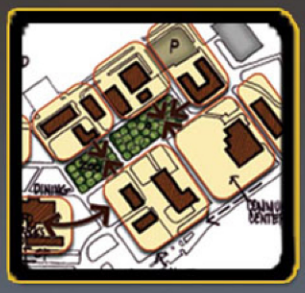
REAL PROPERTY MASTER PLANNING

TECHNICAL MANUAL



4th EDITION - MARCH 2011

Real Property Master Planning

Technical Manual

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INTRODUCTION

1.1 Purpose

This Master Planning Technical Manual (MPTM) provides the Real Property Master Planner with comprehensive guidance on preparing the Real Property Master Plan (RPMP). This manual thoroughly details processes and techniques. It also defines the tangible products of the RPMP, which are referred to as "components" for the remainder of this document. The following sections of the MPTM define the components of the RPMP:

- Section 3, *Vision Plan*
- Section 4, *Long Range Component*
- Section 5, *Installation Design Guide*
- Section 7, *Capital Investment Strategy*
- Section 8, *Real Property Master Plan Digest*

References

- **AR 420-1 Army Facilities Management**
- **ACSIM DAIM-ZA Memorandum SUBJECT: Installations and Sites Policy Memorandum, 2 December, 2005**

The MPTM also serves as a reference manual on Master Planning of Army installations and provides technical guidance in implementing *Army Regulation 420-1: Army Facilities Management*. AR 420-1 documents Army policy on Real Property Master Planning by defining the components of the RPMP and their purpose, but it does not provide instruction on their development. The MPTM does.

Tip:

AR 210-20 has been absorbed into AR 420-1; All updates to AR210-20 can be found in AR420-1, chapters 9 and 10.

This manual provides valuable instruction on how to create RPMP components, and describes what data is needed, where to find it, how to analyze it, how to package it, and how to get it into practice in order to fulfill the vision and spirit of AR 420-1. This manual is also a comprehensive, highly detailed tool with numerous "how to" examples.

The MPTM provides useful instruction for all planners, from the novice to the seasoned professional. For novices, it provides an outline of the entire planning process – addressing how and why to plan and explaining the Master Planner's role. Extensive background information and references are also provided for further research and direction. Seasoned planners can bypass these basics and proceed directly to specific sections. In all cases, installation Master Planners are required to consult their Installation Management Command (IMCOM) Region before undertaking any significant planning effort.

The main part of the MPTM addresses Army Master Planning within the United States and its territories. However, Master Planners must also be aware of specific local regulations and procedures, which vary by state and country. These are discussed in Section 10.12, “Local Issues”.

The garrison commander is responsible for the installation Master Plan. However, the Master Planner is essential to its development. It is the Master Planner who is ultimately responsible for planning process and the production of the RPMP. This effort involves the use of numerous tools, and data systems, along with extensive input from garrison personnel and community representatives. The success or failure of any Master Plan depends on the planner's ability to accurately assess current conditions and clearly express future direction. The planner must also promote or "sell" this plan to the garrison commander, the installation, and all community stakeholders in the process.

The Master Planner faces a tremendous challenge in producing the RPMP. Its process is complex and continuous. Its steps are many. But despite the inherent challenges, the Master Planning process is, without question, a noble effort. It lays the real property foundation that guarantees our military success…today, tomorrow, and in the distant future.

1.2 Organization of the MPTM

This manual describes the Army Master Planning process and how components of the Real Property Master Plan specifically support this process.

The main part of the MPTM addresses the steps required to complete a RPMP. While the Table of Contents is organized primarily by component, it is important to note that these components are not necessarily arranged or produced sequentially. Some components are completed concurrently; others require updates at varying frequencies.

The main part of the MPTM contains nine sections, which specifically address the following:

- Section 1, *Introduction* – the purpose, organization, and use of the MPTM itself
- Section 2, *Real Property Master Planning Process* – An overview of the key steps of the Master Planning process
- Section 3, *Vision Plan* – the process behind the development of the Vision Plan which sets the tone and direction of the remaining components
- Section 4, *Long Range Component* and Section 5, *Installation Design Guide* – the process behind the development of two components: the Long Range Component, and the Installation Design Guide
- Section 6, *Tabulation of Existing and Required Facilities* – the development of the TAB, which is not a component but a significant, integral Master Planning action
- Section 7, *Capital Investment Strategy* and Section 8, *Real Property Master Plan Digest* – the process behind the development of two components: the Capital Investment Strategy and the Real Property Master Planning Digest
- Section 9, *Real Property Planning Board* – the role of the Real Property Planning Board, the governing body that supports and approves all decisions regarding real property

Immediately following the main part of the document, the MPTM goes on to provide substantial detail on the information and processes that support the development of the RPMP and its components. The Table of Contents for this informative part of the MPTM follows:

Section 10, *Master Planning Considerations*

- Section 10.1, "Introduction"
- Section 10.2, "Army Structure"
- Section 10.3, "National Environmental Policy Act (NEPA)"
- Section 10.4, "Sustainability"
- Section 10.5, "Antiterrorism & Critical Infrastructure Protection"
- Section 10.6, "Ranges and Training"
- Section 10.7, "Programming"
- Section 10.8, "Tools and Techniques"
  - Section 10.8.1, "Introduction"
  - Section 10.8.2, "Army-Specific Tools"
  - Section 10.8.3, "Geographic Information Systems (GIS)"
  - Section 10.8.4, "Charrettes"
- Section 10.9, "Maps and Plans"
  - Section 10.9.1, "Introduction"
  - Section 10.9.2, "Maps"
  - Section 10.9.3, "Plans"
- Section 10.10, "Acquisition of Planning Services"
- Section 10.11, "Professional Development"
- Section 10.12, "Local Issues"
  - Section 10.12.1, "Introduction"
  - Section 10.12.2, "Planning within the United States"
  - Section 10.12.3, "Planning outside the United States"
  - Section 10.12.4, "Planning in Europe"
  - Section 10.12.5, "Planning in Japan"
  - Section 10.12.6, "Planning in Korea"

The processes, actions and options contained in the Master Planning Considerations section are either relevant to or required of all Master Planners. Installations vary significantly. The topics most relevant to each planner will depend on the individual planner and installation.

Section Organization

Within each MPTM section, information is organized under the following headings, as relevant:

a. Description – Briefly explains the subject covered within the section and its product(s).

b. Regulation – Quotes paragraph of AR 420-1 that is pertinent to the section.

c. Audience – Lists specifically who uses the product(s).

d. Purpose – Describes the goal of the product(s) and the benefits to users.

e. Tools/Data/Contacts Needed – Lists the mechanisms, information sources, and individuals essential to product(s) development.

f. Key Steps to Creating the Products – Provides a detailed breakdown of the process.

g. Leveraging Technology – Provides helpful hints on technologies that facilitate the process.

h. Products – Lists the tangible results of completed efforts.

i. Examples – Provides real world input on how product(s) should look.

j. Lessons Learned – Provides practical guidance from seasoned Master Planners.

k. References – Provides a list of required or useful sources of information.

Definitions

The terms garrison, installation, site and base are used frequently during Master Planning and are defined as follows:

- The "garrison" is the organizational entity that has BASOPS command and control of installations and their sites.
- "Installation" is a geographical and ISR entity containing one or more Army sites, which are grouped together for planning purposes.
- "Site" is the term that describes a discrete land area made up of one or more contiguous or near- contiguous parcels of land. This was formerly known as an "installation" in IFS and a "station" in the ASIP.
- The term "base" is no longer used when referring to an installation. The term has been redefined as an "installation."

The MPTM was written in accordance with the following structure: A garrison has two or more ISR supporting installations and subordinate sites. For the purposes of creating a generic yet universally applicable document, the MPTM uses "installation" as a catch-all term when referring to installations and sites.

1.3 Utilization of the MPTM

The MPTM is available in multiple formats. Updated versions are available for download at Engineering Knowledge Online [https:/ / eko.usace.army.mil/ public/ fa/ arpmp/] (EKO), which also provides a link to the MPTM website.

Conduct searches to find information. Do this by using the Search Tool.

The MPTM will be updated periodically to reflect changes that occur in the field of Army Real Property Master Planning. This version represents changes as of December 2010. The MPTM audience is encouraged to support this effort by submitting comments through the electronic mail address provided on the MPTM website. Comments may recommend changes, provide updates or reveal inconsistencies with the intent of maintaining the accuracy, currency, and ultimate usefulness of the document.

2

REAL PROPERTY MASTER PLANNING PROCESS

2.1 Real Property Master Planning Process

This section introduces the Master Planner to the Master Planning process. It provides a description of the profession of planning and how planning is integrated into the Army. The section then defines the Master Planning process and the five documents that comprise the Real Property Master Plan.

Description

The Profession of Planning

Planning is a process of preparing in advance, and in a reasonably systematic fashion, recommendations for programs and courses of action to attain the common objectives of the community. – Anthony Catanese, author of *Urban Planning* (McGraw-Hill College, September 1988).

According to the American Planning Association (APA), the goal of planning is *"to further the welfare of people and their communities by creating convenient, equitable, efficient, and attractive environments for present and future generations."*

Planning is an orderly, creative and holistic process designed to manage change occurring in a place over time. In an impartial and rational way, professional planners use the planning process to address a single subject or a broad range of issues that affect their community. These may include capital improvements, housing, land use, transportation, etc. It is the planner's unique responsibility to understand how all of the dimensions and dynamics that comprise their community interrelate and to organize a process of planning that is comprehensive and constructive. This planning approach produces documents called comprehensive plans, general plans, or master plans.

The role of the planner is to advance a community toward its long-term goals. To achieve this, planners:

- Formulate plans and policies to meet the social, economic, and physical needs of communities and develop strategies to implement these plans.
- Develop plans for land use patterns, housing needs, parks and recreation opportunities, highways and transportation systems, economic development, and other aspects of the future.
- Function as mediators among conflicting community interests. They may also become facilitators, using their professional judgment to identify the best resolutions to the issues creating conflicts.
- Work with the public to develop a vision of the future and to build on that vision.

Stakeholders

- **HQ IMCOM**
- **IMCOM Region**
- **Army Staff**
- **USACE**
- **Major Commands**
- **Reserve Components**
- **Garrison Commander**
- **Mission Commanders**
- **Directorate of Public Works**
- **Plans, Analysis and Integration Office (PAIO)**
- **Real Property Planning Board (RPPB)**
- **Garrison Staff**
- **Tenants**
- **External Users**

- Analyze problems, visualize futures, compare alternatives, and describe implications, so that public officials and citizens can make more knowledgeable choices.
- Design and manage the planning process itself, in order to involve interested groups, citizens, and public officials in stimulating and thought-provoking ways.

Planning in the Army

The role of the Army Master Planner is similar to the civilian planner. Typical of every planning exercise, the Army presents its own unique challenges. The Army master planner acts as both the regulator, as in typical city planning, and the developer/programmer. While programming is the implementation phase of master planning, at Army installations, planning and programming are located within the same division.

The product of effective Master Planning is the systematic and orderly development of Army installations. In the Army's case, the "community" includes not only the cantonment area, but also the ranges and training areas that are central to the Army's mission. Army Master Planners are tasked with integrating civilian and military interests to produce a Master Plan that is unified and comprehensive.

Army installations are really modeled like cities and towns, as places with functioning economies where citizens live, work and play. The well-planned community creates an environment for success. The RPMP is modeled after a traditional city-planning document. It holistically describes how the installation should develop over time to maximize its military capabilities and the quality of life of its residents.

The Army G-3 considers planning a core function. The number one challenge to the Army Master Planner is to ensure the installation's long-term military viability, while meeting short-term mission requirements (stationing, new weapon fielding and training) within the context of the RPMP development strategy and current operational needs. The RPMP documents the installation's comprehensive planning process. It outlines long-term strategies for growth and simultaneously addresses regional, area-wide, installation-wide, and site-specific planning considerations.

Tools / Data Needed / Contacts Needed

A significant aspect of Master Planning involves coordination and communication with individuals and agencies throughout the installation. These contacts provide access to the appropriate information. Contacts needed for Master Planning are specific to each output. They include the following Garrison Staff:

- **Director of Public Works (DPW)**
- **Plans Analysis & Integration Office (PAIO)**
- **Director of Plans, Training, Mobilization and Security (DPTMS)**
- **Director of Morale, Welfare, and Recreation (MWR)**
- **Director of Community Activities (DPCA)**
- **Network Enterprise Center (NEC)**
- **Director of Logistics (DOL)**
- **Force Protection Officer/Provost Marshal**
- **Environmental Division**
- **Real Property Accountable Officer (RPAO)**

The RPMP is an integrated document made up of five succinct components:

- The Vision Plan - guides the entire scope of the master plan. It determines the Real Property Vision, Goals and Objectives of the installation and is a critical to directing the remaining components.
- The Long Range Component (LRC) – contains focused, detailed plans that guide the long-range use of land and facilities on the installation. It is a broad-based area analysis of the entire installation projected over a period of 20 to 50 years. It is where: all baseline information is collected, installation capacity is assessed, and the future direction of installation development is determined. It provides the framework for decisions made in this and all other components.
- The Installation Design Guide (IDG) – prescribes the design, look and feel of the installation. It is based on general Army-wide standards for form and layout, as well as the unique, installation-specific design principles reflecting the character of a site, its buildings, streets and landscape.
- The Capital Investment Strategy (CIS) – focuses on strategies to integrate current demands with long-term facility needs, based on assessments of excesses and deficits. It provides a list of real property actions, both short and long-term, that articulate how all facility needs will be addressed (conversion, demolition, new construction, renovation) as supported by a balanced TAB or any other installation requirement.
- The RPMP Digest (RPMPD) – encapsulates the essence of the RPMP. As the over-arching component of the RPMP it describes the thrust of the components' strategies and plans; and provides a user-friendly snapshot of the Real Property Master Plan. It is completed concurrently with the other components and should be updated as the RPMP is updated.

Products

The product of effective Master Planning is the systematic and orderly development of Army installations.

- **RPMP Vision, Goals & Objectives**
- **Existing Conditions Assessment/Maps**
- **Opportunities & Constraints Maps**
- **Framework Plan**
- **Requirements/TAB**
- **Future Development Plans**
- **Transportation Plan**
- **Utilities Plan**
- **Area Development Plans**
- **Illustrative Plans**
- **Regulating Plans**
- **Installation Development Plan**
- **Building Envelope Standards**
- **Street Standards**
- **Landscape Standards**

Planning versus Programming

Programming facilitates the transition from planning to design and construction. It is the process of documentation and coordination that matches resources to requirements and is considered the first step toward project implementation. It ends with the appropriation of resources, whether through Congressional appropriation or other sources.

The RPMP results in a distinct set of programming actions that are needed to meet the Real Property Vision, Goals and Objectives and all other RPMP criteria. From planning data, Army planners and programmers are able to obtain the information needed to integrate programming and planning. The Capital Investment Strategy (CIS) serves as the vehicle for this integration in that it requires a DD Form 1391 for all listed MILCON projects planned over the next five to seven years. See Section 10.7, “Programming” for further detail on Programming and "next steps" in the process.

Leveraging Technology

- **RPMP components will be prepared using multimedia, web-enabled technology**
- **GIS or GIS-R: Section 10.8.3, “Geographic Information Systems (GIS)”**

Purpose

The Army's mission is to fight and win our Nation's wars by providing prompt, sustained land dominance across the full range of military operations and spectrum of conflict in support of combatant commanders. The Army does this by:

- Executing Title 10 and Title 32 United States Code directives, to include organizing, equipping, and training forces for the conduct of prompt and sustained combat operations on land.
- Accomplishing missions assigned by the President, Secretary of Defense and combatant commanders.
- Transforming for the future.

To accomplish this mission, the Army must:

1. Structure the Force
2. Position the Force
3. Facilitate the Force
4. Serve the Force

1) Structuring the Force and 2) Positioning the Force involve determinations of how and where troops should be located to best support the Army's mission. These decisions, made by the Army G-3 prior to the initiation of Master Planning, provide the basis for the Master Planner's role.

This manual focuses on the planning processes that 3) Facilitate the Force: Manage and provide the installation with the buildings, structures, land, and utilities necessary to support the troops and their missions; and 4) Serve the Force: Ensure that real property priorities support every aspect of the troops and their mission.

A well-prepared RPMP:

- Allows the Army and the installation to focus its limited resources on improvements that support readiness, sustainability, and quality of life.
- Helps the commander compete for funds by identifying the most competitive projects.
- Supports the installation's strategic goals through Real Property Vision, goals and objectives.
- Provides the strategy for operating under changing paradigms that include: antiterrorism and critical infrastructure protection, reduced manpower and resources, base realignment and closures, and the shifting of appropriate base operations and functions from the government to the private sector.

References

- **AR 420-1 Army Facilities Management**
- **The Army web site on Real Property Master Planning [https:/ / eko.usace.army.mil/ public/ fa/ arpmp/]**
- **Urban Planning, McGraw-Hill College, September 1988**
- **American Planning Association [http:/ / www.planning.org]**

- Balances development against the need to conserve and protect the environment.
- Aims to achieve a pattern of land use and development that is optimal and sustainable.
- Informs design and construction agents regarding the type of development the installation wants - and does not want - and encourages development in the most suitable areas.

AR 420-1 outlines the purposes of Real Property Master Planning. Although different purposes may be emphasized at different times within various RPMP components, collectively, they direct the Master Planning process.

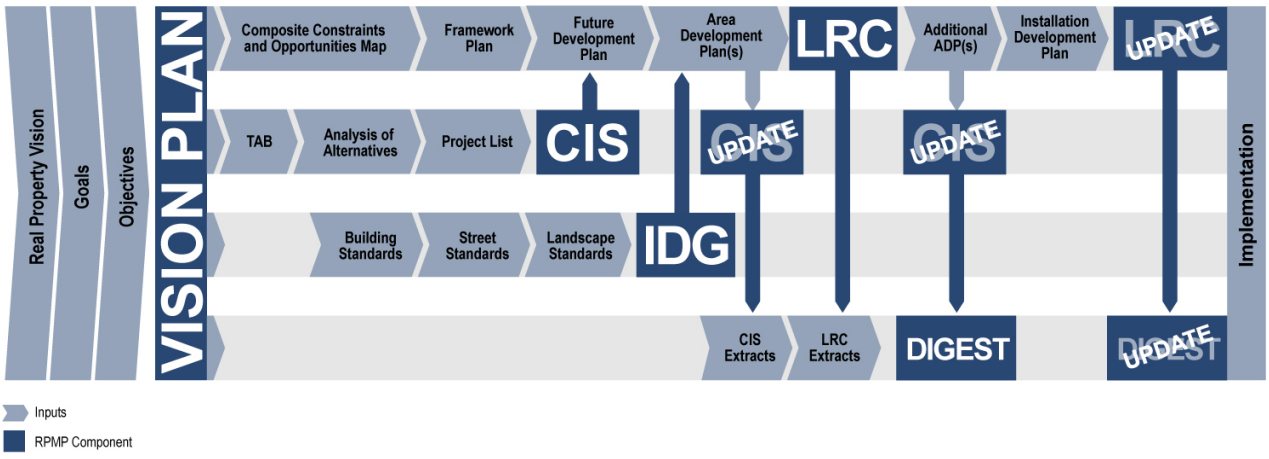
Real Property Master Planning is a continuous process. The components of the RPMP document the process at various points and intervals. It is important to seek input from proponents and stakeholders during the development of these products. However, it is the Real Property Planning Board that finalizes all recommendations contained in the Master Plan.

Tip:

Always seek input from proponents and stakeholders while developing the RPMP.

Figure 2.1, "RPMP Process Chart" graphically displays the sequence of the Master Planning process in its entirety. It provides a clear picture of the overall process and how its pieces interrelate. Use the diagram as a helpful guide to determine expectations at any point in the process.

Figure 2.1 RPMP Process Chart



Maintenance

The planning process is cyclic, dynamic, and ongoing. The Army requires that the RPMP be updated (certain components more frequently than others) to accommodate the continuous change that is part of Army life. Normally, the installation is not in a situation where the Real Property Vision and Goals require adjustment, as these govern long-term installation capabilities. Related long-term planning principles for environmental stewardship - and installation design normally do not change either. Where change does occur is in the short-range planning horizon where missions are adjusted, removed, or added; new weapons systems fielded; or new training doctrine implemented.

RPMP components are maintained at varying frequencies. Typically, updates are required when: changes occur in garrison/tenant unit missions or mission strength; operation safety requirements change; directed by IMCOM; or recommended by the Real Property Planning Board.

Lessons Learned

- Brief the new Senior Commander early so that they understand that a Real Property Master Plan is in place; Suggest that the above be done as early as possible (no later than 90 days), in the initial command briefing or site tour.
- Find out who the key players are (i.e. directors and GC) in the garrison and get to know them personally.
- Show courage and stand up for what is right.
- Be flexible and adaptable.
- Remember that the Master Plan is a living document; maintain it, or it will become obsolete.
- Exercise a high level of control in the planning process, even if receiving contractual support during plan development.
- The best approach is personal.

3

VISION PLAN

U.S.ARMY

MASTER PLANNING TECHNICAL MANUAL

3.1 Vision Plan

Description

Any successful Real Property Master Plan (RPMP) begins with a vision for the installation. A vision represents the look, feel, and function of an installation 20 years (the minimum RPMP requirement) to 50 years into its future. It also serves as a guide for all planning and programming needs.

The Vision Plan is the formal expression of the installation's Real Property Vision and future goals. It briefly and succinctly depicts in words and images what the installation ideally seeks to become. It is also the starting point for the development and implementation of a Master Plan.

The United States acquires installations for the purpose of providing a national defense. The Department of Defense then assigns missions to these installations, based on their unique military capabilities.

The real challenge in creating an installation RPMP is to preserve long-term capabilities while ensuring flexibility and effectiveness in support of rapidly changing missions.

This Real Property Vision should be consistent with the Installation Vision, a product of the Installation Strategic Plan, but the Real Property Vision is more narrowly focused on facilities. The Real Property Vision and its subsequent goals and objectives, focus on changes or improvements to facilities and real property at all scales. The Real Property Vision supports the broader Installation Vision.

The Real Property Vision directs the Real Property Master Plan and has a broader horizon than current missions. Missions change with time. Units come and go. Activities and new advances in technology develop. The Real Property Vision looks beyond all of this – to what is important for the installation after the current missions, activities, and technology are replaced. It represents the ideal long-term future of the real property, layout and design for all those who live, work and train on the installation.

Figure 3.1 depicts the key elements of the Vision Plan.

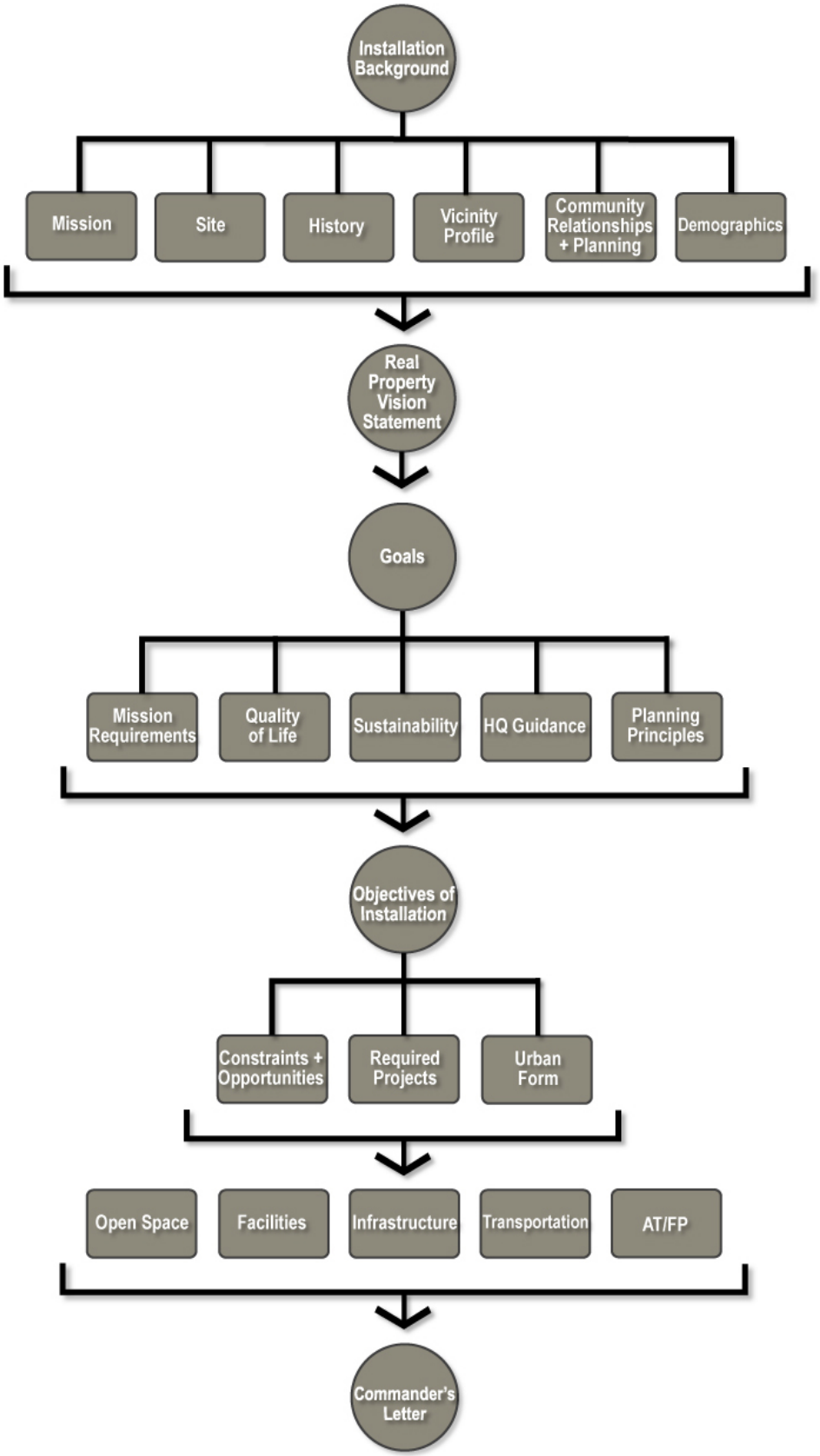
Stakeholders

- Army G3
- Assistant Chief of Staff for Army Installation Management (ACSIM)
- IMCOM Region
- USACE
- Garrison Commander
- Real Property Planning Board (RPPB)
- Director of Public Works (DPW)
- Plans, Analysis and Integration Office (PAIO)
- Director of Plans, Training, Mobilization and Security (DPTMS)
- Director of Morale, Welfare and Recreation (MWR)
- Network Enterprise Center (NEC)
- Staff Judge Advocate General (JAG)
- Real Property Accountable Officer (RPAO)
- Other Garrison staff, as appropriate
- External Interests
- General Public

Tools / Data Needed

- Army Campaign Plan
- Army Strategy for the Environment
- Latest RPMP
- Latest Installation Strategic Plan (ISP)
- IMCOM-recommended facilitator

Figure 3.1 RPMP Process:Vision Plan



The Vision Plan should include the following elements, in the sequence below:

- Commander's Letter of Endorsement
- Main vision statements
- List of goals and objectives
- Installation profile

Purpose

The Vision PLan:

- Guides the development of the installation's physical form, and clearly states its policies on: land use and community design, transportation, housing, the natural environment, business and community services, and resident and transient property users
- Creates a clear road map for the future amidst certain change
- Preserves capabilities to support future Department of Defense needs
- Reflects Army tenets to maintain readiness, provide power projection, maintain quality of life, and operate efficiently and in a sustainable way

In undertaking a visioning process, the installation will:

- Better understand local strengths, weaknesses, and core community values
- Identify outside forces, trends, and issues shaping its future
- Articulate a preferred vision to guide future directions
- Develop the strategic tools to achieve its vision

Tip

The Garrison Commander must be involved and supportive of an identifiable and prescriptive Real Property Vision.

Contacts Needed

- **Plans, Analysis and Integration Office (PAIO)**
- **Real Property Planning Board (RPPB)**
- **Garrison Commander**
- **All of the Audience (in varying degrees)**
- **All other stakeholders in the installation's future plans**

Products

- **Real Property Vision Statement**
- **Goals and Objectives**
- **Installation Profile**
- **Commander's Letter of Endorsement**

Key Steps to Creating a Vision Plan

Part I: Describe the installation.

This section profiles the installation. It contains a brief outline of the location of the installation within its surrounding region, aspects of the installation's history, existing population and assets, a description of the surrounding communities and other macro-planning factors that are deemed pertinent.

A current Long Range Component is an excellent a source for much of the information described below. The PAO is also a good source for community data and statistics. If data is outdated and requires verification (often the case), see Section 4.2, "Composite Constraints and Opportunities Map", which details data collection and sources. Minimize detail and include only that information which is highly pertinent. This section typically includes:

- Location
- Physical Description
- Installation History
- Installation Population
- Community Relationships & Planning

STEP 1: Describe the Missions of the installation.

- Include an inventory of all current and known future assigned installation missions. Include the installation mission statement, which is part of its Strategic Plan and available from the garrison command group or the Director of Plans, Training, Mobilization, and Security (DPTMS).

STEP 2: Describe the Real Property Vision, Goals, and Objectives

Clearly state the Real Property Vision of the installation's Real Property Master Plan if there is an established Vision. Briefly explain how the Real Property Vision was established through a collaborative planning process of installation stakeholders. Include the Goals and Objectives that support the installation's Real Property Vision and that provide a direction for development and facility improvements. Be sure these are realistic and doable. If no Real Property Vision exists, develop one as shown in Part II.

Tip:

The Real Property Vision and Goals are typically enduring and far-reaching; the installation may need to revisit objectives more frequently.

References

- A Pattern Language: Towns, Buildings, Construction
- IMA Strategic Planning Model and Process Playbook
- Commanders Guide: Army Installation Standards [http:/ / www.hqda.army.mil/ acsimweb/ homepage.shtml]
- Army Performance Improvement Criteria [http:/ / www.hqda.army.mil/ leadingchange/ APIC]

STEP 3: Location

Describe the installation within the context of its country and regional community, both Army and civilian. If helpful, consider providing hyperlinks to maps that show its size, boundaries, and location in geographical, geological, cadastral, geopolitical, and sociological terms. Also, if transportation centers, population concentrations, or other regional elements impact the installation, address these in a subparagraph.

STEP 4: Installation History

In this section, provide a brief background of the installation's:

- Inception date
- Original purpose
- Previous missions
- Geographical, environmental, and other constraints
- Political relationship to surrounding community

Provide just enough information to accurately characterize the relationship between the installation and its surrounding community.

Do not provide exhaustive historical documentation or research that is obtainable elsewhere. Instead, provide concise information that clearly identifies:

- Trends affecting the installation over time
- Reasons why the installation evolved and developed
- Its position in the current geopolitical environment

Refer to existing planning documents and historical records to better understand the planning principles guiding installation development in the past. Utilize any photographs, maps, or figures that portray key aspects of the installation.

When preparing this section, write in a style that clearly communicates a continuity of installation vision and direction – from its beginning to date, and into its future.

STEP 5: Physical Description

Briefly discuss the layout of the installation. Include total acreages, major roadways, and access points. Touch upon recent trends in real property and any recent construction, renovation or demolition. Keep in mind that this section is limited to an overview.

STEP 6: Demographics

Obtain the Installation's most recent Army Stationing and Installation Plan (ASIP). Describe and enumerate the installation's current population in terms of:

- Active duty personnel
- Family members
- Civilian employees
- Retirees receiving services at the installation
- All other groups with regular access

It is also important to provide separate totals for residents and those commuting to and from the installation.

Population can be further broken down by:

- Assigned personnel by unit
- Permanent party personnel
- Transients
- Students
- Trainees
- Contract employees
- Others working on/near base

Tables are always useful tools for profiling an installation's population.

STEP 7: Community Relationships & Planning

Describe the relationship between the installation and surrounding community. Include:

- Local municipalities
- County or parish governments
- County subdivisions, if any, affecting the installation
- Regional congressional districts
- Other political entities impacting the installation

Also describe the installation's relationships to communities where active duty personnel, civilian employees, and/or retirees live and commute.

Part II: Conduct a Visioning Charrette

Across the country, cities and states have developed many useful visioning models. Some were implemented by the military and proven to be successful. These models tend to vary, especially with regard to:

- How installation participation occurs in the visioning process
- How and when data is used in the workshops
- How long the process is conducted

Within a reasonable period of time, most models attempt to develop a broad-based vision of the installation/community, along with workable action plans.

The process below outlines one possible visioning approach. (Additional visioning approaches are provided at the end of this section.)

Tip

Useful Visioning methodologies also include Strengths, Weaknesses, Opportunities and Threats Analysis (SWOT), Crawford Slip Method, Blights and Rights and Image Preference Survey.

STEP 8: Assemble the team.

Visioning workshops must involve, to the greatest extent possible, all installation stakeholders, so that the vision accurately represents the entire installation - not just a segment of it.

- Establish and circulate a meeting/workshop schedule.
- Solicit participation of all groups and individuals far in advance in order to maximize attendance (see Audience).
- Select a facilitator approved by the IMCOM Region. Consultants who specialize in community visioning for Master Plan development are available for hire throughout the country. Their fees vary, depending on type of visioning process utilized, time involved, amount of public participation, size of the installation, etc.

To better establish an ongoing dialogue with all stakeholders, organize workshop participants around installation core business processes into three groups: core teams, stakeholders and support players.

- **Core Teams** do the work. They ultimately have the responsibility of implementing the plan with respect to their team. Members include representatives from the DPW, business process, environmental, support organizations (e.g. DRMO, COE), and pertinent community organizations.
- **Stakeholders** provide ideas and consensus. Members include everyone who is impacted by installation operations - employees, soldiers, families, community members, regulators, HQ, federal agencies, interest groups, tenants, other military units, utility/RCI/ operating contractors.

- **Support players** provide a sanity check and a broader viewpoint; they support facilitation and logistics. Members include HQ staffs (regions/IMCOM, DA), external consultants, service providers, and Army support organizations (such as CERL, CHPPM, AEC, AEPI, TACOM/Acquisition community, and technical experts from industry).

STEP 9: Assess Current State

Brainstorm ideas and capture them on flip charts or by other means. If necessary, break into small groups to discuss and record ideas more fully. Present small group discussions to the larger group and gather similar ideas. Identify core teams and team proponents to focus on the specific activities:

Ask each group to describe the current strengths (pluses) and weaknesses (minuses) in one of the following four categories:

- Work Facilities including: Space, Condition, Expansion, Location, Suitability for use
- Home/family life including: ,Family housing, Shopping, Schools, Recreation, Support (day care, counseling), Deployment issues
- General infrastructure including: Roads and access, Utilities, Traffic and Parking, Connectivity, Others
- Outdoors including: Environmental/open space, Urban design, Landscaping, Architectural character, Overall visual image, Training areas

STEP 10: Describe elements of a desired future state

Conduct a tour of the installation and discuss planning principles that were or were not implemented at various points throughout the installation's development history.

