gas Area was used for gas training in the 1940s.

Site investigations on both range areas were carried out in 2006. Visual site inspections and debris searches were also performed on both sites. No unexploded ordinance (UXO) or hazardous debris was ever observed. Within the "Gas Area", five soil samples were performed on the site that was believed to be the most heavily used before the range was deactivated. Soil samplings were performed to detect the presence of Target Analyte List (TAL) metals and explosive compounds. Iron and arsenic concentrations levels were detected in some of the samples collected. The levels exceeded the corresponding industrial Radiation Boundary Condition (RBC) values however, this exceedance was not considered significant since Fort Belvoir's background concentrations across the post and the rest of Northern Virginia are historically known to be high. This was also an issue at the T-15 Range and it was determined that there was no cause for further investigation. Also, at T-15 Range, soil sampling and testing for explosives and metals, in particular lead, were performed. The sample data from the soil tests concluded that no further clean up or investigation action was necessary on T-15.

Petroleum Storage Areas.
3 PSAs, 1 active and 2 inactive, have been identified on the CSC parcel. The PSAs are located in close proximity to each other on the north side of the existing commissary. Mitigating these PSA constraints is a straightforward decommissioning process. Many of the open PSAs are unregulated, so a costly formal closure process can be avoided. On average, 1 in 3 USTs at Fort Belvoir have had a release 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 3–2 Petroleum Storage Areas

Petroleum Storage Areas (PSA)	
Tank ID #	Status
02302A	Inactive
02302B	Active
02302C	Inactive

Historic Resource Constraints

Cemetery.
The development area for the CSCDP parcel includes a 1.5 acre cemetery, which is maintained by an off-post organization (Figure 3–6). Development in this area must be avoided.

Other Environmental Constraints

Air Quality Permits.
If the pollution loads of a single proposed development in the Community Support Center Parcel exceed 100 tons of NOx per year, a New Source Review (NSR) would

be required. The reviews typically take 18-24 months to complete. If mitigation and engineering controls such as selective catalytic reduction (SCR) can be used the pollution load can be lowered. The issue is installation-wide so Fort Belvoir should work with future tenants to address this 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 feasible form of mitigation.

Construction Permits.
Construction activities that disturb wetlands will require a wetland permit. A step in the process is that Fort Belvoir development or a contractor will need to prepare and submit a Sediment and Erosion Control Plan (SECP) to Belvoir DPW-ENRD for approval as Fort Belvoir holds an MS4 Permit and self-regulates in this arena. The SECP also needs to be registered with the Virginia Department of Conservation and Recreation.

CSC Parcel Conclusions
In light of the numerous environmental constraints at Fort Belvoir these areas are relatively small when compared to Fort Belvoir as a whole allowing many environmentally constrained areas to be avoided completely. There are mitigation measures for each of the constraints, however the areas identified in Figures 3–3 to 3–6 should be avoided where possible to facilitate the development of the CSC parcel.

Buildable Areas

Buildable areas within the study area are shown in Figure 3–2. Except for building height restrictions due to the airfield, buildable areas are not limited by the previously described development constraints. Because these areas are the most cost-effective and readily available, development plans will aim to completely utilize buildable areas before venturing on to constrained land. The Buildable Areas Overlay is generated by subtracting the constraints overlay area from the installation area. The constraints overlay utilizes all GIS constraint layers – natural, cultural and operational.

Figure 3–2 Buildable Areas Overlay Map

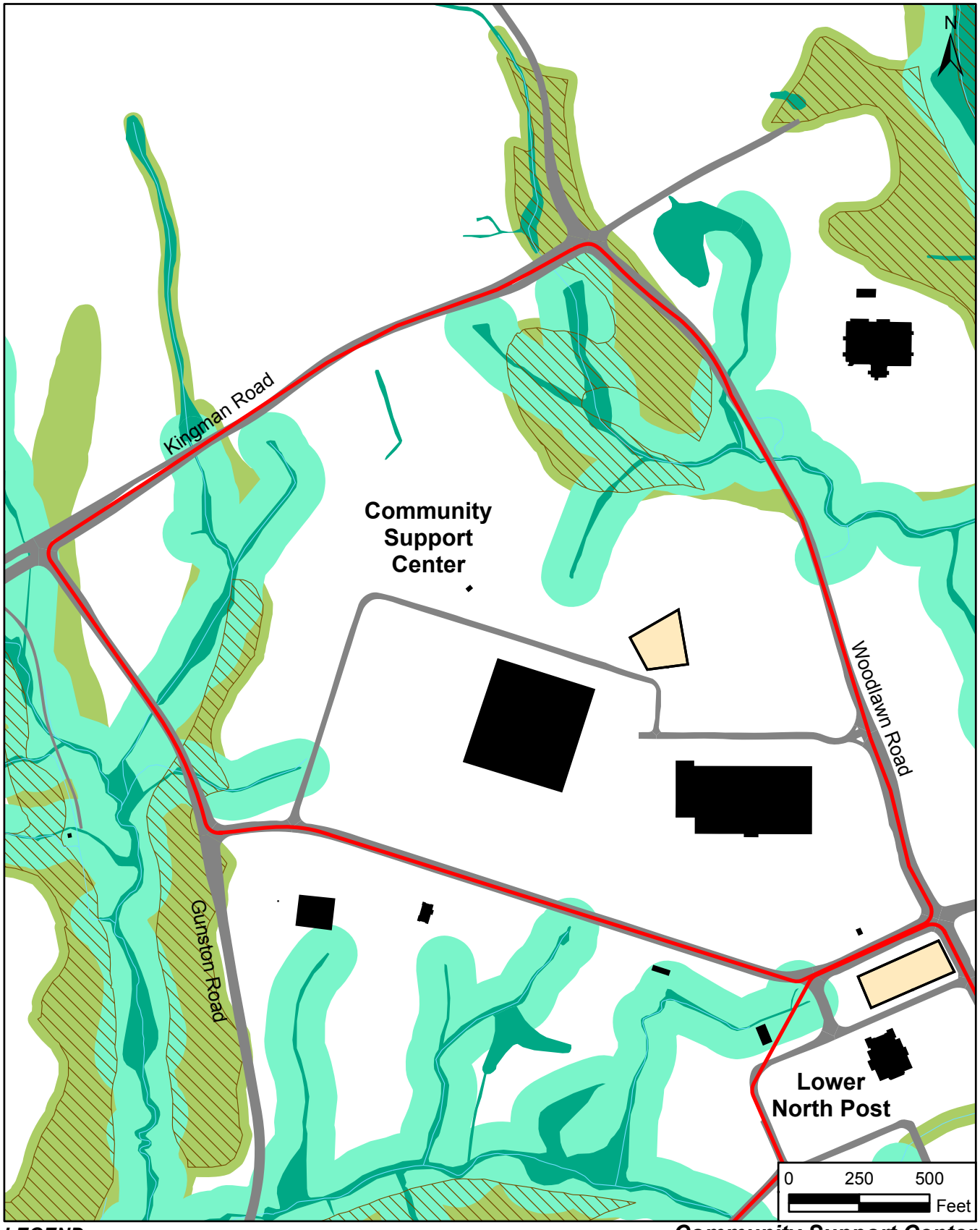
Legend

Developable Areas Overlay

NORTH

0 250 500 1000 1500 Feet

Figure 3–3 Water Resources



LEGEND

Wetland
100-Year Floodplain
Steep Slopes
RPA
Riparian Area

Community Support Center
Water Resources

Figure 3–4 Sensitive Habitat

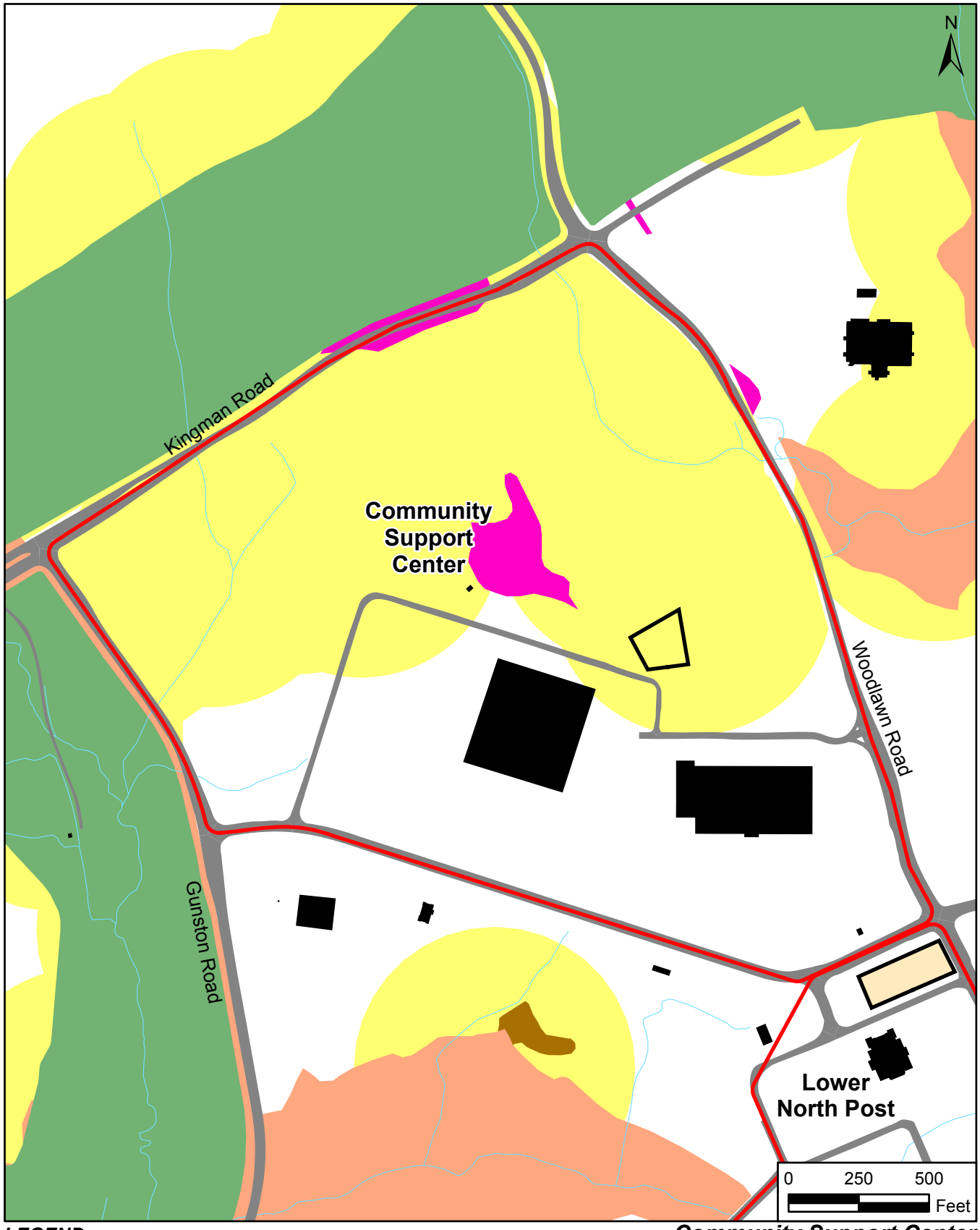
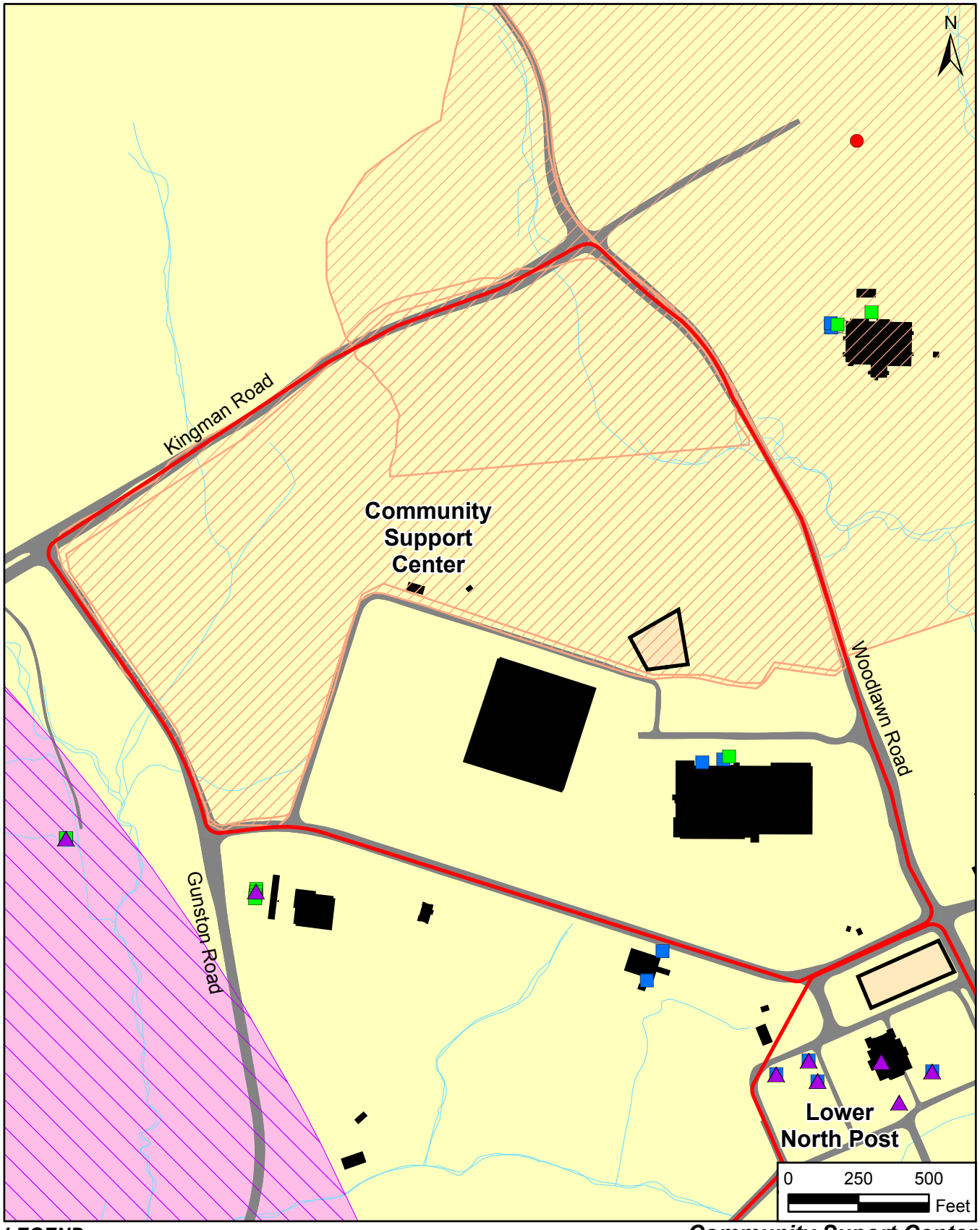


Figure 3–5 Operational Constraints



LEGEND

- ADP Boundary
- Petroleum Storage Area - Active
- Petroleum Storage Area - Inactive
- Solid Waste Management Unit
- Petroleum Release Site
- 150-ft Air Restriction Zone
- Former Range
- 500-ft Air Restriction Zone

Community Suport Center
Operational Constraints

Figure 3–6 Cultural Resources

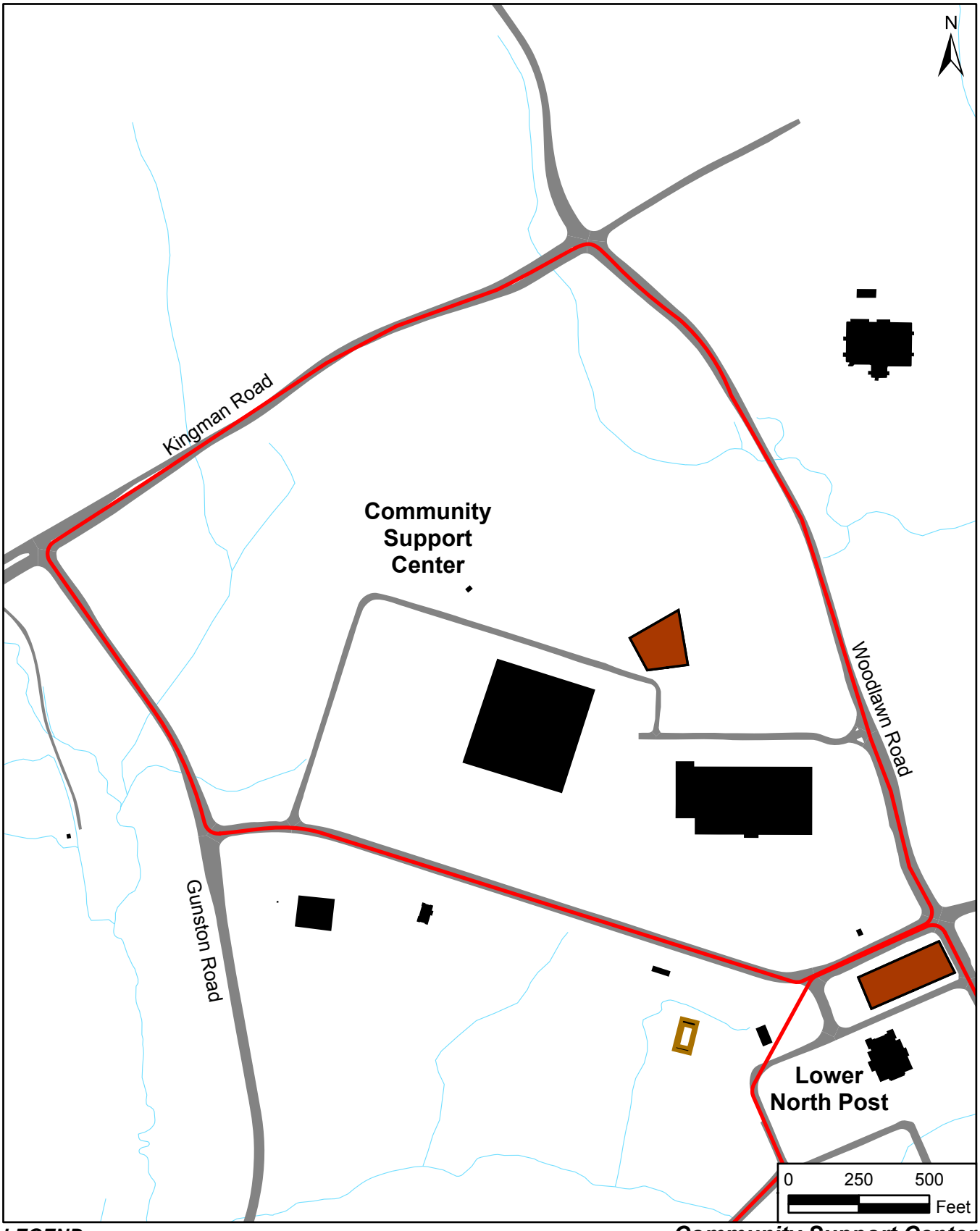


Table 3–3 ISR Rating Definitions

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

Facilities and Operations

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

Land (L) - Land (in acres) comprises whole, or part, of a military installation owned in fee by the Federal Government and/or under custody and accountability of the Army.