Identify and discuss:

- Challenges to the installation
- Important considerations and key impacts to mission, wellbeing, and the environment
- Current planning practices and plans at the installation

Summarize the conclusions reached

Tip
Be sure to consider military operational requirements, environmental stewardship, critical infrastructure protection, sustainability, and IDG compliance when crafting Real Property Vision, Goals and Objectives.

STEP 11: Develop Real Property Vision and Goals

Transform installation challenges and key impact issues into 20 to 50 year goals.

- Discuss planning principles and determine those that are favorable to the installation.
- Develop scenarios for alternative futures.
- Produce a pictorial/graphic representation of those alternative futures.
- Create the first draft of the vision statement. It is not the quantity of vision statements that counts, but the clarity and the underlying purpose that will determine how the vision statement can be applied as themes throughout the Master Plan. Time spent at this juncture will go a long way in making the Master Plan more effective.
- Define succinct goals to achieve that vision. A goal is a desired end-state; it is not necessarily quantifiable, and perhaps not totally attainable. Goals are the guidelines that direct the installation towards achieving its vision.

STEP 12: Prepare objectives and targets

Develop short-term (5-year) objectives and targets for each long-term goal.

- An objective is a specific achievable task. These support installation goals and are usually quantifiable. Objectives should be as specific as possible and include: actions to be taken, assignment of responsibilities, timelines, opportunities, and constraints, among other things.
- Targets apply measures to objectives. These criteria evaluate the performance of the installation in accomplishing its objectives over time.
- Direct garrison command and staff to review the vision and goals and make a final selection. From these, direct the teams to prepare final vision goals.

Tip

Creating a vision statement requires time and work to achieve a broad consensus. For greater outreach, consider an installation survey, newsletters, or coverage in newspaper articles.

STEP 13: Adhere to Real Property Vision, Goals

Within the Master Plan, it is extremely important to clearly articulate the desires of the community. Tips for incorporating Vision, Goals and Objectives into a Master Plan include:

- The Real Property Vision, Goals and Objectives provide the basis and direction for long-term planning, and are an important starting point for the LRC and ADPs.
- Ensure there is consistency in all sections of the Master Plan, especially as Area Development Plans are developed
- Use objectives as the starting point for the strategies defined in the Capital Investment Strategy.

Part III Assemble Vision Plan

Adhere to the example - Vicenza Vision Plan - contained in Appendix B.

STEP 14: Develop the cover, directory, and introductory information.

Cover/Main Fly Page:

The cover presents the following information:

- The component title: "REAL PROPERTY MASTER PLAN VISION PLAN"
- Type of submission (draft, pre-final, final, etc.)
- Name of installation
- IMCOM Region
- RPMP contracting entity (Corps of Engineers, GSA, regional contracting office) and the contractor that prepared it. If the Vision Plan was not created under contract, name the office that prepared it.
- Date Vision Plan was approved or date of current draft
- One or more graphics/photos that represent(s) the installation

Develop the cover as a web element. Include a rich graphic presentation of the installation, region, mission, or other important components.

Directory (Table of Contents):

This lists the contents of the Vision Plan.

Develop the directory as a web navigation device. Use hyperlinks to provide users easy access to sections. Consider using other graphical navigation tools, such as hyperlinked maps and flow charts.

Introductory information:

This provides background, including:

- Purpose of the Vision Plan within the context of the installation's Real Property Master Plan

STEP 15: Craft the garrison commander's letter.

First, prepare a draft of the letter. Its overall tone should support the planning process. Identify all primary planning principles and key points of the Real Property Master Plan. State that this plan sets the direction for installation development over the next five to 25 to 50 years, and that the installation will adhere to the plan. Include the approval of the senior commander. Submit this draft to the commander for approval and signature.

It is the prerogative of the garrison commander to make changes to any portion of the Vision Plan prior to final approval of the letter.

STEP 16: Summarize the Visioning Process

Include a brief summary report of the visioning process as an appendix. Include invitees and attendance, duration, and agendas for each workshop. (See example - Visioning Process Report - contained in Appendix B)

Maintenance

The well-developed RPMP Vision and goals changes very little over time. Objectives (within each goal) are designed to be attainable and are likely to require more frequent updates or additions. However, periodic reviews are advisable. Perform a new visioning exercise whenever the RPMP is updated.

Examples

Examples 3.1 - 3.3 are contained in Appendix B.

Example 3.1 Vicenza Vision Plan

Appendix B, *Examples: Vision Plan*

Example 3.2 Fort Belvoir Vision

Appendix B, *Examples: Vision Plan*

Example 3.3 Visioning Process Report

Appendix B, *Examples: Vision Plan*

Example 3.4 Alternate Visioning Approach - Oregon Model

The following is excerpted and adapted from "A Guide to Community Visioning: Hands-on Information for Local Communities" – a handbook written by Steven Ames and published by the American Planning Association.

If an installation desires to undertake a more extensive visioning process, this Oregon Model is the most commonly used.

Visioning is the process by which the community comprising the installation decides the future it wants and then plans how to achieve it. This process generally answers five fundamental questions (derived from the five steps of the Oregon Model):

STEP 1: Profiling the Installation

The first step in an extensive visioning process is to profile the present installation. This involves identifying and describing key characteristics of the installation, including:

- Geography
- Natural resources
- History of the installation
- Why it was originally established
- Current Population
- Current tenants on the installation
- Political and community institutions affecting the installation
- Housing
- Transportation within and around the installation
- Educational resources
- Cultural and recreational resources

An assessment of the installation's strengths, weaknesses, opportunities, and threats (SWOT) may be initiated at this point. However, thorough SWOT development will occur when installation stakeholders participate in the visioning process. The installation profile may also include a drafted Values Statement of community core beliefs, shared by the garrison staff, its tenants, and stakeholders. By basing the preferred scenario on concrete facts and trends identified through the visioning process, installation stakeholders create a vision that is both realistic and achievable.

Driving question: "Where are we now?

Activities: Conduct research, along with data collection, compilation, and analysis. If a Values Statement is also included, it may be necessary to survey the garrison staff, installation tenants, and stakeholders. This can be accomplished through a questionnaire or stakeholder meetings.

Products: Installation profile; SWOT – strengths, weaknesses, opportunities, threats assessment; Values Statement.

STEP 2: Analyzing the Trends The second step is to determine the direction of the installation if current trends continue. This involves an analysis of impacts upon the installation. How the installation relates to the Installation Strategic Plan and its assigned missions must be analyzed. Its SWOT assessment may be refined and revised during this step. A "probable scenario" describing the future installation (perhaps 20 years out) on its current course could be developed.

Driving question: "Where are we going?"

Activities: Determine current and projected trends; assess their future impact; create probable scenarios through a taskforce, work groups, community meetings, brainstorming sessions, or other means. A charrette might be appropriate for conducting this step.

Products: Trend statement, probable scenario, and possible alternative scenarios.

STEP 3: Creating the Vision This step involves the actual creation of a future vision – what the installation seeks to become. Based on identified community values, a "preferred scenario" is developed for the installation. Developing this vision involves imagination and creativity, but it is always firmly grounded in reality.

Driving question: "Where do we want to be?"

Activities: Create a preferred scenario and final vision statement through task forces, work groups, community meetings, brainstorming sessions, charrettes, or other means.

Products: Preferred scenario, vision statement.

STEP 4: Developing an Action Plan Once the vision is created, develop goals and objectives to achieve that vision. Goals are guidelines along which the installation directs its efforts to achieve its vision. Objectives are specific achievable tasks that support the installation goals. The objectives should be as specific as possible, including: actions to be taken, assignment of responsibilities, timelines, costs, opportunities, constraints, and more.

Driving question: "How do we get there?"

Activities: Identify goals and objectives, implementation agendas, and priorities through a task force, work groups, stakeholder meetings, charrettes, Real Property Planning Board meetings, or other means.

Example 3.5 Fort Lewis Real Property Vision and Design Principles

Lessons Learned

- Visioning means consensus building.
- Strong leadership is required.
- Involve junior enlisted soldiers: they will take the visioning/ planning experience with them to their next installation.
- The Garrison Commander must be involved and supportive of an identifiable and prescriptive Real Property Vision.
- Build a team; inclusivity generates trust and commitment to the plan.
- Target and engage visionaries.
- Involve retirees and all ranks.
- Dreams are not resource constrained; planning concepts are realistically achievable dreams.

- Don't let up - persistence is key. Continue to remove obstacles and barriers to make change stick.
- Exposure is important; use charrettes, web sites, and the help of the Garrison Commander.

4

LONG RANGE COMPONENT

4.1 Long Range Component Introduction

The Long Range Component (LRC) is one of the five components of the Real Property Master Plan (RPMP). (See Figure 4.1, "RPMP Process: Long Range Component".) The LRC serves as the information baseline and roadmap for all the other RPMP components. Producing the LRC is a four-part process. Part I, the Composite Constraints and Opportunities Map, involves extensive documentation of what is currently "on the ground." Parts II and III, Framework and Future Development Planning, represent installation-wide "planning". Part IV, Area Development Planning, is the in-depth analysis that produces more detailed long-term plans. Area Development Plans are summarized in Part VI, Installaltion Development Plan.

Section 4.2, "Composite Constraints and Opportunities Map" is comprised of:

- Section 4.2.2, "Collection of Baseline Information" – describes how to collect and display installation data on real property, facilities, environmental resources, land use, utilities, transportation/roads, airfields, and ranges and training lands.
- Section 4.2.3, "Summary of Constraints and Opportunities" – assesses opportunities and constraints affecting future development.

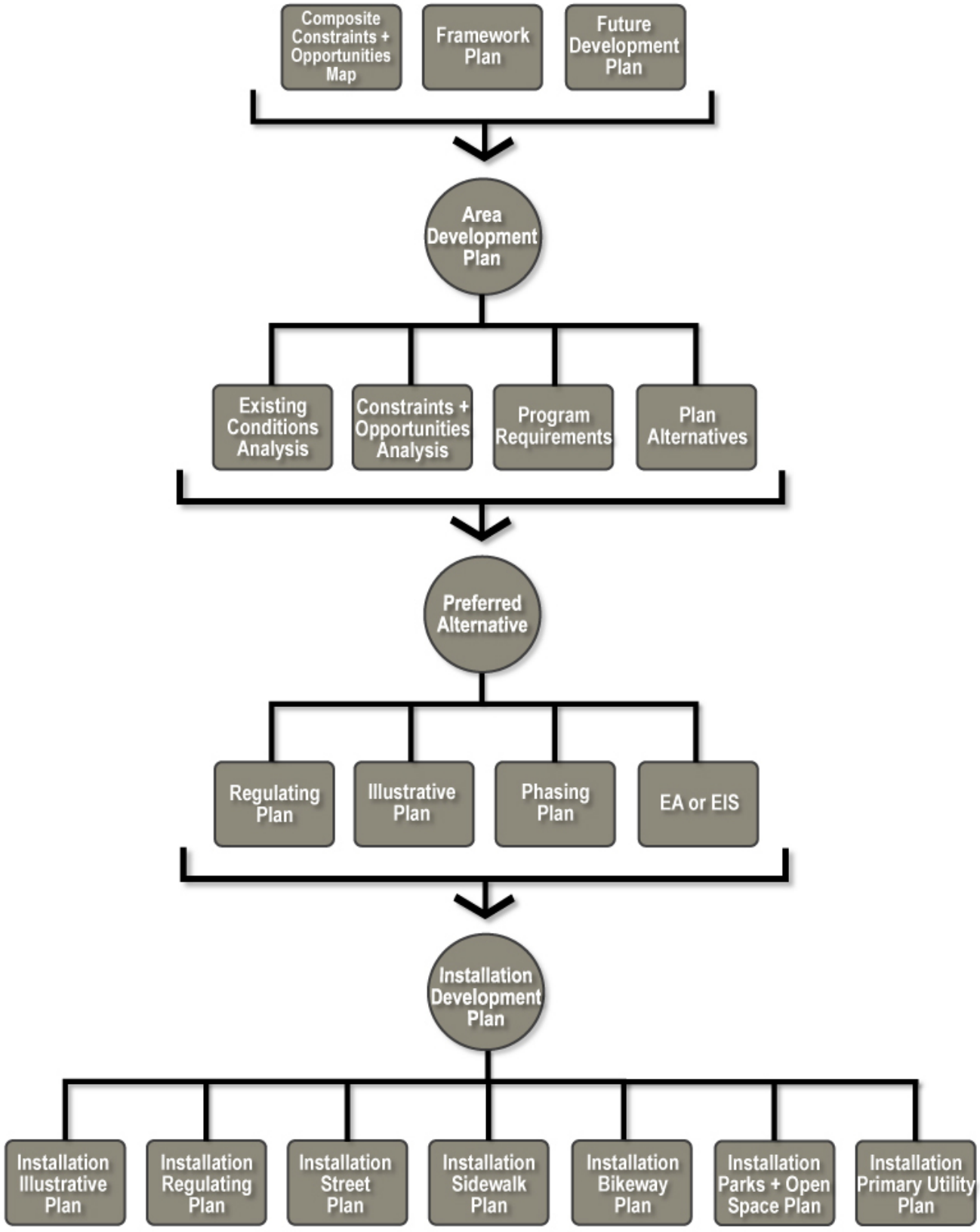
Section 4.3, "Framework Plan" describes how to analyze functional and spatial land use relationships, both on and off the installation, and concludes with completion of the Framework Plan.

Section 4.4, "Future Development Plan" presents the process supporting the Future Development Plan, a combination of short and long term projects, planned and programmed, that appear in the FYDP and that represent installation requirements. This should include, at a minimum, any actions that are included in the installation's Capital Investment Strategy.

Section 4.5, "Area Development Plans" describes the process of developing a detailed design and layout of specific areas on the installation within the context of the Framework Plans.

Section 4.6, "Installation Development Plan" contains a summary of the installation's Area Development Plans, as completed over time.

Figure 4.1 RPMP Process: Long Range Component



Description

The Long Range Component (LRC) analyzes the installation mission. It describes the installation's existing physical, social, and built environments, and determines plans for future development in accordance with the Real Property Vision, Goals and Objectives. Statements of work on LRC development can be found in the IMCOM SOW Repository (on Engineering Knowledge Online [https:/ / eko.usace.army.mil/ public/ fa/ arpmp/ SOW]).

Purpose

The Long Range Component:

- Establishes and maintains the information that supports the environmental baseline and facilities analysis.
- Serves as the roadmap to the holistic planning process used to formulate intended installation development.

Maintenance

The LRC is maintained as directed by IMCOM.

4.2 Composite Constraints and Opportunities Map

4.2.1 Composite Constraints and Opportunities Map Introduction

Description

The Composite Constraints and Opportunities Map is an assessment of existing baseline information that allows the Master Planner to determine which areas on the installation are most appropriate for future development. It is comprised of two parts:

- Section 4.2.2, "Collection of Baseline Information" contains baseline information covering environmental components, including natural and cultural resources, and operational components both on and off-site.
- Section 4.2.3, "Summary of Constraints and Opportunities" analyzes this baseline information.

GIS is an instrumental tool in this process. It provides the capability to visualize known constraints, spatially reference information, and reveal opportunities through analysis of multiple data layers.

Stakeholders

- **Garrison Commander**
- **Garrison Staff**

Purpose

The Composite Constraints and Opportunities Maps are used to:

- Report the current state of environmental features and operational/ mission activities (both on- and off-site).
- Provide a foundation for long-range planning.
- Identify natural and man-made constraints that will affect future installation development (both on- and off-site).
- Identify and prioritize areas on the installation where:
  - Development would be ideal.
  - Development would be restricted.
  - Development would be prohibited.

4.2.2 Collection of Baseline Information

4.2.2.1 Introduction

Baseline information comes from a variety of sources, in a variety of formats. The optimal and most common format is GIS and/or CADD. This information can usually be obtained at the installation level and also through the Army Installation Geospatial Information and Services (IGI&S) program.

Gaps in information are to be expected. When confronted with a gap, consider how crucial the missing information is, how much cost/personnel is needed to gather the information, and how long the effort would take. Then conduct studies/surveys to fill in the data whenever it is reasonable to do so. Overall, baseline information includes:

- Basic Information/Facilities
- Environmental Resources
- Existing Land Use
- Utilities
- Transportation
- Airfields
- Range and Training Lands

Compilation of this data produces a baseline assessment, which is then analyzed to develop Part Two, the Summary of Constraints and Opportunities.

Leveraging Technology

GIS data collected should be accompanied by metadata and must comply with SDSFIE standards. Metadata provides a detailed description of sources for the content of each GIS layer. SDSFIE defines Army standards for data. See Section 10.8.3, "Geographic Information Systems (GIS)" for a discussion of GIS information sources, metadata, and SDSFIE.

4.2.2.2 Basic Information and Facilities Assessment

Basic Information and Facilities data comprises the baseline of the Constraints and Opportunities Map.

Description

Buildings and other facilities comprise the built environment on an installation and are critical to mission accomplishment. The Real Property Inventory (RPI) documents baseline information on facilities including facility number, category code, dimension and cost. It also includes information on construction, demolition, facility use and assignment.

The RPI is captured and maintained in the General Fund Enterprise Business System (GFEBS). This Department of the Army system addresses the Directorate of Public Works (DPW) business functions of: Real Property Sustainment Fund Allocation, Work Management, Job Cost Accounting, Work Estimating, and Supply and Contract Administration. (For more information see Army-Specific Tools.)

The Installation Status Report (ISR) documents information on the condition of facilities.

GIS layers can graphically represent the current facilities inventory. GIS enables the installation to display this data by occupant, facility use, condition, or other desired variables by joining the IFS or ISR database information to specific GIS features.

Tools Needed

- General Fund Enterprise Business System (GFEBS)
- Geographic Information Systems (GIS)
- Installation Status Report (ISR)
- The Army's legacy automated planning systems: Real Property Planning and Analysis System (RPLANS)
- Army Stationing and Installation Plan (ASIP)

Purpose

- Basic information provides the foundation for all the data that is collected and displayed throughout the RPMP. It is used to construct a Site Map.
- A comprehensive baseline of information on facilities provides an inclusive view of the status and location of installation buildings. This information is useful for determining future facility buyout requirements and siting decisions.

Data Needed

- DD Forms 1354 (Transfer and Acceptance of Military Real Property)
- DA Forms 337 (Request for Approval of Disposal of Buildings and Improvements)
- DA Forms 4283 (Facilities Engineering Work Request)
- Basic Planimetric data
- Aerial photograph

Key Steps to Collecting Information and Facility Data

There are four key steps to creating a Basic Information and Facilities Assessment.

STEP 1: Collect basic information.

Basic information includes planimetric data on roads and buildings, the installation boundary, and major site elements. Locate an aerial photograph of the site. Determine whether changes have occurred on the installation since the photo was taken. Use this data as a base map for other data layers. (See the Geographic Information Systems (GIS) section for details on how and where to obtain GIS data.)

STEP 2: Gather information from Army systems.

System 1 – General Fund Enterprise Business System (GFEBS)

Collect critical data on installation facilities and occupancy from the GFEBS, including:

- Site Number
- Facility Number
- Category Code
- Occupant by Unit Identification Code (UIC)
- Amount of Primary (Area) Unit of Measure (UM) – building gross area (SF), pavements (SY), and land (AC)
- Amount of Secondary UM (capacity, length, volume, etc.)
- Assigned Space (UMs)
- Year Built
- Construction Type (permanent, semi-permanent, or temporary)
- Demolition Status

This facility and occupancy data is maintained in the GFEBS - an Oracle database. See Section 10.8.2.4, " General Fund Enterprise Business System (GFEBS)" for further details on this tool.

Functional Adequacy is recorded in GFEBS with the Functional Capability Code. Functional Adequacy is a measure of the extent to which an existing building meets the functional features of the AR 415-28 Category Code use that it has been assigned in the RPI. Facility Functional Adequacy IS EXCLUSIVE of physical condition (Quality as recorded in the Installation Status Report (ISR)) and overall Functional Category Group (FCG) quantities as recorded in the Real Property Planning and Analysis System (RPLANS).

Acceptable FA values are: F1, F2, F3, F4 and are defined as follows:

- F1. Fully Mission Capable: All elements of the most current construction standard exist in the facility. No modernization needed. Construction Standard is defined as a published Army Facility Standard and, if they exist, Standard Facility Designs.
- F2. Partially Functional: Essential/critical functional elements exist. Non critical elements such as ADA compliance, LEED compliance, etc might be missing but must be addressed, prioritized, and resourced locally. Condition does not qualify for a centrally funded modernization program.
- F3. Repairably dysfunctional: Some essential/critical functional elements missing and can be fixed with OMA Restoration and Modernization funds.

Contacts Needed

- **Real Property Accountable Officer**

Leveraging Technology

- **See the Geographic Information Systems (GIS) section for data collection guidelines.**

- F4. Irrepairably dysfunctional: Essential/critical functional elements are missing and can only be fixed by replacement with MILCON. Generally, all WWII Wood buildings and relocatable buildings are F4.

Tip

Perfect data ensures perfect knowledge. Accurate accountability of real property ensures appropriate recognition for assessing future projects and funding. A Facility Utilization Survey (FUS) is a tool that provides perfect facility knowledge. Section 6.2, "TAB Management"

System 2 – Installation Status Report (ISR)

The Installation Status Report (ISR) is a web-based, integrated executive information system with three components. Section 10.8.2.7, "Installation Status Report (ISR)" contains additional details on this Army tool. contains additional details on this Army tool:

- Infrastructure
- Environment
- Services/Service Based Costing (SBC)

The ISR was developed to assess installation conditions and performance against Army-wide standards. Facilities within each category are rated by color:

- Green: minor deficiencies
- Yellow: some facility deficiencies
- Red: significant facility deficiencies
- Black: deficiencies present significant obstacles

Products

Baseline facilities information can be produced in both text and graphic formats.

- **Facility and Occupancy reports, layers, and queries (depending on user needs)**
- **Quantity and Quality of Installation Facilities reports, layers, and queries (depending on user needs)**
- **Current Building Condition Reports and Layers**
- **Demolition Plan Reports and Layers**
- **Building Reuse Analysis Reports and Layers**

Customize product reports and layers to aid in specific tasks. For example, query a database to produce a Facilities Occupancy Report that shows all facilities assigned to a specific user.

This ISR system can be used to document and display status report on installation infrastructure, in terms of both quantity and quality.

- **Quantity C-Ratings** are based on the percentage of Facility Category Group (FCG) requirements met; these are used to derive an installation-wide Quantity Rating at the Facility Class level.
- **Quality Q-Ratings** are based on the ratio of restoration cost ("cost to fix") estimates to facility plant replacement value (PRV). The 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.
- **Mission Support C-Ratings** measure the impact of the facility's ability to support the tenant organizations' required missions. The color ratings for a facility are also used to calculate its Mission Support Rating. The C-Ratings are used to derive an installation-wide Mission Support Rating at the Facility Class level.
- **Commander's Readiness C-Ratings** identify the extent to which facilities contribute to or detract from the ability of assigned units, organizations and tenants to accomplish their wartime/primary missions. Installation adjutants general or garrison commanders assign a Readiness rating for each of the nine Facility Classes having facilities at the reporting location, based on:
  - ISR Infrastructure ratings (Mission Support, Quality, and Quantity)
  - Commander's experience and professional judgment

Tip

ISR provides a snapshot of current conditions of infrastructure, environment, and services. See Section 10.8.2.7, "Installation Status Report (ISR)" for further details on this tool.

STEP 3: Create mapping layers.

Assemble the information collected from various sources using the GIS system to the extent possible. Include or exclude layers as needed to create useful themes.

- **Site Map** – Display basic facility data that includes building footprints by type (permanent, semi-permanent, temporary) and basic site features that include installation boundary, roads, pavements, bridges, and fence lines. This layer is also the foundation layer for other mapping products. (See Figure 4.3, "Site Map".)
- **Building Condition Layers** – Display facilities by ISR rating.

References

- AR 210-14: The Army Installation Status Report Program
- AR 420-1: Army Facilities Management
- AR 405-45: Real Property Inventory Management
- AR 415-28: Real Property Category Codes
- DA PAM 415-28: Guide to Army Real Property Category Codes
- DA PAM 405-45: Real Property Inventory Management
- DOD Instruction: 4715.16 Cultural Resources Management [http:/ / www.dtic.mil/ whs/ directives/ corres/ pdf/ 471516p.pdf.]

  - All facilities with a specific ISR Quality Q-Rating (Q-1, Q-2, Q-3, Q-4). (See Figure 4.5, "Facilities Map - Installation Status Report (ISR)".)
- **Demolition Plan Layers** – Display facilities scheduled for demolition. Multiple layers can display long-range impacts across the installation over a succession of years.
- **Occupancy Layers** – Display facilities belonging to a specific occupant, category code or FCG

Tip

Diversions are interim moves, not long-term solutions.

Figure 4.3 Site Map

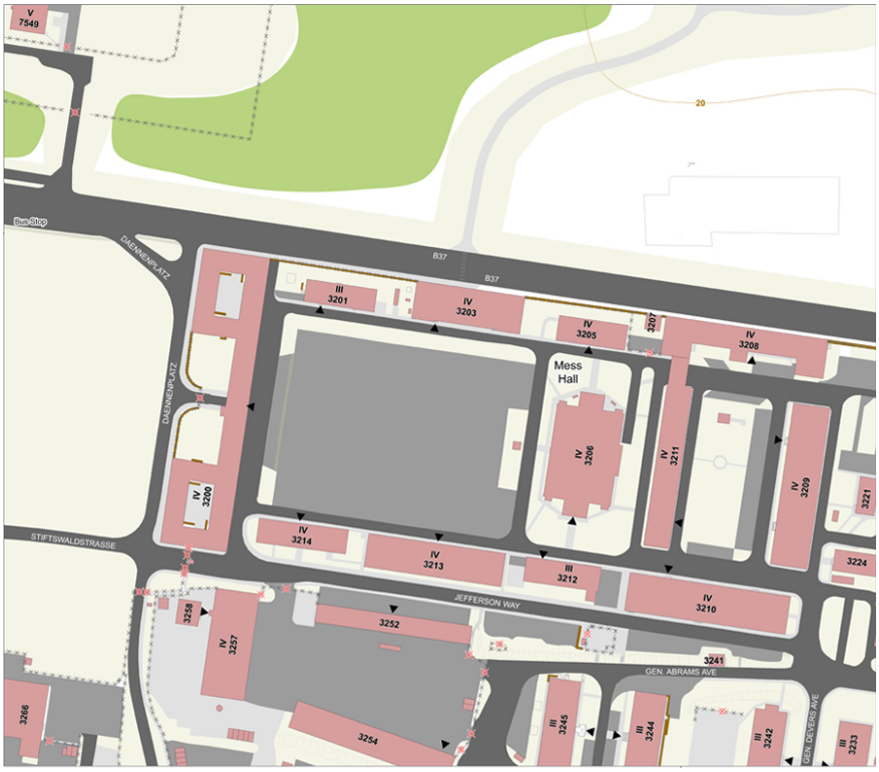


Figure 4.2 Site Map Legend

Figure 4.5 Facilities Map - Installation Status Report (ISR)

Figure 4.4 Facilities Map - Installation Status Report (ISR) - Legend

STEP 4: Develop a narrative.

Discuss the current status of facilities, as revealed by the data collected. Provide an overview of facilities on the ground, and outline deficiencies. Discuss areas undergoing change and identify needed improvements. Include these as recommendations in the narrative; use charts or graphics as necessary.

Maintenance

The GFEBS is a dynamic system that allows the installation to maintain data as required. The garrison commander appoints a Real Property Accountable Officer (RPAO) who is responsible for:

- Ensuring that a physical inventory for all heritage (historic) assets is conducted at least once every three years.
- Ensuring that a physical inventory of all real property is conducted at least once every five years.

- Conducting a "change of garrison command" visual inventory with the new garrison commander, with verified results submitted to IMCOM within 90 days after assumption of command.

Tip:

Seize the opportunity to provide the new GC an overview of the installation master plan while conducting the "change of Garrison command" visual inventory.

At most installations, the Master Planner is also responsible for maintaining and updating the ISR, ensuring facility surveys are performed, and confirming that the data are accurate.

Open communication with the RPAO is critical, because of the interdependence of Master Planning and real property data. A Master Planner can access real property data (including facility occupant, area, construction type, etc.) and must be able to communicate questions, discrepancies, and recommended changes to the RPAO. Also, Master Planning actions must be coordinated with the RPAO and staff to ensure data consistency.

Lessons Learned

- You can't determine what you need until you know what you have.
- Constant communication is the key to successful planning.

4.2.2.3 Environmental Resources Assessment

Environmental Resources are another layer of information that contributes to the Composite Constraints and Opportunities Map.

Description

The Assessment of Environmental Resources provides details on environmentally sensitive areas located on and surrounding the installation that may affect or be affected by garrison operations or development. This assessment should be as comprehensive as possible, with data gaps and limitations identified.

When developing a Real Property Master Plan (RPMP) within the United States, compliance with the National Environmental Policy Act (NEPA) is required. The information collected to complete this baseline inventory is also used to complete related NEPA documents. (See Section 10.3, "National Environmental Policy Act (NEPA)" for more information.)

When working outside the U.S., planners must adhere to separate environmental regulations that are specific to each host country. (For more information on environmental regulations relevant to Europe, Korea and Japan, see Section 10.12.3, "Planning outside the United States".)

Purpose

The Environmental Resources Assessment contributes to the baseline information used to create the RPMP. Environmental layers generated during this assessment should graphically demarcate and denote all areas which present constraints to development. The resulting baseline information guides the plans for future installation growth. (For more information on these issues, see Section 4.2.3, "Summary of Constraints and Opportunities").

Stakeholders

- Garrison Commander
- Garrison Staff

Tools / Data Needed

- Installation Environmental Assessments and/or Environmental Impact Statements
- Integrated Cultural Resources Management Plan
- Integrated Natural Resources Management Plan
- Baseline information and GIS layers are needed for environmental and operational features both on and off the installation (as applicable). The primary source for this information is the Installation Environmental Office and the Army Integrated Training Area Management program (ITAM) library. Additional sources are included in the table located at the end of this section.
- IMCOM SOW Repository for SOWs on development of planning studies

Contacts Needed

- Installation Environmental Officer
- Natural Resources Program Manager
- Cultural Resources Program Manager

Leveraging Technology

- Before using, confirm that the GIS layer metadata is current. See Geographic Information Systems (GIS) for more information on metadata.

Key Steps to Creating An Environmental Resource Assessment

There are three key steps to creating the Environmental Resource Assessment.

STEP 1: Collect data.

Gather baseline information on environmental and operational features. Further detail on collecting operational data is contained in Section 10.6, "Ranges and Training". Include on-post and off-post information. Collect off-post information only to the extent that it affects installation operations and mission. The primary source of information is the installation Environmental Office and the Installation Training Area Management Program. Environmental documents that are good sources of baseline data include:

- Environmental Impact Statements/Environmental Assessments
- Environmental Baseline Surveys
- Integrated Natural Resources Management Plan
- Integrated Cultural Resources Management Plan
- Other key data from the Environmental Office
- DOD Instruction: 4715.16 Cultural Resources Management [http:/ / www.dtic.mil/ whs/ directives/ corres/ pdf/ 471516p.pdf]

Green Tip

During the planning process, document environmental considerations for use in meeting NEPA requirements.

Products

- Narrative describing the baseline conditions of environmental resources on the Installation and in the surrounding community
- Maps (layers) of development constraints on the Installation and in the surrounding community

References

- AR 420-1 Army Facilities Management
- AR 200-1: Environmental Protection and Enhancement
- AR 200-2: Environmental Effects of Army Actions
- AR 200-3: Natural Resources – Land, Forest and Wildlife Management
- AR 200-4: Cultural Resources Management

See Table 4.1 for additional sources of environmental information. Whenever possible, collect a GIS data layer for each environmental element (discussed under "Tools/Data Needed").

Table 4.1 Environmental Data Sources

Environmental Information	
Minimum Feature List	**Potential Sources of Information**
Wetlands	National Wetlands Inventory (NWI) maps [http:/ / wetlands.fws.gov/]
Floodplains	FEMA Flood Insurance Rate Maps (FIRM Maps) [http:/ / www.fema.gov]
Surface Water PLS	USGS topographic maps [http:/ / topomaps.usgs.gov/]
Groundwater	USGS groundwater resources [http:/ / water.usgs.gov/ ogw/]
Topography (e.g., steep slopes) PLS	USGS topographic maps [http:/ / topomaps.usgs.gov/]
Soils AEC/GISR/PLS	USDA Natural Resources Conservation Service [http:/ / soils.usda.gov/]

Environmental Information	
Minimum Feature List	**Potential Sources of Information**
Threatened and Endangered Species/ Critical Habitat (e.g., Red-Cockaded Woodpecker, Bald Eagle)	U.S. Fish and Wildlife Service [http:/ / www.fws.gov/] State Natural Resources Office National Marine Fisheries Service [http:/ / www.nmfs.noaa.gov/] Integrated Natural Resources Management Plan (INRMP)
Terrestrial Environment PLS (Wildlife, Vegetation) RTLA Studies	Integrated Natural Resource Management Plan (INRMP) for Installation State Department of Environmental Protection Community resources
Recreation Areas	Installation MWR Community resources
Conservation Areas	Installation MWR Community resources
Marine Environment	State Coastal Management Office National Marine Fisheries Service [http:/ / www.nmfs.noaa.gov/] U.S. Fish and Wildlife Service [http:/ / www.fws.gov/]
Note: The primary sources of information for these features are the Installation Environmental Office and ITAM.	
Cultural Resources	
Minimum Feature List	**Potential Sources of Information**
Archaeological, Prehistoric, Historic, Architectural Resources, etc.	Integrated Cultural Resource Management Plan (ICRMP) for Installation Advisory Council on Historic Preservation (ACHP) [http:/ / www.achp.gov/ index.html] State Historic Preservation Office (SHPO) Bureau of Indian Affairs [http:/ / www.doi.gov/ bureau-indian-affairs.html] National Association of Tribal Historic Preservation Offices [http:/ / www.nathpo.org] Tribes or native people with historical ties to area

Operational Data	
Minimum Feature List	**Potential Sources of Information**
Air Quality	U.S. Environmental Protection Agency (EPA) [http:/ / www.epa.gov/] State Department of Environmental Protection Local environmental regulatory agency
Noise (aircraft/airfield noise, range/ training noise, etc.)	Installation Compatible Use Zone (ICUZ) Study Airfield Operations Safety Officer Local/Regional airport authority Installation Training Range Officer
Landfills	Installation Public Works Directorate State Department of Environmental Protection U.S. Environmental Protection Agency (EPA) [http:/ / www.epa.gov/]
Hazardous Material (storage and contaminated areas)	State Department of Environmental Protection U.S. Environmental Protection Agency (EPA) [http:/ / www.epa.gov/]
Explosive Safety Quantity Distance (ESQD) Arcs	Installation Training Range Officer Installation Public Works Directorate
Firing Areas and Impact Areas	Installation Training Range Officer
Ammunition and Chemical Storage Areas	Installation Range Officer Installation Public Works Directorate
Socioeconomics	Installation Public Affairs Office Community resources

STEP 2 : Create maps of development constraints.

To improve readability, it may be useful combine layers into themes, each showing a different set of constraints, or to include individual layers each showing one type of constraint. Figure 4.6, "Natural Constraints Theme"; Figure 4.7, "Cultural Constraints Theme"; and Figure 4.8, "Operational Constraints Theme" illustrate examples of constrains broken out by natural, cultural and operational concerns.

Tip

Constraints related to antiterrorism and critical infrastructure protection requirements should be incorporated as part of an operational constraints layer. See Section 10.5, "Antiterrorism & Critical Infrastructure Protection" for further description.

Figure 4.6 Natural Constraints Theme

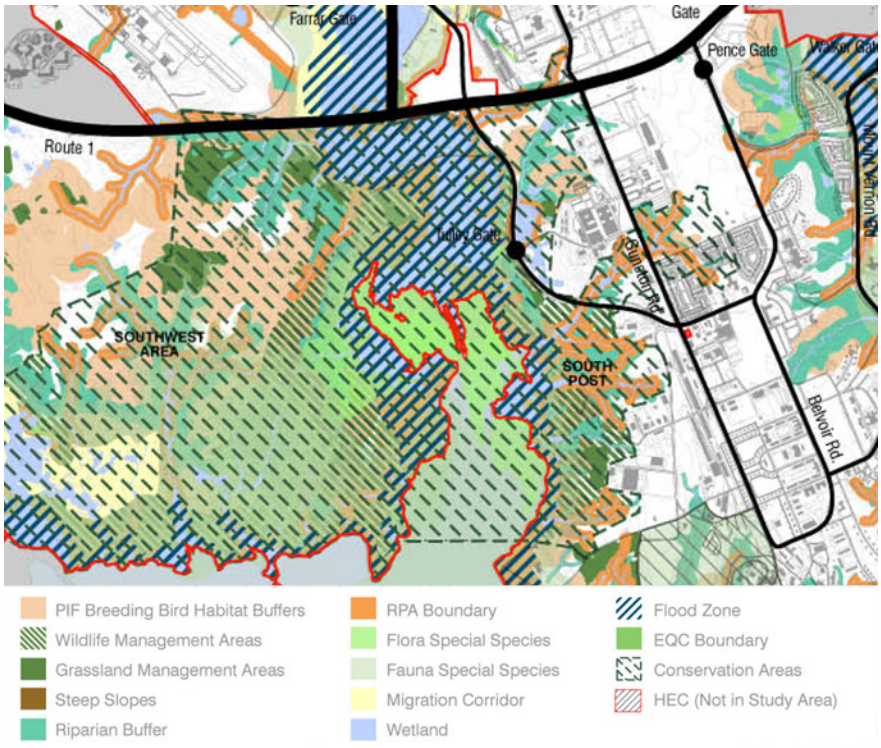


Figure 4.7 Cultural Constraints Theme

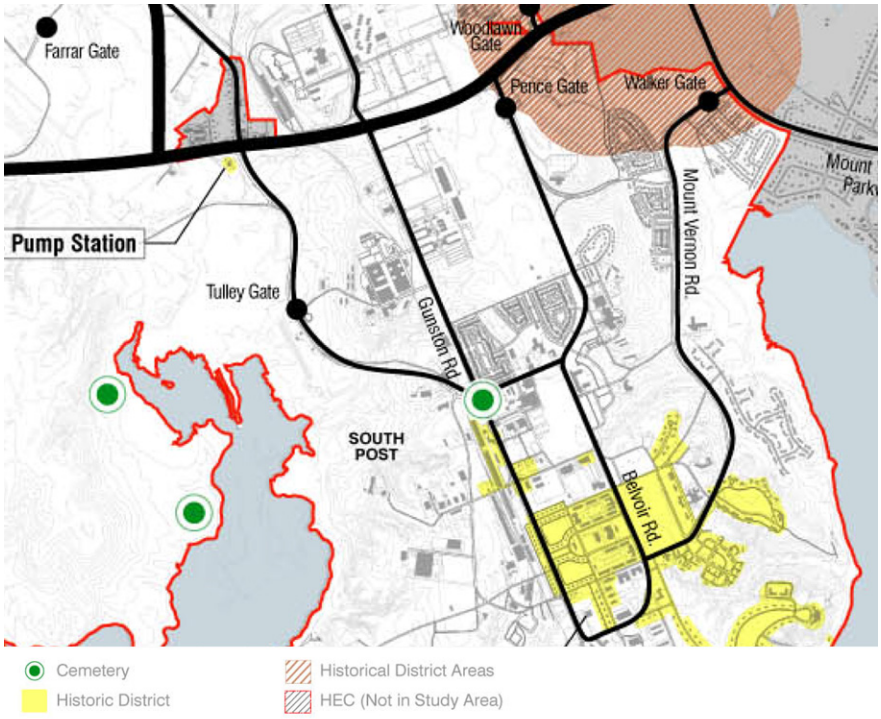
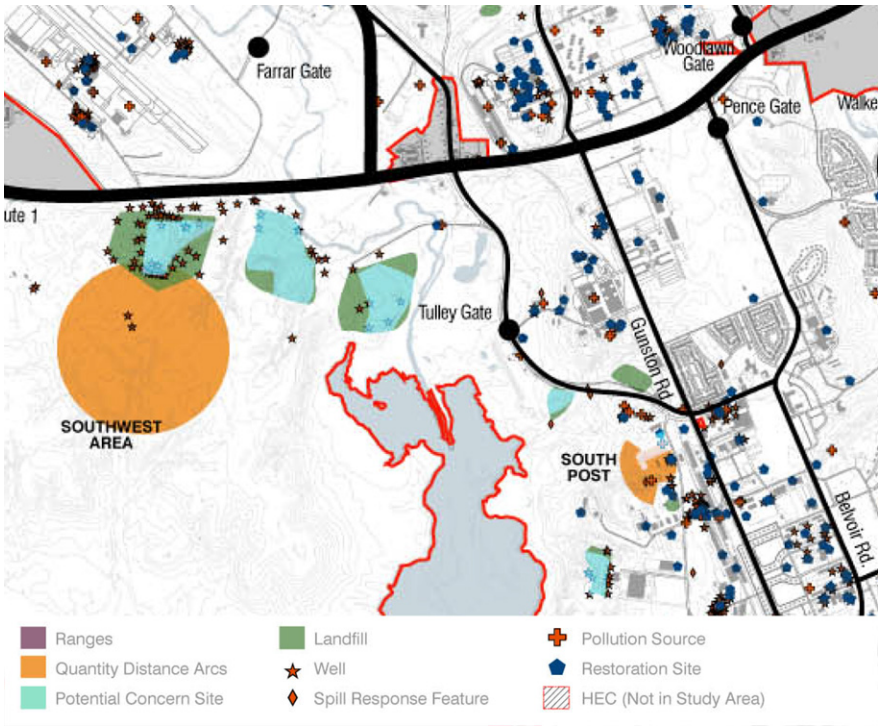


Figure 4.8 Operational Constraints Theme



Tip

In some areas, seismic factors are an important environmental consideration.

STEP 3: Determine data gaps, limitations and conduct any necessary additional studies.

Information needed to complete a baseline inventory is often missing or outdated. Determine the missing information critical for identifying environmental opportunities and constraints, and for planning future development. Develop a list of additional studies to acquire that information. Conduct studies whenever appropriate. If studies are recommended but not completed, include them in the next iteration of the document. Refer to the IMCOM SOW Repository for statements of work addressing the development of planning studies.

External data sources can support/augment installation GIS data. But keep in mind that the primary sources for this data are installation directorates. When data is unavailable, contact the Army IGI&S program prior to external sources. (See Geographic Information Systems (GIS).)

Green Tip

Some bases have an Installation Sustainability Plan in place. This plan contains goals specifically related to sustainability that must first be considered during the assessment and planning phases. For example, a goal to reduce or eliminate storm water run-off requires that the RPMP contain an assessment of existing infrastructure conditions that impact this issue and the development of an installation-wide plan for storm water management.

Maintenance

Update as required based on changes to the RPMP or environmental conditions.

Lessons Learned

- When in doubt, coordinate with "everyone".
- Question those who use self-invented regulations or standards.

4.2.2.4 Existing Land Use Assessment

Land Use is another layer of information that contributes to the Opportunities and Constraints Map.

Description

The assessment of existing land use involves the collection of information from on- and off-post sources, and the inventory, documentation, and current use survey of land on- and off-post. It provides a snapshot of generalized facility use.

The products of the Land Use Assessment are a narrative summary of existing conditions, a Land Use Map, and an analysis of inconsistencies, incompatibilities, priorities, and possible solutions, also in narrative format, with graphic support as needed.

Purpose

The assessment of existing Land Use:

- Provides a snapshot of facility use, and an overview of how the installation is organized.
- Identifies functional/nonfunctional relationships between land uses, and uncovers incompatible land uses.
- Provides a basic starting point for future development planning.

Stakeholders

- HQ IMCOM
- IMCOM Region
- Army Staff
- USACE
- Major Commands
- Reserve Components
- Garrison Commander
- Mission Commander
- Directorate of Public Works
- PAIO (Plans Analysis and Integration Office)
- Real Property Planning Board (RPPB)
- Garrison Staff
- Tenants

Tools / Data Needed

- GIS Data Sets - area GIS data layers to begin survey, especially those developed earlier in this section
- Maps – scaleable in several formats
- Local, regional, Federal data on demographics and land use

The Land Use Map and inventory provide a valuable benchmark for tracking land development within the installation. This information can be used to accurately plan and monitor the timing, location, and types of land development.

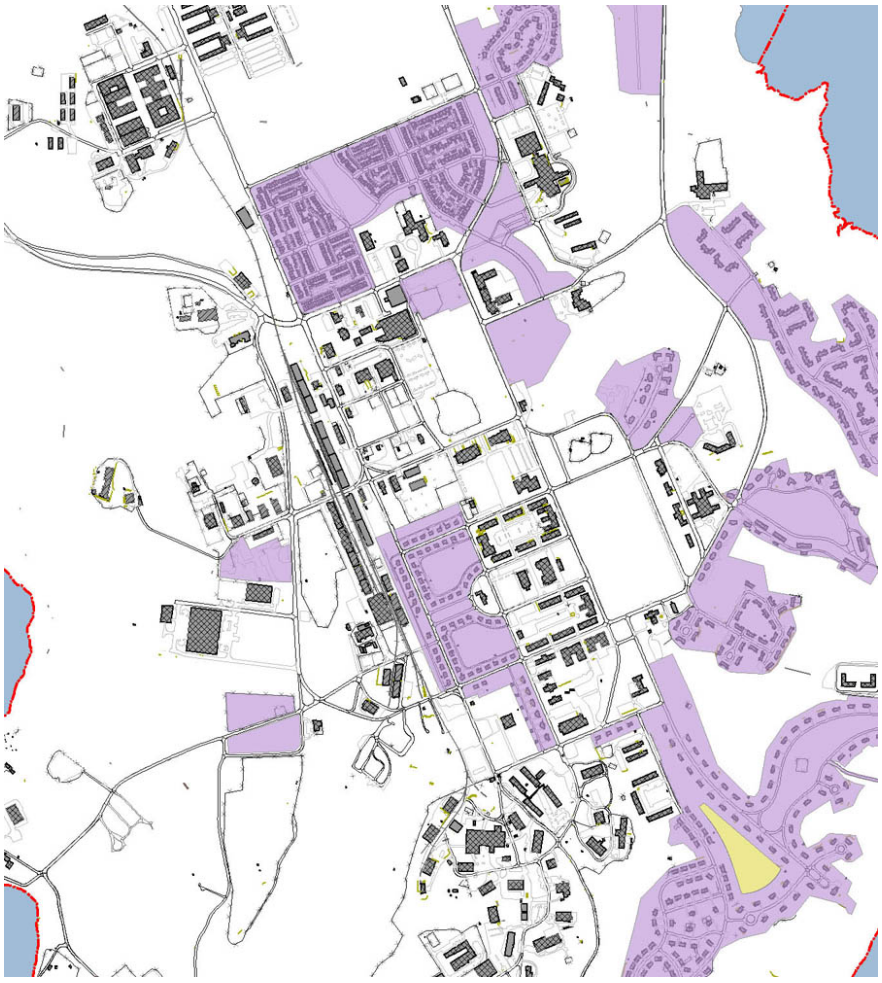
Key Steps to Developing the Land Use Assessment

There are four key steps to creating the Land Use Assessment.

STEP 1: Collect on-post data.

Become familiar with existing land uses inside the installation, and how these land uses interact. The information collected on facilities in Section 4.2.2.2, "Basic Information/Facilities Assessment" is a good place to start. Gather field data to verify records and correct out-of-date or faulty information.

Figure 4.10 Real Estate Map



Products

- Benchmark Land Uses
- Installation general narrative
- Land Use Analysis
- Facilities by Land Use
- Land Use Map
- Land Leases and Use Permits Map (enhanced use leasing, RCI, bank, school, etc.)
- Desirable/Undesirable Land Use Features off-post
- Data Tables – represent how land is used in and outside a jurisdiction
- Joint Land Use Study (JLUS)
- Air Installation Compatible Use Zone (AICUZ) Study
- Installation Compatible Use Zone (ICUZ) Study

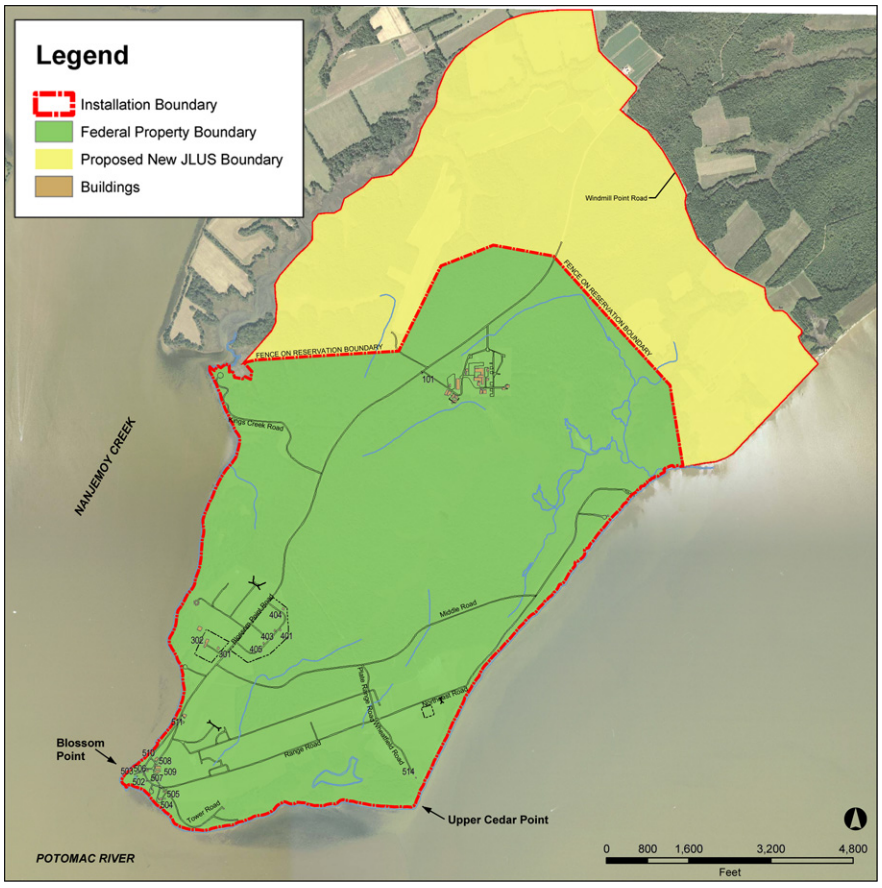
Figure 4.9 Real Estate Map - Legend

- **Leases.** Note all land leaseholds, outgrants, permits and ownerships. (See Figure 4.10, "Real Estate Map" for an example of a Real Estate Map.)
- **AICUZ/ICUZ/JLUS.** Find out if an Air Installation Compatible Use Zone (AICUZ), an Installation Compatible Use Zone (ICUZ) study, or a Joint Land Use Study (JLUS) exist for the installation. These zones and studies integrate on-post activities with community activities, and are crucial for appropriately dealing with encroachment issues. (See Figure 4.11, "Joint Land Use Layer" for an example of a JLUS Map.) Determine if the installation is participating or has participated in an Army Compatible Use Buffer program (ACUB). This program establishes buffer areas around Army installations to limit the effects of encroachment, while maximizing the amount of land inside the installation in support of the mission.

Contacts Needed

- Installation Directorates
- Stakeholders
- Major Tenants
- State, Regional and Local Government Planning Offices
- Public Affairs Office

Figure 4.11 Joint Land Use Layer



STEP 2: Conduct stakeholder interviews.

Gain an understanding of the missions and activities of the installation. Learn about the goings-on of the installation – what happens where.

- **Set up meetings.** Contact all directorates and major tenants. Inform them in advance of your purpose. Explain why you are conducting the interviews and what you hope to accomplish by the end of the interview.
- **Ask questions.** Inquire about missions, operations, and quality of life issues. Responses should cover long-term goals, not just short-term needs. Supply a list of questions in advance that cover the following:
  - How do they operate?
  - What are their ancillary functions and who do they most interact with? Where are there relationships between uses?
  - Do they have the space needed or do they require more space/ facilities? If so, what type of facilities do they need?
  - Are there any current studies underway that affect their program?
  - Are there any major changes planned or expected in the future?
- **Obtain documentation.** Whenever possible, gather and collect documents that confirm or expand upon the information discussed.
- **Summarize the information collected.** Emphasize key points. This summary is also a key part of the Long-Range Analysis Narrative.

STEP 3: Analyze Existing Land Use.

Develop the narrative analysis. Include additional supporting graphics, as necessary.

- Examine the Land Use Map for any emerging patterns that are contrary to mission requirements. Then examine the map for any land use compatibility opportunities or problems with current installation development and operations.
- Identify and describe those relationships that support or hinder the mission. Include important aspects within each land use category.
- Note any limiting physical distances between land uses.
- Use data and recommendations from AICUZ, ICUZ, and JLUS studies.
- Overlay the Land Use Map with the Vicinity Map developed in Section 3.1, “Vision Plan” . Once again, examine the map for any land use compatibility opportunities or problems with adjacent area development and land uses. Determine if any encroachment issues exist.
- Prepare a table summarizing important data and supporting graphics, as needed.

STEP 4: Make Recommendations.

Where deficiencies or problems are revealed, identify actions that would improve the situation. Include these as recommendations in the narrative;

- Look for ACUB opportunities to increase distances between incompatible land uses.
- Identify areas for future expansion, consolidation or change.

Maintenance

No separate, distinct maintenance is required.

Lessons Learned

- Federal, state, regional, and local government actions can severely impact site operations.
- State and local issues are primarily concerned with environmental and private property issues.
- Educate elected/appointed officials and their respective staffs about mission requirements.
- Voice installation needs at public forums. (Note: any installation concerns voiced at public forums need to be cleared through the command and PAO.)
- Diligently watch for any possible encroachment from off-post planned or proposed land uses.

4.2.2.5 Utilities Assessment

The Utilities Assessment is another layer of information that contributes to the Constraints and Opportunites Map.

Description

The Utilities Assessment examines the installation's existing utility systems, by capacity and current demand. It also details system locations and service areas.

The following primary systems should be addressed in the RPMP (include others whenever appropriate):

- Water
- Waste Water (sanitary sewer and industrial)
- Storm water
- Electrical
- Communications
- Central heating and cooling
- Natural gas
- Fuel distribution

Purpose

The Utilities Assessment contributes to the baseline information used to create the RPMP. It measures the installation's existing capacity against the future demands of anticipated populations and is a key factor in assessing the expansion capability of the installation. Opportunities for energy reduction initiatives will also emerge from analysis of this data.

Tools/Data Needed

- Mapping data for each utility

Contacts Needed

- Owner/operator of each utility system
- Garrison utilities privatization manager
- Regulators
- Directorate of Public Works
- Network Enterprise Center (NEC)

Products

- Narrative describing baseline conditions of utility systems, existing capacities and usage
- Maps of the utility systems, including:
  - Infrastructure (treatment facilities, collections/storage components, distribution lines)
  - Service areas/lines

Leveraging Technology

- Use databases, water and sewer modeling, and GIS to gather and analyze data.
- Use storm water (or other) modeling programs to determine functionality of systems.

Tools/Data Needed

Overall:

- Owner/operator (regulatory) information for each utility system
- Maps of infrastructure (treatment facilities, collection/storage components, distribution lines)
- Maps of service areas
- Design capacities, permitted capacities, and current demand/use of utility systems (basically, a complete system inventory)

System Specific (source is the Utilities Systems Planning Bulletin 1989):

- Water System (Note: Water systems include domestic water, industrial use, and fire protection.)
  - Source of water supply
  - Storage tanks (or reservoirs)
    - Security of location
    - Location of tank
    - Height of tank
    - Age of tank
    - Capacity of tank
    - Overflow elevation
    - Physical condition of tank and support structure
  - Distribution system
    - Location of pumps and pumping stations
    - Location, size and material of water pipes
    - Location of fire hydrants
    - Location of valves
    - Valve test dates
  - Design capacity and permitted capacity
  - Current demand/usage
  - Hydraulic modeling
- Waste Water System: Sanitary Sewer
  - Location, size and material of sewer lines
  - Location of manholes
  - Location of pump stations
  - Location of treatment facilities

References

- **AR 420-1 Army Facilities Management**
- **AR 420-49: Facilities Engineering, Utility Services**
- **Utilities Systems Planning Bulletin, 1989, from the U.S. Department of Air Force and Department of the Army**
- **Epact 2005 (part of Installation Strategic Plan)**
- **American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 189.1, Standard for Design of High-Performance, Green Buildings**
- **Army Policy Memorandum: Managing Stormwater with Low Impact Development Techniques 29 July 2010**
- **Unified Facilities Criteria 3-210-10, Low Impact Development, dated 6 April 2010, Appendix B**

  - Type of treatment facility (for example, tertiary)
  - Infiltration and inflow sources into sewers
  - Design capacity and permitted capacity
  - Current demand/usage
  - Hydraulic modeling
- Waste Water System: Industrial
  - Industrial waste sources and amounts
  - Collection of industrial waste
  - Treatment of industrial waste
  - Transportation of industrial waste
- Storm Water System
  - Design specifications of storm water system (for example, design capacity for specific rainfall event)
  - Location, size and material of inlets, pipes, retention/detention facilities, outfalls
  - Local precipitation rates
  - Functional assessment of current usage and how well storm water system works
- Electrical Distribution System
  - Specifics on incoming voltage
  - Location/size of distribution system
    - Power lines
    - Sub-stations
    - Switch stations
  - On-site power generation capabilities (for example, generators)
  - Total installation demand
  - Voltage levels operating the equipment
  - Time/Manner of equipment operation (to determine peak power loads)
  - Specifics on street lighting system
    - Lamps
    - Poles
    - Panels
    - Control equipment
    - Underground duct or overhead wiring system
- Communications System

    - Quantity, type, location, and site requirements for:
        - Telephone
        - Radio
        - Video
        - Network/computer
        - NAVAIDS
- Central Heating and Cooling System
    - Availability of steam, hot and chilled water
    - Capacity of existing central boiler and chiller plant
    - Availability of fuels
    - Availability of electrical power
    - Types, capacities, location, and condition of piping distribution systems for heating and cooling media
- Natural Gas System
    - Identification of gas company
    - Location and size of street mains
    - Type of service (firm or interruptible)
    - Service pressure
    - Location of service
    - Available capacity
    - Gas pressure
    - Gas heating value
    - Gas specific gravity
    - Type of gas available (natural, LNG, mixed)
    - Pipe size at point of connection
- Fuel Distribution
    - Fuel lines
    - Fuel tank locations

Key Steps to Creating the Utilities Assessment

There are six key steps to creating a Utilities Assessment.

STEP 1: Determine who operates the systems.

Quite often, utility systems are owned or managed by off-site utility companies. Consult the DPW for this information, whenever necessary. If utilities are privatized, the process is a little different. Ensure development plans are coordinated with the utility provider. There is most likely a garrison utilities privatization manager who handles this liaison support. Even so, take responsibility for the management of these maps.

STEP 2: Determine the primary components.

In a narrative, describe source, treatment, collection/storage, and distribution for each system on the installation. Include specific details of their primary components, such as line size and capacity.

STEP 3: Obtain maps of existing systems.

The best source for maps of existing systems is the utility system operators. Request maps that include all the components listed in Step 2. Maintain current utilities maps. Provide this information in separate GIS layers – one for each utility system. Figure 4.13, "Combined Utilities Map" is an example of a comprehensive Utilities Map. For clarity, this map may be simplified to show the primary utility pathways on a site as shown in Figure 4.15, "Primary Utility Pathways Map". Include data on infrastructure (such as lines and lift stations), line sizes, and corresponding service areas. (For more information on how to obtain GIS information for utilities, see Section 10.8.3, "Geographic Information Systems (GIS)".)

Figure 4.13 Combined Utilities Map

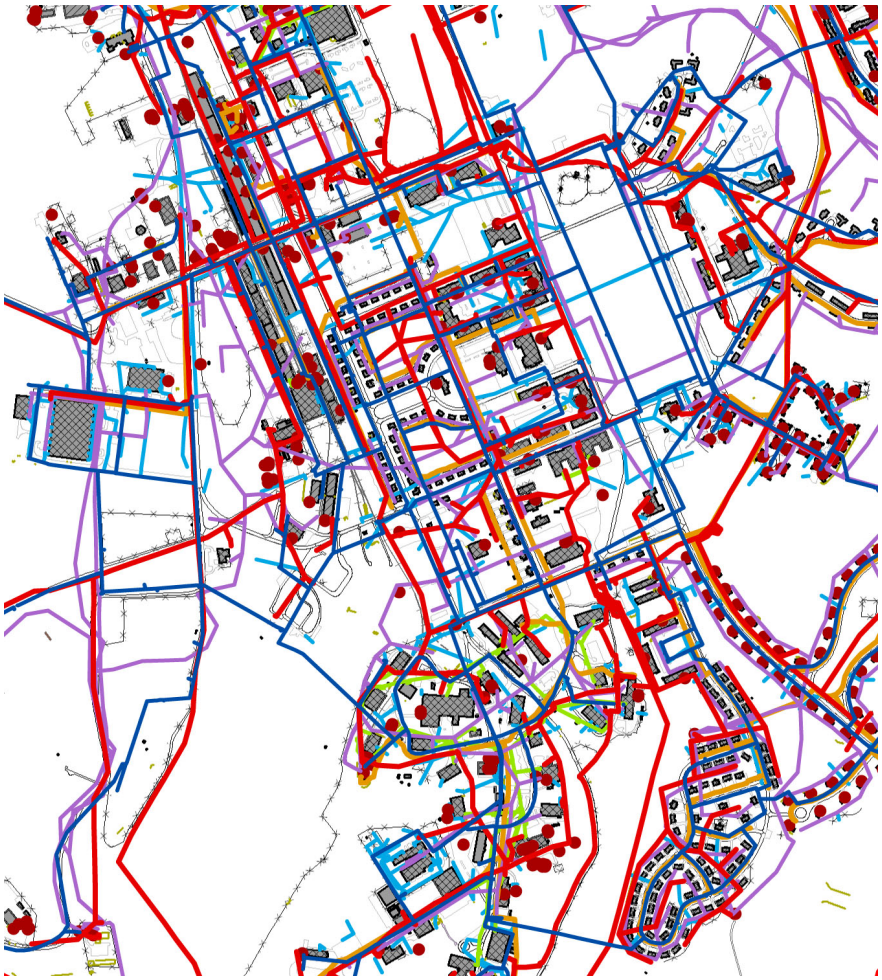


Figure 4.12 Combined Utilities Map - Legend

Figure 4.15 Primary Utility Pathways Map

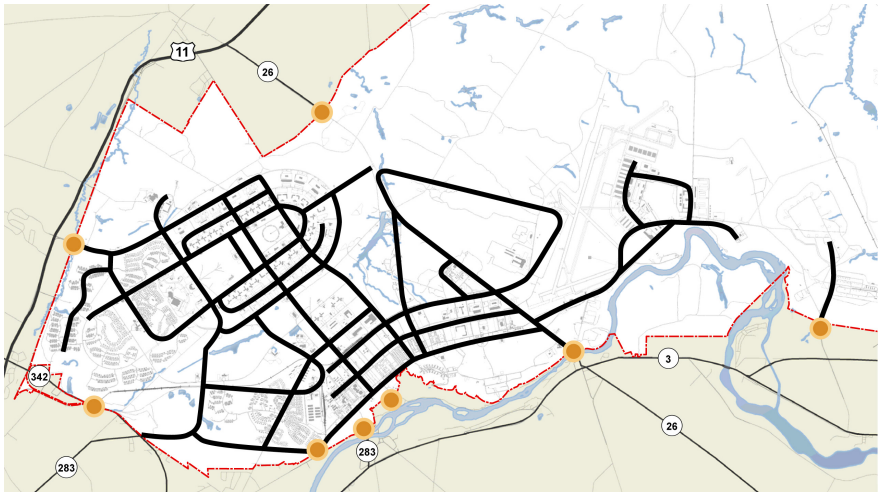


Figure 4.14 Primary Utility Pathways Map - Legend

STEP 4: Determine design capacities and permitted capacities of systems.

Utility systems are designed and permitted (through local permitting authorities) to operate at a certain maximum capacity. The design capacity and permitted capacity are not necessarily the same. For water systems, capacity is based on the unit limiting treatment (for example, wells, pumps, and storage), with the largest unit out of service. Local conditions could also restrict use of full design capacity (for example, limited water supply). Sewer plants are permitted based on effluent disposal or reuse of effluent. Both the design and permitted capacities are obtainable from the operator of the system or the appropriate regulatory agency, and should be included in the narrative.

STEP 5: Determine current demand on systems.

The utility system operator should also have information regarding current system demands. Water usage is discussed as Average Daily Flow (ADF), Maximum Daily Flow, and Peak Hour Flow. Sewer plant usage is discussed in terms of Average Daily Flow and Peak Hourly Flow. Average daily demand is calculated by totaling usage records for a year, and then averaging them (divide by 365 days). Current daily demand can also be converted to an average daily per capita rate based on the effective population being served. The effective population is a real-world capacity evaluation technique whereby all personnel who both live and work on the installation are counted in full, while those that work on-post but live off-post are counted as one-third, based on an eight-hour workday. The current demand (in terms of daily flow/use) is divided by the effective population results in demand per capita per day.

Tip

Utilities are a cornerstone of critical infrastructure. Be sure to consider Critical Infrastructure Protection during the utilities assessment. See Section 10.5, “Antiterrorism & Critical Infrastructure Protection”.

Storm water system usage/demand is not based on a metered use. These systems are designed for a specific storm event. The current usage/demand of the storm water system should be determined by conducting an assessment of the true functionality of the existing system. Knowledge of flooding problems can help with this assessment. Both the baseline information and the functional assessment determine the available capacity for future development. Include this information in the narrative. Include charts where useful to display utility information.

Figure 4.16 Utility Effective Population Support Capability

UTILITY "EFFECTIVE" POPULATION SUPPORT CAPABILITY

CAMP SHELBY, MISSISSIPPI

UTILITY SYSTEM	ELEMENT	EXISTING POPULATION CAPABILITY	EXPANSION POPULATION CAPABILITY
Water Supply	Source	20,400	37,000
	Storage	*	111,900
	Distribution	52,400	52,400+
Sanitary Sewerage	Collection	25,700**	40,000
	Treatment	32,400**	40,000+
Electric Power	Source	29,900	29,900
	Transformers	10,500	29,900
	Switching Equipment	4,000	Not Limiting
	Distribution	7,900	31,800
Heating and Fuels	Energy Supply	Not Limiting	Not Limiting
	Distribution and Storage	4,300	Not Limiting
	Heating Equipment	1,300	Not Limiting

* Exiting storage facilities are deficient based on fire demand criteria in TM 5-813-4.

**Extreme Infiltration/Inflow experienced in existing collection system could negate existing population support capability during periods of heavy rainfall. Or high ground water table. The existing populations are based on theoretical sewage flow criteria in TM5-814-1.

STEP 6: Identify needs.

In areas where capacity is insufficient, identify actions that would improve the situation. Identify specific infrastructure needed to satisfy utility requirements. Include these as recommendations in the narrative; use charts and graphics as needed.

Green Tip

For both new construction and SRM, Army policy requires the full implementation of low impact development (LID) techniques to restore predevelopment hydrology to the maximum extent technically feasible. Planners should follow Unified Facilities Criteria 3-210-10, Low Impact Development, dated 6 April 2010, Appendix B. Consider achieving Net Zero Water use via rainwater harvesting, reuse of all wastewater, and strict water conservation measures.

Note: Privatization minimizes or eliminates the requirement for the planner to determine needed utility support. Rather, the responsibility becomes getting a good estimate and general plan from the utility provider so it can be included in project documentation (i.e., the 1391).

Green Tip

Assessments of storm drainage, waste water/graywater reuse, storm water re-use, and site irrigation may also be useful to determine baseline measurements for sustainable utility planning.

Maintenance

No separate, distinct maintenance is required.

Lessons Learned

- Expect data gaps and limitations.
- To fill in gaps, schedule updates or additional studies whenever necessary.
- For readiness, it is important to consider critical infrastructure reliability issues during analysis.

4.2.2.6 Transportation Assessment

The Transportation Assessment is another layer of information that contributes to the Constraints and Opportunities Map.

Stakeholders

- Garrison Commander
- Garrison Staff

Contacts Needed

- Provost Marshal's Office traffic control
- Military Surface Deployment and Distribution Command (SDDC) Transportation Engineering Agency (TEA) http://www.tea.army.mil/
- Installation Civil Engineer
- State Department of Transportation
- Regional Metropolitan Planning Organization
- Local government

Leveraging Technology

- Use databases, traffic modeling, and GIS to gather and analyze data.

Products

- Narrative describing the baseline conditions of the transportation systems on the Installation
- Maps of the transportation systems

Description

The Transportation Assessment examines the existing transportation systems (both on-post and off-post) that impact and are impacted by on-post activities. Major transportation systems – vehicular, air, rail, and water facilities – that serve or support the installation are identified. This then provides a basis for evaluating limitations and deficiencies within the system that affect installation operation and mission.

Purpose

The Transportation Assessment contributes to the baseline information used to create the RPMP. This baseline information helps determine the available capacity of transportation systems and the needs and plans for future growth.

Tools/Data Needed

Following is a list of data/information needed to prepare an existing conditions inventory for each transportation mode. Address both on-post and off-post activities.