Building (B) - Buildings (in square feet) are constructed on a space of land that is completely enclosed by a roof, walls, and usually flooring. It normally serves the purpose of occupancy.

Utility (U) - A utility (in capacity) is a distribution system, commodity source, or commodity collection point that provides a service or commodity to more than one building or structure.

Structure (S) - A structure is any real property facility that is not classified as a building, utility system, or land by the previous definitions. Typical examples are airfield pavements, roads, firing ranges, and athletic fields.

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

Building Quantity

The study area contains about 10 buildings, totaling approximately 300,000 GSF. Appendix A-1 lists each existing building, its tenants, and functional use from the Real Property Inventory (RPI). Uses are classified by the current use category code (CUCC).

Building Quality

Installation buildings are always under consideration for maintenance and repair. In order to determine the current quality of a building, it is assigned a Quality or Q-Rating. These 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.

Q-ratings for facilities can be found in the Installation Status Report (ISR). Q-rating colors are applied to the installation's GIS data to create a graphic overlay that clearly shows ratings in the study area. See Table 3–3.

Figure 3–7 Building Installation Status Report

Circulation Patterns

Circulation in the study area is categorized into primary roadways, secondary roadways, and alleys. These designations are defined by roadway characteristics and frequency of use. As it serves on-post personnel, off-post personnel (those assigned elsewhere, but still have access to services on Fort Belvoir) and retirees; traffic to/from the CSC is constant throughout the day, including weekends.

Primary roads provide main access into the Post, and are heavily traveled. Roadways serving the CSC include:

— Kingman Road, provides connection between the CSC and the Fairfax County Parkway to other roadways such as I-95
— Gunston Road, provides connection between Lower North Post and South Post

Secondary roads include:

— Woodlawn Road provides access along the eastern boundary of CSC to the residential and civic areas on Lower North Post.
— Gorgas Road provides site access into CSC from Gunston Road.

Currently there are two signalized intersections in the vicinity of CSC, they are Kingman/Gunston, and Woodlawn/Gorgas. Other intersections in the area are stop-controlled intersections. Operationally, bottlenecks occur along Gunston Road adjacent to the CSC, partly caused by intersections under stop-controlled, which typically perform at a lesser level than signalized intersections. Gunston Road is a major internal arterial for traffic circulation on Main Post.

PAGE LEFT BLANK INTENTIONALLY

4 Program Requirements

Overview

The following is a summary of the near term requirement and long term program strategy.

Existing Tenants and Functions

The present layout of the Community Support Center is the large P/X and Commissary and their parking and supporting facilities, a chapel, two small convenience stores, a bank, a car wash, a boy scout camp, with bath house and latrine, and a gas station.

All of the present tenants will remain; but all of them will either be expanding or remaining in their present locations. There is no relocation of any tenants to another part of the post; however, the P/X and Commissary will move slightly when they expand, but they will remain in the same general vicinity.

The two biggest projects that are planned for the area in the near term are the expansion of the P/X and the expansion of the Commissary.

Along with these new developments there are some transportation projects that must be completed in order to support the expected growth in visitors/customers to the Community Support area once the P/X and Commissary finish their expansions.

Displaced Facilities

No displacement of existing tenants is anticipated. Some of the proposed expansion is due to relocating and consolidation of AAFES uses such as the home and garden currently located in the Town Center area which will be relocated to the new and expanded P/X.

Proposed Projects

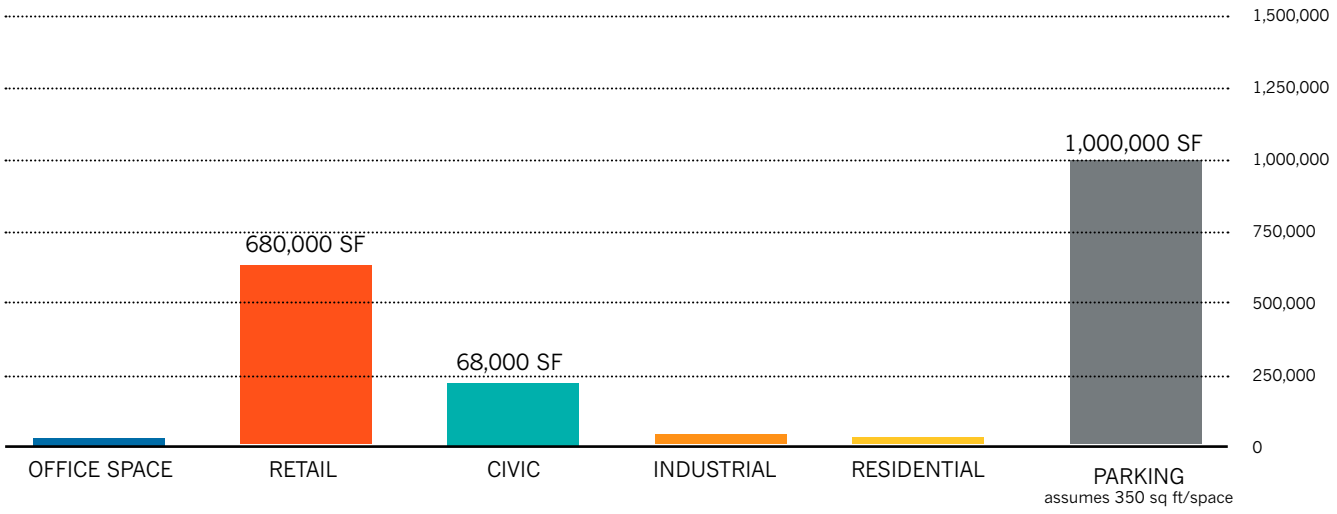
Table 4–1 Near Term Projects

Project Number	Project Name	PROJECT DESCRIPTION/ (COMMENTS)	FUNDING SOURCE	SIZE (GSF/PN)	CWE	1391 PROGRAM YEAR (FY)
64531 (EIS #22)	Expand and Renovate P/X	Expand P/X on North Post. Home and Garden Center, currently in town center, South Post, will be consolidated in new project. BRAC expansion requirements will also be considered.	AAFES	186,334 SF	$12.2 M	2009
64327 (EIS #22)	Expand and Renovate Commissary	Expand and Renovate Commissary	DeCA	Scope not determined		2009
57495	Soldier Support Center	Construct a one-stop soldier support center.	MCA -Validated	68,724 SF	$14.6 M	2014
Not available	Name Brand Car Care Facility	Construct a car care facility adjacent to North Post Gas Station/Class VI store.	AAFES			2009
No current form number	Car Wash	Construct a car wash facility along Gunston Road south of current North Post gas station/Class VI store.	AAFES			2010

Long-Term Program Strategy

As determined by the preferred framework a long-term strategy for the Community Support Center can accommodate approximately 700,000 sq. ft. of retail of increased density with complimentary mixed-uses (housing, civic, etc.) Although near-term needs are specific, the long term overview is flexible to accommodate other uses.

Figure 4–1 Long Term Program Capacity
Full capacity buildout as determined by preferred framework plan developed in Planning Framework, Chapter 6



5 Planning Principles

Figure 5–1 Community Support Center: Creating Important Connections

Overview

The Belvoir New Vision master plan embraces many principles from connected street grids, accessible open space and appropriate and compact development.

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
- Build more livable communities for people of all income levels

LEED for Neighborhood Development

Implementing best practices in sustainable design is key for the post to maintain it's long standing commitment to conserve the natural beauty of the land and preserve their standing as one of America's enduring installations. The purpose of the LEED ND pilot program is to provide an accessible and comprehensive framework to make environmentally sensitive and livable places. The framework incorporates the principles of smart growth, new urbanism and green building technologies. Participation in the program would be a first for the US Military and will help provide an example for other installations as Fort Belvoir continues as a model world-class installation.

What is a "Neighborhood Development"? The LEED ND rating system is designed to certify exemplary development projects that perform well in terms of smart growth, new urbanism, and green building.

The LEED ND rating system is organized into three sections: smart location and linkage; neighborhood patterns and design; and green construction and technology.

Smart Location and Linkage

The goals and intent of the smart location and linkage principles are largely addressed within Chapter 3 (Existing Site Character) in the mapping of natural constraints and defining where to build and where not to build.

- Provide new access from Kingman Road
- Avoid environmentally sensitive areas as documented in the existing site character chapter.
- Enable multiple access points to parking

Neighborhood Design and Pattern

Chapter 6 (Planning Framework) addresses many of the credits in the Neighborhood Design and Pattern section regarding compact development, walkable neighborhoods and diversity of uses.

- Establish clear strategy of development areas
- Align parcels around existing buildings to avoid wetlands, etc.
- Promote pedestrian activity by providing walkable areas around the shopping
- Utilize structured parking to minimize land consumption

Green Technologies and Construction

Strategies to address the green technologies and construction are contained within Chapters 7 (Planning Recommendations) as well as Chapter 8 (Implementation) to ensure that the future projects within the ADP will maintain the highest standards of construction. This is in conjunction with meeting the current Federal Mandates in both water and energy consumption and achieving individual building certification under the LEED for New Construction (NC) where required.

- Begin with new construction of P/X and associated parking structures
- Optimize visibility and identity from Kingman entrance

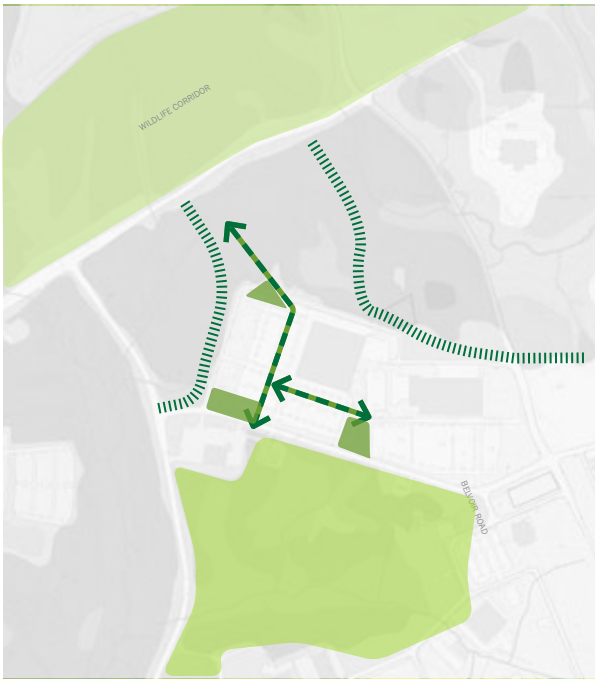
General Planning Principles

- **Buildings should reinforce the common campus edges.** This includes the central open space. Buildings should be in conversation with one another. An attention to the compatibility of uses and building typology is critical along any common campus areas.
- **Locate parking at the perimeter of each campus** area along the major access routes. This will reinforce standoff requirements and provide optimal development area for programs.
- **Connect buildings and places** with pedestrian paths and a series of "campus gardens".
- **Maintain and preserve views** and sight lines to important open spaces from each campus area
- **Develop a hierarchy of streets** and points of access that are coordinated with the larger transportation strategy.
- **Reinforce a comprehensive strategy for security** and AT/FP requirements that is integrated with building siting, access and overall development concept.
- **Initiate collective approaches** for stormwater management, ancillary uses, and remote truck inspection areas that share resources to optimize site development and program integration.
- **Promote sustainable strategies** that minimize development impact and embrace forward thinking and best practices in site planning, open space design, and architecture.
- **Develop a feasible and constructible strategy** that is sensitive to schedule and costs.

Figure 5–2 Community Support Center Planning Principles

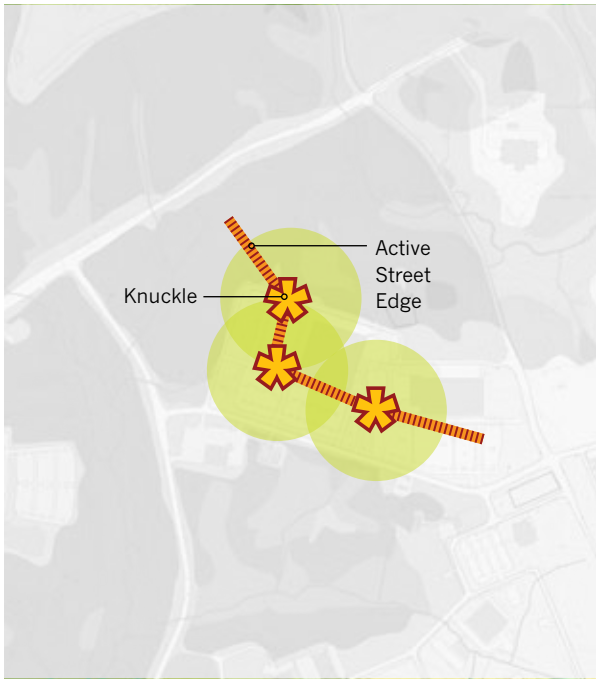
Access

NORTH



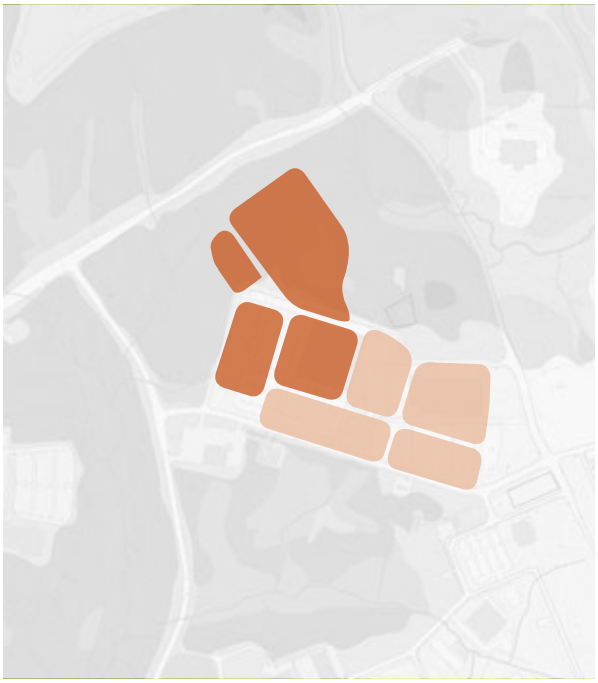
Open Space

NORTH



Connect buildings and places

NORTH



Phasing

Near Term

Long Term

NORTH

6 Planning Framework

Overview

The goal of a planning framework is to establish a street framework and block pattern that can allow for a variety of scenarios of intensity or diversity of use. The planning principles endorsed with LEED ND to encourage compact growth, promote pedestrian activity, improve air quality, etc work together to create a living framework that can be adjusted without sacrificing the quality of place in response to future needs of tenants as the neighborhood continues to grow and develop. The end state of the intensity and use will be a balance of intensity and use within the recommended framework that allows for flexibility to respond to future demands.

Required NEPA Documentation

Before the building of the new P/X and Commissary can commence there needs to be an Environmental Assessment (EA) completed and approved. After the completion of those projects any other new projects in the area will need an additional EA to move forward. The National Environmental Policy Act (NEPA) documentation will be completed by the installation and funded by the building user. It will include information from an Economic Analysis, as well as special habitat studies, and a Traffic Demand Management Plan/Traffic Analysis to address traffic increases from a regional standpoint.

Framework Plan Alternatives

Before arriving at the preferred plan, several alternatives were explored in order to ensure all implications of a siting decision are understood and to illustrate different means of achieving the common planning principals. 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.

The initial alternative to the proposed AAFES Prototype were discussed during a meeting in April 2007 with AAFES.

Evaluation Criteria

Use the following factors to evaluate plans/ alternatives:

1. What are the environmental impacts and benefits (ie. site tree survey)?
2. What are the cost differentials?
3. What are the operational cost savings?
4. What are the long term maintenance implications?
5. Is the aesthetic and design of the site layout, parking, building and related site development consistent with the Installation Design Guide?
6. Are the strategies compatible with intended use?
7. Does site design maintain minimum building footprint for development and minimum site plan clearance required for development?
8. Is parking developed in such a way as to reduce land consumption?
9. Does site circulation for deliveries avoid all interference with patron traffic circulation requirements?
10. Are there pedestrian connections to adjacent facilities and amenities (ie.Lewis Heights, Chapel, Pool, Bank, etc.)?
11. Can buildings address Army policy for energy conservation and meet LEED NC criteria?
12. Does the site plan address future expansion capability?

Figure 6–1 Framework Plan Alternatives

Alternative A: AAFES Prototype

— Follows retail trends on and off post
— Large surface parking proximate to the expanded P/X

Alternative B: Main Street

— Utilize existing developed land with new P/X and Commissary as anchors
— Create an interior main street with additional retail
— Minimize surface parking with structured parking to minimize the development footprint

Alternative C: Hybrid

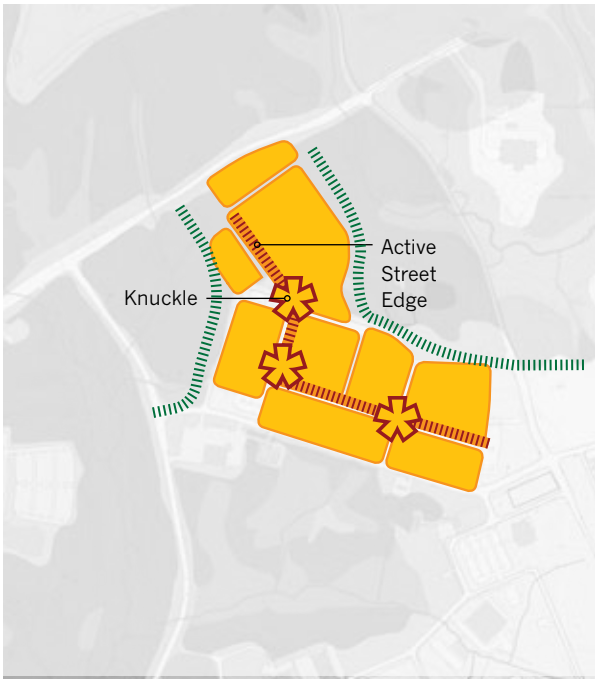
— Preserves AAFES Prototype
— Emphasize connectivity between the Commissary and the P/X
— Create smaller block structure to enable incremental development and redevelopment
— Locate parking structures along Gorgas Road and surface lots along perimeter

Alternative A: AAFES Prototype

NORTH

Alternative B: Main Street

NORTH



Alternative C: Hybrid "The Knuckle"

NORTH

Preferred Framework

The preferred framework or hybrid approach is illustrated in figure 6–3 which utilizes the AAFES prototype and aims to create a pedestrian experience and allow for future retail growth.

The framework encourages compact development with a recommended density for non-residential of at least 0.5 Floor Area Ratio FAR and build any residential components of the project at an average density of seven or more dwelling units per acre of buildable land available for residential uses.

The anticipated growth at Ft. Belvoir has prompted AAFES to evaluate their present program and to consider the possible expansion of services. Like many places on Ft. Belvoir this area would benefit from improved access to highways and other local roads. The future of this part of the post also needs to remain an area where the existing green space remains green and that additional green is added when buildings and developed areas become obsolete and can be removed to create a larger green area.

A framework to guide future decisions:

- Retail trends on and off post
- Mixed use development
- Study of retail trends at other large bases
- Customer satisfaction with mix of uses and brands
- Revitalize post areas that are in need of redevelopment
- Using all opportunities to partner in bringing world-class service to the post
- Incorporate all AT/FP requirements
- Need to update existing infrastructure (roads, telecom, utilities)

Table 6–1 Community Support Center Block Framework

Block No	Land Use	Area-SF (Measured)	Area-SF (Rounded)	Area (Acres)
D1	Retail	512,717	513,000	11.8
D2	Retail	247,533	248,000	5.7
D3	Retail	176,885	177,000	4.1
D4	Retail / Civic	297,849	298,000	6.9
D5	Parking	114,745	115,000	2.7
D6	Parking Garage	91,729	92,000	2.2
D7	Retail	222,095	223,000	5.2
D8	Retail	242,086	243,000	5.6
D9	Retail	176,172	177,000	4.1
TOTAL AREA		**2,081,811**	**2,086,000**	**48**

Figure 6–2 Preferred Framework

Preferred Framework

7 Planning Recommendations

Development Strategy

Some of the goals for the future of the Community Support Center are:

- Emphasize connectivity between the Commissary and the P/X
- Emphasize walking and quality of customer experience
- Proximate and convenient parking
- Minimize impact on natural resources
- Enable incremental development and redevelopment
- Maintain connectivity with master plan
- Integrate prototypes
- Investigate sustainable opportunities
- Create a “place” and “tie it together”

Relationship to Long Range Development Plan

The Fort Belvoir Long Range Component (LRC) strives to develop the installation 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 Community Support Center will also adhere to these important guiding principles, specifically:

- Increase the density of current facilities
- Optimize use of existing roads, parking, outdoor loading areas, and other paved areas
- Increase diversity of campus functions – to allow locating noisy/unsightly facilities with bigger footprints behind buffers comprised of smaller, community-oriented facilities
- Increase diversity of functions within each cluster – to allow for a gradual transition between land use clusters and create better functioning, more visually appealing environments

Figure 7–1 Building Development Strategy for the Community Support Center

The vision for the community support area is to:

— Develop a new regional center for destination shopping and amenities
— Provide an incremental redevelopment of the area
— Enable future and higher density uses
— Emphasize a sense of place and the pedestrian character of the regional shopping center

Building Siting

Encourage the design and construction of buildings to utilize green building practices. Design, construct, or retrofit one building as part of the project to be certified under one of the following
LEED building rating systems: LEED for New Construction, LEED for Existing Buildings. Encourage the design and construction of energy efficient buildings to reduce air, water, and land pollution and environmental impacts from energy production and consumption.

LEED Standards

The following are LEED standards relating to the Community Support Center and should be considered during the implementation phase:

— Evaluate existing facilities for continued use and reuse

Encourage site planning strategies that:

— Reduce environmental impacts through site selection
— 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

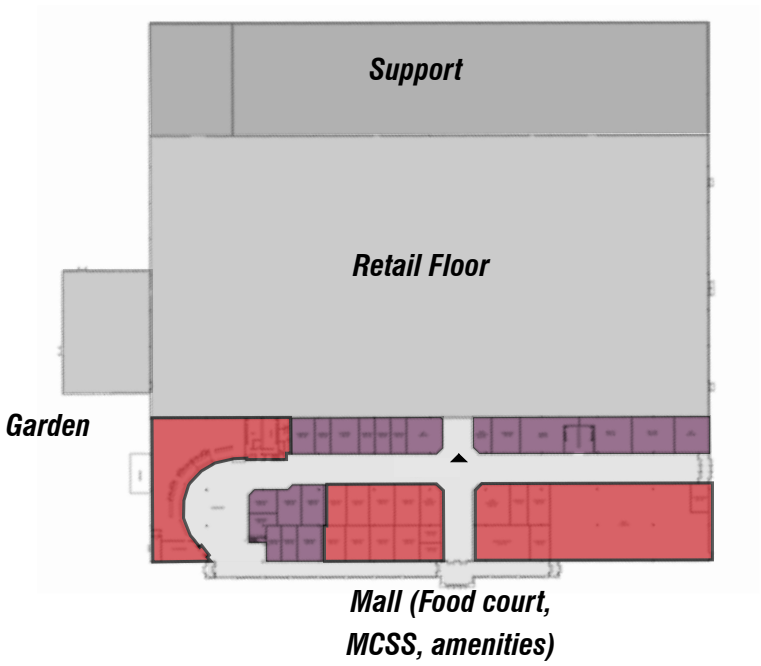
Siting of buildings reinforces entry and public space

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, Ope ations and Maintenance, Version 2, July 2005

Figure 7–2 Building Organization

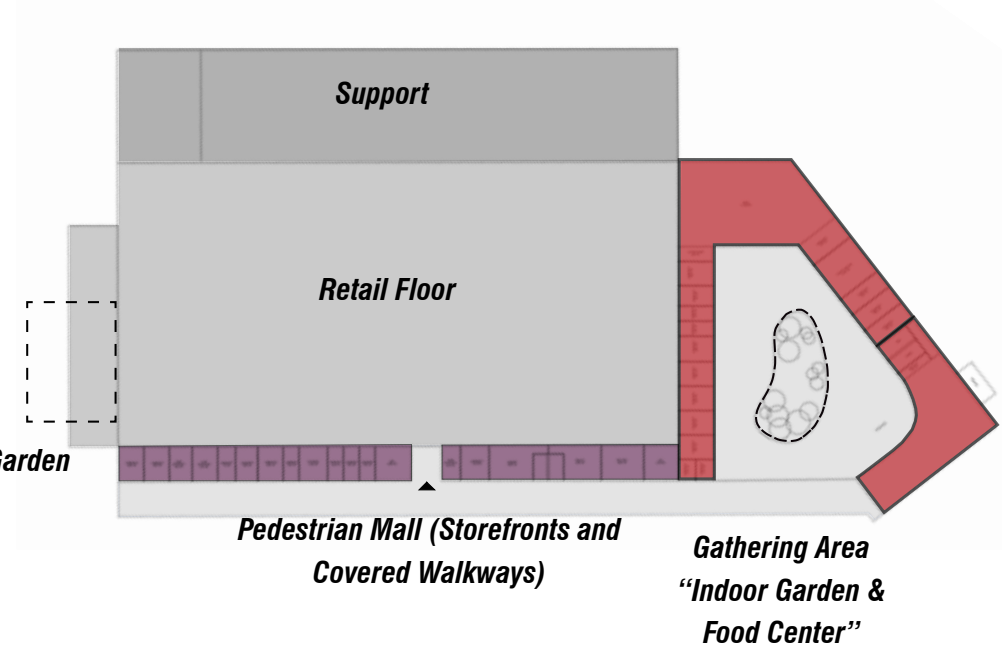
AAFES Prototype Typology

— Tried and true retail model
— Single story building with minimal windows
— Internally focused public realm and circulation



Recommended Adjustments to AAFES Prototype

— Emphasize connectivity between the P/X, Commissary and future buildings
— Emphasize walking and quality of customer experience
— Provide proximate and convenient parking
— Minimize impact on natural resources
— Enable incremental development and redevelopment
— Maintain connectivity with master plan
— Integrate prototypes
— Investigate sustainable opportunities
— Create a “place” and “tie it together”



Building Character

Retail

The retail programs proposed within the Community Support Center should be coordinated with the tenant programs and requirements. Current proposals include retail space and food services.
These new retail buildings will be generally one to two floors and should reinforce a high quality pedestrian environment.

Section of Community Center
"Public Edge"

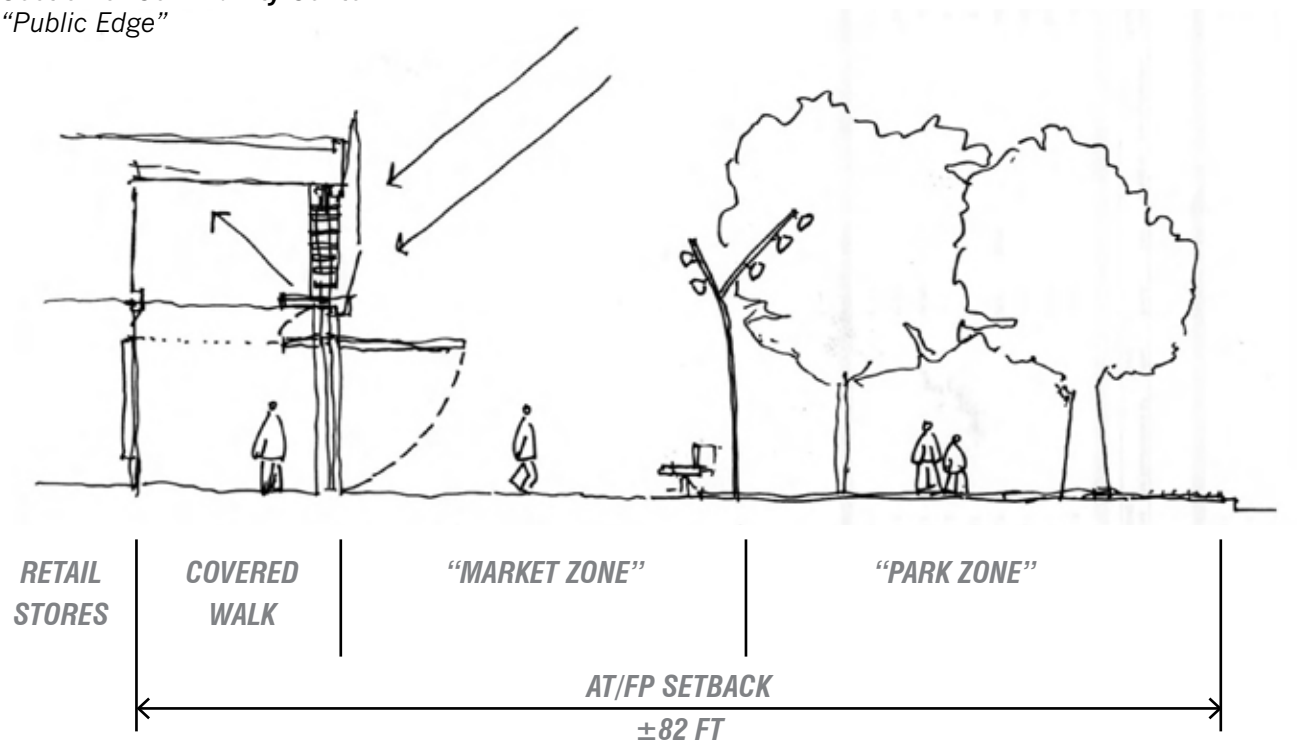


Figure 7–3 Building Guidelines

Building Guidelines

General recommendations and building guidelines are organized into building material and color, response to climate, pedestrian emphasis, building height and roof form, and building flexibility.

Response to Climate

— All new facilities should be developed to meet and/or exceed LEED Silver criteria
— Building orientation and design should optimize the ability for day lighting in most administrative and public spaces
— Buildings should be designed to “shade themselves”. Design should take advantage of the existing woodlands and forested areas as part of an integrated design solution.

Parking Garage

Structured parking is a critical aspect in the ability to optimize the developable portions of the site to build new buildings without disturbing environmentally sensitive areas. Parking structures should be located along the perimeter of each campus area, allowing immediate access from the north and south campus parkways.

Structured parking with retail on first floor , landscaping and articulated facades

Environmental Strategies

Green Infrastructure

- Replicate hydrological processes of indigenous forest
- Equate allowable potable water use to average annual rainfall over site
- Increase native species diversity and area of coverage
- Attain carbon neutral base operations
- Retain and recycle all nutrients on-site using natural processes
- Maintain adjacent interior forest temperature in developed areas

Landscape

Bioretention Systems

Utilize native landscaping and soils to treat stormwater runoff by collecting it in shallow heavily landscaped swales and basins.

Environmental Benefits

- Detain and Filter Stormwater on site.
- Recharges groundwater and sustains flows to natural water bodies.
- Reduce Pollutants in Stormwater Runoff.
- Diversify Site Habitat

Financial Benefits

- Reduce Maintenance Costs - compared to conventional lawn surface or irrigated plantings.
- Aesthetic Value
- Reduce need for costly Stormwater Infrastructure

Figure 7–4 Building Guidelines

Buildings - Green Roofs

Environmental Benefits

- Water Conservation/ Reduced Stormwater Runoff
- Fire Prevention
- Habitat Recreation
- Noise Reduction

Financial Benefits

- Conservation of Water Management Systems
- Extension of Roof Life
- Energy Conservation
- LEED Certification Points
- Aesthetic Value

LiveRoof System - www.LiveRoof.net

- Easily handled and transported
- Implement on both new and existing structures.
- Reduce Costs - Cultivate native plant life from seeds.
- Plantings can grow offsite during construction or retrofit or within vacant paved areas as temporary greenhouses.

Surface Parking

Reduce heat islands to minimize impact on microclimate and human and wildlife habitat.

Provide the following strategies for the non-roof impervious site landscape (including roads, sidewalks, courtyards, parking lots, and driveways):

- Shade (within five years of occupancy)
- Paving materials with a Solar Reflectance Index (SRI) of at least 29
- Open grid pavement system
- Place off-street parking spaces under cover

Porous Concrete

A specific mix of concrete creates stable air pockets to be encased within it, allowing water to drain uniformly through the material into the ground below.

Infrastructure Strategy

Long term planning and construction phasing

The Area Development Plan for the Community Support Center reconfigures the existing road networks. New building locations as proposed in the ADPs will conflict with many of the existing utilities. Since much of the existing water, sanitary sewer, and storm drainage systems are over 50 years old and nearing the end of their useful life, we recommend that the new construction plan provide for replacement of most of the existing systems in each area. This may also provide an opportunity to construct more efficient utility networks with potential operational savings; for example, some existing pump stations which will require replacement or expansion and can be combined.