- Vehicular network
  - Road network (including roadway classifications)
  - Traffic generators
    - Housing
    - Post Exchange
    - Hospital
    - Others
  - Access control points (ACPs)
  - Intersections
  - Signals/signage
  - Traffic counts
  - Accident reports
  - Level of service
  - Origin and destination surveys
  - Travel time and speed/delay studies
  - Traffic control devices
  - Parking demand and supply
  - Pavement markings
  - Known congestion problems
  - Planned roadway improvements

References

- AR 420-1 Army Facilities Management
- Military Surface Deployment and Distribution Command, Transportation Engineering Agency [http:/ / www.tea.army.mil]
- Traffic Engineering Handbook, Washington DC: Institute of Traffic Engineers, 1999 [http:/ / ppi2pass.com/ ppi/ PPIShop_pr_TRAF]
- Highway Capacity Manual, HCM2000, Washington DC: Transportation Research Board, 2000.
- Manual on Uniform Traffic Control Devices for Streets and Highways, USDOT, FHWA, 2003 [http:/ / mutcd.fhwa.dot.gov/]
- AR 55-80: DOD Transportation Engineering Program
- Designing Sidewalks and Trails for Access, Best Practices Design Guide, USDOT, FHWA, 2001, Publication FHWA-EP-01-027, 2001 [http:/ / www.fhwa.dot.gov/ environment/ sidewalk2/ pdf.htm]
- Trip Generation, 7th ed., Washington DC: Institute of Transportation Engineers, 2003 [http:/ / www.ite.org/ emodules/ scriptcontent/ Orders/ ProductDetail.cfm?pc=GP-001B]
- A Policy on Geometric Design of Highways and Streets, 5th ed. Washington DC: American Association of State Highway Transportation Officials, 2004 [https:/ / bookstore.transportation.org/ item_details.aspx?ID=110]
- mutcd.fhwa.dot.gov [http:/ / mutcd.fhwa.dot.gov]
- Army Range New Construction NEPA Document Templates

- Defense Route Designations

- Transit network
  - Local, city, county and regional or commuter bus lines
  - Commuter rail lines and airport connector lines
  - Detailed routes and stop locations
  - Headways
- Bicycle/Pedestrian Trails network
  - Location and circulation of bicycle lanes
  - Location and circulation of sidewalks
  - Locations/types of crosswalks (signalized, non-signalized, etc.)
  - Accident reports
- Rail network
  - Availability of facilities, service, and carriers
  - Location of major rail lines serving the installation
  - Carrier operating line
  - Service area
  - Crossings
  - Number of tracks on the line
  - Number of daily/weekly scheduled trains on the major line
  - Load limits and condition of lines providing access to the installation
- Airports
  - Capability of regional airports to serve installation
  - Location, ownership, and type of airports
  - Types of aircraft handled by airports
  - Location of flight paths
  - Location and frequency of scheduled airline service
  - Availability of air freight or parcel service
  - Regional airspace environment (commercial and military)
    - Air traffic control locations
    - Airways
    - Terminal control areas
    - Airport traffic areas
- Water network
  - Availability of water terminal facilities

- Location of any barge or deep-water terminal facilities
- Number of barges/ships accommodated
- Existing or projected usage levels
- Known limitations of cargo-handling facilities

Key Steps to Creating a Transportation Assessment

There are four key steps to creating the Transportation Assessment.

STEP 1: Collect on- and off-post information.

Obtain maps of relevant transportation systems. Conduct an inventory of relevant modes of transportation to the installation. These modes can include, but are not limited to:

- Vehicular
- Transit
- Bicycle/Pedestrian
- Rail
- Air
- Water

In the inventory, include existing infrastructure (terminals/facilities, corridors, etc.), circulation, capacity, and current usage. Details on each transportation mode are discussed under "Data/Tools Needed".

STEP 2: Communicate and coordinate with community and regional transportation regulatory entities.

Community and regional transportation systems can affect or be affected by on-post activities. It is imperative to regularly communicate and coordinate with the community on issues regarding population growth, land use changes, or changes to the flow/pattern of transportation systems. Extend these discussions to the most appropriate level of government – municipal, county, regional or state. Identify governmental agencies responsible for reviewing such items as encroachments, road closings, utility changes, evacuation plans, or any other actions that affect the post environment (for example: Metropolitan Planning Organizations).

STEP 3: Display and analyze on- and off-post transportation information.

- Maps should be in GIS format and include as many comprehensive data layers as relevant to the installation. (For more information on how to obtain transportation information in GIS format, see Section 10.8.3, “Geographic Information Systems (GIS)”.) (See Section 10.9.2.7, “Circulation Maps” for examples of Transportation maps.)

- Summarize this information in a narrative. Emphasize any information that may impact or be particularly relevant to the installation.

STEP 4: Identify needs.

Identify transportation needs and provide recommendations for solutions. Where capacity is insufficient, identify actions that need to be undertaken. Coordinate with Military Surface Deployment and Distribution Command, Transportation Engineering Agency (SDDC TEA). Note: Defense Access Route is a designation which applies to supply routes from outside the installation. The SDDC authorizes additional funding to the surrounding community for this designation.

Maintenance

No separate, distinct maintenance is required.

Examples

Example 4.1 Transportation Assessment, page 1

FORT BELVOIR
LONG RANGE COMPONENT

Figure 6.1: ARTERIAL VOLUMES ON ROADWAYS SURROUNDING FORT BELVOIR

Arterial	ADT's (2002)
I95 (Newington Exit)	182,000
US Route 1 (Richmond Highway)	38,000
Fairfax County Parkway	28,000
Telegraph Road	15,000

Figure 6.2: LEVEL OF SERVICE AT CRITICAL INTERSECTIONS

	Field Observed LOS		SYNCHRO LOS	
Intersection	(AM)	(PM)	(AM)	(PM)
Telegraph Road & US Route 1	E	F	E	F
FCC & US Route 1	E	F	C	B
US Route 1 & Pohick Road	C	D	A	A
US Route 1 & Belvoir Road	C	C	C	B
US Route 1 & Woodlawn Road	D	D	B	B
US Route 1 & Mt Vernon Mem. Hwy.	E	E		
Telegraph Road & Beulah Road	D	E	A	B
FCP & Kingman Road	E	E	C	C

LEVEL OF SERVICE KEY

LOS	Average Control Delay(s) Queues
A	≤ 10 seconds
B	> 10 and ≤ 20 seconds
C	> 20 and ≤ 35 seconds
D	>35 and ≤ 55 seconds
E	> 55 and ≤ 80 seconds
F	> 80 seconds

Figure 6.3: MODE OF TRAVEL TO WORK

Mode or Travel	Belvoir Residents	Belvoir Employees
Drive Alone	84%	83%
Carpool / Vanpool	8	8
Public Transit	8	5
Drive with Household Member	6	5
Non-motorized	7	3

Source: Fort Belvoir Transit Study, Technical Memorandum #1, May 2003. Percentages add to more than 100% due to multiple responses.

Telegraph Road provides an alternate corridor to U.S. Route 1 from the Northern edge of Fort Belvoir. This roadway has a grade separated interchange with Fairfax County Parkway. The intersection of Telegraph Road/U.S. Route 1 is the western boundary of the project area. Telegraph Road is a four-lane roadway from U.S. Route 1 to Beulah Street and a two-lane roadway north of Beulah Street with poor sight distances and minimal shoulders.

Mount Vernon Memorial Highway acts as the eastern boundary of the project area. It provides access to Alexandria and Washington D.C. The highway, south and west of the Mount Vernon Estate, is two lanes with little access control, but generally good sight distance.

Figure 6.1 shows VDOT average daily traffic (ADT) counts for the arterials surrounding Fort Belvoir.

North–south I-95 demand exceeds the capacity of this roadway, as the roadway is frequently congested. This congestion occurs not only during normal commuting hours but also during mid-day and weekend periods.

Arterial Performance - All of the principal roadway intersections were observed to fail in the peak hours. Figure 6.2 shows level of service at critical intersections.

The westbound approach on Telegraph / U.S. Route 1 was observed to have queues as long as 9,000 feet (up until the next intersection, U.S. Route 1/ Fairfax County Parkway) in the afternoon peak.

Fort Belvoir Travel Patterns.

Most of the travel to and from Fort Belvoir is by single occupancy vehicles (SOV). In a survey sent via e-mail to over 300 employees and residents of Fort Belvoir, 84% of the residents surveyed and 83% of the employees surveyed stated they drove to work alone. See Figure 6.3.

Although these percentages are typical for a suburban location, these percentages are greater than the Fairfax County average of 75%. Fairfax County has many commuters that take advantage of commuter rail and HOV lanes to the District of Columbia, the Pentagon and other large employment centers.

6-2 TRANSPORTATION ASSESSMENT

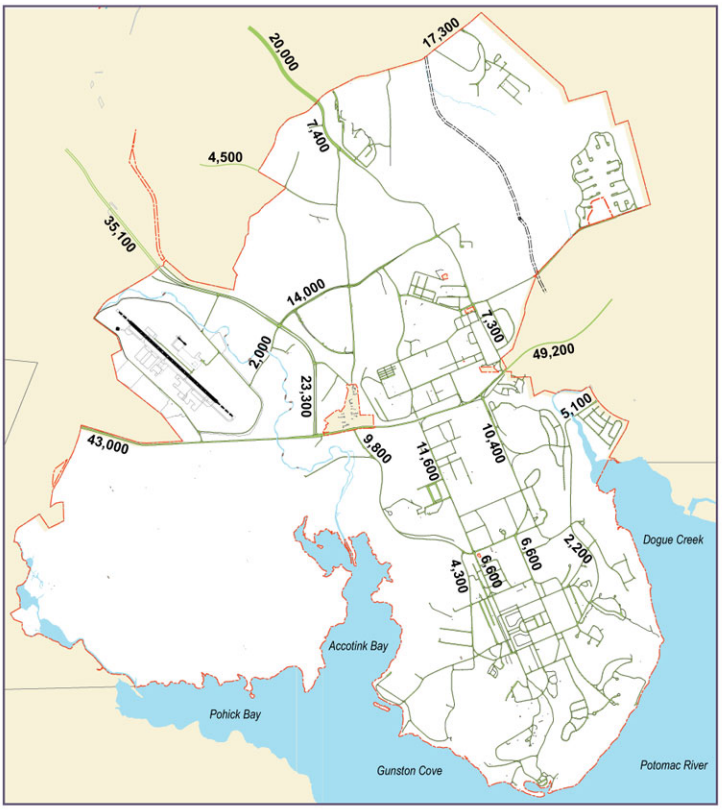
Example 4.2 Transportation Assessment, page 2

On-Post Roadways and Traffic Conditions

In contrast with conditions off-Post, on-Post roadways operate within their capacity.

The principal roadways on North Post are John J. Kingman Road, Woodlawn Road, Gunston Road and Beulah Street. On South Post, the principal roadways are Mount Vernon Road, Belvoir Road, Gunston Road, 12th Street, and Pohick Road. Average daily traffic for these roadways is shown in Figure 6.6.

Figure 6.6: AVERAGE DAILY TRAFFIC FOR ON AND OFF POST ARTERIALS



Lessons Learned

- The dialogue between post and surrounding entities is crucial when the post is planning changes that will affect them. Almost any change WILL affect the surrounding community. Any controversy over increased traffic, construction vehicles, temporarily blocked roads, re-routed buses, visual impact and other environmental factors will negatively impact the mission unless it is resolved, preferably proactively. Further, different review boards have different review requirements and timeframes which must be known, incorporated into specifications, and anticipated in scheduling the work.

4.2.2.7 Airfields Assessment

The Airfields Assessment is another layer information that contributes to the Constraints and Opportunities Map.

Description

The Airfield Assessment provides details on installation airfield facilities and operations. Installation airfields can impact, or be impacted by, activities both on-post and off-post. Encroachment is a significant issue in communities with on-post airfields. This assessment should be completed using the standards in UFC 3-260-01.

Stakeholders

- **Garrison Commander**
- **Garrison Staff**

Purpose

The Master Planner does not determine the approach, general layout or design of airfields. The Master Planner may coordinate airfield location and design through the Airfield Commander and the Airfield Operations Safety Officer, the garrison's POCs to the Army FAA Liaison in Washington DC. AR 95-2, Chapter 8 outlines requirements for submitting airfield facility construction or alteration proposals, which includes obtaining Federal Aviation Administration (FAA) approval. The Airfields Assessment supports the Master Planner in this effort. Actual airfield design is conducted by aviation professionals.

This Airfields Assessment contributes to the baseline information used to create the LRC. Airfield operations can impact land use compatibility on-post as well as off-post. Conversely, encroachment from the surrounding community can impact the expansion capabilities (and sometimes existing activities) of the installation airfield. This assessment supports the Master Planner's decision-making relative to the airfield and its associated constraints.

Key Steps to Creating an Airfields Assessment

There are six key steps to creating an Airfield Assessment. On all airfield issues, coordinate with the proper authorities, primarily the Airfield Operations/Safety Officer.

STEP 1: Obtain the most recent Air Installation Compatible Use Zone (AICUZ) study.

This study should include noise contours and Accident Potential Zones. It is based on the types of aircraft (rotary and fixed wing) using the airfield and the numbers and types of sorties/operations flown.

STEP 2: Collect data/layers.

- Gather baseline information on airfield facilities and operations. If available, this may also include an Air Obstruction Survey and/or an Air Pavement Survey. Include map layers for each feature discussed under "Data/Tools Needed". Whenever possible, create maps in GIS, with a separate data layer for each feature. The following examples depict planning constraints associated with rotary and fixed wing aircraft:Example 4.3, "Fixed Wing Airfield Approach and Departure Map (3D), page 1"; Example 4.5, "Rotary Wing Airfield Approach and Departure Map (3D)". (For more information on collecting airfield information in GIS format, see Section 10.9.2.8, "Airfields Map".)
- With regard to off-post surrounding community data, include all information that shows impacts by or to airfield operations. In particular, this includes land use maps, plans and regulations, data regarding vertical structures of significant height, places of public assembly, and hazardous materials storage facilities, among others. Data collected for the Existing Land Use Assessment may be useful here.

Tools / Data Needed

Baseline information and GIS layers are needed for the following airfield and community features:

- **Airfield facilities**
  - **Runways**
  - **Taxiways**
  - **Parking aprons**
  - **Helipads**
  - **Hangars**
  - **Maintenance facilities**
  - **Traffic control towers**
  - **Navigational aids**
  - **Administration/operation facilities**
  - **Fuel facilities**
  - **Wash racks**
  - **Training facilities (including simulators)**
  - **Fire and rescue facilities**
  - **Weather assessment status**
- **Aircraft (need inventory of number and type, as well as designated use)**
  - **Permanently stationed**
  - **Part-time users**
  - **Fixed wing**
  - **Rotary wing**
  - **Unmanned air vehicles (UAV)**
- **Airspace**
  - **Air operations**
  - **Flight patterns**
  - **Airspace requirements**
- **AICUZ studies**
- **Air Obstruction Surveys/Air Pavement Survey**

STEP 3: Conduct an Air Obstructions Analysis.

DoD has published UFC 3-260-01 that identifies critical airspace imaginary surfaces extending outwards from the ends and centerline of airfield runways. Obstacles, such as tall vegetation or buildings/structures, should not penetrate this critical airspace. Conduct this analysis using GIS maps, aerials, surveys, and site visits.

STEP 4: Determine data gaps and limitations.

Information needed to complete the baseline inventory is often missing or outdated. Determine these gaps and limitations. Evaluate the AICUZ to determine whether updates are needed (particularly if there were drastic changes in airfield use).

STEP 5: Determine if additional studies are necessary, and conduct whenever appropriate.

Determine the missing information critical for identifying environmental opportunities, constraints, and for planning future development. Develop additional studies (for example an Air Obstructions Survey), to acquire that information. Conduct studies whenever appropriate. If not, be sure to provide a list of recommended studies.

Tip

When programming projects near airfields, coordinate Federal Aviation Administration (FAA) approval with the airfield manager.

STEP 6: Coordinate with the community.

Become familiar with existing local regulations regarding: land use and zoning, height restrictions, noise, and any other issue that could impact the activities at the installation's airfield. Coordinate with local communities whenever changes to the airfield or local regulations are proposed. Encroachment is a critical issue in communities with military airfields. Being proactive with the community in addressing these issues is imperative to the continued operation of the airfield.

Maintenance

No separate, distinct maintenance is required.

Tools / Data Needed (cont'd)

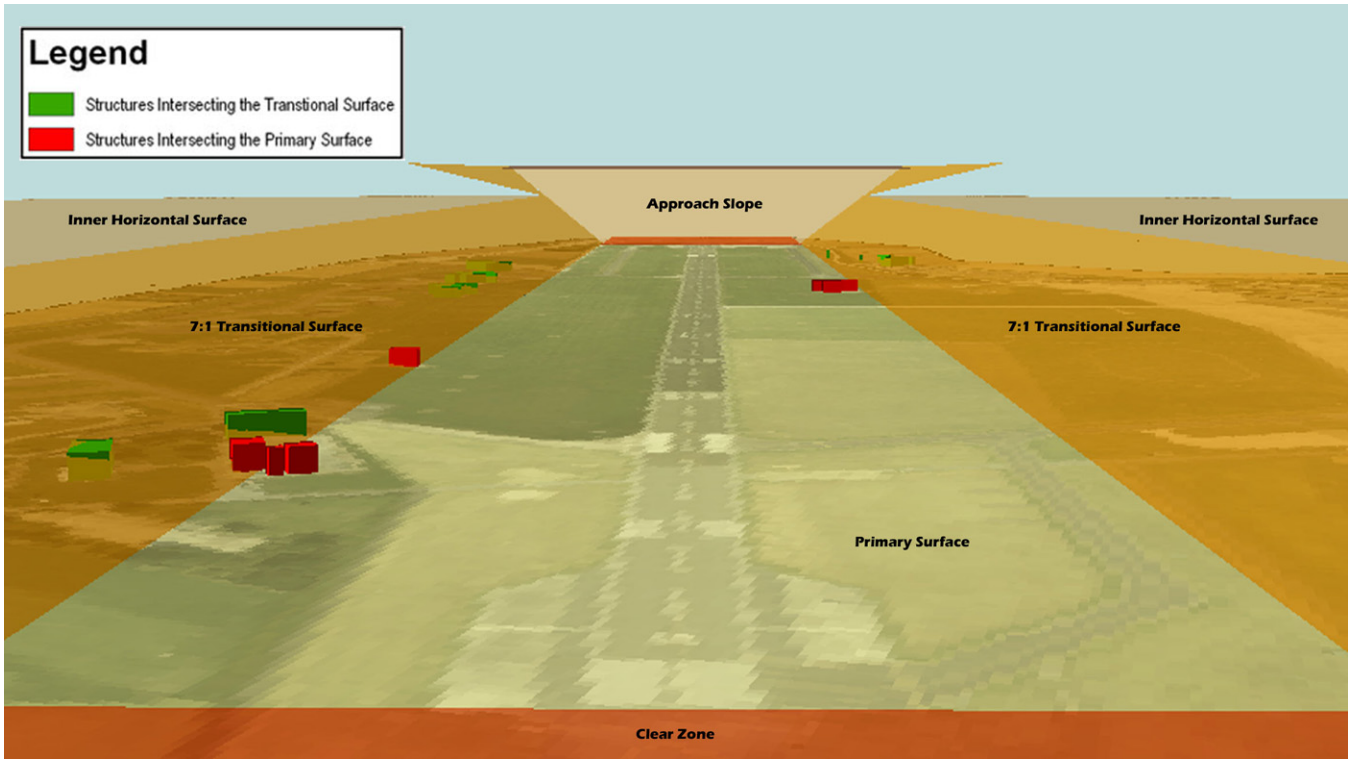
- Clearances and Zones
  - Airspace clearance zones
  - Safety zones (e.g., around facilities)
  - Noise contours
  - Accident potential zones
  - Others
- Local Government Regulations
  - Land use and zoning regulations
  - Land Development Code regulations (e.g., height restrictions)
- Physical/Institutional Features
  - Topography/drainage
  - Adjacent land uses
  - Existing transportation and buildings
- Other Studies
  - Joint Land Use Study (JLUS), if available
  - Air Obstructions Analysis
  - Air Obstructions Survey

Contacts Needed

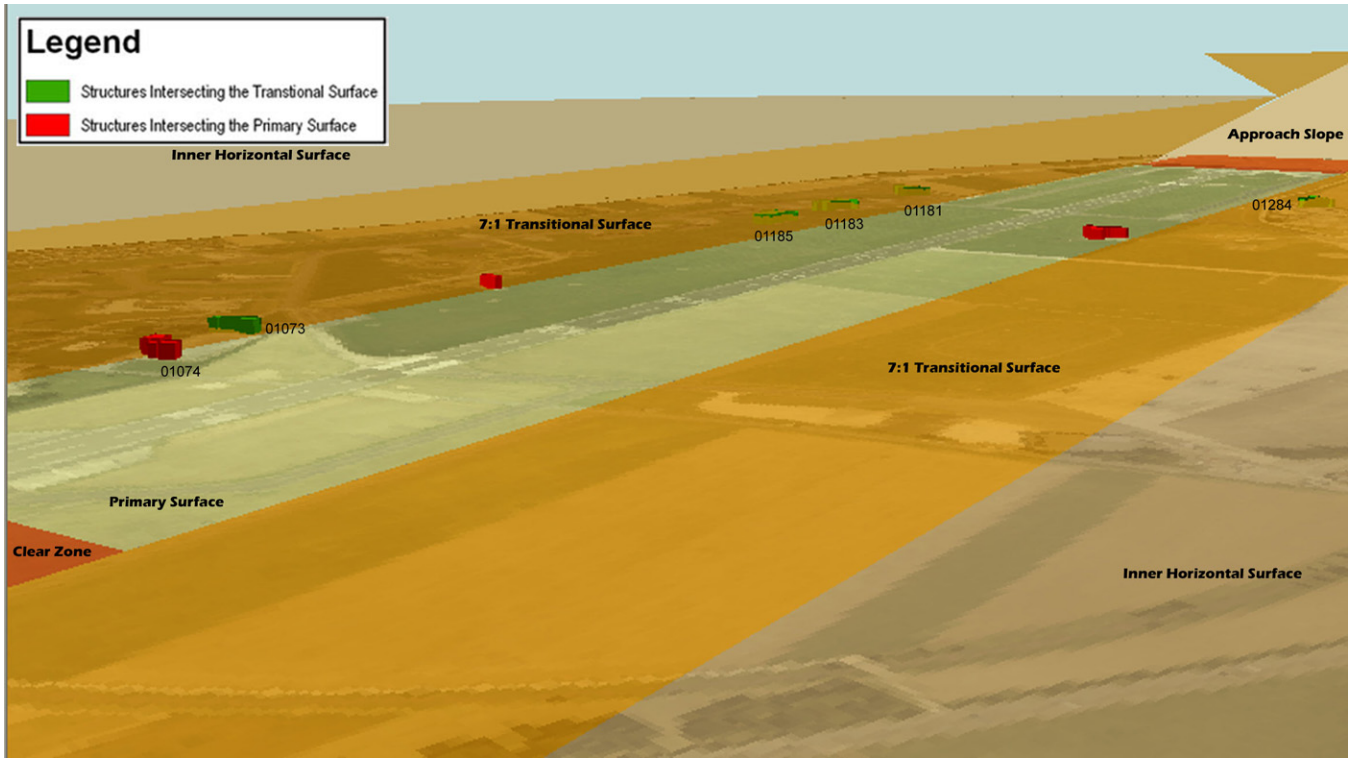
- Airfield Personnel:
  - POCs to the Army FAA Liaison in DC
  - Airfield Commander
  - Airfield Operations Officer
  - Airfield Safety Officer
  - Airfield Training Officer
- Director of Public Works (DPW)
- Local Government Planning Staff
- Local Government Elected Officials

Examples

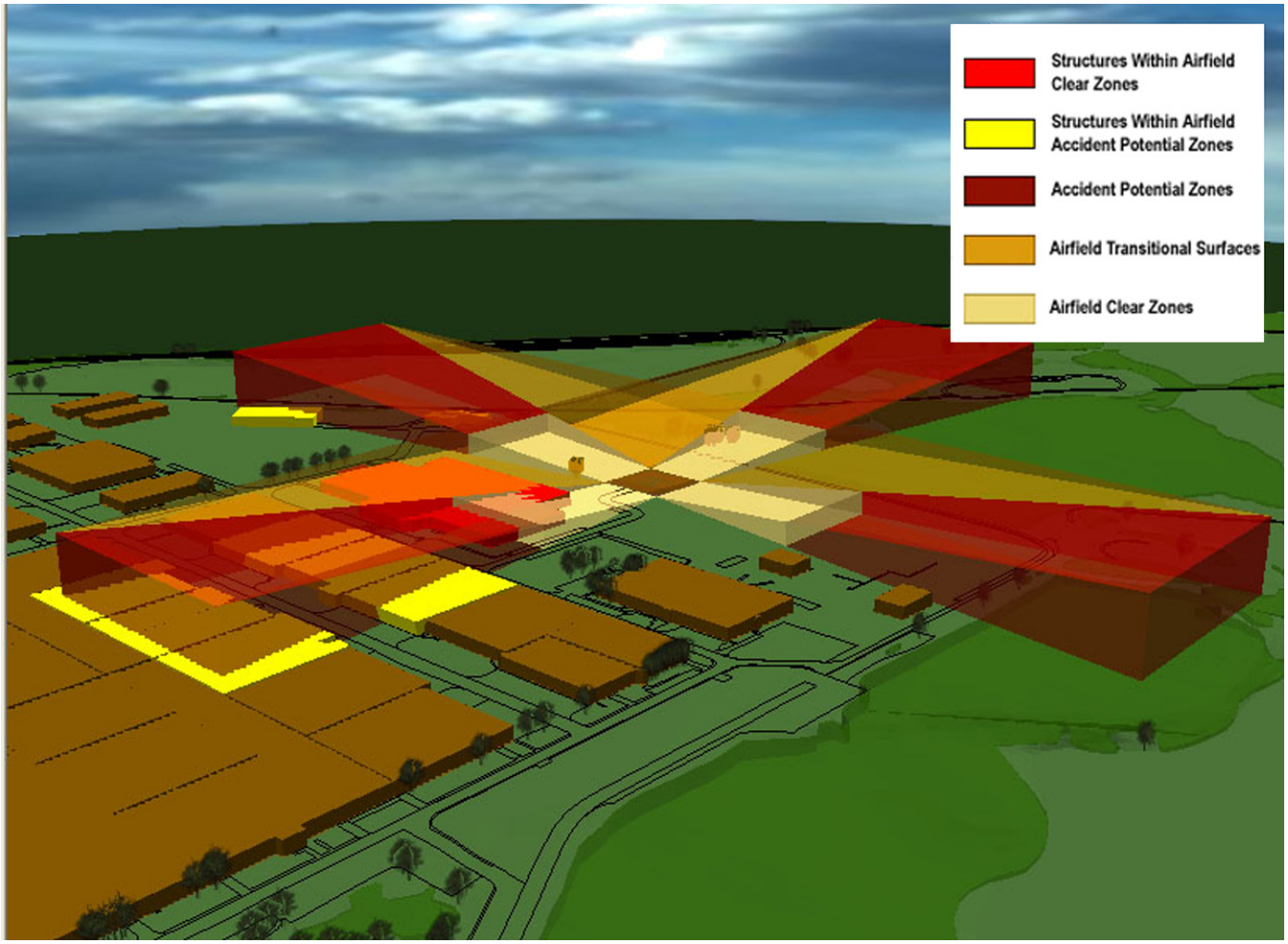
Example 4.3 Fixed Wing Airfield Approach and Departure Map (3D), page 1



Example 4.4 Fixed Wing Airfield Approach and Departure Map (3D), page 2



Example 4.5 Rotary Wing Airfield Approach and Departure Map (3D)



Lessons Learned

- Find out what type of approval application is required for alterations at garrison airfields, and ensure data is provided by planning charrette efforts. See Section 10.8.4, "Charrettes". For example, a topographic map with designated coordinates of the proposed effort is part of the package, as well as a detailed description. Also, start early on the approval process. It can take several months to complete.
- For all projects, especially those in the vicinity of an airfield, invest the effort in planning now; it saves time later.

Products

- Narrative describing baseline conditions of the Installation airfield
- Maps (GIS layers) of airfield facilities and operational zones

References

- UFC 3-260-01: Airfield and Heliport Planning and Design
- UFC 3-260-02: Airfield Pavement Evaluation
- UFC 3-260-03: Marking of Army Airfield Heliport Operational and Maintenance Facilities

4.2.2.8 Ranges and Training Lands Assessment

The Ranges and Training Assessment comprises another layer of information that contributes to the Constraints and Opportunities Map.

Stakeholders

- Garrison Commander
- Garrison Staff
- Real Property Accountable Officer

Tools / Data Needed

- AR 350-19. The Army Sustainable Range Program
- Most information required for completion of the Range and Training Opportunities and Constraints Layer is available in the SRP GIS system.
- SRP Program [https:/ / srp.army.mil/]
- Noise Assessments

Contacts Needed

- Installation Directorate of Plans, Training, Mobility and Safety (DPTMS) Officer
- Range and Training Lands Program Officer
- Real Property Accountable Officer
- Major tenants
- Director of Public Works

Description

Range and Training Lands often encompass a significant portion of an installation, and are often pivotal to the mission and existence of an installation. They are operated and managed by a separate group headed by the Range and Training Land Program Manager. The Master Planner should work closely with Real Property Accountable Officer, the Range and Training Lands Program Manager, and major tenants during this assessment process. (For further details see Section 10.6, "Ranges and Training".)

The Master Planner evaluates Ranges and Training Lands for:

- Their Real Property Inventory assets
- Activities that occur there
- Impacts to the environment

Purpose

The Range and Training Lands Assessment contributes to the baseline information used to create the RPMP. Activities on Range and Training Lands can impact land use compatibility on-post as well as off-post. Conversely, encroachment from the surrounding community can impact expansion capabilities (and sometimes existing activities) of Range and Training Lands.

Key Steps to Creating the Range and Training Lands Assessment

There are four key steps to creating the Ranges and Training Lands Assessment.

STEP 1: Collect and display data on real property assets on ranges.

On this layer, display each range with its real property facility number. Also include its Range and Training Office name or number. Ranges frequently support multiple requirements, including purposes not covered by its reported category code. Obtain this information from the installation DPTMS GIS. (For more information on how to obtain this information if the DPTMS GIS is unavailable, see Section 10.8.3, "Geographic Information Systems (GIS)".) Display this data as a constraint when it is located within the surface danger zone (SDZ).

Tip

Work with the Real Property Accountable Officer to ensure that information collected is current and up-to-date.

STEP 2: Collect and display data on range operations.

This section addresses the special requirements and coordination necessary for range planning. This includes impact areas, surface danger zones and restricted areas.

- **Impact Areas.** Impact areas are areas designated for impact and/or detonation of ordnance. It is the area within an operational range used to contain fired, dropped, or launched military munitions. Obtain information on impact areas from the installation DPTM GIS. If the environmental office maintains a separate GIS system, it will normally include information on impact areas. GFEBS generally contains information on the total area classified as impact areas. This information is not usually linked to graphic information, unless the GFEBS is linked to a GIS system. Be sure to display these critical characteristics of impact areas on the map layers.
  - Active or inactive
  - Dudded or non-dudded
  - Permanent or temporary status of active, dudded impact areas
  - "No Entry" designations for all active/inactive dudded areas, along with a contact information link for the responsible range officer
  - "No Entry" designations for all active, non-dudded impact areas, unless coordinated in advance and approved by the installation range officer

Tip

All dudded impact areas present the hazard of unexploded ordnance (UXO). The range officer is responsible for maintaining strict access controls to these areas.

- **Surface Danger Zones.** Within the training complex, these zones are the designated grounds and airspace (along with associated safety areas) for vertical and lateral containment of projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of weapon systems. This includes ammunition, explosives, and demolitions.
- **Operational and Test Restricted Areas.** Research, Development, Test and Evaluation (RDT&E) activities, strategic electronic activities, and other specialized activities may restrict access. This may include parts of cantonment areas, special ranges, and training

Products

- Narrative describing baseline conditions of Ranges and Training Lands on Installation
- Maps that include, at a minimum, the following information:
  - Ranges
  - Impact Areas
  - Surface Danger Zones
  - Operational and Test Restricted Areas
  - Quantity Distance Arcs for Storage of Explosives
  - Chemical Storage Areas
  - Noise Contours
  - Former Firing Ranges and Impact Areas
  - Training Areas

Leveraging Technology

- The Army Sustainable Range Program requires a GIS capability. This may be managed under the Integrated Training Area Management Program (ITAM), a separate GIS system, or a capability within other garrison GIS platforms.

or maneuver areas. Document these restricted areas on the constraints layers, consistent with operations security. Depending on the nature of the activities, it might be necessary to mask these restrictions using airspace management tools (over-flight restrictions) or generic constraints to avoid compromising sensitive information. Coordinate all installation map representations with the tenant activities generating the restrictions.

- **Training Areas.** Training areas are managed under the Integrated Training Area Management Program (ITAM). Obtain the data for this constraints and opportunities layer from the ITAM coordinator. The ITAM GIS capability provides standard mapping and spatial analysis, including training areas, capacities, environmental factors, road and trail information, and planned repairs and maintenance. Maps can be created to meet specific requirements. An example of a Training Areas map is shown in Figure 10.70, "Ranges and Training Lands Map".

STEP 3: Collect and display data on the environmental impacts of Ranges.

This is also addressed in the Environmental Resources Assessment and is considered an operational constraint. (See Section 4.2.2.3, "Environmental Resources Assessment".)

- **Quantity Distance Arcs for Storage of Explosives.** Explosive safety is managed under the AR 385-10 Army Safety Program. Quantity Distance (QD) Arcs are based on surveys performed by the Department of Defense Explosives Safety Board (DDESB). Installation commanders are required to appoint a qualified Occupational Safety and Health Manager under the provisions of AR 385-10. Obtain information on the dimensions of QD Arcs from the installation GIS system, environmental layers, or the Safety Office. QD Arcs must also be developed for chemical munitions with explosive content.

- **Chemical Storage Areas.** Installations responsible for storing chemical munitions must comply with AR 385-61, Toxic Chemical Agent Safety Standards. Garrison commanders are required to appoint a qualified Occupational Safety and Health Manager under the provisions of AR 385-10 to serve as the single point of contact. TM 3-250 Storage, Shipment, Handling, and Disposal of Chemical Agents and Hazardous Chemicals provides procedures for determining the downwind vapor hazard and relates the QD Arcs to explosive content. The Occupational Safety and Health Manager is responsible for determining the QD Arcs in conjunction with the tenant responsible for storing the material and the DDESB. Display this information on the constraints layer and coordinate with the emergency response plans.

References

- AR 350-19:The Army Sustainable Range Program
- AR 385-10: Army Safety Program
- TM 3-250: Storage, Shipment, Handling, and Disposal of Chemical Agents and Hazardous Chemicals
- AR 200-1: Environmental Protection and Enhancement

References (cont'd)

- AR 95-2: Air Traffic Control, Airspace, Airfields, Flight Activities and Navigation Aids
- AR 350-19: The Army Sustainable Range Program
- AR 385-63: Range Safety
- DA PAM 350-38: Standards in Weapon Training
- DA PAM 350-39: Standards in Weapons Training (Special Operation Forces)
- DA PAM 385-63: Range Safety
- DA PAM 415-28: Guide To Army Real Property Category Codes
- Installation Training Capacity (ITC) Methodology, HQDA, G-3
- TC 25-1: Training Land
- TC 25-8: Training Ranges
- US Army Training and Testing Area Carrying Capacity (ATTACC). Handbook for Installations, Version 1.1. US Army Environmental Center

- **Noise Contours.** AR 200-1, Environmental Protection and Enhancement, outlines requirements for the Environmental Noise Management Program (ENMP). This program incorporates the Installation Compatible Use Zone (ICUZ). Installations are required to perform noise assessments primarily through mathematical modeling and computer simulation. This method assigns noise limits based on the percentage of the population that is highly annoyed by the noise. There are three levels of noise:

  - Continuous (aircraft)
  - Impulse (artillery, mortar or explosives)
  - Small arms

  Noise zones, described in Chapter 7 of AR 200-1, delineate compatible noise uses. Prepare noise maps displaying Noise Zones I, II, and III. The installation environmental office maintains the necessary data, and can produce the necessary layer based on formal studies and the results of the ENMP.

- **Former Firing Ranges and Impact Areas.** The Army Range Inventory Database (ARID) is maintained by the Army Environmental Center. This is a repository for range-related information for the Army's operational (Active/Inactive) and non-operational (Closed, Transferring and Transferred) ranges. This database also includes range information for Base Realignment and Closure (BRAC), Formerly Used Defense Sites (FUDS), and sites with discarded military munitions, unexploded ordnance, and munitions constituents. This information is normally available at the installation through the SRP GIS system or the GIS system used by the environmental office. Request information for a particular location from the Army Range Inventory Database [http:/ / aec.army.mil/ usaec/ reporting/ arid00.html].

STEP 4: Develop narrative.

Summarize the existing conditions of the Range and Training areas. Discuss operations and their associated constraints, both on- and off-post.

Maintenance

No separate, distinct maintenance is required.

Examples

Figure 4.18 Ranges and Training Lands Map

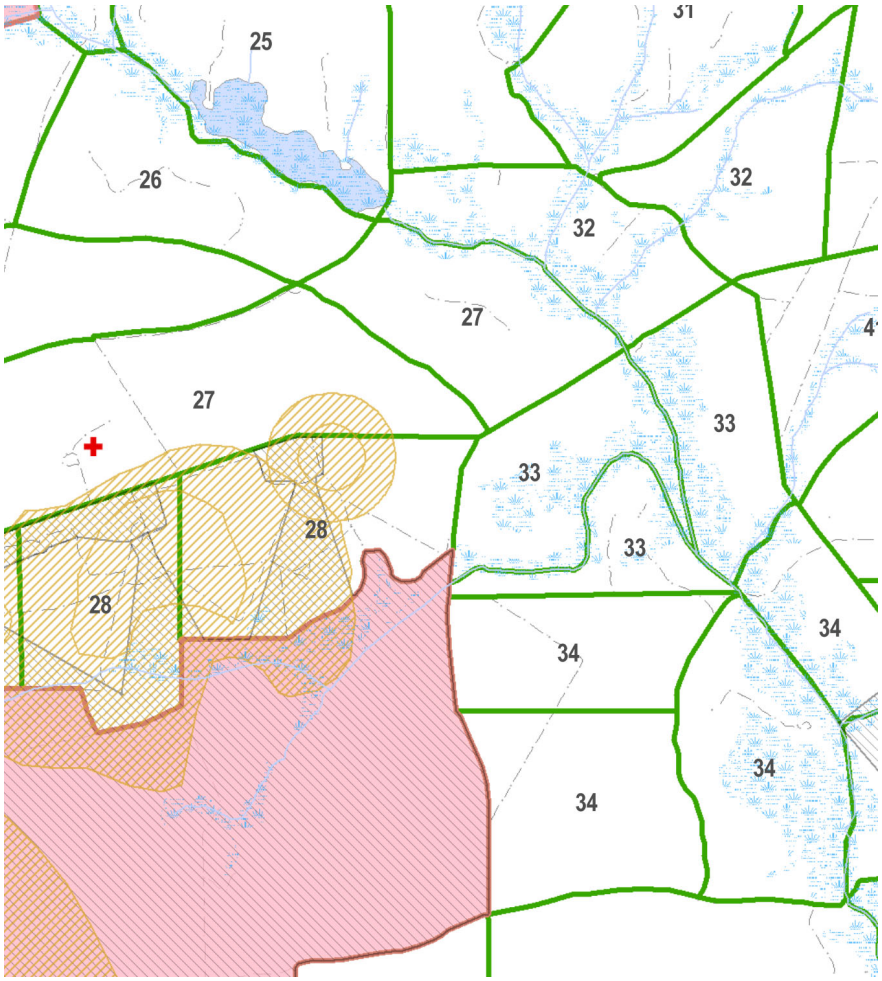
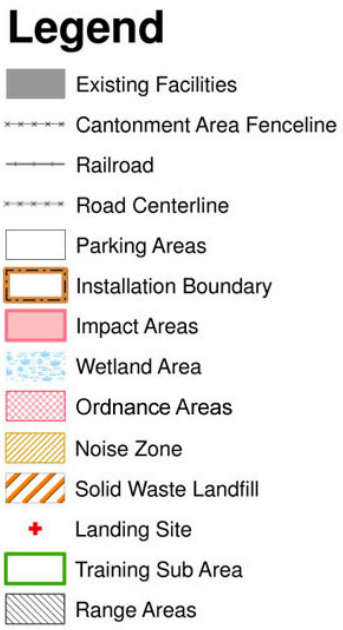


Figure 4.17 Ranges and Training Lands Map - Legend



Lessons Learned

- Work closely with Range Planners - a coordinated plan is an integrated plan.

4.2.3 Summary of Constraints and Opportunities

The Composite Constraints and Opportunities Map concludes the assessment of existing conditions.

Description

The Composite Constraints and Opportunities Map is essential to the development of the installation LRC. Each installation has unique characteristics. Planners must identify and understand how these unique features constrain development or present opportunities, prior to any planning. Features such as steep slopes, flood plains, or hazardous waste sites often limit installation development potential, while other features (such as a shoreline) may present excellent opportunities for developing water-based activities.

Purpose

This Summary serves two primary purposes:

- It channels the planning effort by clearly identifying those areas with unique opportunities and significant constraints. It enables the Master Planner to avoid constraints and leverage opportunities like: siting housing away from a high noise zone or close to a scenic lake, planning future development where demolition will occur, or ensuring that future facilities will not be located in restricted development areas, in accordance with Army regulations and/or policy.
- It provides a reality check for how well the existing land use and future development plans conform to identified opportunities and constraints.

Tools/Data Needed

The primary source for creating the Summary of Constraints and Opportunities includes the following assessment products:

Facilities:

- Current Building Condition Layers
- Demolition Plan Layer

Environmental Resources:

- Natural Resources Layers
- Cultural Resources Layers
- Operational Constraints Layers

Existing Land Use:

Stakeholders

- **Garrison Commander**
- **Garrison Staff**

Contacts Needed

- **Director of Public Works**
- **Installation Environmental Officer**
- **Installation Traffic Engineer**
- **Airfield Commander**
- **Range and Training Lands Program Manager**

Products

- **Constraints layers showing developable, prohibitive and restricted development areas**
- **Opportunities Layers showing existing:**
  - **Transportation**
  - **Utilities**
  - **Land Use**
- **Composite Constraints and Opportunities Map**

- Existing Land Leases and Use Permits Layer (Enhanced Use Leasing (EUL), RCI, banks, schools, etc.)
- Desirable and undesirable Land Use features off-post

Utilities:

- Areas that cannot be served economically
- Reserved critical utility corridors/locations
- Existing service areas

Transportation/Roads:

- Existing Roadway Classification Layer
- High Accident Locations
- Critical Reserved Right-of-Way/Roadway Corridors
- Access Control Points/Gates

Airfields: (Considered Operational Constraints)

- Air Installation Compatible Use Zone (AICUZ) Clear Zones Layer (rotary and fixed wing aircraft)
- AICUZ Noise Zones Layer (rotary and fixed wing aircraft)
- Airfield Constraints and Opportunities Layer
  - Land Reserved for Critical Aviation Navigation Aids
  - Low-Altitude Aircraft Operation Corridors
  - Critical Airspace Imaginary Surfaces
  - Accident Potential Zones and Safety Buffers (around facilities)
  - Airspace Clearance Zones

Ranges and Training Lands: (considered operational constraints)

- Range and Training Constraints and Opportunities Layers
  - Ranges
  - Training Areas
  - Impact Areas
  - Surface Danger Zones
  - Operational and Test Restricted Areas
  - Chemical Storage Areas
  - Quantity Distance Arcs for Storage of Explosives
  - Noise Contours
  - Former Firing Ranges and Impact Areas

Key Steps to Creating the Summary of Constraints and Opportunities

Generally, the summary is presented as three GIS layers: Constraints, Buildable Areas, and Opportunities . It is generated by performing the following five steps. This process is depicted in Figure 4.19, "Constraints and Opportunities Analysis".

STEP 1: Collect all available information from the Existing Conditions Assessments.

Generally, this data is obtainable from garrison personnel. For utility service areas or limitations, contact garrison utility personnel or utility companies. For constraints generated by off-post activities, contact local planning agencies. (Refer to Section 4.2.2.1, "Introduction".)

STEP 2: Develop a narrative of constraints.

- Identify problems. These are specific areas of concern revealed through the evaluation of the existing conditions. Consider existing facility condition and occupancy, existing infrastructure capacities, and off-post problems that may affect on-post planning and the mission. Whenever feasible, forecast future problems resulting from land use and mission changes/additions.
- Identify constraints. Describe any physical, environmental, legal or any other constraint that might be specific to a mission or program. Include any studies deemed necessary to improve accuracy. Plan for the maintenance or improvements of facilities, infrastructure or services.
- Define and describe every constraint along with impacts they have on future development

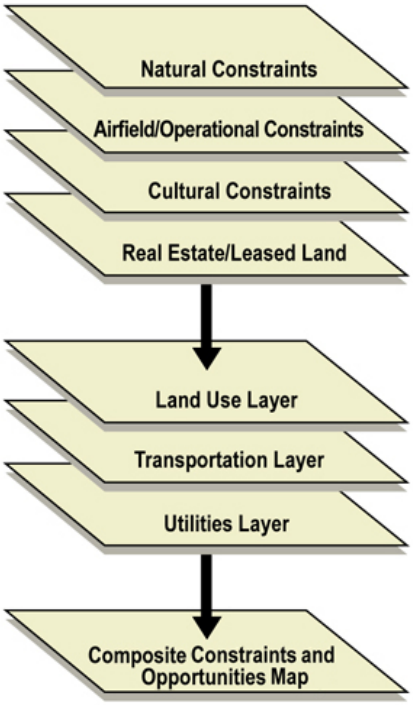
STEP 3: Assemble constraints.

Again, the Existing Conditions Assessment data is a primary source. Combine the data features in the appropriate constraint categories that follow to generate a Composite Constraints Layer.

- Natural Constraints
- Airfield/Operational Constraints
- Cultural Constraints
- Real Estate/Leased Land

The number of themes depends on availability of data and the amount of data that can be shown in one view. Readability is essential to this analysis. Use databases and GIS to gather, organize and analyze the data.

Figure 4.19 Constraints and Opportunities Analysis



Create a composite constraints layer that supports the decisions-making process. For example, identify areas that have no constraints (ideal development), are somewhat constrained (restricted development) or that are significantly constrained (prohibitive development) based on an understanding and interpretation of the layers and themes assembled above. (See Figure 4.21, "Composite Constraints and Opportunities Map")

Tip:

The Composite Constraints and Opportunities Map is a simple way to communicate with garrison leadership and stakeholders common sense locations available for future project sites.

STEP 4: Develop the Summary of Opportunities.

- Overlay transportation, utilities and existing land use on the Composite Constraints Map for visual analysis.
- Identify the most feasible areas for development as opportunities. Use the Existing Land Use Layer to determine opportunities within each land use type. Along the same lines, consider semi-buildable areas.
- Highlight identified opportunities.

Figure 4.21 Composite Constraints and Opportunities Map

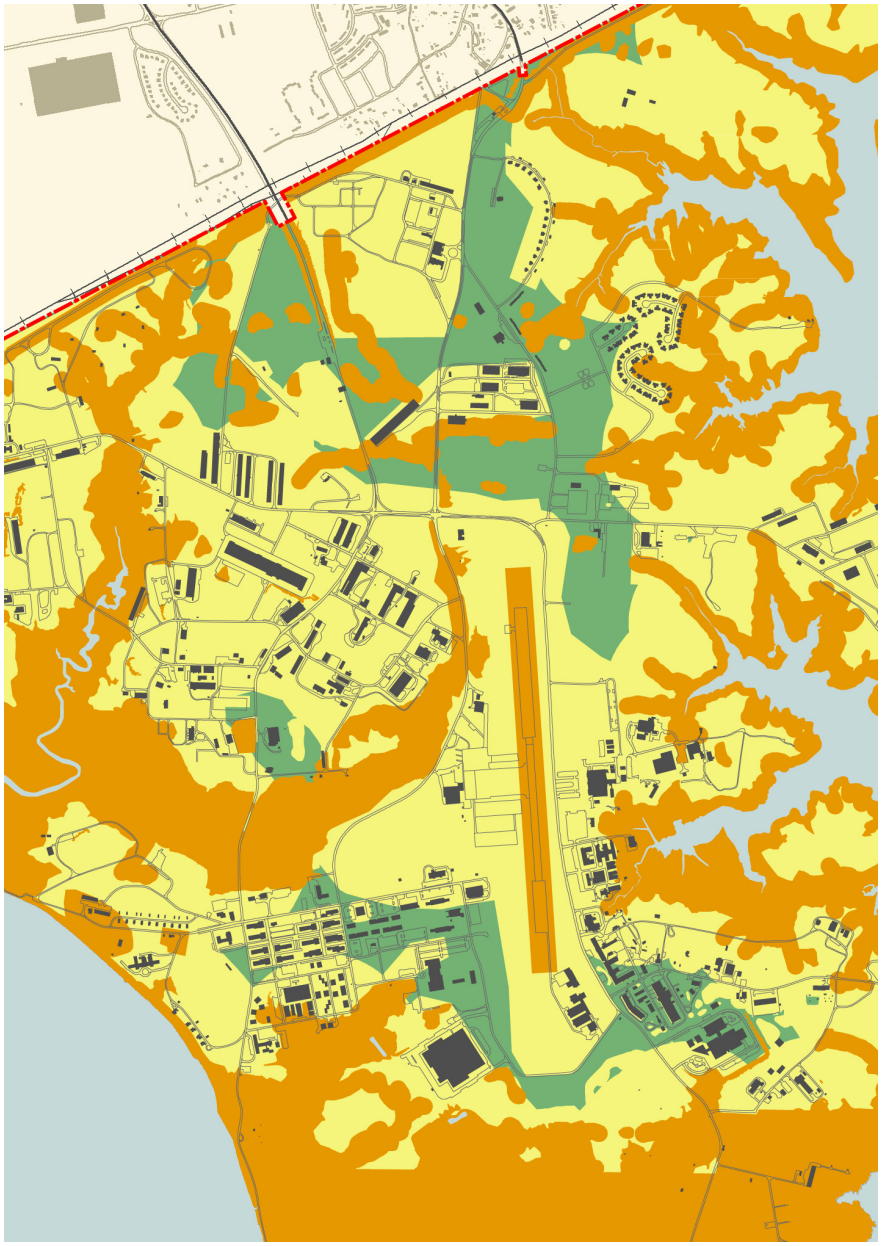


Figure 4.20 Composite Constraints and Opportunities Map - Legend

Maintenance

No separate, distinct maintenance is required.

4.3 Framework Plan

Description

The Framework Plan is a living, flexible document developed after careful consideration of alternatives. Derived from the Assessment of Constraints and Opportunities and Functional/Spatial Analysis, it integrates the known with the unknown, and represents a consensus on the direction and location of future installation development. The Framework Plan is not constrained by funding considerations or specific project requirements. As a result, it is flexible relative to projects and should be somewhat static, providing a consistent framework for change as projects are planned and programmed over time.

Stakeholders

- IMCOM Region
- Garrison Commander
- Mission Commander
- Garrison Command Sergeant Major (GCSM)
- Directorates
- PAIO (Plans Analysis and Integration Office)
- Real Property Planning Board (RPPB)
- Garrison Staff
- Tenants

Purpose

The Framework Plan provides an adaptable blueprint that brings control, coordination, and direction to current and potential change. It integrates divergent issues with competing long-range development directions, while complying with the installation's Mission, Vision, Goals and Objectives.

Key Steps to Creating the Framework Plan

There are 13 steps to the process, broken down into three parts:

- Part I outlines the Functional Analysis process
- Part II outlines the Spatial Analysis process
- Part III results in the Framework Plan

Tip:

For more details on this subject, see A Pattern Language: Towns, Buildings and Construction by Christopher Alexander.

PART I: Functional Relationships

STEP 1: Identify land activity.

To begin, become familiar with the installation's mission and requirements.

- The interviews conducted in Step 5 of the Land Use Assessment should supply this information.
- Conduct field verification.
- Assign dependencies to buildings/areas.

STEP 2: Group land activities.

Convert mission statements into objective components or individual activity nodes.

- Use criteria such as proximity, compatibility, and efficiency.
- Include general activity groups for areas occupied by buildings and support facilities.
- Review functional land activity relationships that emerge.

STEP 3: Use bubble diagram illustrations.

Study and understand the interactions or functional relationships that emerge.

- Bubble diagram each activity within the installation.
- Show functional relationships by connecting bubbles with arrows.
- Use arrows to convey direction of activity – one-way, two-way, or multi-directional.
- Use lines that are bold and thick (significant) or thin (less significant) to express magnitude of relationships.

(For examples, see Figure 4.22, "Land Use Activity and Functional Relationships Diagrams".)

Products

- Functional relationships analysis
- Spatial relationships analysis

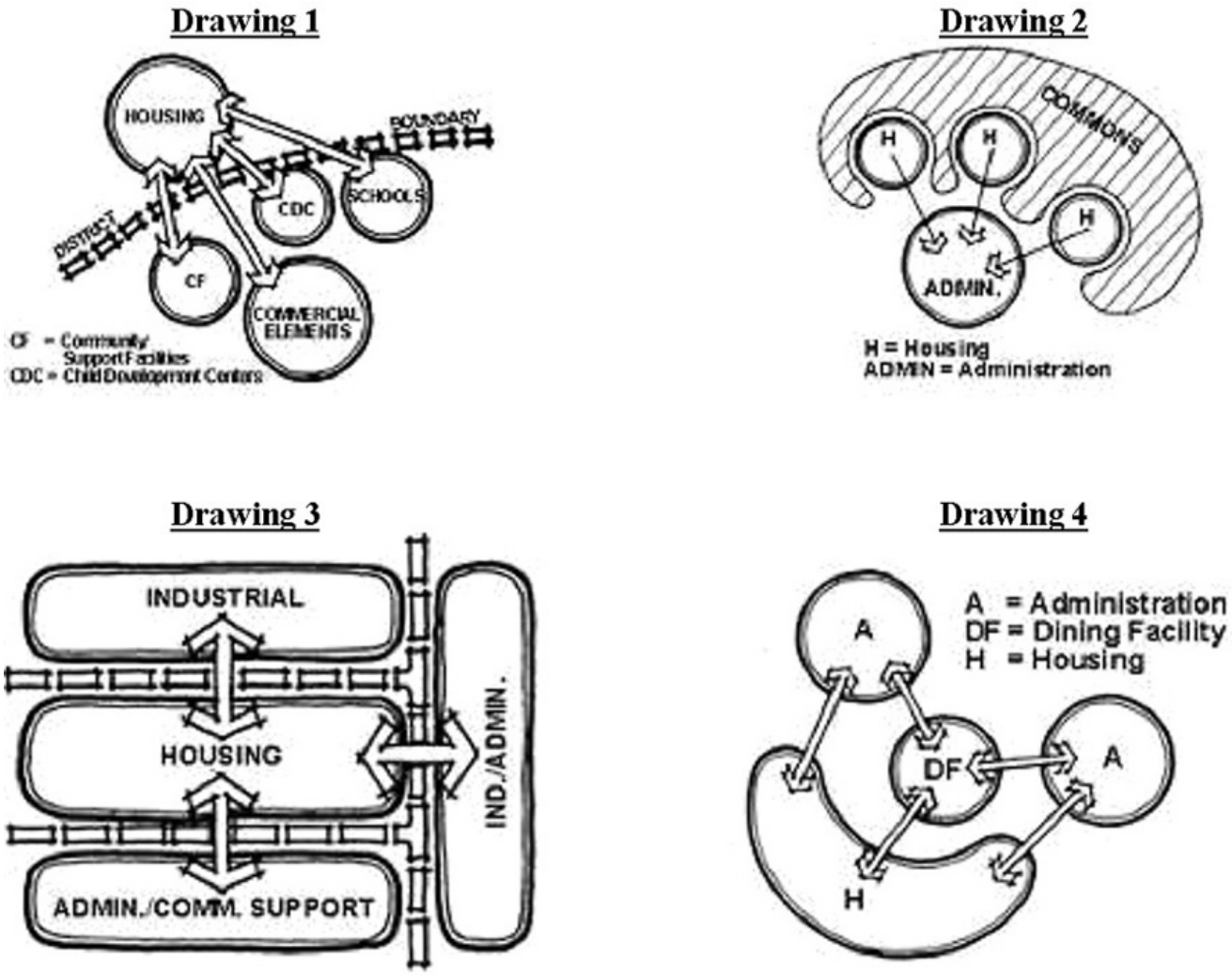
Graphics

- Land activity patterns
- Functional relationship diagrams
- Spatial relationships diagrams

References

- Army Campaign Plan [http:/ / call.army.mil/ products/ ACP/ worthfightingfor.htm]
- Latest RPMP
- Latest Installation Strategic Plan
- IMA Strategic Planning Model and Process Playbook
- Commander's Guide: Installation Standards
- Army Performance Improvement Criteria
- AR 420-1: Army Facilities Management
- A Pattern Language: Towns, Buildings, Construction, by Christopher Alexander

Figure 4.22 Land Use Activity and Functional Relationships Diagrams



STEP 4: Analyze relationships.

- Compare this bubble diagram to the missions' objective components.
- Look for proper corresponding fit, efficiency, and optimal functionality.
- Make notes of any deficiencies needing improvement.
- Identify current and future ways of improvement.

Leveraging Technology

- **Use databases and GIS to gather, analyze and communicate information.**

PART II: Spatial Relationships

Spatial relationships address physical land use development by space, not actual use. Understanding these relationships assists long-range planning in terms of visual character, building layouts, scale, dimension, and other interconnected physical attributes, including open spaces and use of vegetation. A major part of this exercise involves uncovering incompatible land uses – where physical separation must be either maintained or established.

STEP 5: Identify space and place.

- Identify future visual requirements from the installation's Vision, Goals and Objectives.
- Perform a spatial survey using installation maps, interviews, photographs, or any other relevant information. Use the information collected and developed during the Land Use Assessment.
- Group results into broad/unique categories, including:
  - Exterior grounds and fencing
  - Range and training functions
  - Buildings and facilities
  - Vehicular and pedestrian patterns and corridors
  - Significant vegetative stands
  - Airfield
  - Historic features
  - Natural features
  - Administration, educational, troop settings
  - Open spaces
  - Other groupings
- Also identify buildings with shared features or siting characteristics.
- Use GIS to help with this exercise. Refer to the most recent Installation Design Guide.
- Include sufficient paths and bikeways between pedestrian generation points.

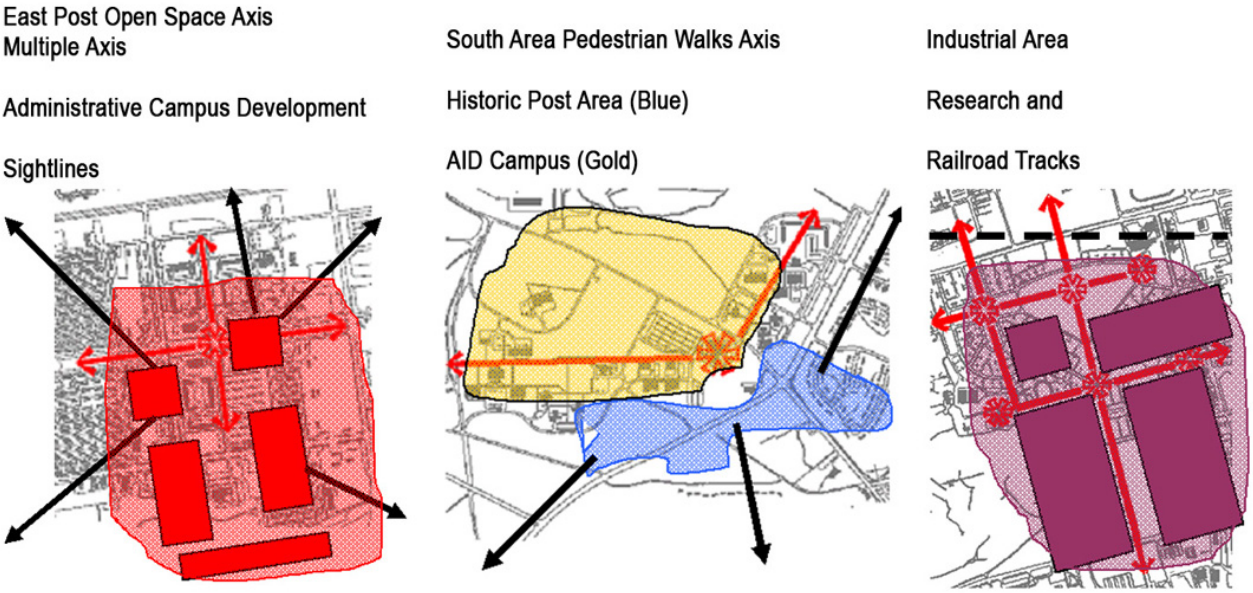
Tip

Consider antiterrorism/critical infrastructure protection requirements during the spatial analysis. See Section 10.5, "Antiterrorism & Critical Infrastructure Protection" for more information.

STEP 6: Assess space and place arrangements.

- Develop Spatial Diagrams
- Divide the entire installation into its respective spatial areas using GIS.
- Make each area as distinct as possible.
- Give each a name.
- Clearly draw area boundaries.

Figure 4.23 Spatial Relationship Diagrams



STEP 7: Analyze spatial relationships.

- Compare spatial diagrams to the Real Property Vision, Goals and Objectives.
- Look for proper corresponding fit, efficiency, and optimal functionality.
- Note any deficiencies needing improvement.
- Reconcile any differences.
- Identify current and future ways of improvement.

Part III: Develop the Preferred Alternative

STEP 8: Develop alternatives.

- Refer to the Real Property Vision, Goals and Objectives, Opportunities Layer and other previously developed GIS layers for this exercise.

- Identify distinct area functions. Then create an approximate boundary for the area, utilizing, whenever possible, existing roads, fences, and other physical features. Always try to exclude incompatible functions or land uses.
- Begin by identifying several installation-wide, alternative future development scenarios. Do this based on operational needs, transportation and utility systems, and existing Area Development Plans.
- Include changes/improvements to area uses, densities, street grid, circulation, access points, infrastructure, new land acquisitions, and site improvements.
- Name and number each alternative.
- Strive to optimize installation resources, factoring in: future missions, existing functional constraints, infrastructure, environmental concerns, socioeconomic needs, and tenant/ contractor partnerships.
- Address flexibility to meet future conditions and requirements, compatibility of on/off-post land uses, and safety/noise impacts to adjacent populated areas.
- Preserve open areas outside the built-up areas for training activities, maneuvers, and required operational clearances.
- Separate uses by intensity of activity.
- Use natural features/terrain to provide an attractive setting for living areas and other community functions to increase quality of life.
- Make convenient access to community facilities for on/off-post populations a high priority. Consider transit access within walkable distances of community and residential facilities.
- Compare the installation's ideal functional arrangement with current constraints and opportunities.
- Within the cantonment areas consider compact design that promotes walking and vicinity to transit.
- To the extent possible, group and embed facilities, instead of isolating them in remote, single-use complexes.
- Distribute appropriately scaled outdoor public spaces within the built environment.
- Consider other installation plans: Sustainability Plans/EMS Plan/ EPACT 2005, etc. Incorporate into Alternatives as appropriate.
- Document issues.
- Prepare a brief narrative of each scenario.

Tools / Data Needed

- **Latest RPMP**
- **Constraints and Opportunities Map**
- **Land Use Plan**
- **Mission Analysis**
- **Facility Utilization**
- **ASIP**
- **GIS/CADD Data**
- **Existing Area Development Plans**
- **Critical Infrastructure Protection Standards (See Section 10.5, "Antiterrorism & Critical Infrastructure Protection")**
- **Sustainable Planning Standards (See Step 2 in Section 10.4, "Sustainability")**
- **Data Tables representing land uses in the study area**
- **EMS Plan**
- **EPACT 2005**

Tip

When planning facilities, the last option is new construction.

Green Tip

Consider LEED NC Sustainable Sites Credits and LEED ND Smart Location and Linkage. Section 10.4, "Sustainability"

STEP 9: Evaluate alternatives

- Examine and discuss each alternative to determine the best scenario or composite of scenarios that best supports the installation's Vision, Goals and Objectives.
- Evaluate the alternatives for advantages and disadvantages. Rank the effectiveness of each criterion's application. Consider adherence to Vision, Goals and Objective, sustainability, environmental impacts, and programming options.
- Perform an environmental analysis to determine and compare impacts of major actions.
- Critically analyze and evaluate the alternatives, and identify implications in chart form. (See Table 4.2.)
- Choose the best single alternative or a composite of alternatives.
- Present the best alternative to the RPPB for validation.

Leveraging Technology

- **Use databases and GIS to gather, analyze and communicate information.**

Table 4.2 Comparison of Alternatives

Criteria	Ranking		
	Alt 1	Alt 2	Alt 3
Preserves Wetlands	2	1	4
Promotes Access to Transit	3	1	5
Optimizes Troop/Training Functional Relationship	3	4	5
Off-Post Access to Community Facilities	2	4	3

Tip

Practice good land stewardship by clustering land uses together whenever possible.

STEP 10: Define Framework Plan

- Use the selected alternative(s) as the baseline. Ensure this alternative is accurate and complete.
- Create layers representing development framework, circulation framework, area uses, and densities that drive utility and transportation needs.
- Develop a narrative that summarizes the conclusions and recommendations of the plan. Develop strategic issues and prioritize them.
- Use GIS to prepare the Framework Plan. (See Figure 4.24, "Fort Belvoir Framework Plan".)
- Present the Framework Plan to RPPB for validation.
- Use the Framework to develop the supplemental plans discussed in the following subsections. Define areas that might need further analysis. (See Section 4.5, "Area Development Plans".)

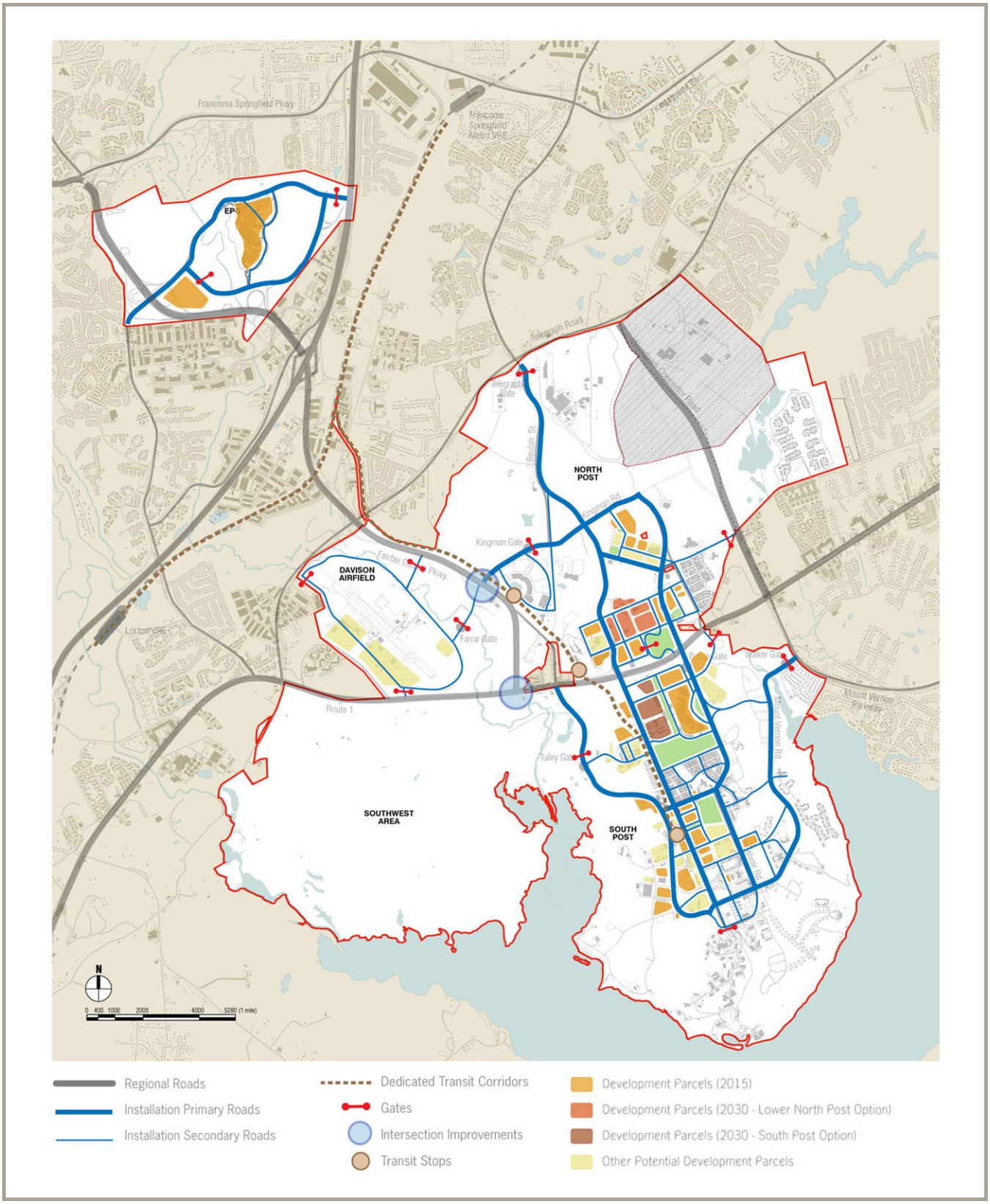
Tip

Every district in the Framework Plan needs a center.

References

- Commander's Guide: Installation Standards
- AR 420-1: Army Facilities Management
- AR 210-21: Army Ranges and Training Land Program
- AR 200-1: Environmental Protection and Enhancement
- AR 200-2: Environmental Effects of Army Actions
- AR 200-3: Natural Resources – Land, Forest, and Wildlife Management
- AR 200-4: Cultural Resources Management
- AR 210-14: The Army Installation Status Report Program
- AR 55-80: DOD Transportation Engineering Program
- Transportation Engineering Agency, Military Surface Deployment and Distribution Command [http:/ / www.tea.army.mil]
- Army Performance Improvement Criteria
- The Army Strategy for the Environment
- FM 6: Mission Command: Command and Control of Army Forces
- FM 5: Army Planning and Orders Production
- TM 5-822-2: General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas
- Unified Facilities Criteria 3-210-10, Low Impact Development, dated 6 April 2010, Appendix B.