We have developed potential water distribution, storm drainage, and sanitary collection systems for each of the Area Development Plans to serve as guidance for replacing and relocating these systems as new development is funded. These are described below. Overall conceptual sanitary, water and storm layouts are shown in Figures 7–5 to 7–7.

We also developed preliminary calculations to determine the quantity control volumes needed with the anticipated redevelopment. Approximate facility sizes are shown assuming a five-foot depth of storage. Quality control will also need to be provided; it could be provided within the quantity volumes shown or be provided separately. Facility locations were determined based on space and the topography of the area.

Ultimate development to the densities shown in the long-term strategy will require a combination of surface treatment for quality control, with above ground basins or below ground storage to provide the required quantity control. The conceptual storm plan can be used to guide location and design of drainage systems as future projects are authorized.

Design of all new facilities which require relocation or replacement of existing utilities should consider the ultimate anticipated development in the surrounding area, including the entire upstream sanitary or storm drainage-shed. New infrastructure should be designed to serve the new building; the existing adjacent facilities to remain; and, to the extent possible, the ultimate development in the adjacent area. For example, if a new building requires relocation of an existing 8-inch water main, and ultimate development requires the main to be increased to 12-inches; the portion of the main being relocated should be constructed to the ultimate 12-inch size. Similarly, new storm water conveyance facilities and new sanitary sewers should be designed and constructed for the ultimate anticipated flow from the upstream area. New storm water management facilities should be designed with adequate area to allow for expansion to serve future development in the drainage area.

Assuming that quality control is provided by rain gardens or similar low impact development (LID) facilities near each new building; additional quantity control is provided by a storage facility located to serve several blocks of the area. When the initial building is constructed, possibly with temporary surface parking, an LID facility is built adjacent to it, and the first portion of the quantity control facility is built. As additional buildings are constructed, surface parking is replaced with structured parking, additional LID facilities are built, and the quantity control facility is enlarged. Eventually, at full development, the quantity control facility may be replaced by an underground structure to provide quantity storage.

Conceptual Utility Plans

Sanitary:
Although the full build out conditions will not vary drastically from the existing conditions, new sewer lines will be needed to service the rebuilt PX and Commissary. The proposed pipes should flow to the south and tie into the existing gravity line along Gorgas Road. Refer to Figure 7–5 for the proposed sanitary layout.

As final building sizes and locations are developed in this area, a capacity analysis must be performed to determine whether the existing downstream sanitary sewer pipe is adequate for the proposed development.

Storm water Management:
The Community Support Center Area sits on a high point and the proposed SWM facilities will discharge to several different outfalls. The receiving waters to the west and east will be Mason Run and Dogue Creek, respectively.

Water:
A new loop could be installed around the proposed PX and connect to the existing water line North of the proposed Commissary location. A new water line can also be installed in the corridor between the proposed Commissary location and the area where "community center" type facilities will be placed. Interconnections can be made on the existing water line running parallel to Gorgas Road and just west of the "community center" buildings. A new water connection may also need to extend west on Kingman Road to Beulah Road. Refer to Figure 7–7 for the proposed water system layout.

Steam and Chilled Water

Existing System
The existing Community Support Area Development does not contain any Central Energy Plant or piping distribution to multiple buildings.

Proposed New System
In the Community Support Area, it is recommended that Energy Systems (heating and chilled water) be provided on an individual building basis in lieu of centralized utilities.

Providing heating and cooling for these buildings on an individual building basis will allow each building to provide a unique solution to heating and cooling based upon building type while accomplishing the sustainability goals including energy reduction and water reduction. This will also allow buildings to be built based upon individual construction budgets and not have each tenant rely upon a central energy plant that would need to be constructed prior to any other development. The concept of individual energy sources for each building allows for maximum metering flexibility of the individual tenants and allows the phasing to be accomplished without reliance on outside energy resources. The individual buildings can then consider renewable alternatives such as solar photovoltaics and even solar hot water heating.

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.

Existing System - Distribution

In the Community Support Center, the current distribution system is adequate for existing functions. If additional supply is needed in the future, Dominion Virginia Power should be able to provide the Community Support Center with additional capacity.

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.

Existing System - Distribution

In the Community Support Center, the current distribution system is adequate for existing functions. If additional supply is needed in the future, Washington Gas should be able to provide the CSC with additional capacity.

Security Strategy

Fort Belvoir refocused the posture of its security and force protection efforts in response to the terrorist attacks on September 11, 2001. The result of this effort is the current Anti-Terrorism and Force Protection (AT/FP) Plan being used to guide the installation's preparedness posture. Concurrently, Fort Belvoir is being reconfigured to accommodate specific recommendations outlined first by the Base Realignment and Closure Commission Report in 2005, then enacted into public law and implemented through Army direction.

In order to ensure future building and infrastructure projects at Fort Belvoir are planned with appropriate consideration of AT/FP measures, the Long Range Component plan offers planners and decision makers an awareness of how the AT/FP Plan and Fort Belvoir's Real Property Master Plan complement and interrelate with each other.

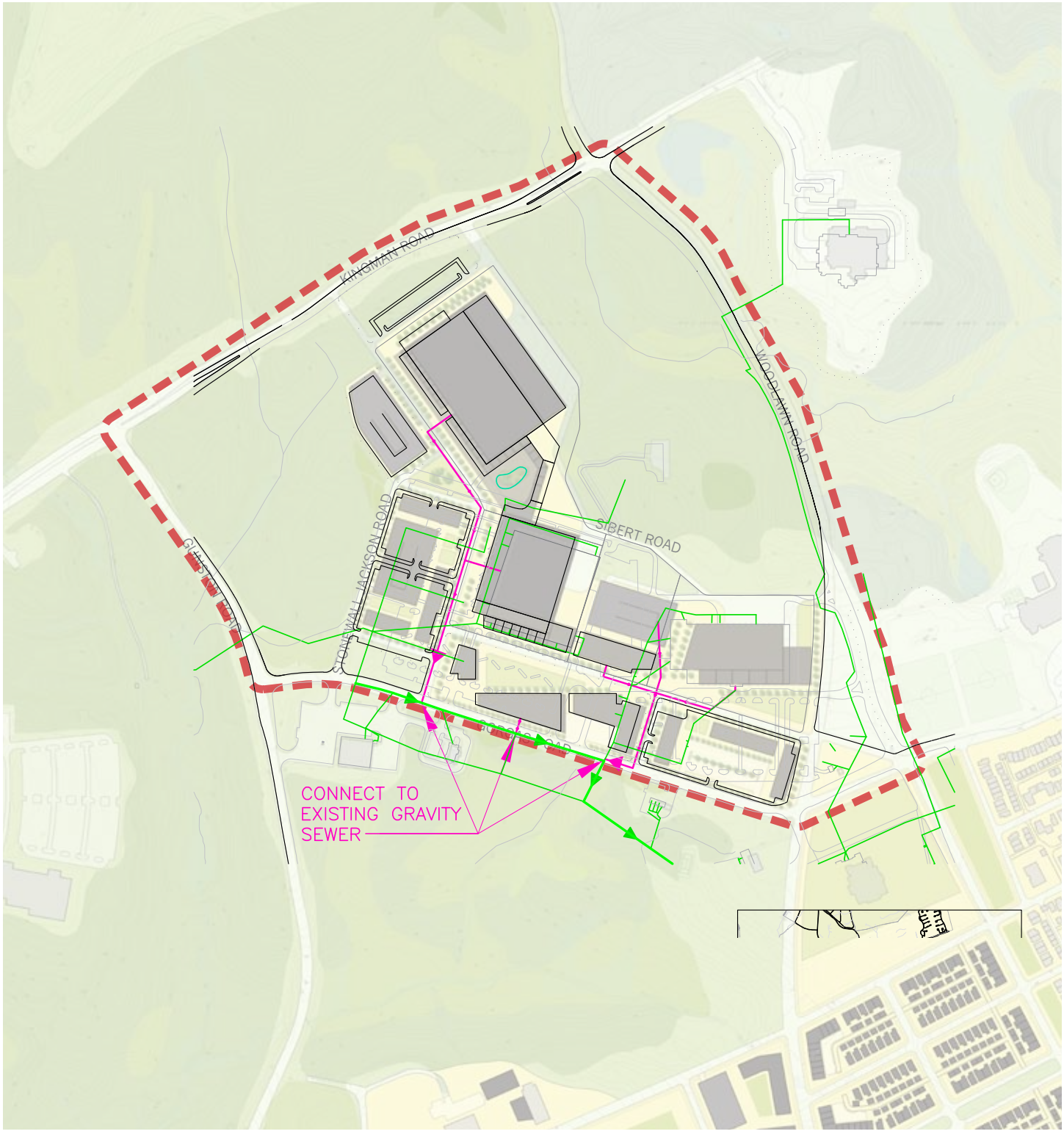
AT/FP Planning

Because threats change over the life of a facility, building owners and facility managers should be aware that security elements can be more economically integrated within structures during the early planning and design phases of new construction projects than during subsequent additions or renovations.

Renovations to existing buildings can be challenging because the existing building systems must be able to accommodate increased security requirements and may not have the additional space or upgrade capacity. Therefore, it is imperative that AT/FP planning begin at the earliest opportunity. The key to a successful security master plan begins at the initial conception of both new construction and renovation projects and not at the end of the design process. Coordination and effective communication are essential in this process and should start prior to a Planning Charrette. The tenant or user should assemble a Planning Team which may include representative staff from Garrision Directorates: Logistics, Intelligence, Security, Operations, and Public Works. The team then begins the AT/FP planning:

Step 1: Identify and categorize assets
Step 2: Assess asset value
Step 3: Identify aggressors and assess likelihoods
Step 4: Identify tactics and severity
Step 5: Consolidate into design basis threat
Step 6: Determine levels of protection
Step 7: Identify design constraints

Figure 7–5 Infrastructure Strategies



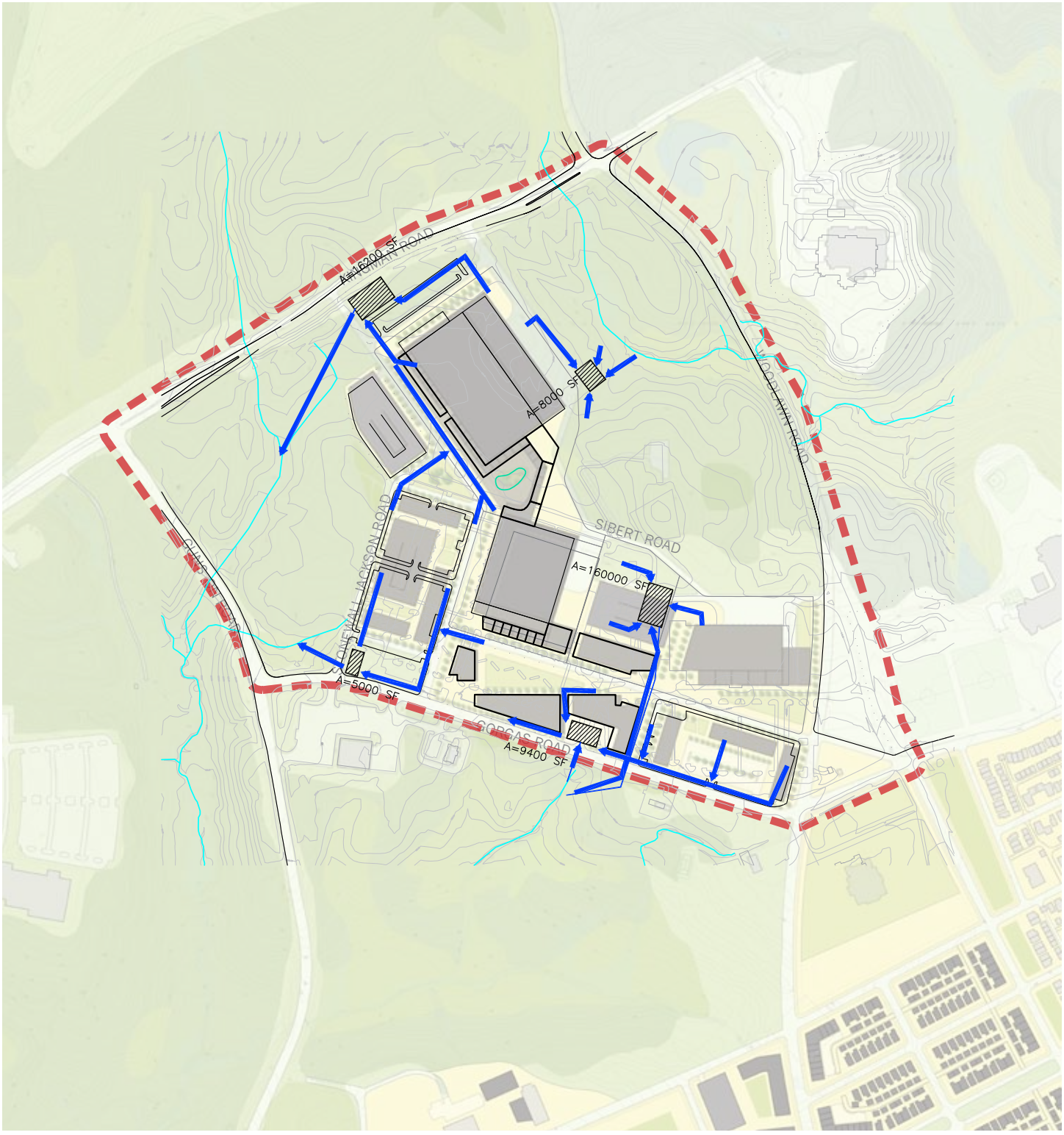
Fort Belvoir Utilities: Full Build out Sanitary Sewer System

Proposed Sanitary Sewer Line

Existing Sanitary Sewer Line

Major Existing Sanitary Sewer Line

Figure 7–6 Infrastructure Strategies

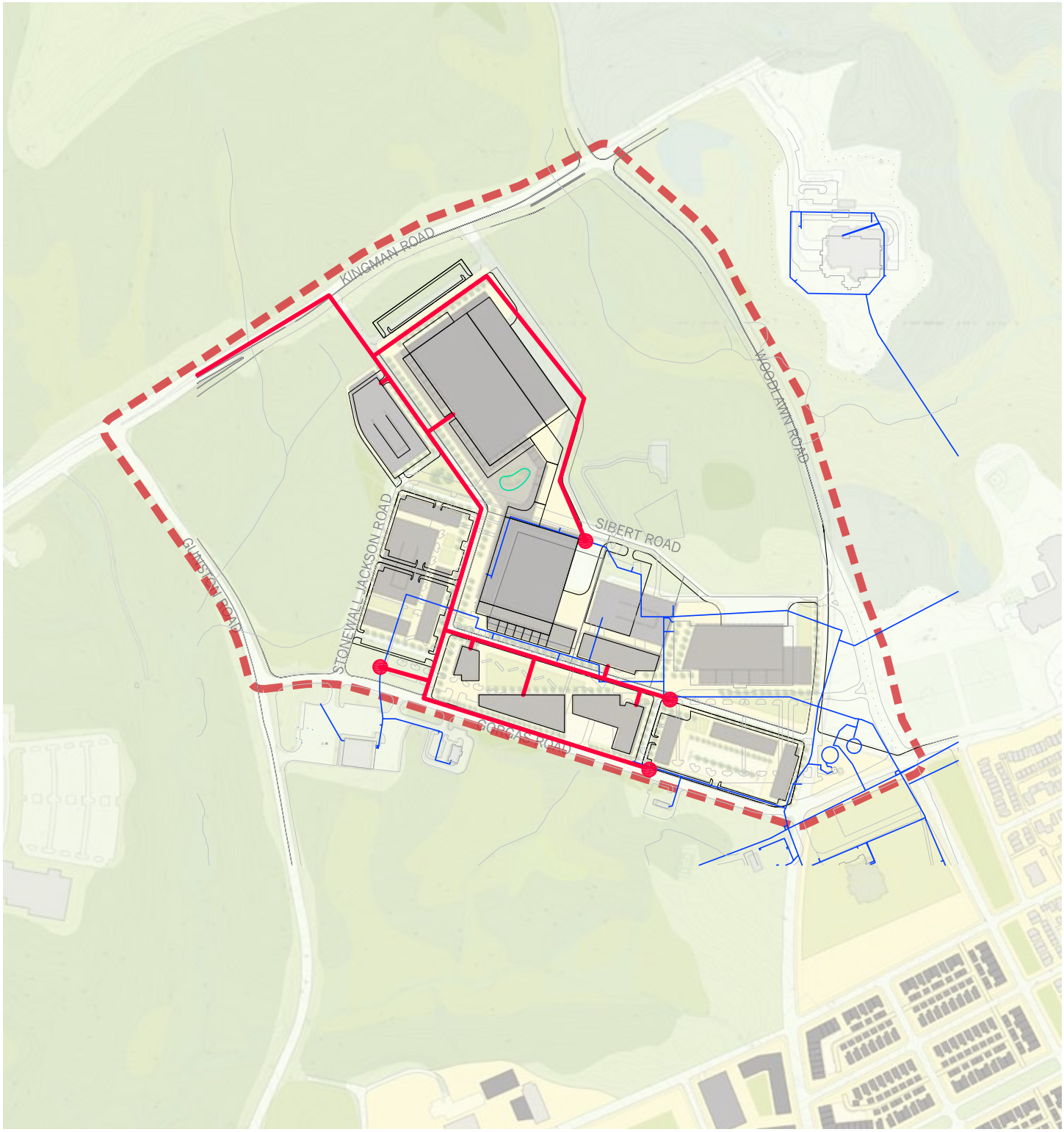


Fort Belvoir Utilities: Full Build Out Storm Sewer System

Possible Storm Water Management Area (Assumed Typical 5ft Depth)