Figure 4.24 Fort Belvoir Framework Plan



STEP 11: Develop the Transportation Framework

All growth proposed in the Framework Plan must be accommodated in the transportation network.

- Develop a transportation system capable of effectively and efficiently supporting the Framework Plan.
- If needed, see TM 5-822-2 for proper roadway classifications.
- Develop primary roadways that effectively link ACPs to all areas of the installation.
- Develop secondary network that provides linkages from identified districts to primary roadways.
- Account for off-post transportation infrastructure and improvement plans.
- Address sensitive areas around family housing, schools, and hospitals for vehicular noise and air pollutants.
- Create good traffic circulation patterns by linking major land uses with highest functional relationships.
- Use major roadways to separate areas with different functional uses.
- Whenever possible, fit existing roadways into planned future networks or improvements.
- Incorporate public transportation whenever possible.
- Identify rail access for the movement of equipments and materials.
- Use previously developed GIS layers to create the installation Transportation Plan.
- Develop a narrative that summarizes the conclusions and recommendations of the plan.

STEP 12: Develop the Open Space Framework

Develop a network of pathways, bikeways and open space capable of effectively and efficiently supporting the Framework Plan. See Example 4.7, "Open Space Framework" and Example 4.10, "Fort Lewis Open Space Framework" at the end of this section.

Green Tip
Consider LEED NC Sustainable Sites Credits and LEED ND Neighborhood Pattern and Design. See Section 10.4, "Sustainability".

Green Tip

Consider strategies for the reduction of vehicular use like mass transit, bikeways, pedestrian ways, satellite parking and commuter parking reduction plans; Calculate reductions in Vehicle Miles Traveled, CO2 emissions, accidents and financial savings per year to reinforce implementation of sustainable practices.

STEP 13: Develop Utilities Plan

Create a utility system capable of effectively and efficiently supporting the Framework Plan.

- Optimize use of existing utility systems.
- Note any needed future service areas.
- Show locations and appropriate flows of each major utility system.
- Use previously developed GIS layers to create the installation Utilities Plan. (See Figure 4.25, "Sewer Concept" and Figure 4.26, "Electrical Concept" for examples.)
- Develop a list of recommended projects.
- Develop a narrative that summarizes the conclusions and recommendations of the plan.

Green Tip

Consider strategies to achieve the Army target of Net Zero Water (NZW): rainwater harvesting, reuse of all wastewater, water conservation measures, repair/replacement of water fixtures and facility infrastructure, policies and procedures to reduce consumptive water use (e.g., landscape watering, vehicle washing, fire hydrant testing, leak identification and repair).

Green tip

For both new construction and SRM, Army policy requires the full implementation of low impact development (LID) techniques to restore predevelopment hydrology to the maximum extent technically feasible. Planners should follow Unified Facilities Criteria 3-210-10, Low Impact Development, dated 6 April 2010, Appendix B. All Army components are directed to plan, program and budget to meet the requirements of this policy.

Figure 4.25 Sewer Concept

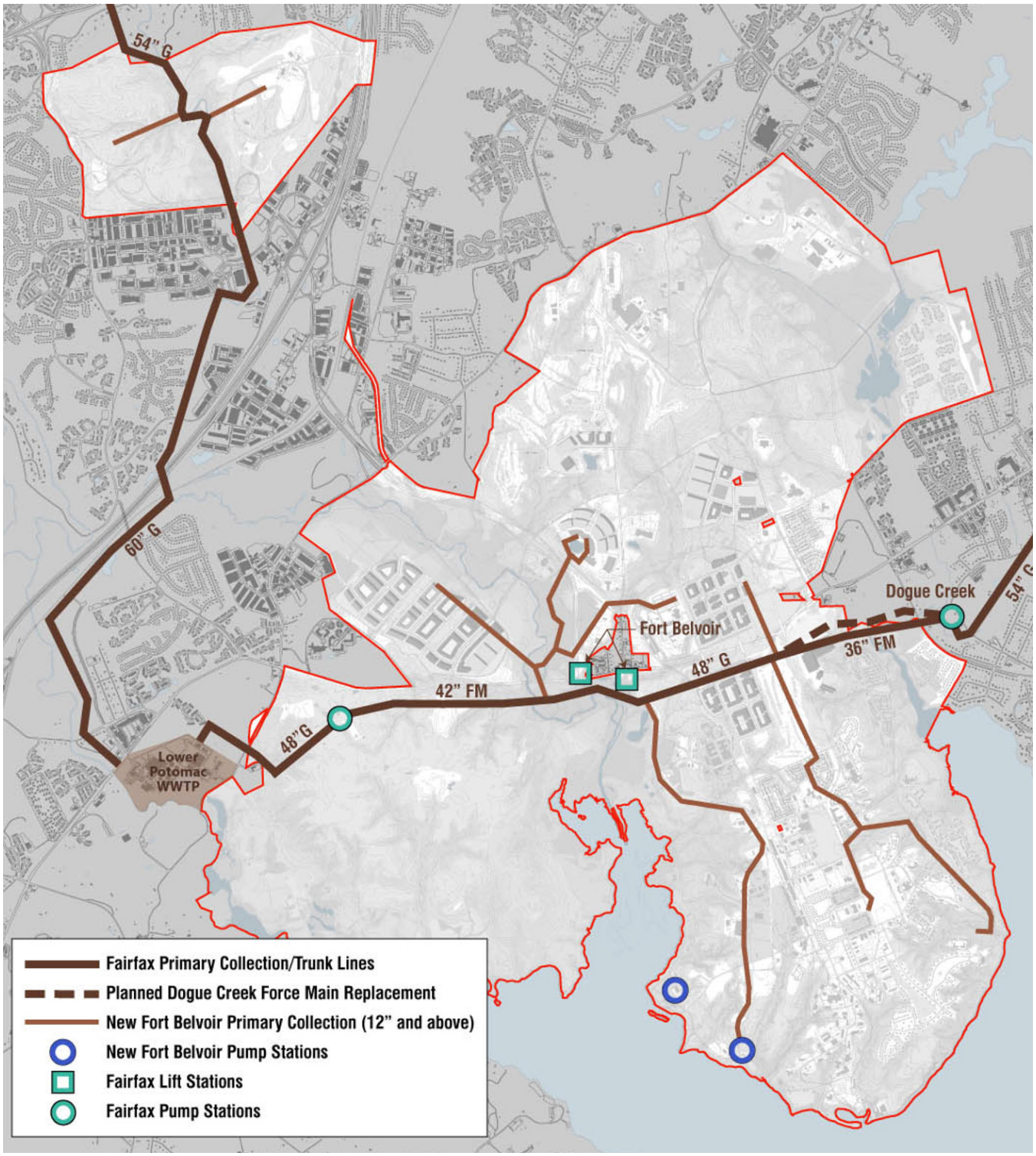
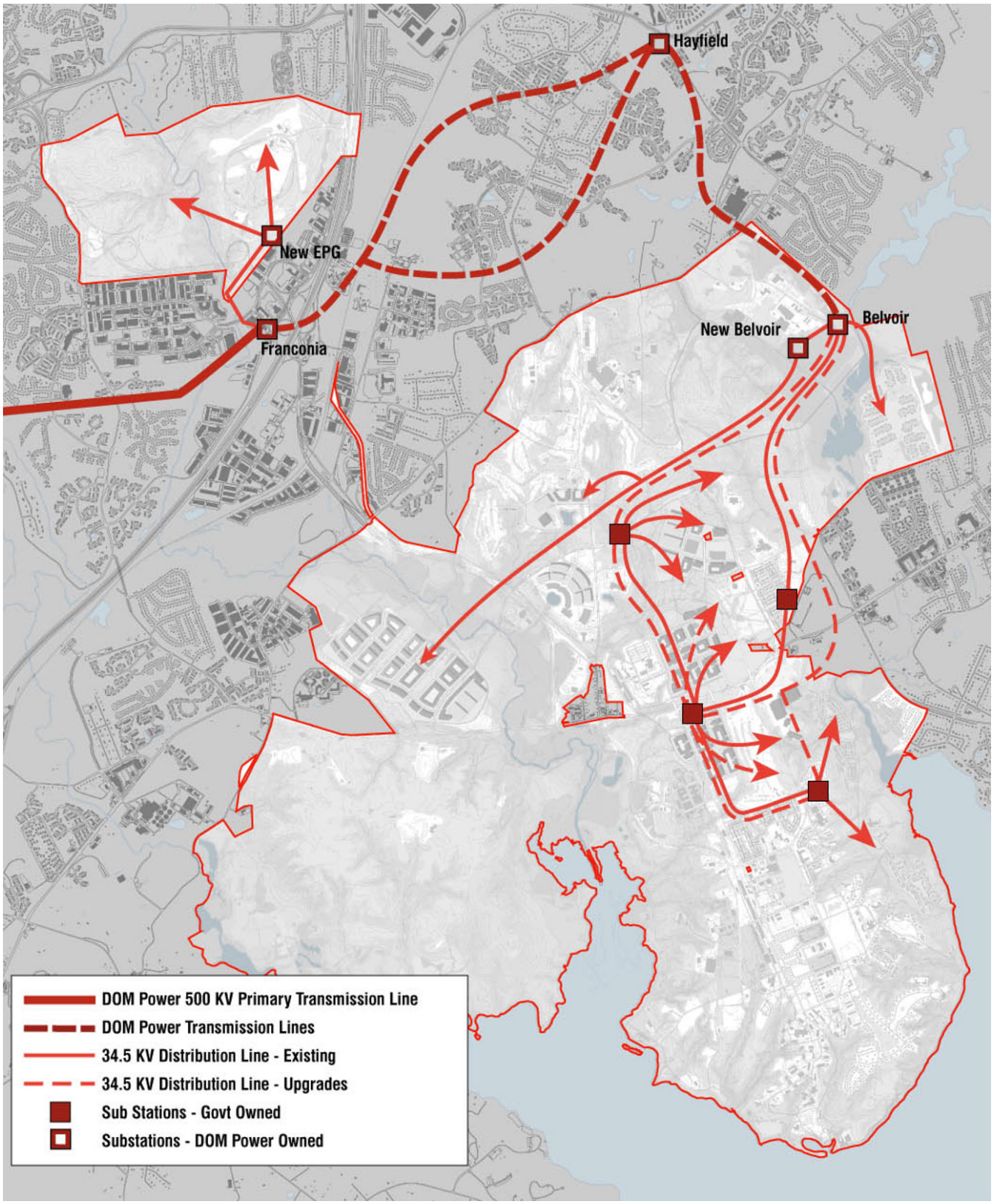


Figure 4.26 Electrical Concept

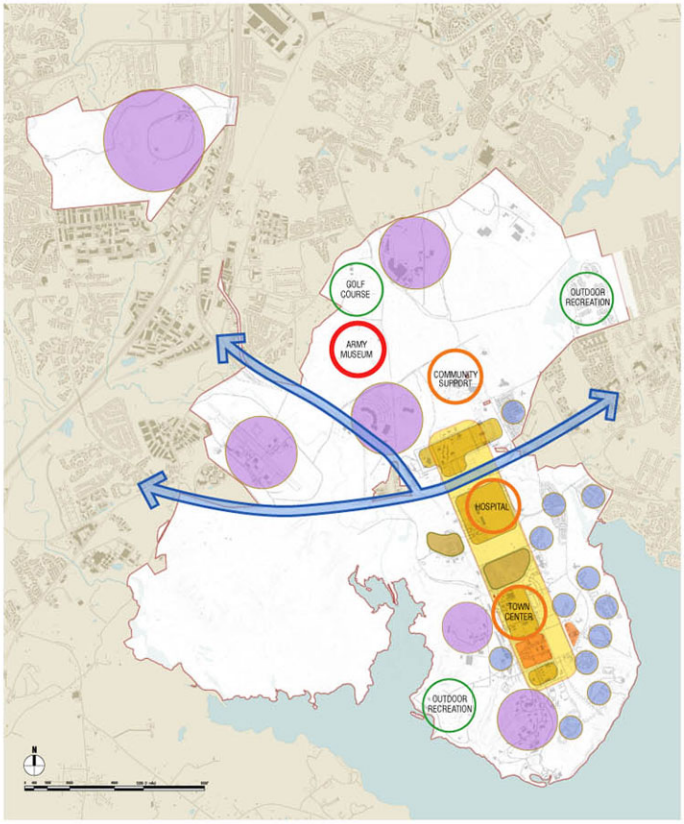


Maintenance

No separate, distinct maintenance is required.

Examples

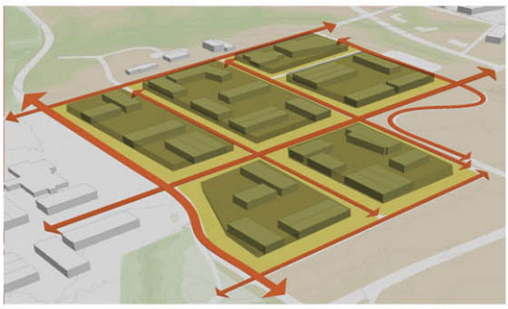
Example 4.6 Development Framework



Framework: Development Parcels

The development parcels framework plan provides the following features:

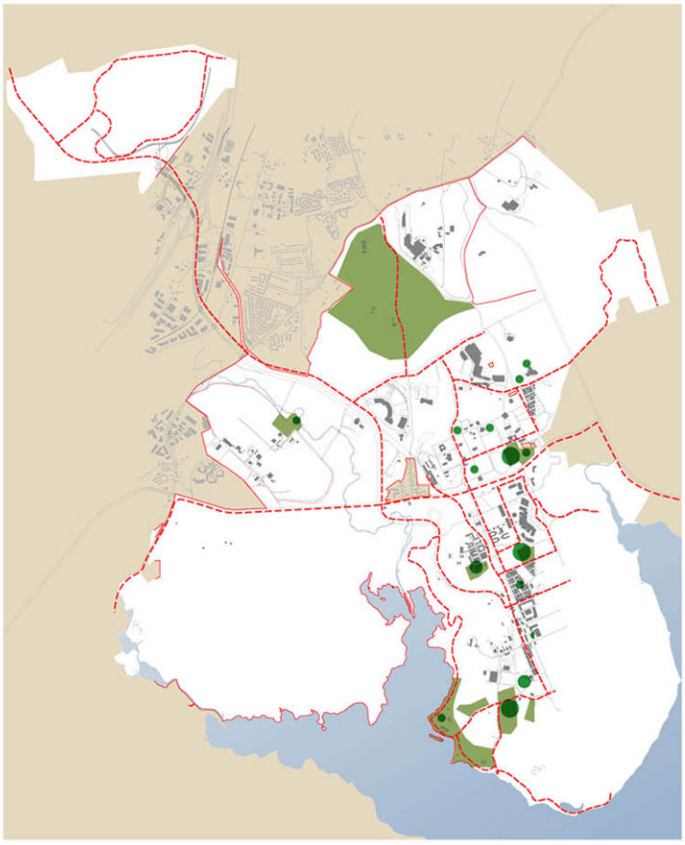
- Through redevelopment of the plateau area, creates a dense urban core along the primary north-south axis of Main Post
- Provides subdistricts in the Main Post urban core for scale and orientation
- Through redevelopment, increases the efficiency of and density of the employee campuses located outside of the urban core (off of the plateau)
- Ensures that the potential transit line is not encroached upon
- Strengthens existing development and locates additional developments along the potential transit core
- Locates regional recreation near the Post boundaries
- Locates other regional uses along the primary roads to take advantage of this public interface



Future development should observe the development patterns already established on Post. They have not only given a strong design elements to the Installation, but have serviced the needs of the mission in an efficient manner.

Most development on Post is focused around a central core of activity nodes. These offer the urban amenities that encourage a vibrant mixed-use community on Post.

Example 4.7 Open Space Framework

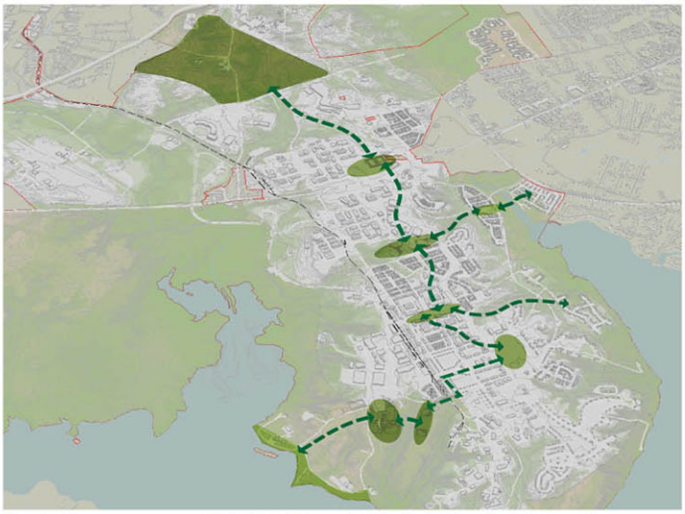


Framework: Open Space

The open space framework plan provides the following features:

- Strategically locate community centers and recreational facilities to serve as hubs for the Main Post community
- Incorporate additional recreational amenities within smaller parks and open spaces
- Provide an accessible trail system that links open spaces and recreation areas together as an integrated network
- Preserve existing natural features whenever possible and integrate as an amenity
- Provide a variety of open spaces accommodating many types of activities
- Utilize open spaces as buffers to help mitigate impacts to neighboring historic properties
- Group recreation fields together to create a sports complex

This overall framework has been further refined into a detailed plan (Figure 4.4).



Prominent green space are well distributed throughout the Post. These include the golf course, parade fields, recreation areas, and local parks. A strong network of trails should link open spaces together and provide green ways for pedestrians and bicyclists.

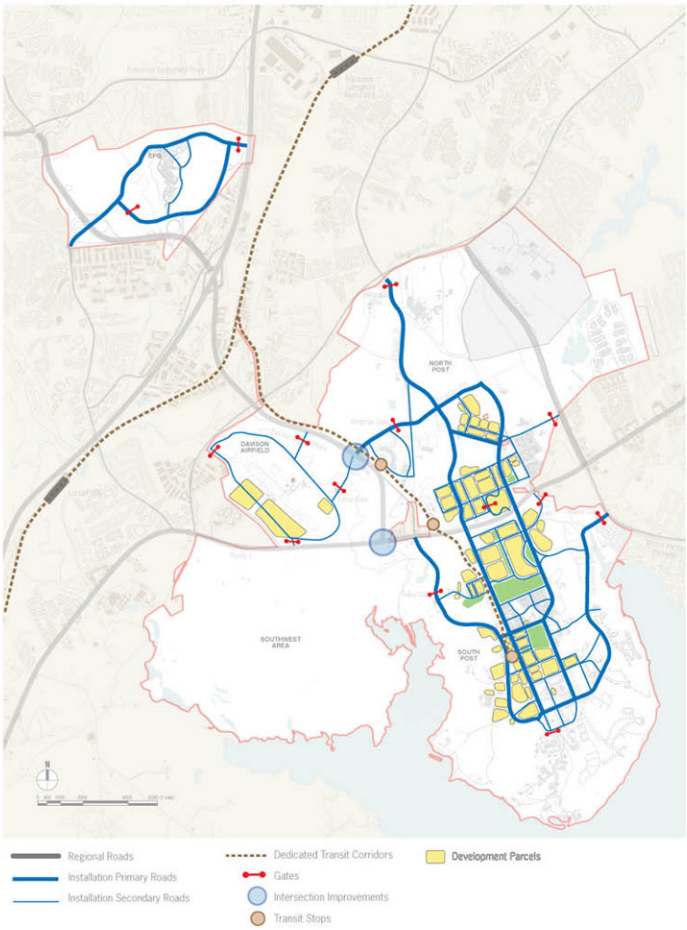
Major recreation areas are ideally situated to provide regional service by their close proximity to major roads.

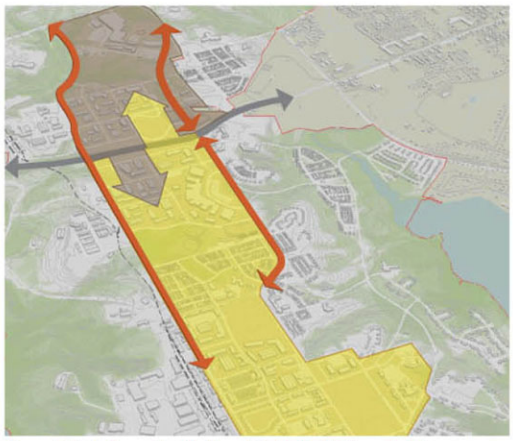
Example 4.8 Circulation Framework

Framework: Circulation

The circulation framework plan provides the following features:

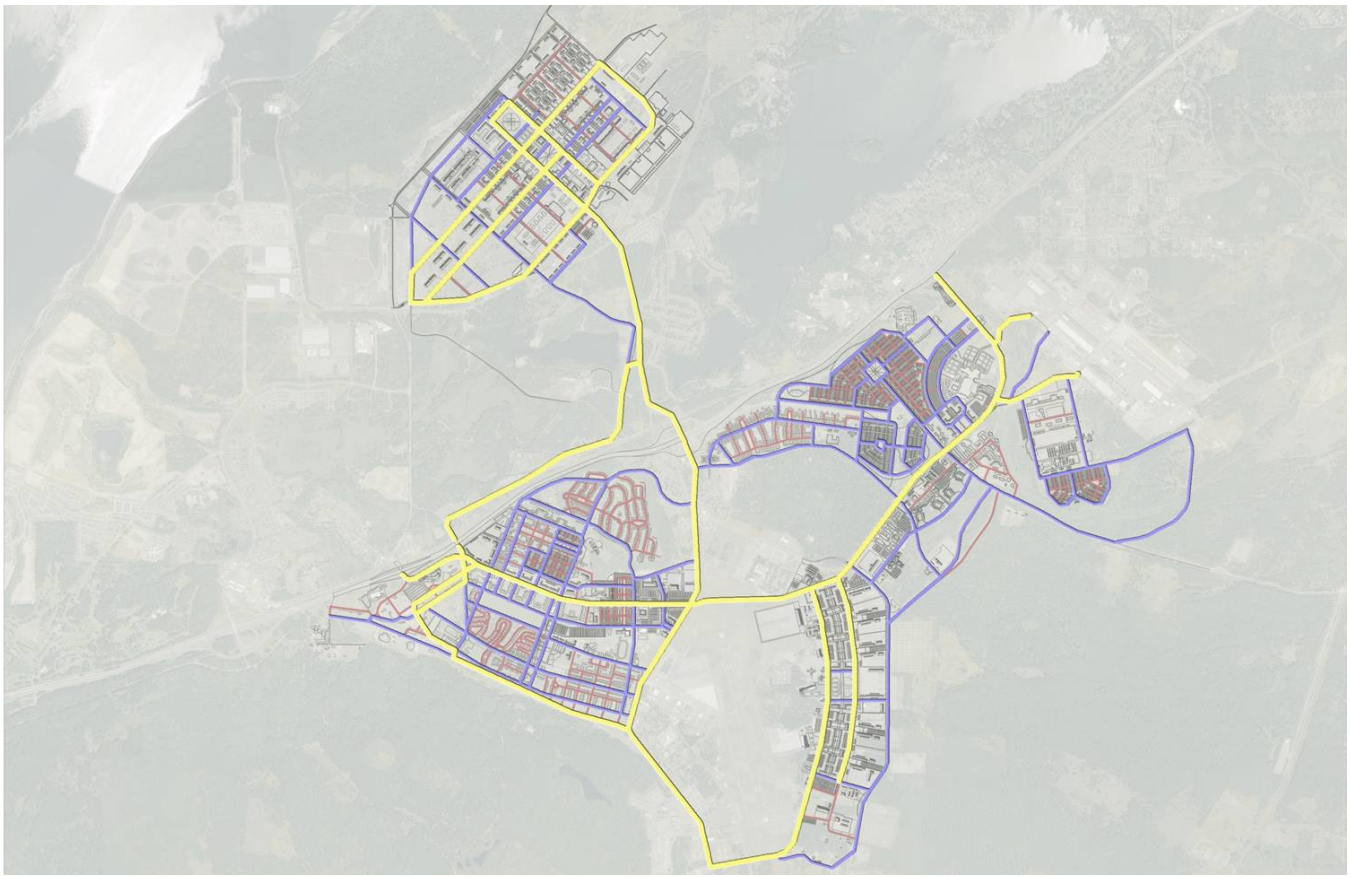
- Capitalizes on the future Fairfax County Parkway for both EPG and Main Post connections
- Provides an additional bridged connection between North and South Post
- Creates a loop road circulating around the Main Post urban core
- Provides additional east-west connections between belvoir and Gunston Roads
- Provides a corridor easement along the abandoned rail line for potential future transit
- Depicts the future infrastructure proposed for EPG
- Ensures the network of residential neighborhoods along the east and south side of the core stay connected to each other and the town center development
- Provides pedestrian linkages between all of the main activity centers
- Provides recreational trails throughout the natural area on Post
- Align pedestrian trails with regional trails
- Provides a fitness trail around the proposed Troop Village area



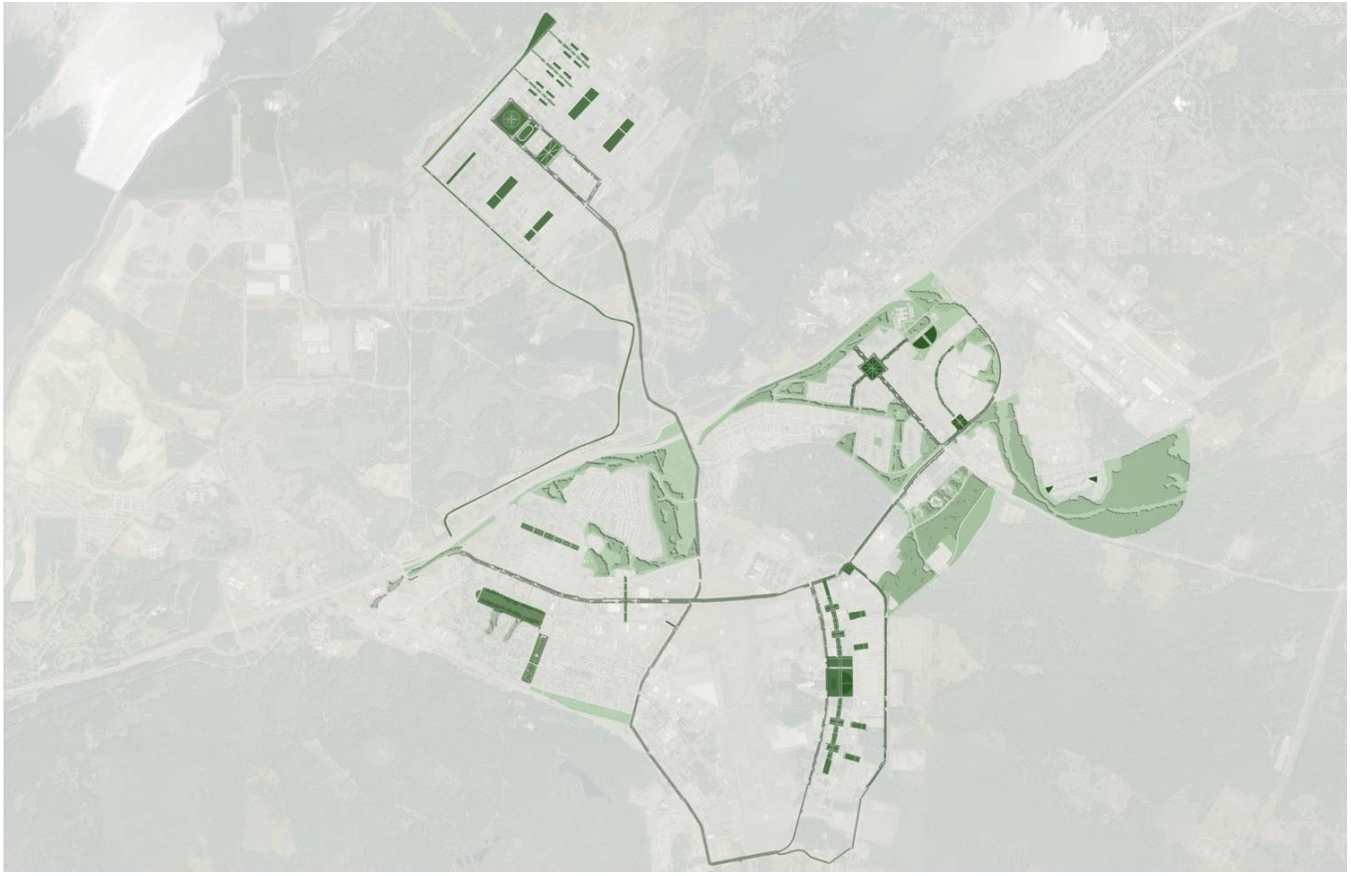


Connectivity between the North and South Post is important to establish a unified urban core. Long severed by Route 1, strong linear elements such as Gunston Road and Belvoir Road can span such a barrier. Connectivity can also be accomplished with well-orchestrated development that visually ties both halves of the post together

Example 4.9 Fort Lewis Transportation Framework



Example 4.10 Fort Lewis Open Space Framework



For additional examples of Framework Plans, See Appendix C, *Examples: Long Range Component*

Lessons Learned

- Say "no" as a last resort. Seek a solution. But if none exists, it is better to refuse than to agree to a bad decision.
- We don't spend enough time thinking about the future.
- Brief the new Garrison Commander right away; if aware of the plan, the GC is less likely to create his own.

4.4 Future Development Plan

Description

At this point in the Master Planning process, attention shifts to the siting of facilities. Siting occurs regularly and on a somewhat frequent basis. Sites selected must be compatible with the approved RPMP. The key product of this effort is the Future Development Plan which deconflicts locations of all projects identified in the CIS.

Before a site is selected all siting impacts must be considered. Use the process outlined below when siting new facilities anytime during Master Planning. The siting assessment process and decisions are documented in the Future Development Plan (FDP). Sites are identified in the FDP to consider functional relationships and scale. Detailed site identification occurs in section 4.5 Area Development Plans and during the programming process. Selection of a site is a critical step that must be completed prior the programming charrette and DD Form 1391 funding process.

Stakeholders

- HQ IMCOM
- IMCOM Region
- Army Staff
- USACE
- Major Commands
- Reserve Components
- Garrison Commander and staff
- Mission Commanders
- Directorate of Public Works
- PAIO (Plans, Analysis, and Integration Office)
- Real Property Planning Board (RPPB)
- Tenants
- External Users

Purpose

This section primarily addresses the critical concept of "scale". Careful consideration of scale in facility siting:

- Ensures that current efforts do not jeopardize long-range mission requirements and installation operations.
- Ensures that facility siting is compatible with installation planning efforts.

Key Steps to Facility Siting

Regarding scale, there are five screening steps of consideration. Four of these are addressed during development of the FDP.

These five screening steps assess impacts that, from the top-down, affect:

1. Installation and adjacent municipalities
2. Installation, without adjacent municipalities
3. Large, specific area(s) of the installation
4. Small, specific area of the installation
5. Smallest specific area (site) of the installation

Figure 4.27 Screening Steps

STEP 1: Obtain prioritized project list

Collect the prioritized project list developed in the CIS. Evaluate each project on the list using steps 2-5.

STEP 2: Installation/Municipal considerations

This first level screens for facility sitings on a scale that affects both the installation and adjacent municipalities. Some examples include: airfield facility or operation expansion, increased range and training activity, flood control projects, disturbance of a natural watershed, joint sewer treatment plants, and changing access control points.

- Assess operational activities of projects for impacts to off-post areas.
- Look at regional transportation facilities (especially airports), waterways, and wetlands that constrain development.
- Refer to the installation-specific Framework Plan and any completed Area Development Plans. These should indicate if and how the project was considered during the long-range planning process so far.
- Determine if development proposals or land use changes are in accordance with installation and off-post community master plans/ visions.
- Verify compatibility of proposed projects with existing/planned off-post land uses and zoning.

Also address and attempt to resolve all nearby, off-post incompatibilities by working with municipal planners. Unresolved issues may require RPMP changes and/or project adjustments. Coordination with municipal planning is a continuing activity, not limited to a specific RPMP effort. Obtain and review planning, zoning, and development proposals off-post.

STEP 3: Installation considerations

The second level of consideration screens for those proposed facility sitings on a scale that could affect the entire installation, but has little or no impact on adjacent municipalities. Some examples include: new brigade sitings, significant increases in on-post population, training facilities consolidations, large-scale projects, and major operational changes.

- Refer to Section 4.3, "Framework Plan" to determine if and how the facility was considered during the functional and spatial analysis.
- Determine if development proposals cause any on-post land use changes.

Tools / Data Needed

- Latest RPMP
- Vision, Goals and Objectives
- Composite Constraints Map
- Buildable Areas Map
- Opportunities Map
- Mission Analysis
- Facility Utilization
- GIS/CADD Data
- AT/FP Standards
- Sustainable Planning Standards
- Regional and Municipal Master Plans
- Framework Plan
- Area Development Plans

Contacts Needed

- Garrison Commander
- Garrison staff
- Project proponent

- Check constraints maps for natural, cultural and operational considerations and developable areas. Refer to the Utilities Assessment and the Opportunities layer to determine areas currently served by utility systems (See Section 4.2.3, "Summary of Constraints and Opportunities".).
- Examine project proposals for any expansion or relocation of service infrastructure, and ensure accordance with the installation's Vision, Goals and Objectives and Development and Circulation Framework Plans.
- Note any significant change in mission requirements that will likely alter a majority of RPMP elements.
- Address any major shift in operations that negatively impacts one or more functional land use relationships.
- Examine proposals for any impacts to the installation's Transportation Plan or Utilities Plan that may require additional studies.
- Identify opportunities to produce renewable energy, improve energy security, and enhance efficiency in accordance with statutes, regulation, and policy set forth by HQDA, DoD, and Federal Leadership.

Tip

Always consider antiterrorism and critical infrastructure protection as well as sustainability during project siting. See Section 10.5, "Antiterrorism & Critical Infrastructure Protection" and Section 10.4, "Sustainability" for further discussion.

STEP 4: Area development considerations

This third level screens for facility sitings on a scale that could affect large specific area(s) of the installation. These areas are defined as districts within the LRC Framework Plan. Some examples include: Town Center development, campuses, major recreation park areas, large-scale housing projects, and office/industrial park plans. (Note: This is not an Area Development Plan exercise.)

Leveraging Technology

- **Use databases and GIS to gather the information.**
- **Use technology to analyze the situation.**
- **Use technology to communicate the information.**

- Refer to the installation's Framework Plans. Be sure that the development proposal is consistent with the development locations, patterns and densities outlined in this plan.
- Identify any discrepancies among functions or land uses, and address how these will be resolved.
- Determine if proposals offer any means or opportunity to correct existing functional land use problems.
- Assess any impacts on installation infrastructure.

- Note any conflicts with the RPMP or any of its elements.

STEP 5: Sub-area considerations

This fourth level screens for those facility sitings on a scale that could affect a small specific area of the installation. Some examples include: roadway corridors, intersection realignments/improvements, water towers, landscaping projects, parking lots, and demolition projects.

- Identify any changes to functional land uses, and address how these will be resolved.
- Note any conflicts with the RPMP or any of its elements.
- Assess any impacts on installation infrastructure.
- Determine if development proposals are in accordance with the installation's Vision , Goals and Objectives, Framework Plans and Area Development Plans and long-range plans.
- Check for opportunities to conserve land for potential future operational demands, incorporate energy reduction initiatives and to reduce environmental impacts. (See Section 10.4, "Sustainability".)

STEP 6: Site location considerations

The fifth level screens for facility sitings on a scale that could affect the smallest specific area of the installation. Some examples include: building footprint relationships, expansion projects, redevelopment, infrastructure improvements, and building/structure replacements. This level of detail is not considered in the Future Development Plan.

- Check for sufficient transitional areas between incompatible uses.
- Ensure re-use of existing facilities is considered.
- Continue to look for energy reduction opportunities, specifically as indicated in ASHRAE 189.1 2009
- Examine proposals for optimum operational efficiency.
- Check for good spatial relationships with surrounding development.
- Check for preservation of historic areas or buildings.
- Ensure antiterrorism/critical infrastructure protection requirements are met.
- Correct any functional land use frictions, if possible.
- Examine and resolve traffic circulation and utility problems.

Green Tip

Incorporate sustainable measures during site selection. See Step 6 in Section 10.4, "Sustainability".

References

- **AR 420-1: Army Facilities Management**
- **AR 210-21: Army Ranges and Training Land Program**
- **AR 200-1: Environmental Protection and Enhancement**
- **AR 200-2: Environmental Effects of Army Actions**
- **ASHRAE Standard 189.1, 2009**

STEP 7: Create or Update the Future Development Plan

- The Future Development Plan (FDP) represents all projects contained in the Capital Investment Strategy. This includes all projects that balance the TAB as well as other Army initiatives (AAFES, SRM, Land Acquisition, Enhanced Use Lease). Finalize and locate all recommended projects that satisfy these strategies. Differentiate between funded, short-term projects (within the 5-7 year planning horizon) and long-term projects.
- Develop a narrative that summarizes the conclusions and recommendations of the plan. Discuss and prioritize strategic issues. Use GIS to prepare the FDP.
- Present the FDP to the RPPB for validation. When submitted independently, siting decisions require NEPA consideration for sites within the U.S. If the RPMP already describes activities in a programmatic EIS or EA, then lesser documentation may suffice for the siting decision.
- Refer to the FDP when making siting decisions or changes and when developing Areas Development Plans. Define areas that might need further analysis (See Section 4.5, "Area Development Plans" or Section 5, *Installation Design Guide*).

Maintenance

The Future Development Plan is updated yearly, more frequently than the other elements of the LRC.

Lessons Learned

You cannot plan in a vacuum. Ask for help if you need it.

Examples

The Examples below are contained in Appendix C, *Examples: Long Range Component*

4.5 Area Development Plans

Area Development Plans (ADP) provide detail to the master plan. They are developed as part of an LRC in accordance with the LRC Framework Plan. The ADP indicates development priorities, which correlate with the facility programming documentation contained in the CIS and LRC Future Development Plan.

Description

An Area Development Plan provides details on function, form, and land use for each of the districts defined in the LRC Framework. They can be developed concurrently with the Framework Plan, or on an "as needed" basis. Each ADP consists of an illustrative and regulating plan which must be consistent withe the the densities, uses and circulation and established in the installation-wide framework plan. ADPs are holistic in scope, unified by function or architectural character. Some examples include an airfield, a family housing area, or an administrative area.

The focus of an ADP varies. It can address a specific area of real property – a single facility or a complex, or the impact of an installation-wide mission on a particular area of an installation. ADPs also illustrate short-term and long-term physical changes, with the latter depicted in phases. Each analyzes and addresses the "ripple effect" of a project within the context of a surrounding area or district. In all cases, the ADP presents much of its data through graphics.

Generally, a finalized ADP graphically displays planning direction for:

- Building "exteriors" or footprints
- Areas reserved for future development
- Building setbacks
- Parking
- Streets and roads
- Pedestrian plazas
- Landscape plantings
- Open space areas
- Play areas/other outdoor amenities
- Holistic energy reduction solutions

The important features of the ADP – such as architectural character, special landscape elements, recommended solutions to circulation problems, are graphically represented in the form of an Illustrative Plan and a Regulating Plan. It also indicates construction phasing and development priorities,

Stakeholders

All those involved with the decision-making, design, construction, and maintenance of facilities. Primary users include:

- **Garrison Commanders and Staff**
- **Garrison facility planning and design personnel**
- **IMCOM**
- **USACE project managers, design, and construction staff**
- **Consulting Planners, Architects, Engineers, Interior Designers, and Landscape Architects**
- **Relevant Directorate, Users, Stakeholders for the area being developed, NAF Program Managers**

Tools Needed

- **Organization Charts/List of Personnel to interview**
- **CADD/GIS Mapping**
- **Applicable Existing Studies**
- **Latest Master Planning and Design Guide Documents**
- **Goals, Objectives and Missions**
- **Aerial Photography**

Contacts Needed

- **Garrison Master Planner**
- **Garrison Architect**
- **Garrison Environmental Chief**
- **Development Stakeholders**

which correlate with the facility programming contained in the SRM, MILCON, or other project funding documentation. It should also offer solutions to energy reduction requirements on a holistic level rather than via single point/facility level.

An ADP is also time-efficient, allowing planners to proactively resolve specific siting issues, as needed. These ADP recommendations, however, must eventually be reflected in the RPMP. As ADPs are completed, they support the Framework and contribute to the Installation Development Plan.

Purpose

The boundaries of an ADP are determined in the Framework Plan. Ideally, an ADP is developed for each area, concurrently. However, if this is not the case, an ADP may be developed whenever the following occur:

- A plan is required – for a specific installation area (during completion of the RPMP)
- A change in mission – involving a specific portion/group of installation facilities
- A change in program – involving a specific type of installation facility
- Revitalization/modernization – causing numerous changes to a specific area
- A problem – within a specific area, such as a lack of pedestrian amenities, traffic circulation conflicts, etc.
- Downsizing – causing numerous changes to a specific installation area
- Funding status changes - that accelerate execution

Products

- **ADP available in paper and/or web-based formats**
- **Images and Graphics conveying ideas and concepts of the ADP**
- **Narrative describing ADP includes:**
  - **Vision, Goals and objectives**
  - **Program requirements**
  - **Data collection & findings**
  - **Alternatives**
  - **Evaluation process**
  - **Specifics of proposed alternative**
  - **Illustrative Plan**
  - **Regulating Plan**

Key Steps to Developing an ADP

The ADP is inherently flexible. While each has its own unique focus, there are ten key steps that are general to creating an Area Development Plan. For additional information, refer to the ADP Statement of Work contained in the IMCOM SOW Repository.

STEP 1: Set goals and objectives.

Refer to the Vision Plan. Develop goals and objectives specific to this area that create a visually pleasing and optimally functional environment. These guide the development of the ADP.

Leveraging Technology

- **Use databases and GIS to gather and analyze data.**
- **Use the web to distribute information.**
- **Use graphics/illustration software to create and/or enhance images to better show design concepts and goals.**

STEP 2: Define the area.

Typically, the boundary general use and form are defined as districts by the LRC's Framework Plan. If, however, an ADP is being developed and this is not the case, first identify distinct area functions. Then create an approximate boundary for the area, utilizing, whenever possible, existing roads, fences, and other physical features. Always try to exclude incompatible functions or land uses.

Identify neighborhoods within each district. Each neighborhood should have a primary focus within one quarter to one half mile.

STEP 3: Define program requirements.

Clearly define the "end-state" program requirements driving the ADP. These include specific projects, funding sources, scope, and timing. The program proponent, Master Planning staff, garrison commander, and various user groups all have input into the program. Pay particular attention to an area's ultimate users, including stakeholders and tenant organizations. They understand better than anyone what is actually needed. At times, users will request more than what is necessary. Make sure to balance user needs with those of the rest of the installation; develop a program comparable to other facilities at the installation. Alternatives should include projects and strategies from the CIS, as relevant to that District, specific objectives from the Vision Plan, ISR, Demolitions.

STEP 4: Collect and analyze data.

Prior to the development of any ADP, gather and analyze data to gain an understanding of the site. Identify issues. Focus on environmental, operational, and physical constraints and opportunities and the composite constraints map which determines buildable areas. Also focus on user needs, urban framework, and existing functional relationships. A great deal of this data collection and synthesis is already contained in the Section 4.2, “Composite Constraints and Opportunities Map” and Section 4.3, “Framework Plan”. Produce a series of maps that show: the development area, its urban framework, and its constraints and opportunities.

Include details on urban form within each neighborhood. Document the visual appearance of each neighborhood relative to building types and street types.

STEP 5: Develop alternative plans.

It is important to create alternative plans based on the specific projects in the ADP. For example, one ADP might address siting issues – whether to go with a centralized development or a dispersed facility plan. Another ADP might address transportation issues – whether to build a new ring road with peripheral parking or upgrade existing road capacity with easy access parking. Each ADP is unique, requiring its own set of unique alternative plans and should be designated with a "theme.".

References

- **TI 804-01: Technical Instructions: Area Planning, Site Design, and Design**
- **Energy Independence and Security Act 2007**

Developing alternative plans is a non-linear process. It involves many simultaneous steps. First, define the existing and proposed facilities that will ultimately comprise the functional area. Then, working within area limits, arrive at the best arrangement of facilities, functionally and aesthetically. Alternatives should include projects from the Future Development Plan as relevant to that District, specific objectives from the Vision Plan addressing ISR and Demolitions. Before arriving at the preferred plan, it is important to explore several alternatives in order to:

- Ensure all implications of a siting decision are explored and understood
- Facilitate NEPA documentation at required levels for the ADP/ individual projects
- Illustrate design ideas and strategies – such as spatial arrangements or axial composition – in a diagrammatic fashion. (This shows the basis for the plan, just not the pieces.)
- Identify opportunities to produce renewable energy, improve energy security, and enhance efficiency in accordance with statutes, regulation, and policy set forth by HQDA, DoD, and Federal Leadership.

STEP 6: Evaluate alternative plans.

For each alternative, compile a list of pros and cons. Differentiate between "givens" and assumptions. Use these to compare options and select a preferred plan for further refinement. Use a matrix to list these points and rank plans accordingly. Evaluating alternative plans is a balancing act. Weigh conflicting demands, such as site constraints, ideal solutions, costs, and future expansion needs. This may take several iterations. Obtain input from garrison planners, command personnel, and other interested parties (such as members of the Facilities Board/Real Property Planning Board). Selected by consensus decision, the preferred alternative should best address the demands of all parties, while simultaneously meeting ADP goals and objectives. It may incorporate features from several alternatives. The final plan must be approved by the Real Property Planning Board.

Tip

Form Based Code: A Guide for Planners, Urban Designers, Municipalities and Developers, Parolek/Prolek/Crawford (ISBN: 978-0-470-04985-3) includes a useful list of "Mistakes to Avoid" when developing a Form Based Code.

STEP 7: Develop final plan: Illustrative Plan.

Identify key neighborhoods, focal points and planning design principles. This Illustrative Plan generally shows these elements. See Appendix C, *Examples: Long Range Component*

- Relative land uses. For example:
  - Operations relative to troop, professional/institutional use, and maintenance uses
  - Housing relative to operations, medical, and community services uses
  - Troop housing relative to operations, recreation, and installation access
- Appropriate building setbacks that consider antiterrorism/critical infrastructure protection standards, pedestrians, and vehicular circulation patterns
- All roads and parking lot layouts (Parking lots must accurately show number of cars to be accommodated.)
- All required pedestrian circulation improvements (These should reflect existing conditions, as well as planned improvements.)
- Areas set aside for plazas/outdoor displays associated with a particular facility (The IDG may provide guidelines for such amenities.)
- Areas with special pavements and street furnishings
- Major landscape elements, such as formal/informal tree plantings, shrub massings, displays of flowering plants, and tree preservation areas if tree clearing is involved
- Other important, large-scale open space elements, such as athletic fields or parade grounds
- Required service areas including trash dumpsters (The final plan should show screening devices for unattractive service features where needed.)
- Available expansion areas, planned or otherwise
- In some cases, an Illustrative Plan may include notional rendering drawn to reflect required square-footage and desired orientation, including solar orientation (Actual footprints are determined by building designers, etc.)

STEP 8: Develop Final Plan: Regulating Plan

- Include Tables and graphics detailing requirements, planning and design principles, and land uses. Include guidance on the implementation of all ADP objectives. See Appendix C, *Examples: Long Range Component*.

  Note: There are challenges to implementing mixed use development on an Army installation. Currently, there is no funding mechanism in place that allows the Army to combine commercial and residential uses within one facility. The AAFES Lifestyle center consists of

mixed retail, but lacks a residential component. Additional challenges include separation of housing by rank and the restricted use of parking structures. The regulating plan can be designed to incorporate mixed use.

STEP 9: Develop implementation plan.

The ADP relies on a variety of mechanisms for implementation. In order to implement an ADP, the following steps must be taken:

- Develop a list of projects for the area.
- Identify funding sources for each project.
- Develop a schedule and execution phasing plan to complete each project.
- Link ADP projects to programming documents.

STEP 10: Following final plan elements, include a brief narrative on:

- Goals and objectives
- Program requirements
- Data collection findings
- Evaluation of alternatives
- Elements of the preferred alternative in detail, including:
  - Effect of ADP on installation Framework Plan
  - Proposed facility projects
  - Key neighborhoods, focal points and planning design principles achieved in the Illustrative Plan.
  - Discussion of sustainable design principles to include energy and water reduction solutions.
  - Recommended transportation improvements
  - Recommended utilities systems upgrades and infrastructure improvements (to meet facilities requirements)
  - Architectural design recommendations and guidelines (compatible with the IDG)
  - Landscape architectural recommendations and guidelines (compatible with the IDG)

Maintenance

Updates to ADPs are generally not required.

Examples

For examples of Area Development Plans, see Appendix C, *Examples: Long Range Component*

Lessons Learned

- The ADP is an inherently flexible document that can be tailored to fit specific needs. The ADP may include various studies illustrating the design thought process or particular problems. IMCOM staff reviews numerous ADPs from various installations and is a valuable resource on available options.
- Design to end-state requirements first, and then back out execution phases.
- There are two groups of designers at AAFES: the Lifestyle Center group and the traditional big box group. To achieve the desired design, maintain oversight of the project and AAFES design team.
- Most Garrison Commanders will understand the importance of sustainable planning principles.
- Know what you have, know how to use it, and know how to make it better.

4.6 Installation Development Plan

The Installation Development Plan consists of installation-wide layers of the following categories: Illustrative, Regulating, Street, Sidewalk, Bikeway, Parks and Open Space, and Primary Utility. For examples See Appendix C, *Examples: Long Range Component*. Details for each of these layers are provided by Area Development Plans.

5

INSTALLATION DESIGN GUIDE

U.S.ARMY

MASTER PLANNING TECHNICAL MANUAL

5.1 Installation Design Guide

The Installation Design Guide (IDG) is one of the five components of the Real Property Master Plan. While the other components address primarily what projects will be developed and where they will be built, the IDG focuses on how completed projects will look, how they will be integrated into the installation environment, and how they will support the performance standards determined by the installation and the Army. In this way, the IDG supports the Vision, Goals and Objectives of the installation.

Description

Army Installation Design Standards (IDS) provides common facility and infrastructure standards for all Army garrisons. It is comprised of eight chapters: Chapters 1-7 of the IDS address Army-wide standards; Chapter 8, referred to as the IDG, addresses installation-specific design standards.

The IDS is designed to:

- Instill a sense of community, order, tradition, and pride
- Provide guidance on cost-effective resource investments in Army installations
- Ensure sustainability, reliability, and efficiency of Army facilities
- Improve the function and appearance of installations and provide specific guidance on exterior and interior design parameters for garrison facilities

The IDG provides installation-specific standards based on the IDS and basic design principles. The IDG:

- Promotes a sense of arrival, functional compatibility, visual harmony, and order
- Relates the natural and man-made environments
- Provides consistent architectural themes throughout an installation
- Considers a holistic approach to sustainable design

Tip

It is important to keep the IDG updated; hand it off to construction agents to communicate guidelines for project design and execution.

All major installation facility maintenance, improvement, and renovation projects, along with all new construction, must comply with IMCOM Region guidance and follow the IDG. Accordingly, the IDG interior/exterior standards and planning criteria are to be integrated into all proposals, design and construction contracts, renovation, maintenance, or repair projects conducted on installation sites.

Stakeholders

The IDG is used by all individuals involved in decision-making, design, construction, and maintenance of facilities. Primary users include:

- **Garrison Commanders and Staff**
- **DPW or PW divisions involved with in-house work, design or project execution**
- **Installation facility planning and design personnel**
- **Installation facility maintenance personnel**
- **IMCOM HQ and Region**
- **U.S. Army Corps of Engineers project managers, design, and construction staff**
- **Consulting Planners, Architects, Engineers, Interior Designers, and Landscape Architects**
- **Supporting agencies such as AAFES, DeCA, DoDDS, MEDCOM, tenants, etc.**
- **National Guard**
- **Self-help store personnel and troop construction units**

Purpose

The purpose of an IDG is to provide design guidance for standardizing and improving the quality of the total installation environment. These quality improvements in visual design/development, as well as use of sustainable design/development practices, have a direct and future impact on those who visit, work, or live at the installation.

One goal of the IDG is to create a strong installation community identity. The installation should foster a sense of caring for residents while making a positive statement of professionalism. Thoughtful, well-designed community plans produce desirable living and working conditions. The IDG incorporates measures that support visual harmony, security and compatibility with the physical environment. Attractive surroundings attract and retain skilled and motivated personnel.

Green Tip

Sustainable measures can be incorporated during planning of:

- Storm Drainage
- Use of graywater for plant irrigation
- Tree cover/Planting
- Lighting/Light Trespass

Tools/ Data Needed

- Organization Charts/List of Personnel to Interview
- CADD/GIS Mapping
- Statement of Work (SOW) for IDG development located within IMCOM SOW Repository (https:// eko.usace.army.mil/public/fa/arpmp/)
- Applicable Existing Studies
- Latest Master Planning and Design Guide Documents
- Goals, Objectives and Missions of installation and individual tenants

Contacts Needed

- Garrison Architect
- Environmental Staff

References

- Army-wide Installation Design Standards (IDS) [https:/ / www.idsarmy.hqda.pentagon.mil/ army_ids/]
- Army Policy Memorandum, Subject: Managing Stormwater with Low Impact Develop, 27 July 2010
- Unified Facilities Criteria 3-210-10, Low Impact Development, dated 6 April 2010, Appendix B.

Maintenance

Note: Any agency proposing to construct a project that deviates from the approved IDG must submit a request for a waiver. Both the garrison commander and IMCOM must approve the waiver to complete construction.

Update as required or when Army Installation Design Standards guidelines change. The IDG should be changed relatively infrequently. Maintaining the same design guidelines ensures consistency of design and character of the installation as projects are completed over time.

Tip

Involve garrison staff and the IMCOM Region in the process prior to pursuing final approval; address major issues or stumbling blocks along the way, not at the end of the process.

Examples

IDG Examples 5.1 - 5.4 are contained in Appendix D, *Examples: Installation Design Guide*

Example 5.1 Landscape Standards

10.5.2 Screening

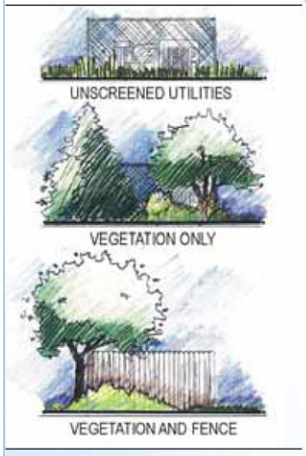
Plant material is often used to screen undesired winds. Schofield Barracks has a tropical climate that has trade winds which vary in direction throughout the year. Screening of these winds is not required. Channeling of trade winds can be useful to produce a cooling effect in the landscape. Screening unwanted views or structures is commonly done with plant material. Figure 10.5e identifies different types of screening methods. Selection of the proper type is important to ensure the maturity of the plant still provides the desired screen. In many cases, trimming or hedging is required to keep the screen effective.

Screening can also be accomplished with wooden or masonry walls. Parking lots should be screened from view using plant material whenever possible. Figure 10.5f shows the desired effect proper screening can have on parking lot design. Proper placement of trees along parking lot edges can provide shade and develop a pleasing landscape element as shown in Figure 10.5g. Utility transformers and dumpsters should have a fence or masonry enclosure provided. The trash enclosure should match the building materials used on the adjoining structure and utility transformers should, as a minimum, have a wooden enclosure with plant material compatible with the landscape design of the facility.

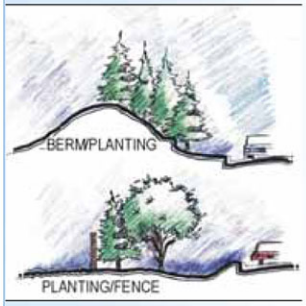
10.5.3 Buffer Planting

Use buffer planting to visually separate land uses and to frame visual zones established on Schofield Barracks. Buffer planting is recommended along primary roadways to screen the roadway corridor from adjacent housing or other non-compatible land uses. Plant buffers help reduce noise pollution, filter air, and provide security. Buffer plantings should consist of shrubs or other plant material with a dense branching growth habit to prevent trespass through the area. See Figure 10.5h.

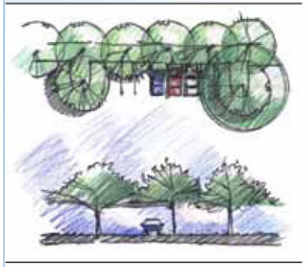
▲ **Figure 10.5h**
Buffering



▲ **Figure 10.5e**
Screening Types



▲ **Figure 10.5f**
Parking Lot Screening



▲ **Figure 10.5g**
Parking Lot Trees

Lessons Learned

- Many existing IDGs were developed in the late 1980's to early 1990's in response to a Department of the Army directive to implement the Army Communities of Excellence (ACOE) program. This program was established in 1988 to promote excellent facilities and services at Army installations worldwide. In 2004, the Army developed the Installation Design Standards (IDS), of which the previous IDG is a subset.
- IMCOM staff reviews numerous IDGs from various installations and is a valuable resource on available options.
- Know the installation's IDG from cover to cover.
- Insist that the project designer comply with the IDG.
- Ensure that the DPW and Commander are familiar with the IDG.
- Insist on having your approval of any project that affects the exterior of a facility and the appearance of the installation.
- Insist that any agency planning civil works on the installation comply with the IDG.
- Accept nothing less than design excellence. Standard design principles are a guide, not a justification for cookie-cutter design.

6

TABULATION OF EXISTING AND REQUIRED FACILITIES

6.1 The Tabulation of Existing and Required Facilities (The TAB)

The TAB, the subject of this section, is a key part of the Real Property Master Planning process. This section introduces Section 6.2, "TAB Management" which describes the full process of using RPLANS to manage or "balance" the TAB. Section 6.3, "Requirements Analysis" then describes a streamlined requirements analysis conducted without using RPLANS.

The TAB/requirements analysis is not packaged within or tied to a particular component, because it can occur at different points during the planning process. Analyzing and balancing the TAB is performed during Plan Implementation because it is a required action during CIS development: specifics on requirements are detailed in Area Development Plans. Planning and programming actions within the CIS must be supported by a balanced TAB; and the LRC to the extent possible.

Description

The Tabulation of Existing and Required Facilities (TAB) is a detailed comparison of an installation's facility assets and requirements. It is a precise determination of spatial needs, met and unmet, based on an application of pre-determined Army-wide criteria. The TAB is essential in determining the type and size of future installation facilities.

The TAB compares assets and requirements at both the unit and installation levels. Unit-level Facility Category Groups (FCGs) apply to specific organizations that meet specific criteria. For example, A Brigade Headquarters Building applies to an organization with a Colonel (06) Commander. The requirement and assets apply only to that specific brigade. Other FCGs apply to an entire installation. For example, Child Development Center requirements are based on factors applied to the entire installation population.

Tip

When preparing requirements edits, recommend addressing at the category code level.

The Army uses the Real Property Planning and Analysis System (RPLANS) to produce the TAB. RPLANS is a suite of systems that allows planners at IMCOM Region and HQDA to produce detailed TABs appropriate to the required levels of analysis.

RPLANS allows the Master Planner to generate TABs for specific organizations and for specific FCGs.

Figure 6.1 OTOE Allowances by SRC Report

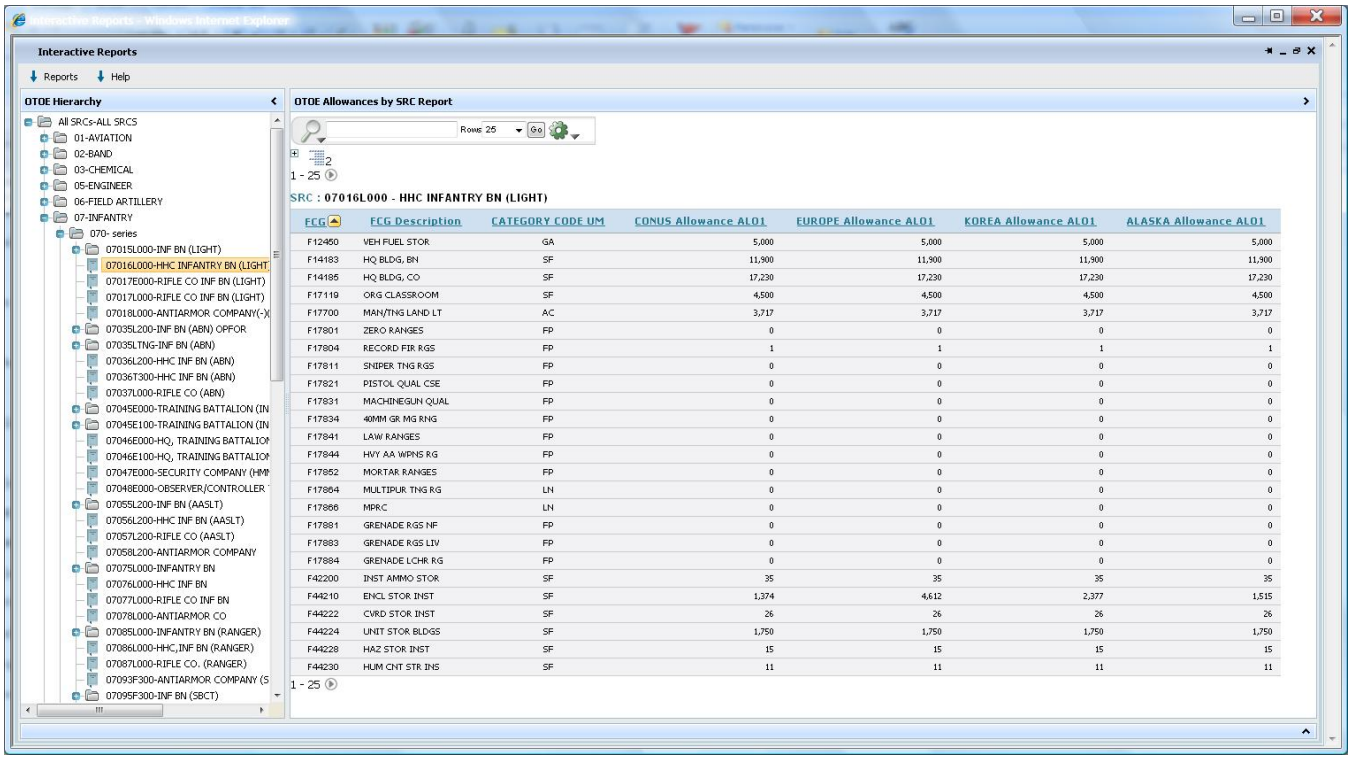
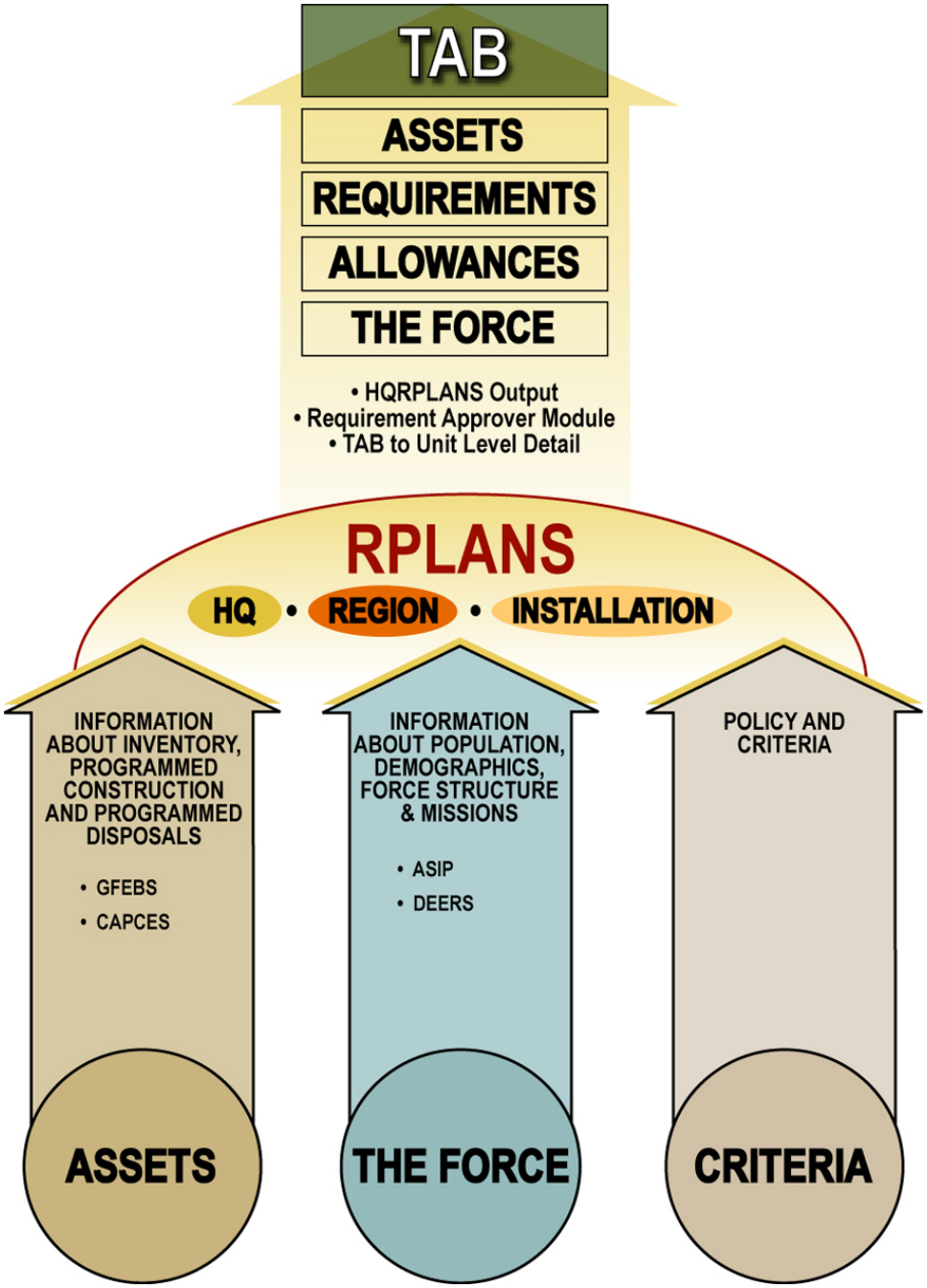


Figure 6.1, “OTOE Allowances by SRC Report” is an excerpt from a standard TAB report in RPLANS. It summarizes assets, allowances, requirements, excesses and deficits by FCG for the entire installation. RPLANS can also generate TABs for individual units and/or FCGs.

The Master Planner is responsible for producing and maintaining the TAB, coordinating with proponents, and ensuring the accuracy of the data used to generate the TAB. The TAB relies on three "pillars of information" shown in Figure 6.2, “The Three Pillars of the TAB”. Each pillar provides essential data that is updated annually or semiannually by automated systems and other data sources. These updates drive the requirement for TAB review and its potential updating.

Figure 6.2 The Three Pillars of the TAB



Data comprising the pillars are:

- **The Force:** *authorized strength, personnel, equipment, and missions supported by installation facilities*

This information is based on the Army Stationing and Installation Plan (ASIP), which is updated at least once a year. Each installation has a designated ASIP Manager, who is responsible for maintaining the force structure data in the ASIP. RPLANS also receives data on dependent population from the Defense Eligibility Enrollment Reporting System (DEERS) from the ASIP.

- **Assets:** *real property inventory from General Fund Enterprise Business Systems (GFEBS)*

  This information is maintained at the garrison. Programmed construction projects are derived in the Construction Appropriation Programming Control and Execution System (CAPCES).

  Note: Planned disposals are not captured in RPLANS. Each installation has a designated Real Property Accountable Officer (RPAO), who is responsible for maintaining the real property data in GFEBS.

- **Criteria:** *derived from several DOD/Army technical instructions, regulations, field manuals, Army Standard designs, and unified facilities criteria*

  The information resides in RPLANS.

It is important to note that the Master Planner can – and should – rely on many data sources in order to understand and respond to changes in the force, assets and criteria in RPLANS.

Tip
Utilities and insfrastructure are unconstrained category codes.

Purpose

At an installation level, the TAB helps installation planners quantify facility requirements and capabilities. This enables the best allocation of installation resources.

Planners at IMCOM Regions and HQDA evaluate and analyze installation TAB data. Facility planners and policy makers at HQDA also use the TAB to support:

- Stationing actions
- BRAC analysis
- Resource management decisions
- Facility buyout calculations
- Major construction justification
- Other Master Planning decisions

Approved requirements data from IMCOM Regions are used to compute the ISR quantity ratings.

The TAB forms the basis for the RPMP Capital Investment Strategy.

6.2 TAB Management

Description

AR 420-1 and other Army guidance specify that the Real Property Planning and Analysis System (RPLANS) be used to produce and manage the TAB. This section describes that process. RPLANS applies approved criteria to units and populations contained in the Army Stationing and Installation Plan (ASIP). It then generates square-footage allowances for facilities, which provide a baseline for determining facility requirements. (For more information on the RPLANS family of systems, see Section 10.8.2, "Army-Specific Tools".)

The primary goal of TAB management is to eliminate facility excesses and deficits, referred to as "balancing the TAB". The essence of this process is change management. It involves identifying significant change, its impacts, and corrective actions. Because TAB data sources are routinely updated and assets/requirements edits are ongoing, this process is continuous. The job of TAB management is never finished.

The extent the TAB (as a whole) is balanced is based on the percentage of total individual FCGs that are balanced. Standards from ISR and Common Levels of Support (CLS) for the Master Planning service define those percentages with a Green, Amber or Red rating.