Possible Future Drainage System (Swale, Channel, or Pipe)

Figure 7–7 Infrastructure Strategies



Fort Belvoir Utilities: Full Build Out Water System

NORTH

0 250 500 1000 1500 Feet

Existing Water System Lines

Proposed Water System Lines

Connection Point

Circulation Patterns/ Transportation Management

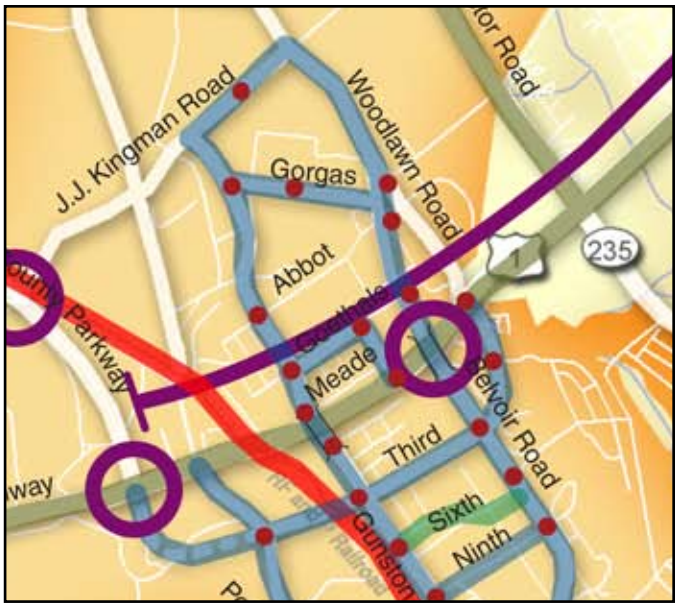
The Master Plan lays out the long term vision for Fort Belvoir. It includes roadway improvements such as widening, intersection signalization and inclusion of pedestrian/ bicyclist circulation. In the vicinity of the CSC, the proposed roadway projects include:

- Extension of Belvoir Road as a four-lane road, including a grade-separation over Route 1, onto North Post and realigning into Woodlawn Road.
- Widening of:
  - Kingman Road to four lanes from Gunston to Woodlawn Roads
  - Gunston Road to four lanes from Kingman Road to 12th Street
  - Gorgas Road to four lanes between Gunston and Woodlawn Roads
- Signalization of four intersections around the CSC
  - Gunston and Gorgas
  - Belvoir/Woodlawn and Gorgas
  - Kingman and north CSC driveway
  - Gorgas and south CSC driveway
- Inclusion of pedestrian and bicycle facilities as part of roadway improvements, to provide internal circulation paths for pedestrian and cyclists, and to link the CSC to adjacent land uses.

These roadway projects and intersection improvements would improve the traffic circulation, and provide the opportunity for walking and cycling as an alternative to the automobile for short trips on Main Post.

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/ ridesharing, vanpool programs, transit services, and bicycling/walking. In developing site-specific TMP programs, the nature of the operations of the CSC should be considered.

Typically, the on-post personnel would use

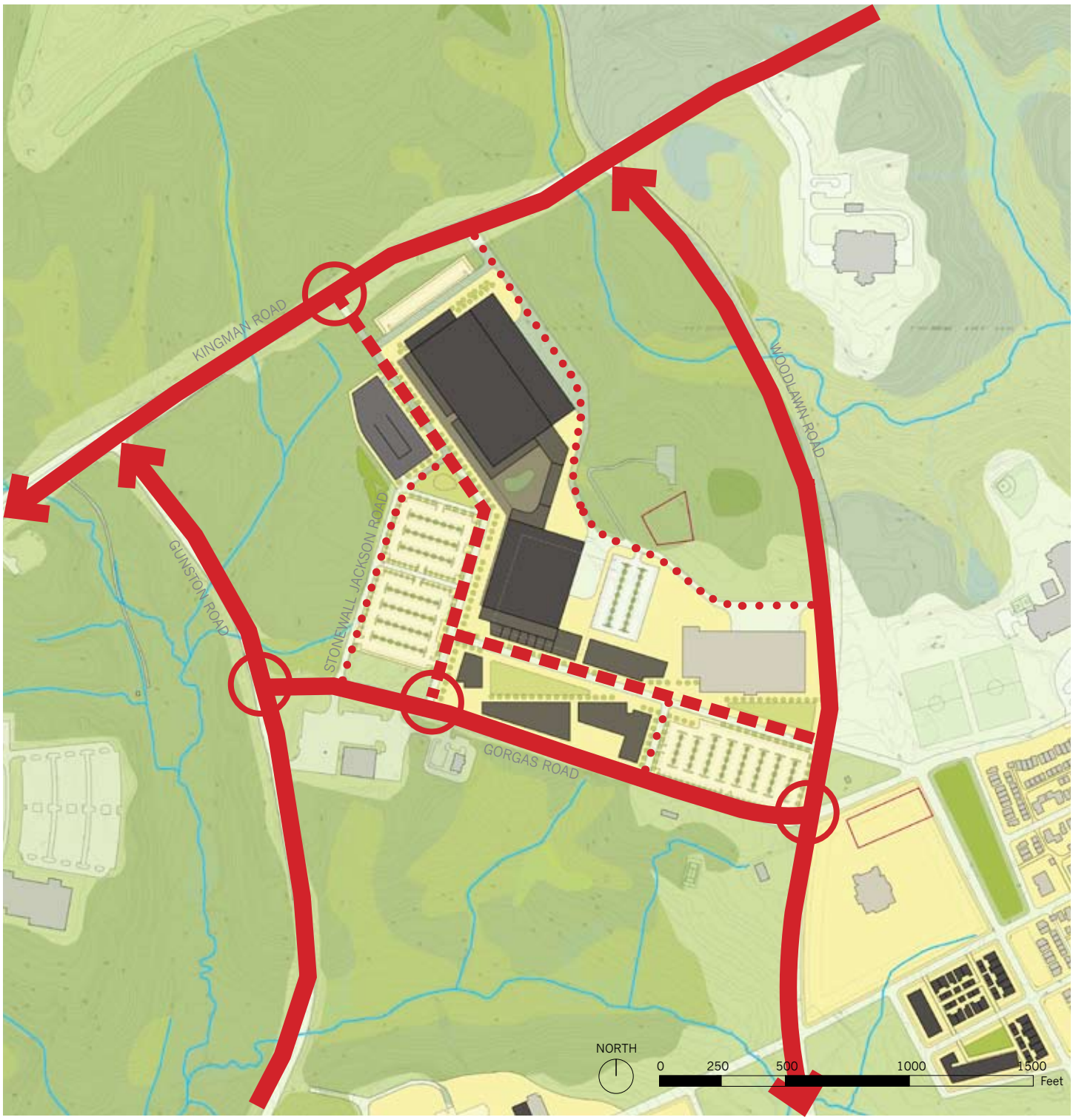


On-Post Transportation Improvements 2030

services at the CSC during the lunch hour, and at the end of the day, as part of their trip home. Off-post personnel typically would use services at the CSC in the evening and weekends, while retires would be there during the day and weekends. The PX can be considered similar to a high-quality Sears or Target, which people tend to buy items that are larger in size or are in several bags. The commissary can be considered similar to a Giant, which people do their grocery shopping. These trips are not suited for strategies in a TMP.

Thus, the potential benefit of applying a TMP to the CSC is very limited. People who live on-post and do small shopping trips, or on-post personnel could make a lunch-time trip, by using a circulator shuttle bus for these types of trips. As more residential units are built and others are planned on Lower North Post, the potential exists for some to use walking as a mode of transportation, provided trails and/or sidewalks are provided to link the CSC to the residential areas.

Figure 7–8 Transportation Strategy



Interconnected network of streets that incorporate walking, bicycling and public transit to promote active mobility for routine daily trips

Roadway Widening/Extension with 4 lanes

Secondary Roadway

Local Road / Alleyway

New Traffic Signal needed

8 Implementation

Phasing and Funding

The plan for the area is that the first projects will be the expansion/renovation of the P/X and Commissary. The funding for the preliminary work will come partially from Ft. Belvoir and partially from the AAFES team. The AAFES team will then pay to build/ renovate the P/X, and about a year later the Commissary will be rebuilt/renovated; similar to the AAFES project the preliminary work will be paid for between the installation and the Commissary and the actual building will be paid for by the Commissary.

Updating the Plan

The plan should be modified to show the parts of the plan that have taken place over the past year, then should be completely updated every 5-years.

Near Term Development Strategy

Both of these plans are detailed in Figure 8–2 “Near-Term Development Strategy”; this includes details on the size and siting of the two projects. Along with this map and its annotations the “Proposed Framework Plan” for the area and its accompanying chart “Strategy for Future Development” detail the plans for the phasing and sizing of the near-term and future growth of the area.

NEW CONSTRUCTION

— Construct new P/X
— Develop structured parking adjacent to P/X
— Construct new Commissary
— Provide required surface parking for Commissary

DEMOLITION / REPLACEMENT

— Coordinate relocation of existing P/X program and consolidation of retail from Town Center area including Home & Garden Center, etc.
— Coordinate demolition of existing P/X facility with development of new Commissary and associated parking
— Explore opportunity to reuse existing Commissary building for interim use as Soldier Support Center
— Explore opportunity to establish a small park and pedestrian space with initiation of future phases of development

Long Term Development Strategy

NEW CONSTRUCTION

— Explore opportunity for additional “community center” development and amenities
— Construct new Soldier Support Facility
— Develop adjacent structured parking
— Develop additional retail, restaurant, and other “community center” amenities

REPLACEMENT

— Replace surface parking into new parking garages that are integrated with later phases of development
— Reconfigure surface parking that is integrated with later phases of development

DEMOLITION / REPLACEMENT

— Coordinate demolition of existing Commissary facility with development of new Soldier Support Facility and associated parking

Figure 8–1 Future mixed-use Community Support Center as meeting place

Figure 8–2 Near-Term Development Strategy

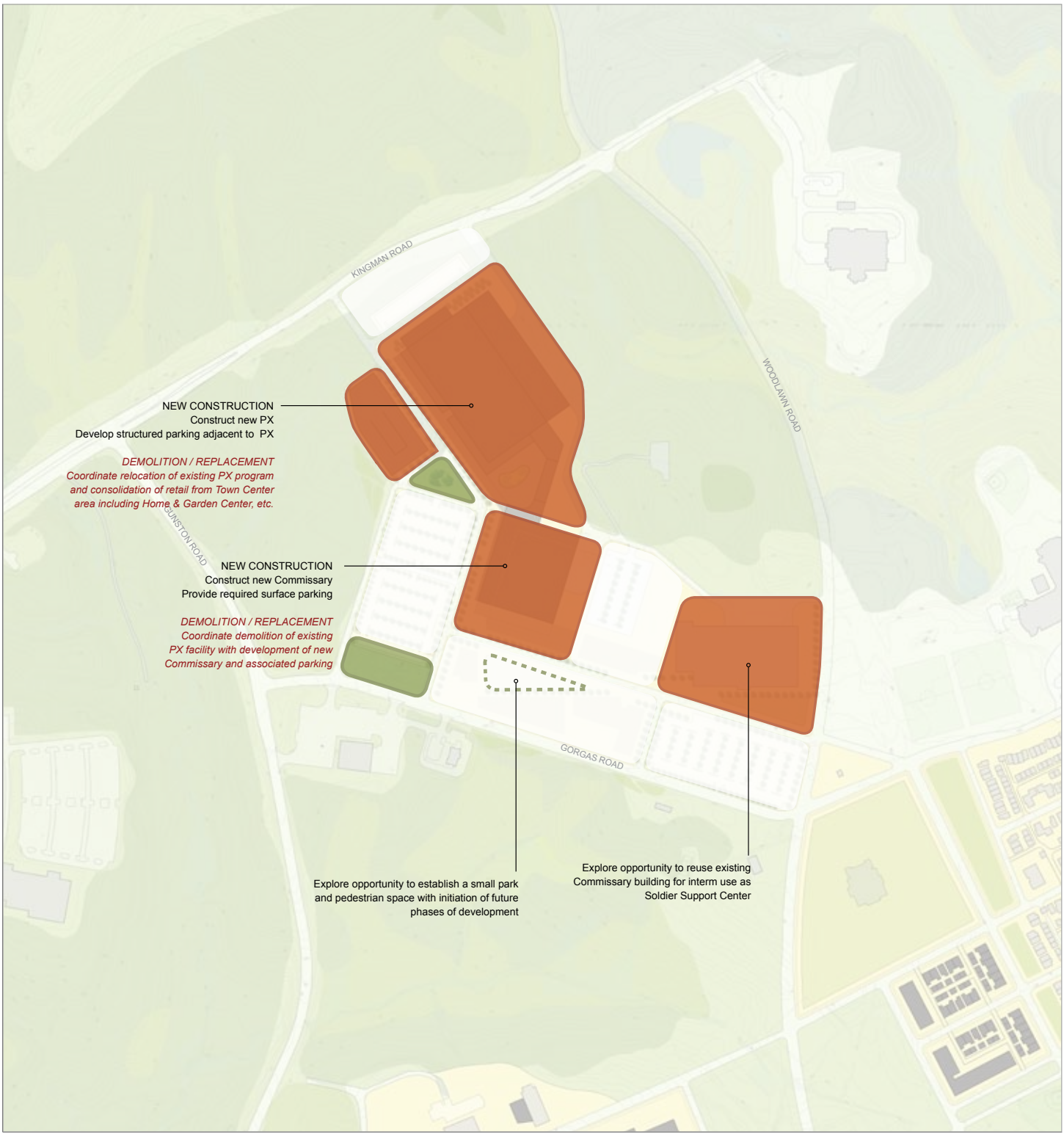
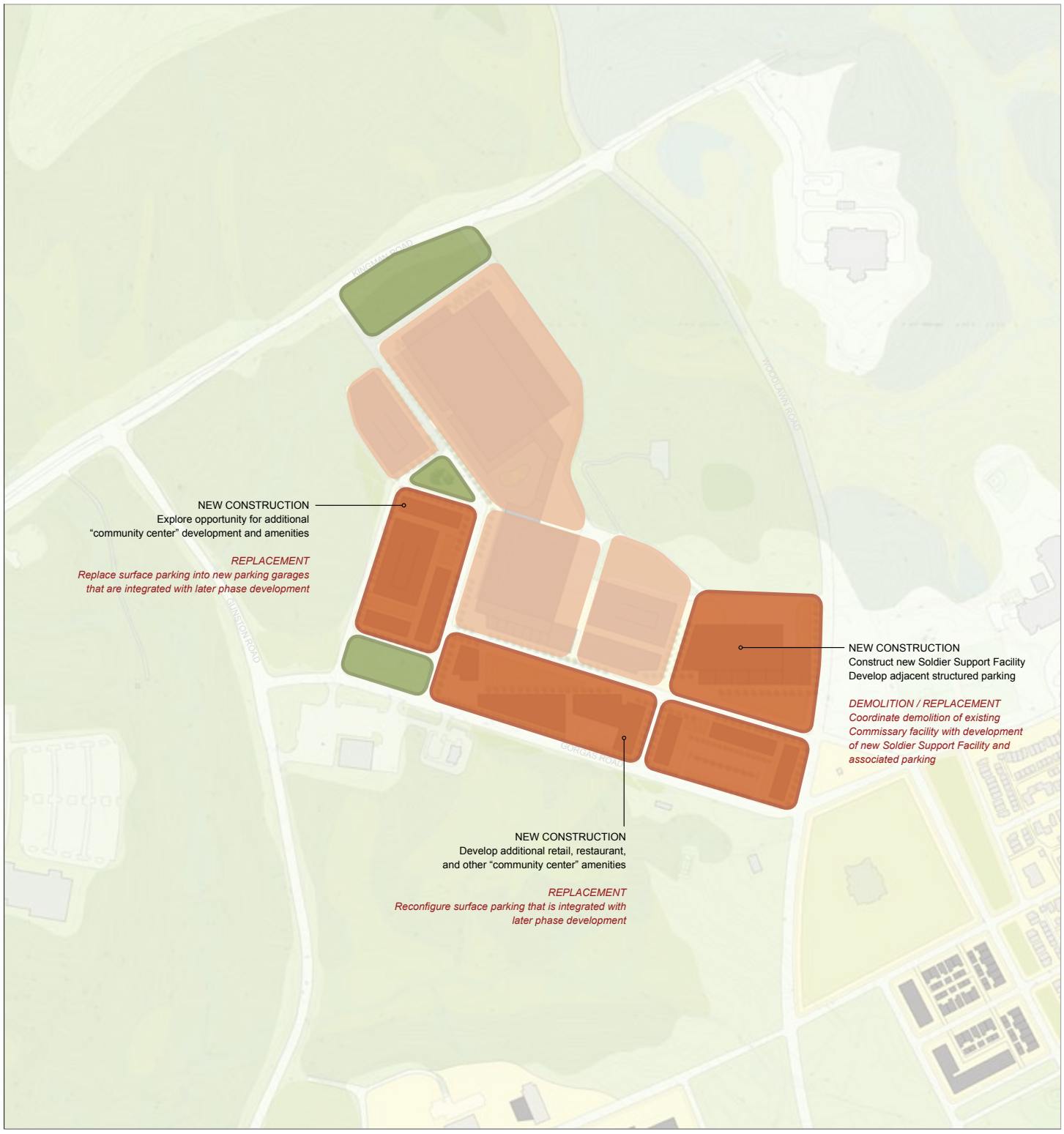


Figure 8–3 Long-Term Development Strategy



LEED ND Certification

As stated in Chapter 5 (Planning Principles) it is the intent of the master plan and ADPs to implement best practices in sustainable design by encouraging the principles of the LEED ND pilot program. It is also the intent of the ADP to require each project and capital investment greater than 20 acres within the installation to meet requirements of LEED ND certification. The full masterplan of Belvoir New Vision is participating in the LEED ND pilot program, and all future projects are expected to participate in the full program, which should launch in early 2009. A LEED ND checklist has been evaluated on a preliminary basis below for each of the proposed frameworks. More information can also be accessed from the U.S. Green Building Council. The numerical rating presented in the checklist is based on general judgement of the schemes, the actual ratings based will vary based on size and use.

The following is a comprehensive list of issues to consider as the neighborhood is developed.

Figure 8–4 LEED ND Checklist

	Alternative A: AAFES Prototype	*Alternative B: Main Street*	*Alternative C: Hybrid "The Knuckle"*
Smart Location & Linkage			
— Smart Location *	**Required**	**Required**	**Required**
— Proximity to water and wastewater infrastructure *	**Required**	**Required**	**Required**
— Imperiled Species and ecological communities	**Required**	**Required**	**Required**
— Wetland and water body conservation	**Required**	**Required**	**Required**
— Farmland Conservation	N/A	N/A	N/A
— Floodplain Avoidance	**Required**	**Required**	**Required**
— Brownfield Redevelopment *	0	2	1
— High Priority Brownfiled Redevelopment	N/A	N/A	N/A
— Preferred location *	6	6	6
— Reduced Automobile Dependence *	0	1	1
— Bicycle Network *	1	1	1
— Housing and jobs proximity	N/A	N/A	N/A
— School proximity	N/A	N/A	N/A
— Steep slope protection *	1	1	1
— Site design for habitat conservation *	0	1	0
— Restoration of Habitats or Wetlands *	1	1	1
— Conservation Management of Habitat or Wetlands *	0	1	1
	9	**14**	**12**

	Alternative A: AAFES Prototype	*Alternative B: Main Street*	*Alternative C: Hybrid "The Knuckle"*
Neighborhood Pattern & Design			
— Open Community *	**Required**	**Required**	**Required**
— Compact Development *	0	2	1
— Diversity of uses *	1	2	1
— Diversity of Housing Types	N/A	N/A	N/A
— Affordable Rental Housing	N/A	N/A	N/A
— Affordable For-Sale housing	N/A	N/A	N/A
— Reduced Parking Footprint *	0	1	1
— Walkable Streets *	0	4	2
— Transit Facilities	0	0	0
— Transportation Demand Management *	1	1	1
— Access to Surrounding Vicinity *	1	1	1
— Access to Public Spaces *	0	1	1
— Universal Accessibility *	1	1	1
— Community Outreach and Involvement *	1	1	1
— Local Food Production	0	1	0
	5	**15**	**10**
Green Construction & Technology			
— Construction Activity Pollution Prevention	**Required**	**Required**	**Required**
— LEED Certified Green Buildings	1	2	1
— Energy Efficiency in Buildings *	0	1	1
— Reduced Water Use *	1	3	2
— Building Reuse and Adaptive Reuse *	0	1	1
— Reuse of Historic Buildings *	N/A	N/A	N/A
— Minimize Site Disturbance through Design *	0	1	1
— Minimize Site Disturbance during Construction*	1	1	1
— Contaminant Reduction in Brownfields Remediation *	1	1	1
— Stormwater Management *	1	5	3
— Heat Island Reduction *	0	1	1
— Solar Orientation *	0	1	0
— On-site Energy Generation *	0	1	1
— District Heating and Cooling *	0	0	0
— Infrastructure Energy Efficiency *	0	0	0
— Wastewater Management *	1	1	1
— Recycled Content for Infrastructure *	0	1	1
— Construction Waste Management *	1	1	1
— Comprehensive Waste Management *	1	1	1
— Light Pollution Reduction *	1	1	1
	9	**23**	**18**
Total Assumed Score	**23**	**52**	**40**

Source: LEED Neighborhood Development pilot program. emphasis is placed on those which are most relevant

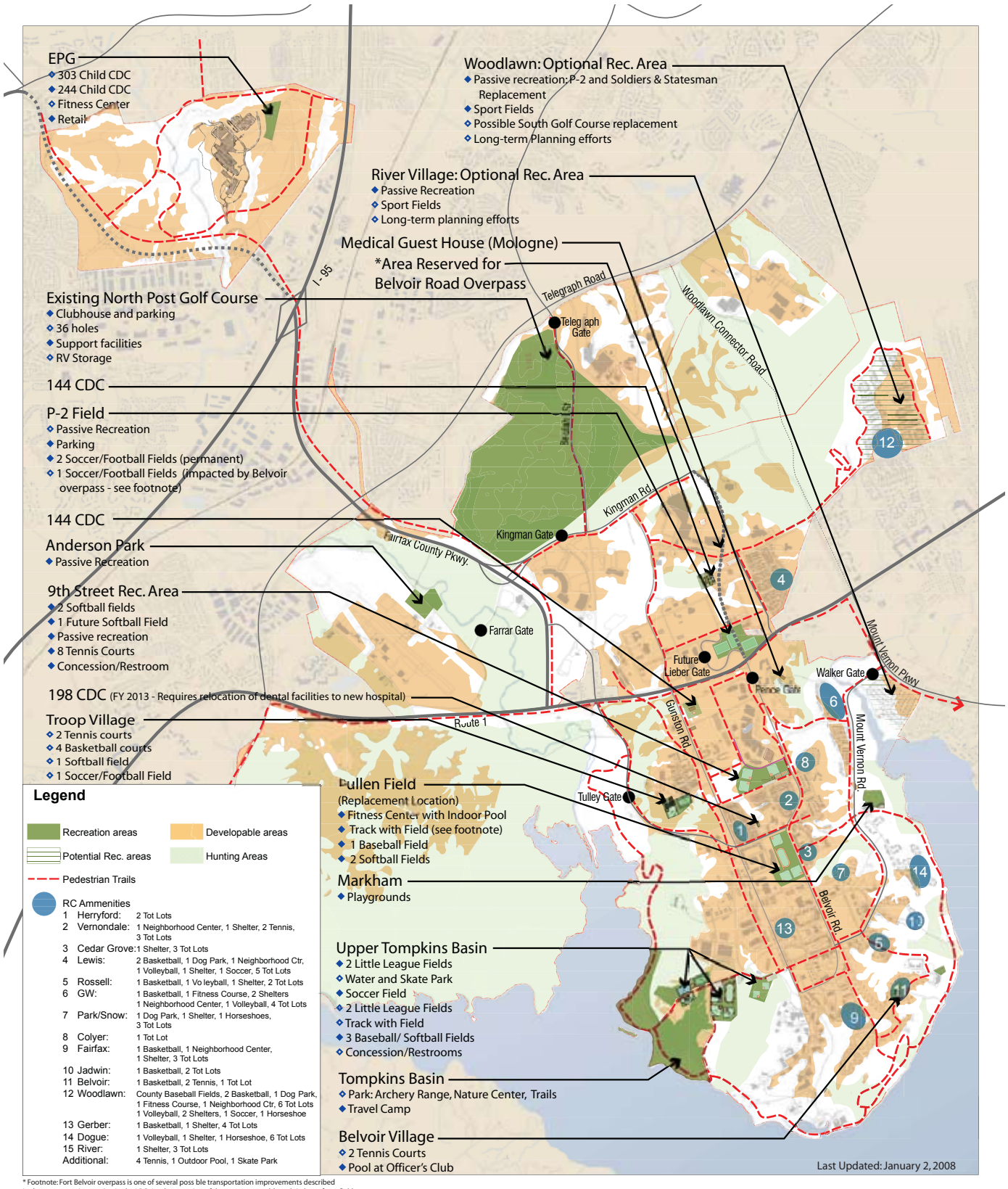
Appendices

Strategy for Existing Buildings

A
APPENDIX

Community Support Center Existing Buildings

ID	STRUCTURE NAME	GROUND AREA		HEIGHT		LEVELS	BUILT	ISR_ RATING	USE	GSF	ACTIONS	ACTIONS NOTES
1801	CHAPEL	19,842	SQFT	10	FT	1	2004		CIVIC	19,842	Remain	
2302	COMMISSARY	114,640	SQFT	28	FT	1	1982	Q-2	RETAIL	114,640	**Demolish-Long Term**	Renovate for Soldier Support Center in Near Term and long term replacement with additional retail. Soldier Support to move to Troop Area
2303	NORTH POST MAIN EXCHANGE	141,970	SQFT	37	FT	1	1994	Q 4	RETAIL	141,970	**Demolish-Near Term**	Build new PX
2304	AAFES CONVENIENCE STORE	37	SQFT	12.5	FT	1	1997	Q-2	RETAIL	37	**Remain**	
2304	AAFES CONVENIENCE STORE	14,590	SQFT	18.5	FT	1	1997	Q-2	RETAIL	14,590	**Remain**	
2305	SUNTRUST BANK	2,846	SQFT	30	FT	1	1996		RETAIL	2,846	**Remain**	
2318	CARWASH	1,320	SQFT	10	FT	1	2005		RETAIL	1,320	Remain	
2430	BATH HOUSE	2,516	SQFT	17.5	FT	1	1979		CIVIC	2,516	**Remain**	Possible long term expansion
2434	PUMP STATION	436	SQFT	10	FT	1	1941		UTILITY	436	**Remain**	
	TOTALS	298,197	SQFT							298,000		
	NEAR TERM DEMOLITION									**142,000**	SQFT	
	LONG TERM DEMOLITION									**114,640**	SQFT	
	RENOVATION									**0**	SQFT	
	REMAIN									**42,000**	SQFT	
	EXISTING USES											
	OFFICE									0	SQFT	
	RETAIL									275,000	SQFT	
	CIVIC									22,000	SQFT	
	UTILITY									400	SQFT	
	RESIDENTIAL									0	SQFT	



* Footnote: Fort Belvoir overpass is one of several poss ble transportation improvements described in the transportation section in the LRC. Implementation of the overpass would result in loss of one field. A replacement soccer field is possible with upgrades to the Pullen Field Track area.

Belvoir

MWR Framework Plan (2030)

Fort Belvoir / EPG
Fort Belvoir, Virginia

0 850 1,700 3,400
Feet

Presentation materials April 3, 2007

Source: Fort Belvoir DPW GIS Department

AAFES PX Option 5

Source: AAFES, received March 23, 2007

NORTH

0 200 400 800 1,200 1,600 Feet

Analogies–Santana Row

Source: SWA Group

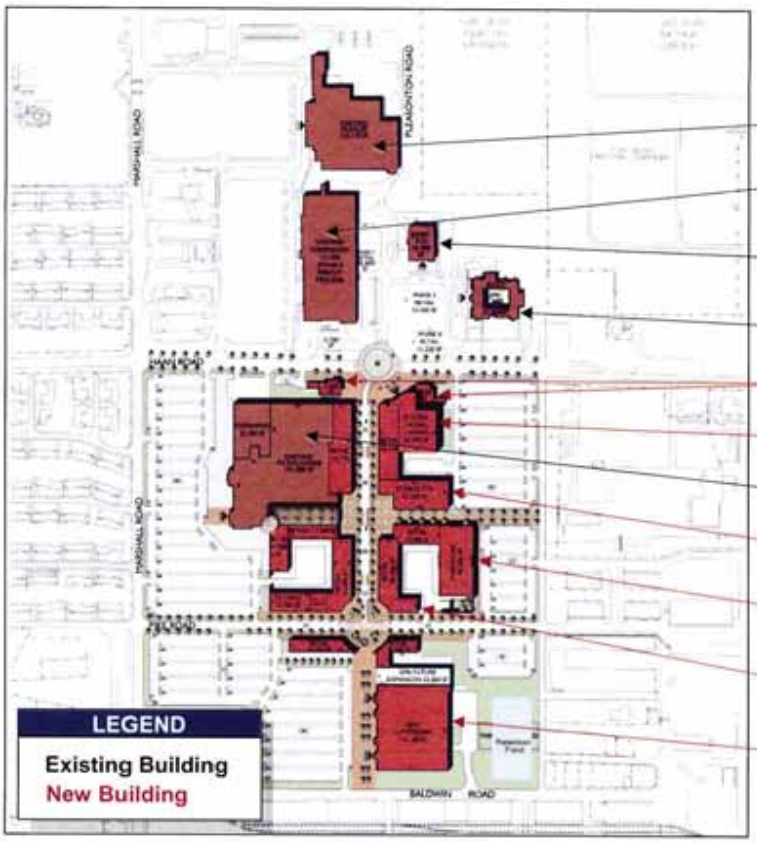
Santana Row located in San Jose, California

–Pedestrian orientated “main” street

–Defined street edge with parking located behind buildings

–Well landscaped streetscape with large sidewalks and medians to slow traffic

Analogies–Ft. Bliss



Existing Museum
Existing Commissary
Existing Post Office
Existing Day Care
New Casual Dining
New 10-Screen Multiplex
Existing PX
New Fitness Center
New Furniture
New Casual Dining
New Commissary

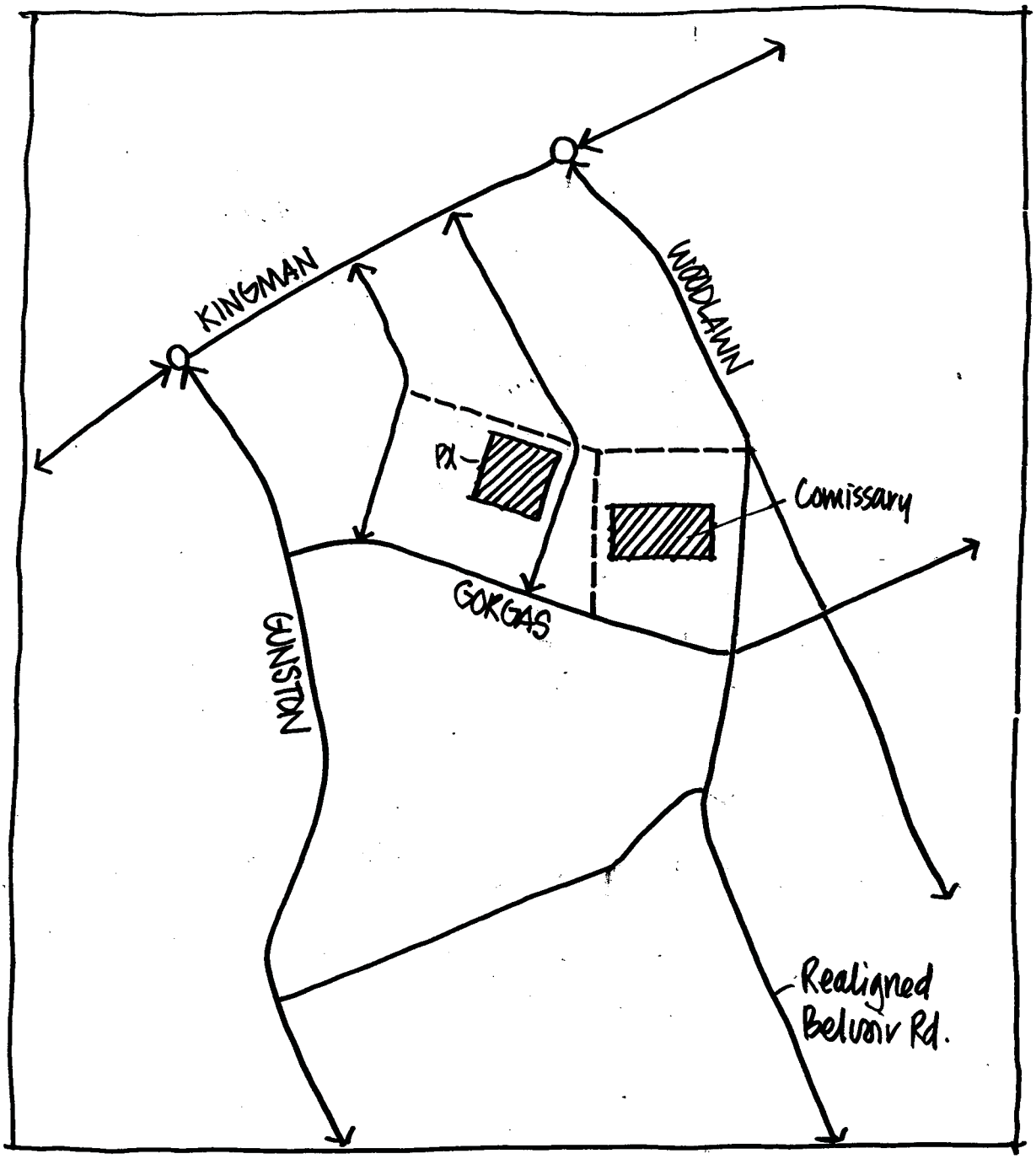
Ft. Bliss Concept Site Plan

–Main street focused

–Variety of uses including fitness center, furniture store and multiplex

–Landscaped streetscape to break down scale of big box retail

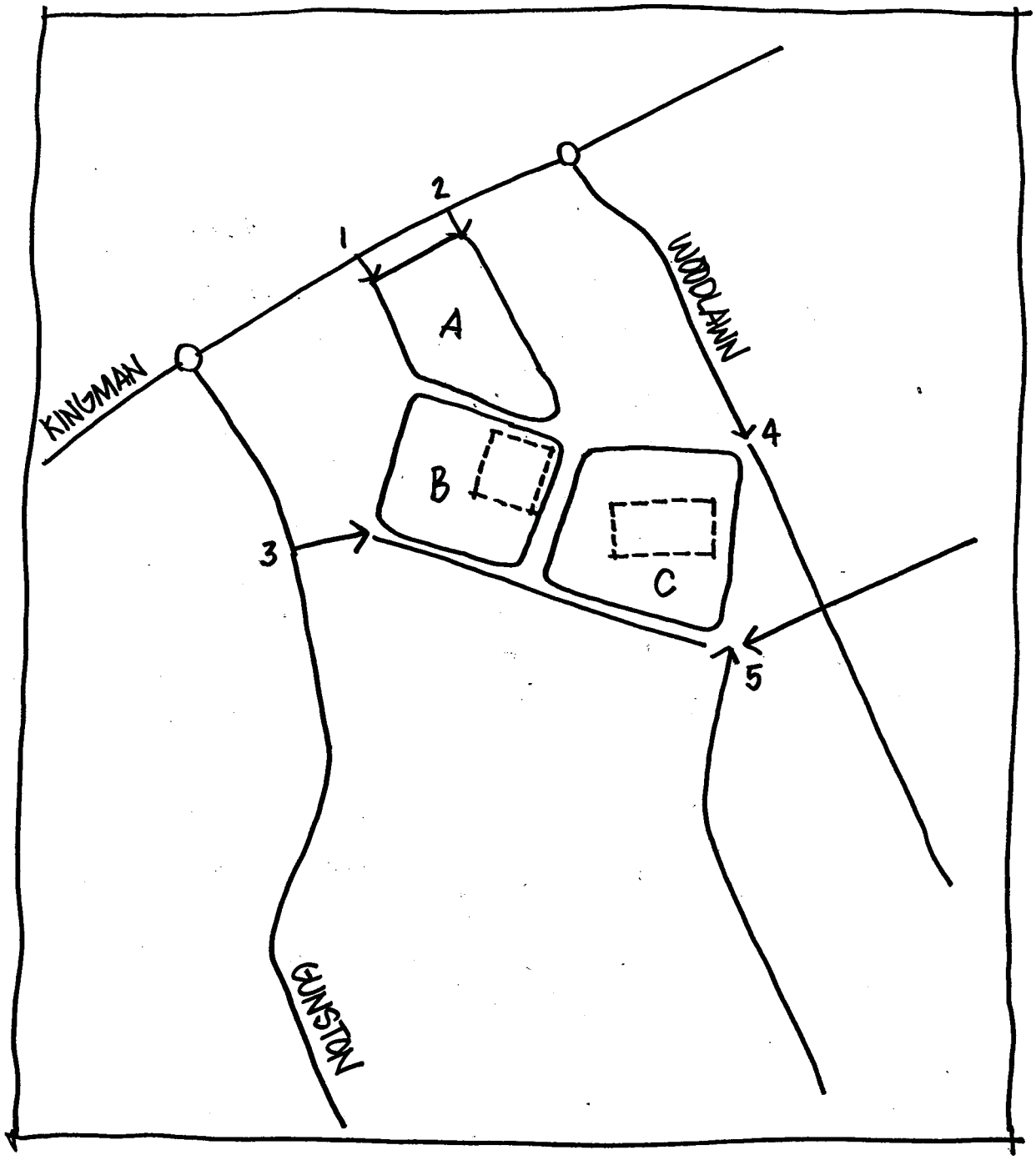
Planning Principles–Access 1



Access

–Provide new access from Kingman Road
–Avoid Environmentally sensitive areas
–Enable multiple access points to parking

Planning Principles–Parcels 2

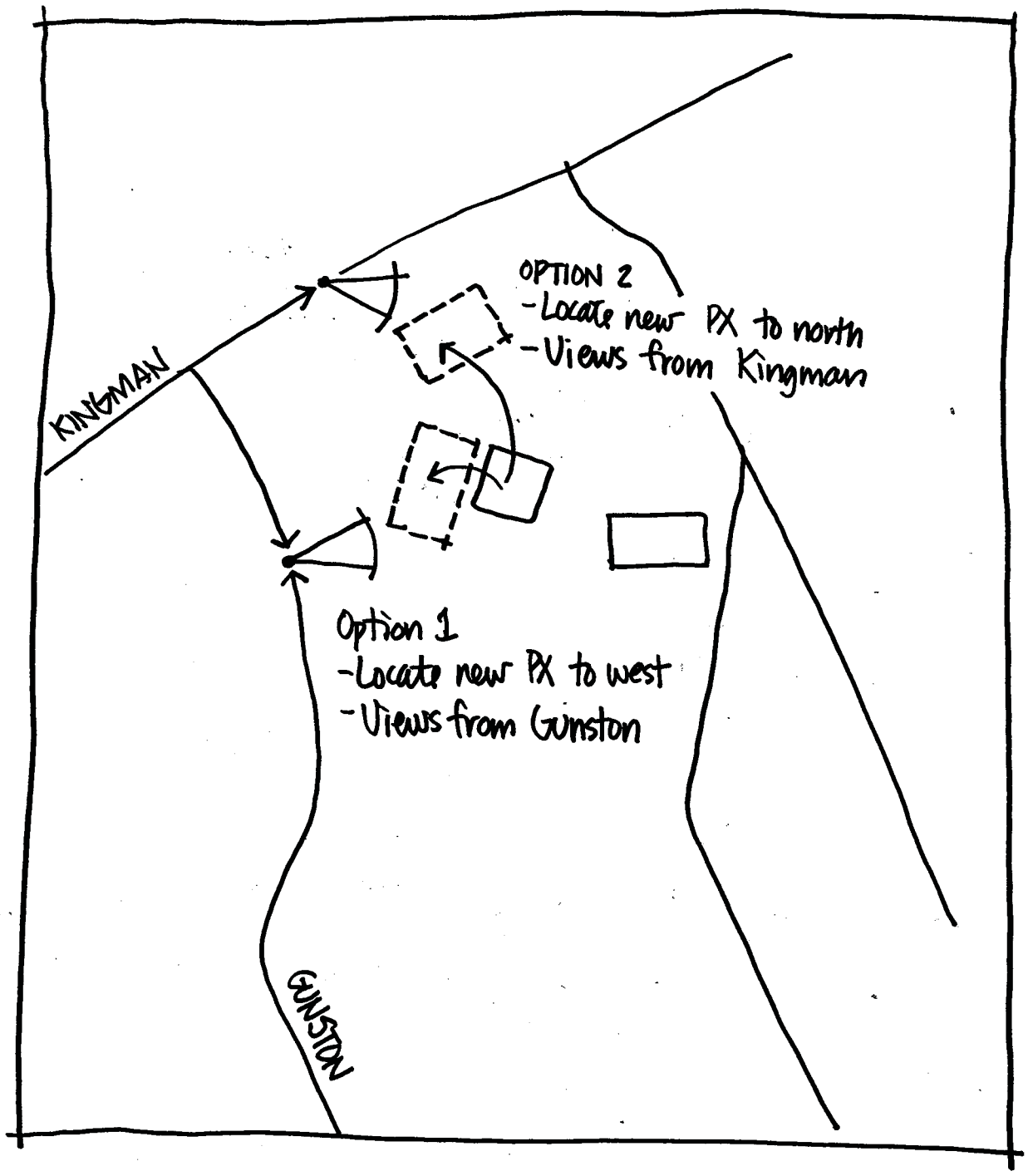


Parcels

–Establish clear strategy of development areas

–Align parcels around existing buildings to avoid wetlands, etc.

Planning Principles–Phasing 3

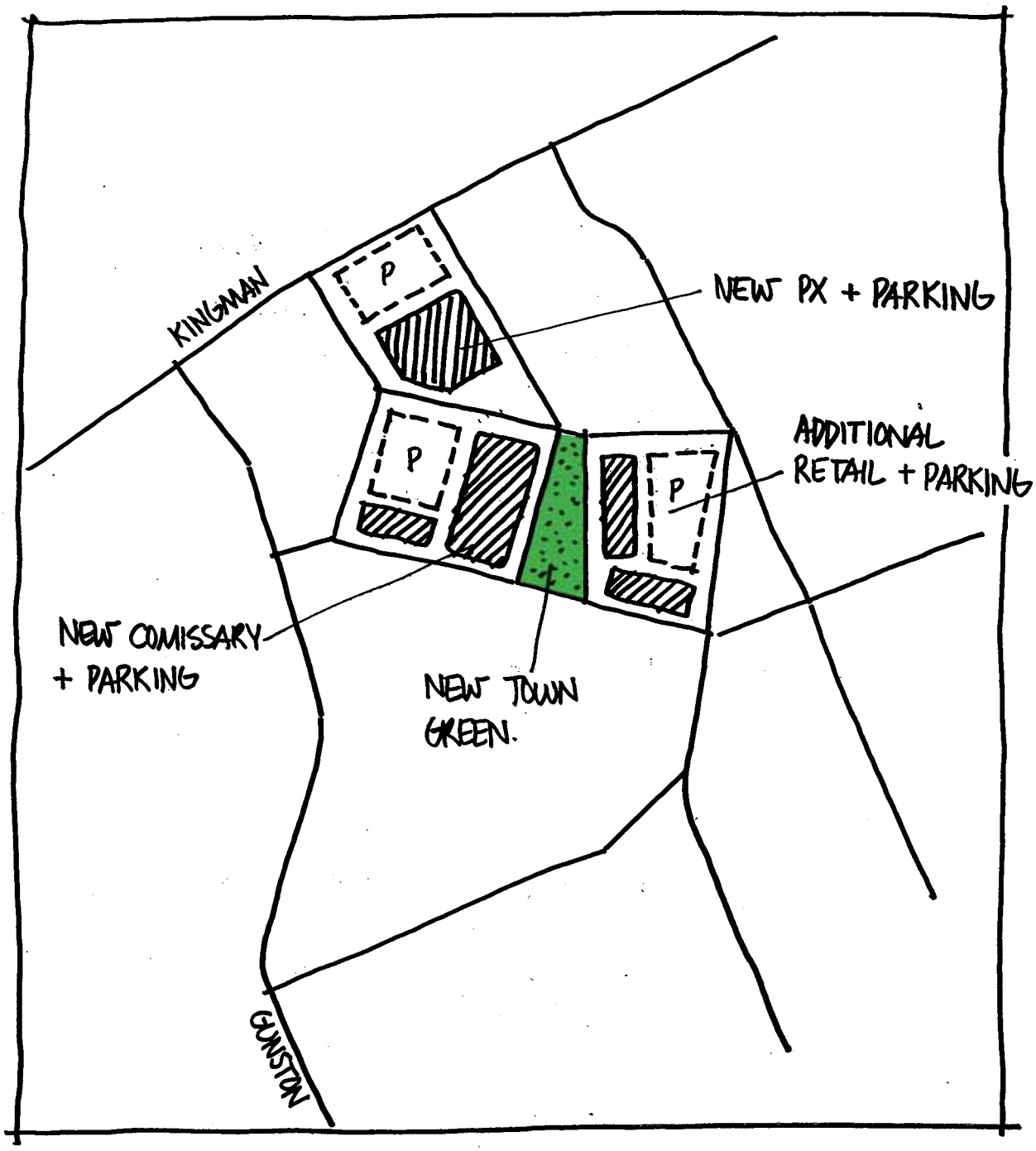


Initial Phase

–Begin with new construction of PX and associated parking

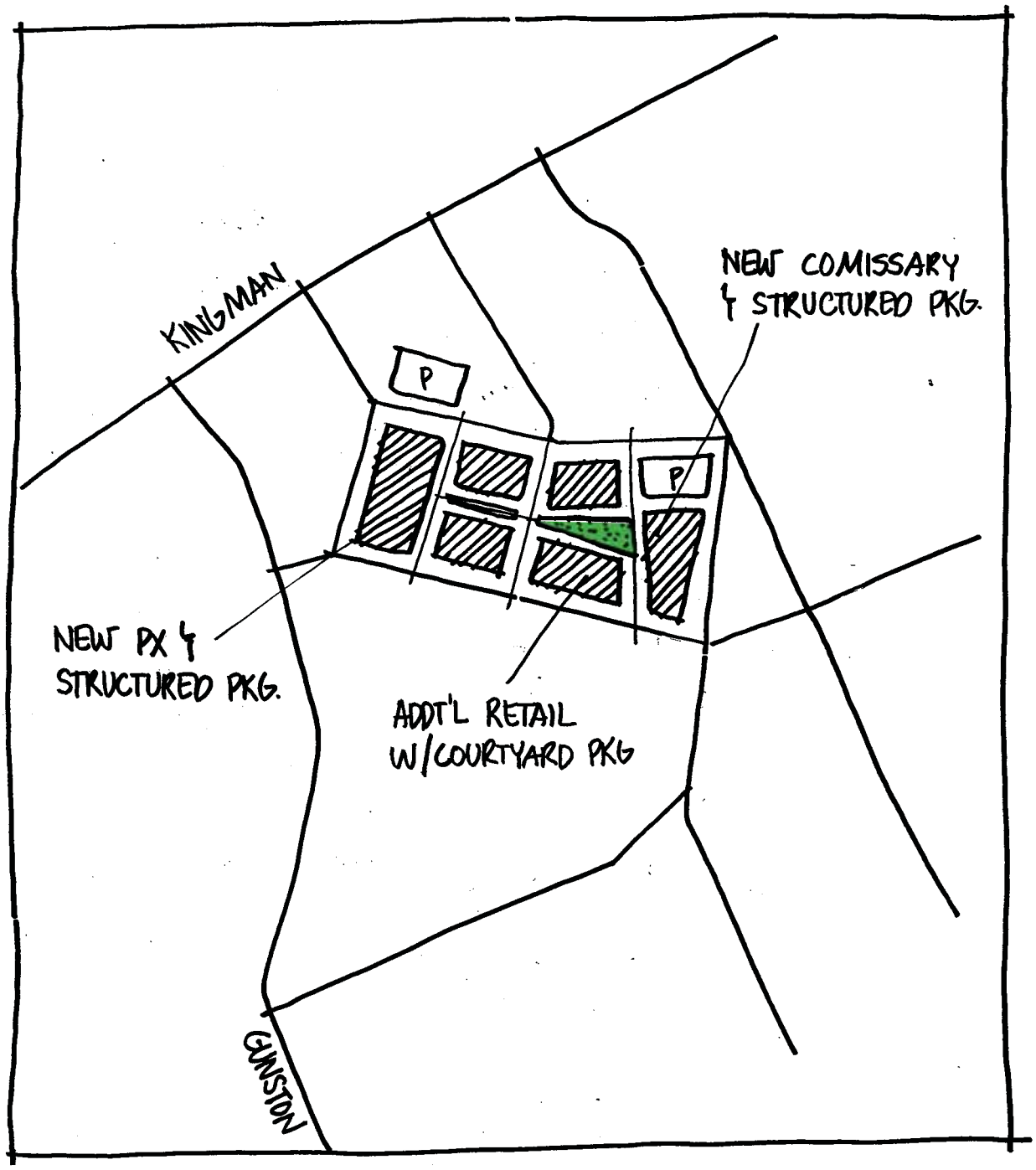
–Optimize visibility and identity from Kingman entrance

Planning Concepts–Town Green 4



Town Green Concept

–Front new commissary and new retail center along a new Town Green
–Create new street front along Gorgas Road with parking behind
–Locate new PX with direct access and visibility from Kingman Road



Main Street Concept

–Utilize existing developed land with new PX and Comissary as anchors
–Create an interior main street with additional retail
–Locate parking structures along Gorgas Road and surface lots along perimeter

Comments to the request for Site Approval

Comments to the request for Site Approval for the PX--suggest the following be included as provisos for the site approval:

A planning Charrette funded by AAFES and DECA will be held prior to design kickoff. The planning charrette shall include development of a preferred site layout, parking orientations to include the parking deck, traffic access, alternative architecture and elevation studies with recommendations, site connection to the adjacent neighborhoods, utility demands, etc. A minimum four day Charrette is recommended due to the challenges with the site and building design. A month's advance planning is requested to ensure scheduling of the correct staff for this Charrette.

Other elements to include in the site approval letter as an attachment.

The Installation controls the size and shape of the "knuckle" between the PX and the Commissary and are not constrained to the 20,000 to 25,000 SF provided in the draft memo attached to this email.

1. Site Layout, parking, building and related site development must meet IDG standards throughout the design process

2. Site design shall maintain minimum building footprint for development and minimum site plan clearance required for development

3. The will be no emphasis on balancing cut and fill which merely results in a flattened site

4. The Design Analysis for the two level parking garage is to consider and evaluate cost savings from reducing the cut and fill operation alternative

5. The project will include an Economic Analysis of alternatives. As a minimum the Economic Analysis shall include retention and re-use of the existing buildings, construction of the "big box, and construction of multiple shops to break down the big box.

6. The exterior elevation shall be designed in such a way to break up the "big box" look but be sympathetic to the Fort Belvoir IDG.

7. Storefront entries to various shops from the parking area shall be included as a design element.

8. The Knuckle between the PX facility will be accessible from both the PX and the Commissary without going outside and then back inside.

9. Trees lost to development will be replaced with a 2:1 ratio.

10. The NEPA documentation will be completed by the Installation and funded by the building user. It will include information from the Economic Analysis, as well as special habitat studies, and a Traffic Demand Management Plan/Traffic Analysis to address traffic increases from the regionalized standpoint. It must justify parking demand for the two facilities which in turn sets the acreage requirement for parking.

11. Parking will be developed in such a way as to break up the 20 acres proposed for parking. This can be done with the use of the proposed parking deck and breaking up the parking surface parking areas with landscape, berms, etc.

12. A site tree survey shall be developed with recommendations on trees to save, etc. being worked into development planning as much as possible.

13. Building Architecture will be developed in concert with Installation staff and BNVP input to the process--not a mere site adaptation from other Installations (such as Peterson AFB shown in the most recent AAFES briefing, which is more in line with

1970's/1980's pedestrian mall architectural design).

14. The building's structural layout should address facility re-use to avoid the inability to rehab the facility for other space uses in the future. This can be done in terms of bay width as well as other design means. This should be addressed in the EA and NEPA documents given the short life spans for such facilities.

15. Site circulation for deliveries shall avoid all interference with patron traffic circulation requirements.

16. Pedestrian connection to adjacent facilities and amenities shall be included (Lewis Heights, Chapel, Pool, Bank, etc.)

17. Building design and Landscape design should work together to bring in plantings areas to the front of the facility to include large scale street trees to help reduce building mass, provide shade for energy conservation, and improve site and building aesthetics.

18. Building shall address Army policy for energy conservation and meeting LEEDS NC criteria.

19. Future expansion capability shall be developed as a part of the site plan. This will require additional structured parking or parking decks given the loss of site for the expansion. Abandonment of the building as a standard practice should not be encouraged given building's size and limited re-use capability, as well as the high cost for such a renovation.

20. Hydraulic analysis, and other utility studies required for the site shall be completed by the activity (AAFES and DECA).

21. All AT/FP requirements shall be developed in concert with the building design and IDG

22. Determine who signs off on the site plan as noted here by Heather Coursey--is the Planning Board involved?

COMMISSARY SITING APPROVAL:
Construction approval for the new Commissary will not be given until we have an approved and funded 1391 for the demolition of the PX and Commissary. This should be included in the siting approval letter to both agencies. The old Commissary should not be turned over or accepted for re-use by the installation as it represents another "pink elephant" for the installation (a windowless box that would be difficult and extremely costly to renovate into a useful facility).

Existing

Community Support Center

Existing System
The existing Community Support Area Development does not contain any Central Energy Plant or piping distribution to multiple buildings.

.

NORTH

NTS

Steam/Hot Water Line

Utility Plant

Table 11 Central Energy Plant for Individual Building of Community Support Center ADP

Community Support Center	Total Gross Square Footage	Building ID	Use	Gross Square Footage	Action
Central Energy Plant	**NONE**	**NONE**	**NONE**	**NONE**	**NONE**
Independent Building	**298,545**	1801	CIVIC	19,842	Remain
		2302	RETAIL	114,640	**Demolish-Long Term**
		2303	RETAIL	141,970	**Demolish-Near Term**
		2304	RETAIL	37	Remain
		2304	RETAIL	14,590	Remain
		2305	RETAIL	2,846	Remain
		2318	RETAIL	1,320	Remain
		2371	CIVIC	348	Remain
		2430	CIVIC	2,516	Remain
		2434	UTILITY	436	Remain

Sources

Council on Environmental Quality (CEQ). 1997. *Environmental Justice Guidance Under the National Environmental Policy Act*. Council on Environmental Quality, Executive Office of the President, Washington, D.C.

Dewberry & Davis (Dewberry), 1993. Engineer Proving Ground, Solid Waste Management Units. Action Plans. US Army Garrison, Fort Belvoir, Virginia.

Dewberry & Davis (Dewberry), 2001. Environmental Study – Proposed Fairfax County Parkway Construction at Engineer Proving Ground. Department of the Army. US Army Garrison, Fort Belvoir, Virginia.

Dewberry & Davis (Dewberry), 2002a. Closure Plan Site M-27 Waste Ordnance Pits at Range 1. Department of the Army. US Army Garrison, Fort Belvoir, Virginia.
Dewberry & Davis (Dewberry), 2002b. Environmental Study II – Engineer Proving Ground. Department of the Army. US Army Garrison, Fort Belvoir, Virginia.

Dewberry, 2005a. Groundwater Investigation Summary Report Site M-27 Waste Ordnance Pits at Range 1. Department of the Army. US Army Garrison, Fort Belvoir, Virginia.

Dewberry, 2005b. Groundwater Investigation Summary Report Site M-27 Waste Ordnance Pits at Range 1. Department of the Army. US Army Garrison, Fort Belvoir, Virginia.

Dewberry, 2005c. Phase III Groundwater Investigation Summary Report Site M-26 Hydrocarbon Spill Area. Department of the Army. US Army Garrison, Fort Belvoir, Virginia.

Fairfax County, 1982. General Ratings for Urban Development for Fairfax County. Fairfax County, Soil Science Office, Fairfax, Virginia.

Fairfax County Comprehensive Plan, 2003 Edition; Environment, Amended through 11-152004; Chesapeake Bay Supplement, Adopted 11-15-2004

Fort Belvoir. 2001. Integrated Natural Resources Management Plan (INRMP). Fort Belvoir Directorate of Public Works-Environmental and Natural Resources Division.

Fort Belvoir. 2002. DeWitt Hospital Environmental Assessment (North Post site).

Fort Belvoir GIS Department. 2006. GIS Data for Fort Belvoir, Virginia. Fort Belvoir Directorate of Public Works.

International Technology Corporation (IT Corp), 1990a. Environmental Baseline Study for the Engineer Proving Ground, Fort Belvoir, Virginia. Phase I, Scope Definition, and Phase II, Environmental Survey, Volume 1. US Army Toxic and Hazardous Materials Agency (USATHAMA), Aberdeen Proving Ground, Maryland.

International Technology Corporation (IT Corp), 2005b. Environmental Baseline Study for the Engineer Proving Ground, Fort Belvoir, Virginia. Phase III, Environmental Baseline Survey, Volume 2. US Army Toxic and Hazardous Materials Agency (USATHAMA), Aberdeen Proving Ground, Maryland.

PBS&J. 2005. 95% Draft Fort Belvoir Master Plan Long Range Component. Prepared for Fort Belvoir Directorate of Public Works. January.

Malcolm Pirnie, Inc. 2006. Historical Records Review, Fort Belvoir, Fairfax County, Virginia. Prepared for the U.S. Army Corps of Engineers Baltimore District and Fort Belvoir. March.

State Water Control Board/Groundwater Quality Standards 9 VAC 25-280-10 et seq Groundwater Standards Statutory Authority: 62.1-44.15(3a) of the Code of Virginia. Effective February 12, 2004.

Tetra Tech, Inc. 2005a. Visual Site Investigation Report, Fort Belvoir Main Post SWMU Program. Prepared for Fort Belvoir Directorate of Public Works-Environmental and Natural Resources Division. October.

Tetra Tech, Inc. 2005b. Visual Site Investigation Report, Task I—RCRA RFI Description of Current Conditions-Engineer Proving Ground.

Prepared for Fort Belvoir Directorate of Public Works-Environmental and Natural Resources Division. October.

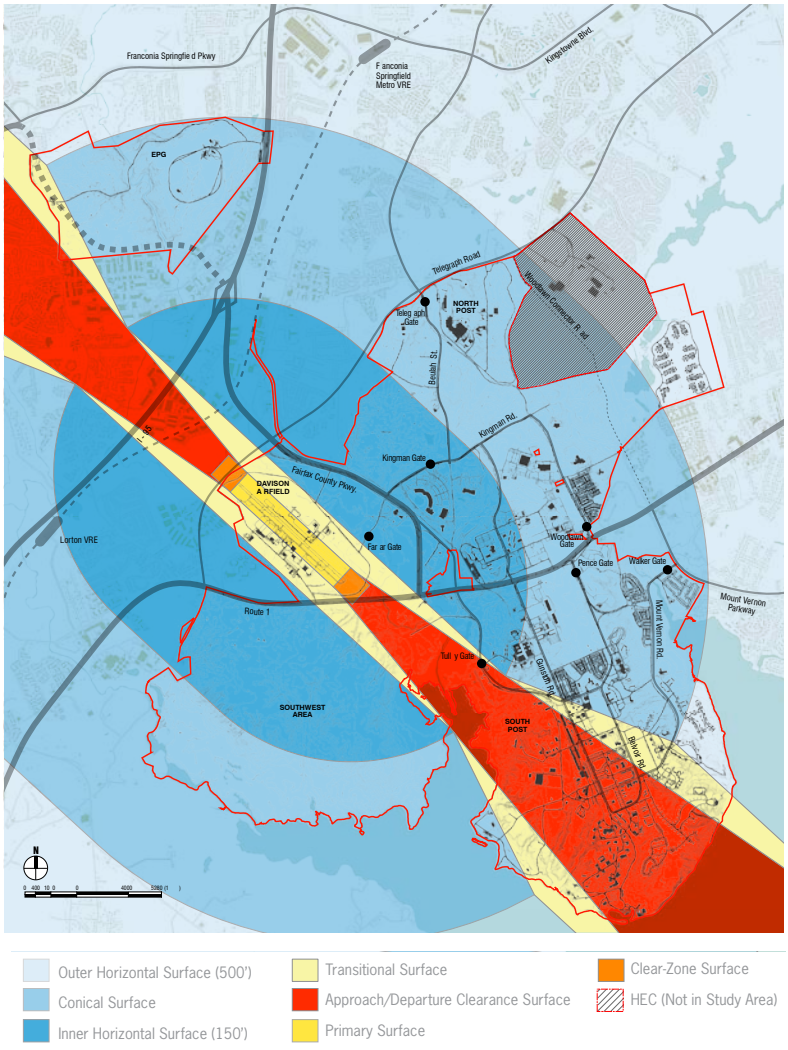
Tetra Tech, Inc. 2006. Phase III Groundwater Investigation M27 Prepared for Fort Belvoir Directorate of Public Works-Environmental and Natural Resources Division. March.
United States Department of Transportation (DOT), Federal Highway Administration (FHA) and Virginia Department of Transportation (VDOT) 2003. *Fairfax County Parkway Environmental Assessment.*

United States Geological Survey. Annandale Quadrangle, Virginia. 7.5 Minute Series (Topographic). 1965, photorevised 1983, 1994.

United States Geological Survey Fort Belvoir Quadrangle, Virginia – Maryland. 7.5 Minute Series (Topographic). 1965, photorevised 1980.

Virginia Department of Environmental Quality, 2001. Guidance for Closure Plans and Post-Closure Plans for Hazardous Waste Management Facilities. Office of Waste Permitting, Division of Waste Program Coordination, Richmond, Virginia.

Figure 2.43- Airfield Constraints Map



Airfield Facilities

Davison Army Airfield

Davison Army Airfield (DAA) is an operational and training facility. DAA accommodates five operational flying units within the Washington/National Capital Region Military District and a training unit of the District of Columbia Air National Guard. The five operational flying units are:

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

The operational units are primarily responsible for supporting Post-related missions and operations. Currently DAA supports training and operations by both helicopter and fixed wing aircraft. DAA 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.

DAA is required to comply with guidelines and regulations to meet a Class A airfield as outlined in the Unified Facilities Criteria (UFC) 203-260-01, Airfield and Heliport Planning and Design. The maximum aircraft size which can be safely accommodated at DAA is UC-35 (Citation 560). Operations at the DAA 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. Additionally, 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.

Figure 2.43 maps the imaginary surfaces associated with the runway at DAA. No manmade 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 DAA runway elevation is +74 ft 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 2.44 depicts the maximum allowed height for development surrounding the airfield.

Figure 2.44- Maximum Building Heights based on Airfield Imaginary Surfaces Restrictions

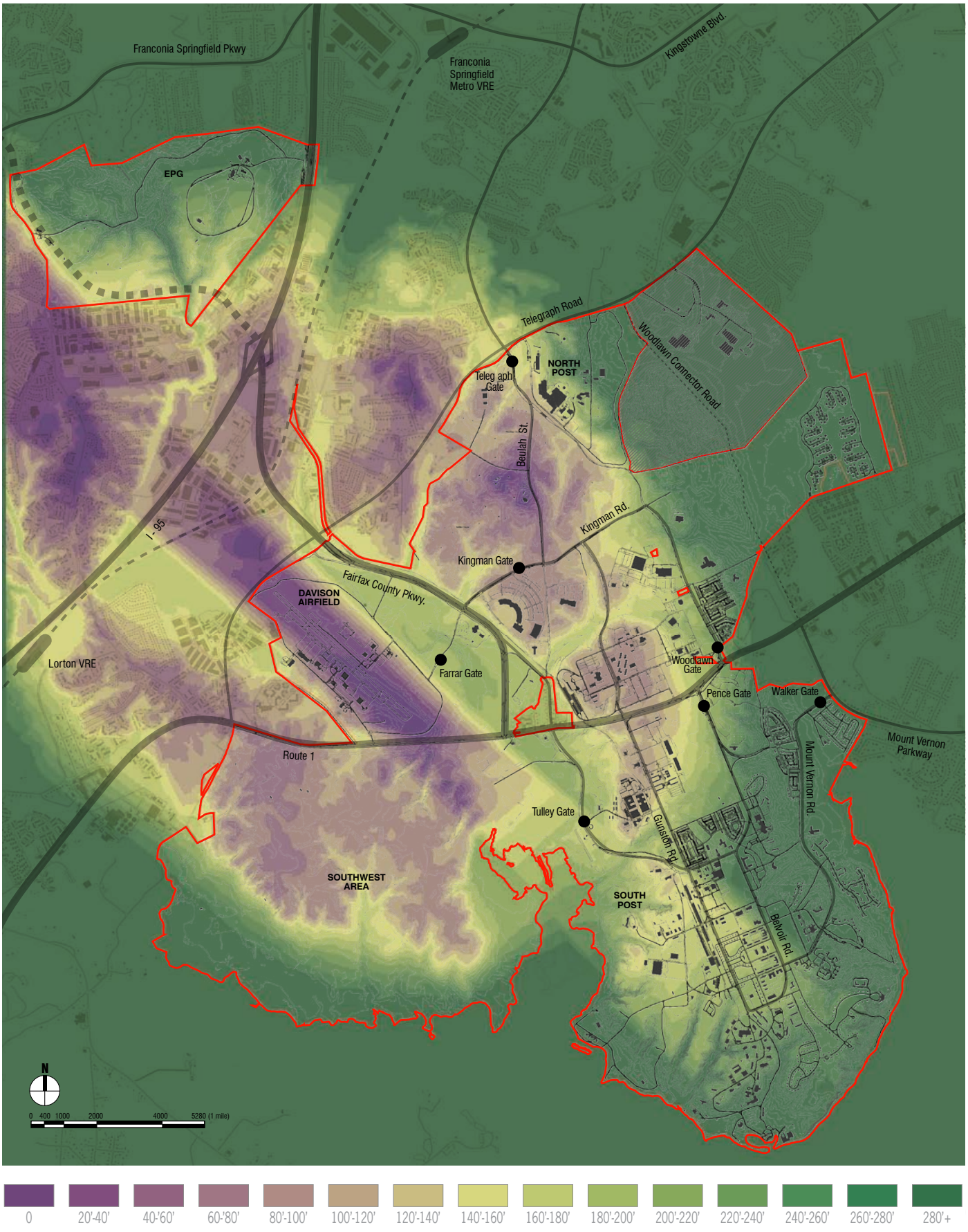


Table 2.21 - DAA Imaginary Surfaces, Existing On-Post Obstructions and Impacts on Development

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. 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.
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 GIS data provided. Field investigations are required to verify these conclusions.

Planning Considerations

Current and future facilities should not penetrate the imaginary surfaces which are detailed in Figure 2.43, so that DAA may operate at its full capacity. Table 2.21 lists the existing facilities which conflict with the imaginary surfaces. While height restrictions apply to the entire Post and EPG, restrictions of 100 ft or lower only apply to parts of the North Post and Southwest area (Figure 2.44). 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 DAA regain lost operational capacity and protect against further loss of overall airfield functionality.

DAA plays a key role in the National Emergency Response plan. In the event of a National Emergency, Andrews Air Force Base (AFB) will be used to launch fighter aircraft and the Presidential Command Control Berth. Andrews AFB 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. During a National Emergency, DAA will be in "lockdown", restricting personnel from leaving or accessing the airfield until the Emergency has passed. These National Emergency Response plans must be considered during land-use development planning.

Airfield Facilities

List of Figures

List of Tables