Individual FCGs in the TAB are balanced when they have no excesses or deficits calculated IAW the following formula:

Requirements – Assets – Planned (programmed+unprogrammed) = 0

Where:

Requirements: allowances adjusted by the Master Planner to reflect the actual facility needs

Assets: adequate permanent and semi-permanent facilities, including leases

Planned: projects documented in the Project Priority System (PPS)

Programmed : projects in the current President's Budget Future Years Defense Plan (PRES BUD FYDP) window

Unprogrammed : projects outside the current PRES BUD FYDP

To ensure facility needs are thoroughly captured in RPLANS, the Master Planner works closely with the Real Property office to verify that the RPI inventory is accurate and complete. The Master Planner monitors the program – construction, demolition, conversion, leased facilities, etc. – to balance the difference between the requirements and adequate assets.

Stakeholders

- Space Planner/Utilization
- Real Property Accountable Officer

Tools/Data Needed

- Real Property Planning and Analysis System (RPLANS)
- The Reimer Digital Library providing valuable technical manuals, regulations, field manuals, and other sources of facilities planning criteria
- Army Publications Center, the Corps of Engineers
- Installation Status Report (ISR)
- Army Stationing and Installation Plan (ASIP)
- General Fund Enterprise Business System (GFEBS)
- Construction Appropriation Programming Control and Execution System (CAPCES)
- Statements of Work for a requirements analysis and FUS available in IMCOM SOW Repository (https://eko.usace.army.mil/fa/arpmp/SOW)

Contacts Needed

- Installation Management Command (IMCOM) regional representative
- USACE District representative

It is important to keep in mind the distinction between facility allowances and requirements. The TAB in RPLANS shows the difference between facilities and requirements, and includes planned construction. Unfortunately, RPLANS does not capture demolition data; the planner must also consider planned demolition when using this as a baseline.

- RPLANS automatically computes facility allowances, which are objectively based on standard automated Army planning criteria applied to automated force structure data. RPLANS initially sets requirements equal to allowances as a default value.
- RPLANS provides the ability to enter facility requirements, but not to overwrite or change facility allowances. Requirements reflect factors related to missions, personnel, equipment and the current situation that are not adequately reflected in tabular data, along with other situations not captured in an automated system.
- RPLANS calculates unit allowances for Army units (identified by UICs that begin with "W") and students (identified by UICs that begin with "I).

Tip

RPLANS does not calculate allowances for non-Army units; the Master Planner must determine these requirements.

In some cases, predetermined facility allowances do not accurately represent appropriate needs. Whenever these criteria do not exist, quantitative scope estimates are based on:

- Similar type facilities
- Analysis of comparable missions
- Accepted industry practices and standards

Estimates must be fully justified. Actual installation-specific real property requirements are identified by means of interviews and coordination with units, functional proponents, and users.

RPLANS produces the TAB by:

- Incorporating algorithms that apply category code level criteria to nearly three hundred Facility Category Groups (FCGs). These codes are described in DA Pamphlet 415-28. Each one specifies a designed or designated facility use. Multi-use facilities have multiple codes. At least one category code is assigned to every item of real property. Category codes identify facility functions. Facility Category Groups (FCGs) are groupings of category codes with similar functions and

Products

- **Tabulation of Existing and Required Facilities (TAB)**
- **Essential Facilities Requirements Analysis**

References

- **Real Property Planning and Analysis System (RPLANS) [https:/ / webrplans.hqda.pentagon.mil/]**
- **AR 405-70: Utilization of Real Property**
- **DA PAM 415-28: Guide to Army Real Property Category Codes**

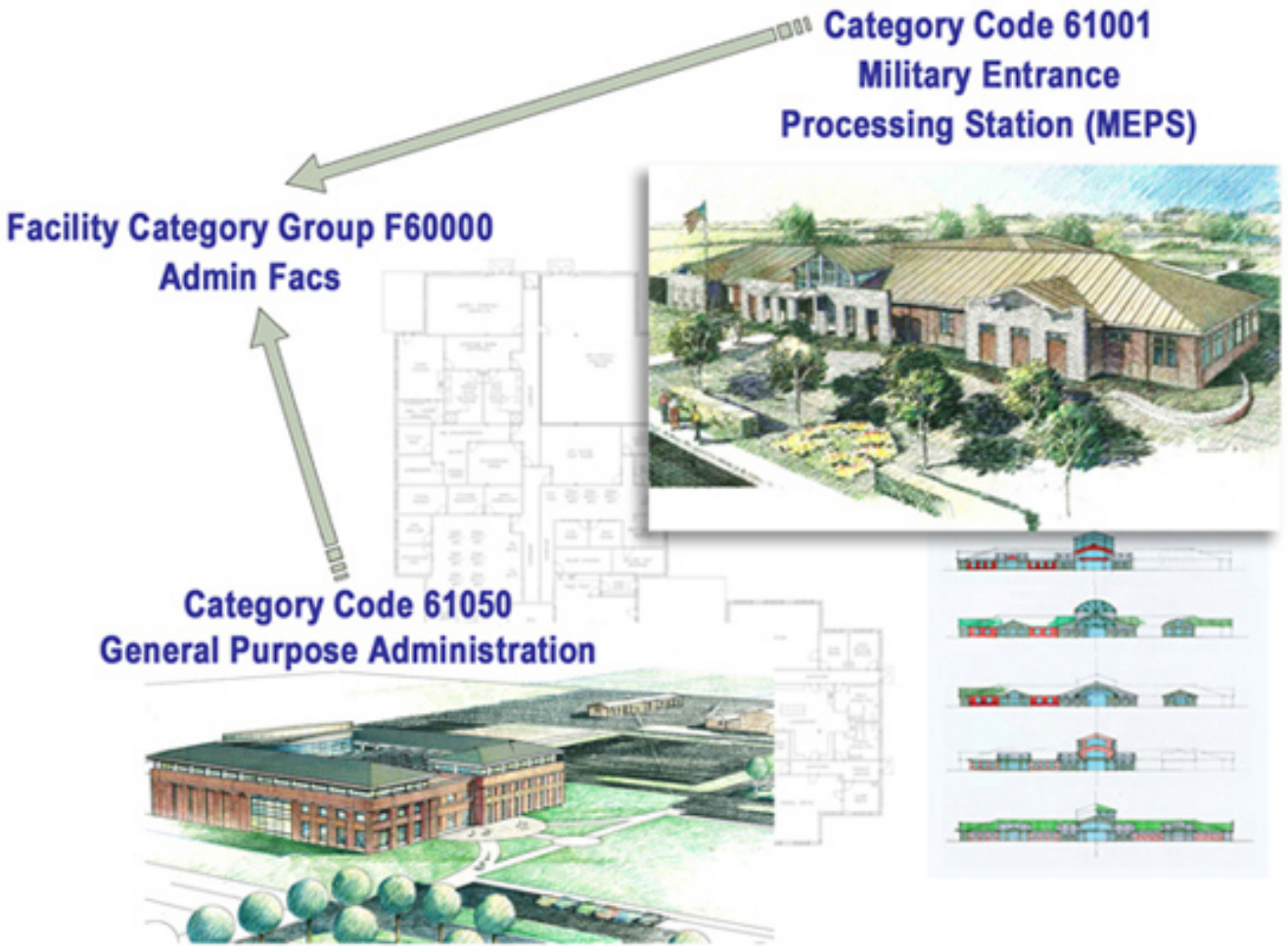
the same primary units of measure. The Master Planner uses RPLANS to generate the TAB at the Facility Category Group (FCG) level. (See Figure 6.3, "Category Codes and Facility Category Groups" for an illustration of this relationship.)

- Applying algorithms to the tenant organizations documented in the Army Stationing and Installation Plan (ASIP).
- Comparing results to the Real Property Inventory (RPI) in the IFS by unit and at base level. Permanent and semi-permanent facilities are considered adequate, but temporary facilities are not. The Integrated Facility System (IFS) maintains the inventory at category code level; the assets are "rolled up" into the parent FCGs.

RPLANS computes allowances for non-Army organizations using a technique called "TDA Typing", because these organizations do not use Tables of Distribution and Allowances (TDA) or Tables of Organization and Equipment (TOE). TDA types are assigned, based on the general nature of the organization, allowances calculated from installation averages, and other factors. (Additional guidance on the RPLANS TAB can be found in Section 10.8.2, "Army-Specific Tools".)

Note: The master planner needs to pay special attention to allowances and requirements for contractors. RPLANS cannot compute allowances for: Department of Defense agencies, service organizations, federal agencies, or tenants. The Master Planner must determine facilities requirements for each of these non-Army organizations on an individual basis. This involves meeting with each organization to determine personnel/equipment authorizations, special facility requirements, hardstand, etc. It also involves reviewing contracts to determine if contractors are authorized space on-post.

Figure 6.3 Category Codes and Facility Category Groups



Purpose

The primary goal of TAB management is a balanced TAB when requirements minus assets minus the program equals zero.

Balancing the TAB should ultimately provide the Army with quantifiable:

- Facility needs
- Support for its development plans
- Justification for its programming actions

Key Steps to the TAB Management Process

To begin the TAB management process, start with the TAB version in the Army's Real Property Planning and Analysis System (RPLANS). Use this and the other ACSIM-provided automated tools to simplify and standardize the effort. (For more information on these tools, see Section 10.8.2.2, "Real Property Planning and Analysis System (RPLANS)".) To complete the TAB management process, record the requirement analysis findings in RPLANS.

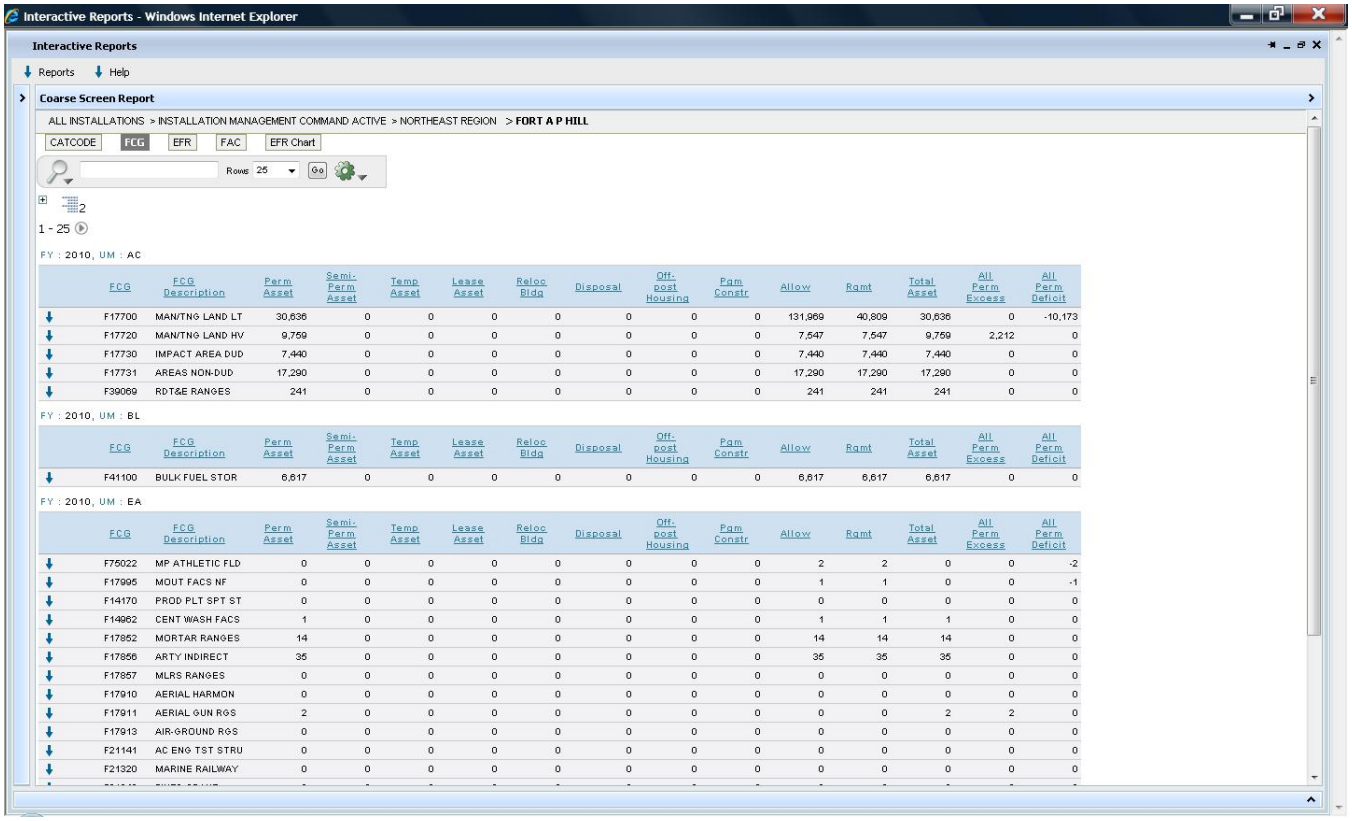
While there are numerous ways to produce the TAB, the method outlined here involves five key steps:

Verify that the update process has the expected effect on the TAB.

STEP 1: Perform a coarse screen/focus the TAB Management process.

In actual concrete construction work, a coarse screen separates the big rocks from the little rocks. Similarly, the coarse screen in RPLANS separate big problems from little ones by identifying the FCGs showing the greatest imbalance.

Figure 6.4 Running a Coarse Screen



Keep these following two principles in mind when viewing a coarse screen report:

- If there is a space requirement for a function, then that function is occurring even if related categories show a deficit.
- Excess space is rarely vacant.

Use the coarse screen as a tool to identify those FCGs requiring attention. Occasionally, the excesses of some FCGs may satisfy the deficits of others.

In addition to the coarse screen, consider the following when selecting FCGs for attention during a TAB management cycle:

- Installation mission and vision
- Special Army programs, such as the Army Focused Facility Strategy
- Commander's intent
- Real Property Planning Board priorities
- Proposed or planned stationing actions

STEP 2: Review and validate source data and assets.

Installations hold substantial control over two of the three pillars of the TAB -- Assets and The Force. Ensure their accuracy before proceeding with requirements analysis.

It is almost impossible to annually complete comprehensive force structure and assets validations. Instead, use change as a tool for setting priorities. Attempt to identify key differences between current and previous data versions relative to The Force and distribution of Assets, by FCG, and in conjunction with the data validation process. This requires the verification and validation of two parts:

1. Force Structure Data
2. Assets

Part 1 -- Verify/Validate Force Structure Data

Perform this verification/validation process every time the Army Stationing and Installation Plan (ASIP) data in RPLANS is updated. This normally happens in December for Headquarters RPLANS (HQRPLANS) and in January for Installation and Region RPLANS, but may occur twice a year during periods of force structure turbulence. (For more information on HQRPLANS and Region RPLANS, see Section 10.8.2.2, “Real Property Planning and Analysis System (RPLANS)”.)

The ultimate goal is to identify changes, verify that units and organizations in the ASIP are still present on the installation, and that all organizations are accurately reflected in the ASIP. This process is time-intensive.

- Prioritize work based on pending stationing or construction requirements and the degree of change demonstrated in the ASIP.

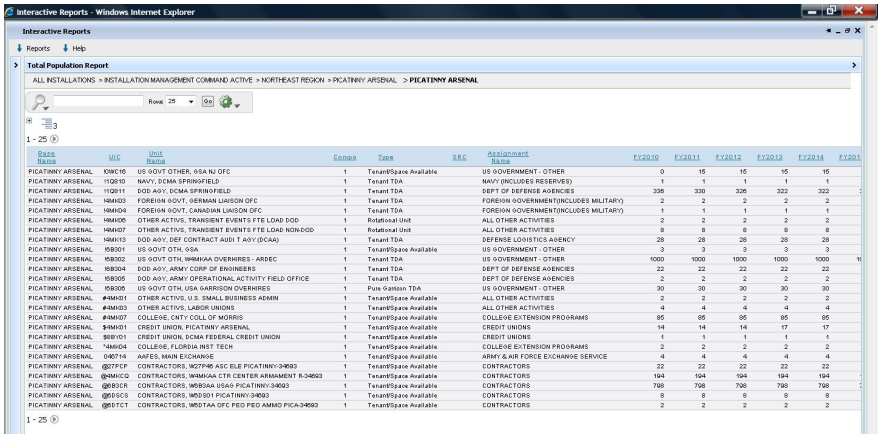
- Link all UICs in the ASIP with the UIC assigned to the real property it uses. Almost every UIC represents an organization that uses space, but not every UIC in the ASIP is included on an assignment record in IFS.
- Find UICs with no assigned space; this may help identify units no longer on the installation. For additional help, run the Unit TAB reports.

Tip

The Force and Assets verification/validation can and should be accomplished simultaneously.

Force Structure – Recognize Changes

Figure 6.5 Total Population Reports



The Course Screen Report reveals significant changes in the overall population of the site or base.

Force Structure – Verify that units in the ASIP are on the installation

Review the ASIP to identify unfamiliar UICs. Highlight all unknown UICs. Then verify if these are assigned real property by running Facility Details by UIC in RPLANS or by checking IFS. If not, then identify its associated organization. Do this by looking at the derivative unit description in the ASIP (UNDES) or running the UIC TDA Types report under RPLANS References (TDA = Table of Distribution and Allowances). To positively identify unfamiliar units, also check with the ASIP manager, force modernization point of contact in the DPT or G-3, and the manpower analysis branch in the directorate of resource management.

Force Structure – Verify that units on the installation are in the ASIP

Run the Facility Details by Unrecognized UIC report to determine if any organization with assigned facilities is not in the ASIP. Use the ASIP changes and comparison reports to determine whether that UIC left the ASIP. Use historical reports in the ASIP on the web to determine when the unit was assigned. Review the installation ASIP unit description to find out if the unit has changed UICs. If necessary, visit the facility or facilities in question to verify the occupant. Verify results with the ASIP manager.

Force Structure – Use results

Keep a comprehensive list of all ASIP issues. Then consolidate into a report for the ASIP manager. For each, identify the problem and recommend corrective action(s).

Part 2 – Verify/validate assets data

Assets consist of three parts: current Real Property Inventory, planned construction, and programmed disposals. To produce the TAB, RPLANS uses inventory data from IFS and major construction data (in selected categories during a 5-year timeframe) from the Assistant Chief of Staff for Installation Management (ACSIM). It does not include programmed disposals, a critical variable in balancing the TAB. Programmed disposals include real property pending demolition or disposal, or buildings appearing on DD Forms 1391 as demolition.

The three objectives of assets verification are to:

- Combine inventory, programmed construction and demolition to correctly quantify the available space
- Assign category codes to correctly classify the inventory
- Ensure assignment records accurately attribute the inventory to the correct UIC(s)

Accurate inventory information is vital to TAB management and the Master Planning process. Ideally, the entire inventory will be surveyed and captured in the installation GIS system to provide an accurate spatial picture of facilities by location, category code, and user. One way to validate the inventory is by in-house surveys conducted by the RPAO. Another method is by Facility Utilization Survey (FUS) conducted by an AE contractor.

A survey verifies occupancy information, as-built drawing accuracy, category code accuracy and more. A FUS should capture net area, which can impact facility requirements, especially for units occupying existing facilities. The exact scope should be tailored to the intended use of the data. There are standard scopes available from IMCOM that ensure proper data is captured in an acceptable format. See sample Statement of Work for FUS development in the IMCOM SOW Repository (https://eko.usace.army.mil/fa/arpmp/SOW).

Tip

- Facility Utilization Surveys should be performed in one phase, if possible, in order to most accurately capture the "snapshot" of the facilities inventory.
- If resources are limited, conduct a "rolling FUS" by programming funds to gather inventory information over a period of three to five years. Begin with the most critical facility categories, and complete twenty to thirty percent annually.
- The installation may also choose to perform facility surveys in "blocks" at a time.

Real property inventories are required for non-historic properties every five years, and for historic properties every three years.

Another useful study is the Facility Reutilization Study (FRUS), which analyzes how facilities can be reutilized for different missions. For example, barracks facilities can often be converted to administrative space. A FRUS is similar to a Facility Utilization Survey with some further intelligence applied. Its intent is to:

- Measure space currently used by a unit or activity
- Identify optimal use of that space considering future occupants requirements
- Provide a cost estimate to bring that space to current standards for its intended use

There are three distinct objectives in verifying assets data, which can be performed concurrently. During internal TAB management, limit efforts to targeted FCGs that comprise the majority of assets, or to those involved in major stationing actions. Use institutional knowledge, along with IFS or RPLANS assets data, to review targeted facilities.

- Identify facilities with changes since the last FUS or major inventory analysis, and visit those with questionable category codes or occupant data. Update design use category code(s). (Note: Prior to any change in the inventory, some category codes will require HQDA or proponent approval. Other documentation may be required before the changes can be made.)
- Review the Facility Details by Unrecognized UICs report from RPLANS, and identify the correct UIC for each facility listed. Rely on the User Codes and Suffixes Report to help identify unrecognized UICs.

- Determine if all UICs listed in the Facility Details by UIC report also appear in the last year of the ASIP. UICs that leave the ASIP will appear as unrecognized in RPLANS unit TAB reports. Adjust assignment information in the inventory for departing UICs.

Tip

The first four characters of an Army UIC (those that start with "W") are unique to pieces of the unit. There is a convention in the ASIP for UICs starting with specific characters (#, @, etc.). The next three characters often match the second through fourth characters of a UIC that starts with "W". If this is the case, it often indicates that the organizations are linked, or are all BASOPS-related. For example, an organization with the UIC "@12345" should be a contractor organization that supports a TDA organization at the installation with the UIC "W123AA".

STEP 3: Analyze Requirements.

Review the Criteria

Begin the analysis process by first understanding the criteria and algorithms. Address the same factors in the analysis that drove the allowance. Requirements are based on personnel, equipment, and missions. If an organization has a requirement, it has a mission, along with people and equipment to perform that mission. Make the assumption that every valid requirement is performed by someone in some type of facility.

Keep in mind that excess space is rarely empty. Also keep in mind that allowances may be correct, and that an apparent deficit or excess may be due to:

- Inadequate documentation of the Force in the ASIP
- Mismatches between allowances and real property classification
- Inequitable distribution of resources
- Non-standard net-to-gross ratios

Tip

An **ALLOWANCE** is an objective estimate, based on automated analysis of corporate data using official policy and approved criteria. It estimates the amount and type of functional dimensions that a unit or organization needs to:

- Support authorized **personnel** and their normal activities
- Store, operate, or maintain authorized **equipment**
- Perform approved **missions** and conduct associated training

Conduct Unit Visits

Visit units with assets that are out-of-line with existing requirements. Study the installation and unit workbooks. Take notes during unit visits.

Develop questions based on factors in the allowance calculation. For example, general-purpose administrative space allowances are calculated by the number of personnel requiring general administrative space multiplied by 162 gross square-feet. This does not provide for special space requirements allowed by applicable criteria. It may also exclude personnel not included in the allowance process, such as contractors. If there are differences between the data collected and the situation on the ground, ask the organization to document the reason for the difference. Seek to understand what the unit does, how they do it, and why they do it that way.

Most facility users do not think of space in objective terms. If asked what is needed, they generally indicate what is wrong with the existing space. So, if a standard design applies, present it, and ask if it satisfies their requirements. If the answer is "yes", the problem is their asset, not the allowance shown in RPLANS. Asset problems may be corrected by an edit that increases the requirement.

Keep accurate notes of factors affecting requirements. Develop techniques for tracking recommended requirements changes, assets changes, and ASIP problems that might be identified in the requirements analysis process.

Other Requirements

Determine any special security requirements like classified storage, personnel screening/interview areas, secure facilities with briefing areas, etc. Determine any special physical security requirements for increased stand-off distance due to mission, gate and fencing requirements for the facility itself, or if there are any special structural requirements such as hardening or overpressure systems. Consult with the Personnel, Information and Physical Security Specialist at the installation or IMCOM Region.

STEP 4: Analyze facility status.

Once requirements are determined for all users included in the study, compare overall requirements against adequate assets available. Based on observations made during site visits, determine whether problems exist with distribution/classification of facilities, improper allowances/requirements, facility quality, or a combination of these factors.

Tip

A **REQUIREMENT** is an Allowance adjusted to reflect personnel, equipment and missions, or other factors not fully addressed in the allowance generation process, such as current adequate assets.

Consider similar FCGs in the analysis process. Units that are short on organizational storage and that have apparent excess installation storage may be using the latter to satisfy the former requirement. This may be the correct solution. For each FCG, classify the excess/deficit and determine the corrective action required to balance the TAB. In reality, there are only a limited number of options for resolving discrepancies between requirements and assets. They include:

- Redistribute/reassign space
- Convert inventory (make assets match requirements)
- Edit requirements (compare allowances with assets)
- Dispose of facilities
- Construct new facilities
- Lease additional space (reflected in a separate column in the TAB reports)
- Develop enhanced use leases (EUL)
- Perform stationing actions

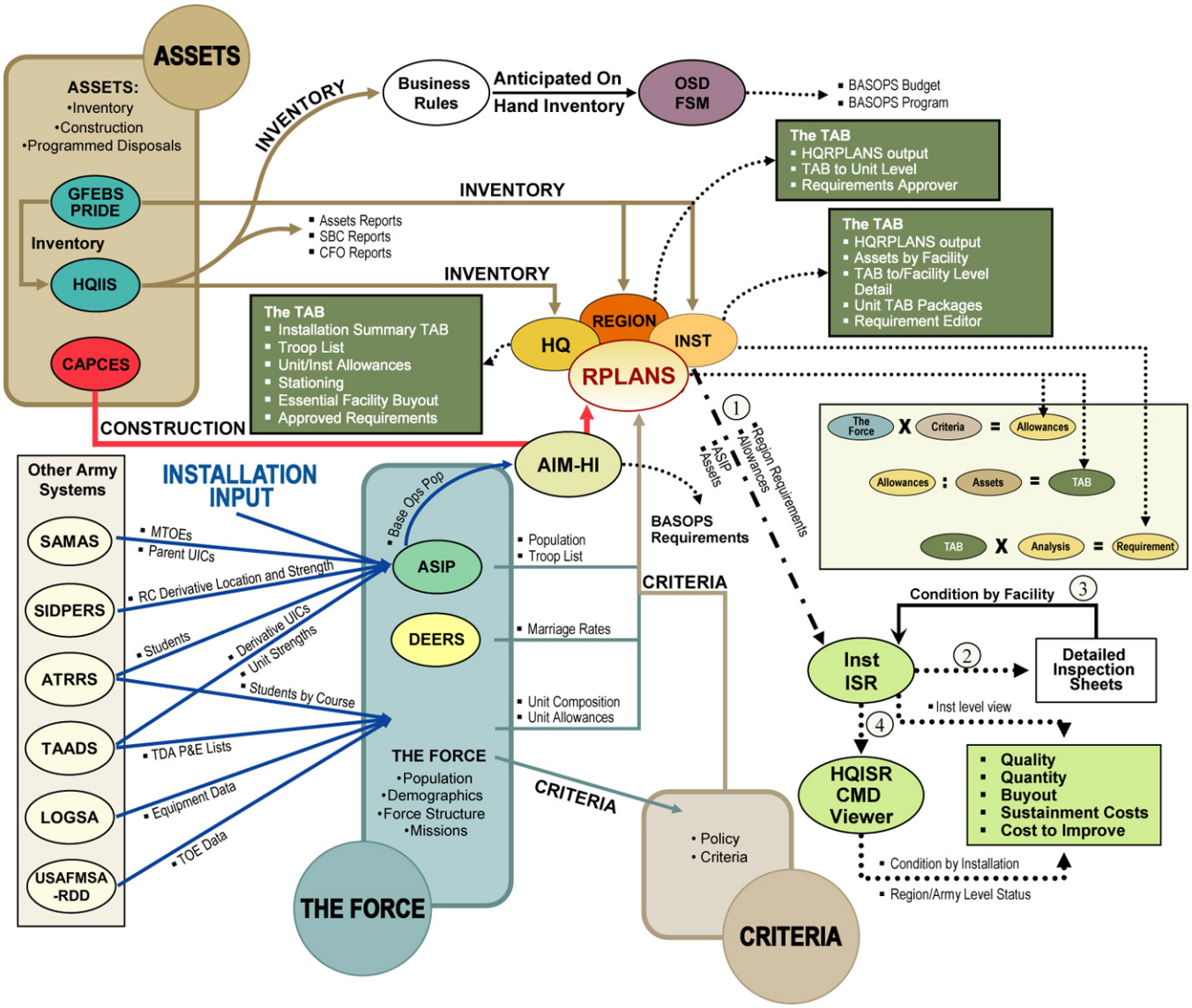
Depending on the magnitude of the problem, it may impact the Long Range Component or the Capital Investment Strategy. Major recommendations could require action – in the form of decisions and recommendations – by the Real Property Planning Board (RPPB) before implementation. Other actions may require special approvals, such as certain types of facility reclassifications. Still, others may involve coordination between the installation, the affected Army Command, HQDA, or other higher headquarters. New construction is generally the most expensive of the options available, and should only be used when other, less expensive options were considered and determined infeasible.

STEP 5: Update requirements in RPLANS and confirm results.

The purpose of this step is to ensure that actions taken accomplish the intended purpose. Figure 6.6, "TAB Systems Interface" shows the complexity of the information that feeds RPLANS. A single change can often produce a ripple of unexpected consequences in other areas.

Once the courses of action are identified and approved, ensure that required changes are made in the Real Property Inventory. Also make sure that requirements are edited in RPLANS. (Use of the RPLANS editor is explained in the RPLANS on-line user manual.) Ensure that any assets or assignment changes are made in GFEBS/PRIDE.

Figure 6.6 TAB Systems Interface



Once the Real Property Inventory is updated, and requirements edits are in RPLANS, verify that actions taken provide anticipated results. The following reports can be used for this analysis:

- The Buyout by Essential Facilities
- The Installation Coarse Screen
- Summary TAB by FCG for Applicable UICs for target FCGs
- TAB Packages for UIC groups with major holdings in target FCGs

Compare reports with the "before" versions to determine the amount of change.

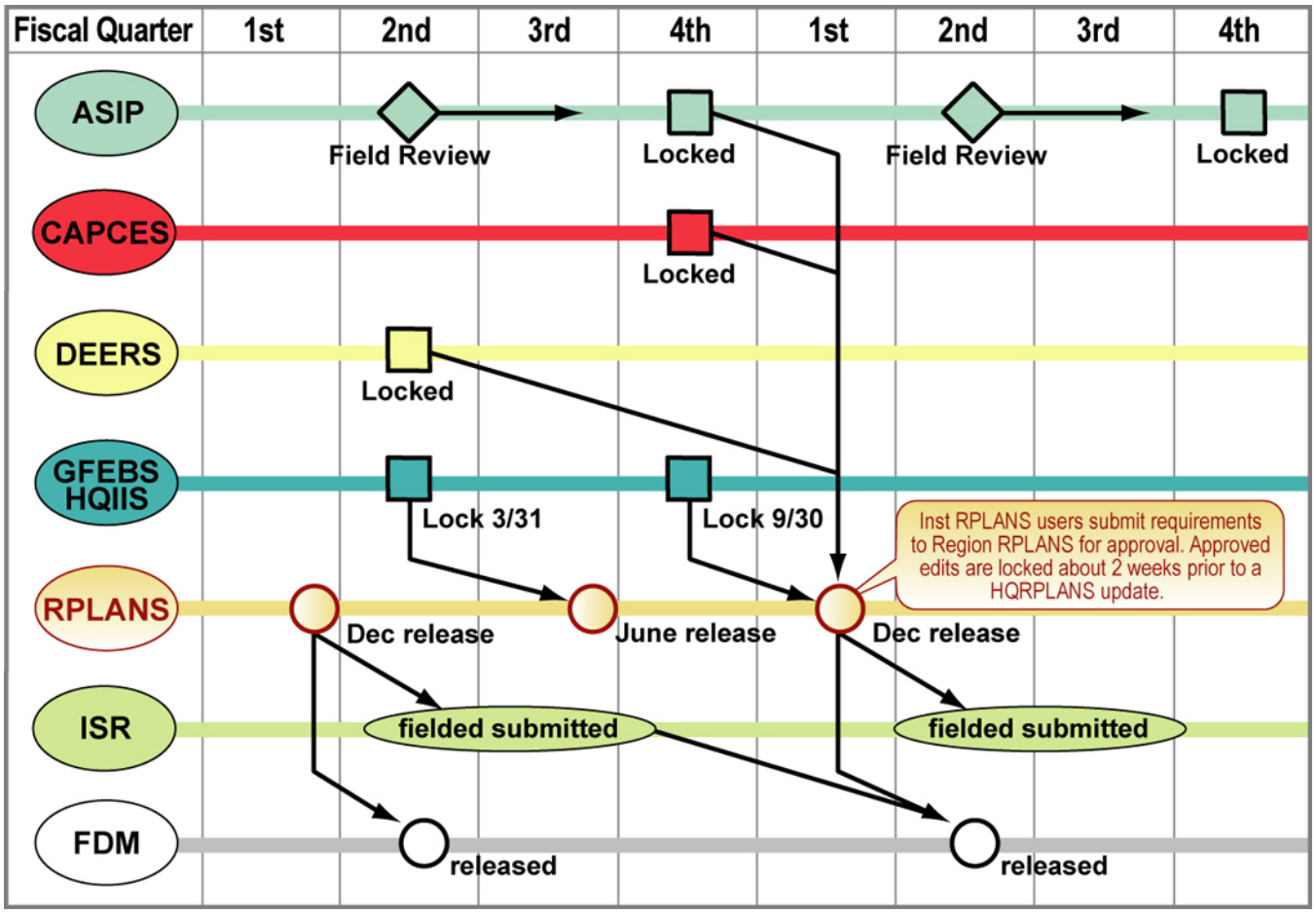
Conclusion

The TAB Management process is a continuous one. Data supporting RPLANS is updated semi-annually in HQRPLANS. Installation requirements and assets data can change regularly. Figure 6.7, "Data Update Cycles" shows the fiscal quarter when key update actions occur. Actual deadlines may vary by IMCOM Region.

Tip

Master Planner is responsible for maintaining the requirements data in RPLANS, for working with real property personnel to ensure the assets data are maintained, and with the ASIP personnel to ensure the ASIP is correct. Depending on the installation, the Master Planner may also be responsible for updating ISR and CAPCES.

Figure 6.7 Data Update Cycles



Approval and Maintenance

Approval: Every IMCOM Region requires the garrison commander to certify the accuracy of his/her TAB information in RPLANS. The annual RPLANS certification is then submitted through the IMCOM Region and HQ to ACSIM.

Maintenance: Installations significantly input data into three systems that contribute to RPLANS. These are:

- Strength through the Army Stationing and Installation Plan (ASIP)
- General Fund Enterprise Business System
- Requirements in RPLANS

Understanding these data sources, their relationships, and timelines for updating is critical to generating an accurate TAB. The updates occur annually or semi-annually, and drive the need to review and update the TAB.

While the RPLANS certification is an annual requirement, it is critical that the installation Master Planner monitor and review the data presented in RPLANS and the systems and processes that feed it.

Lessons Learned

- New construction is always the last alternative.
- Facility Requirements are relevant, but buyout quantities are the real deal.

6.3 Requirements Analysis without RPLANS

Description

Occasionally, a requirements analysis cannot be performed using the Army's automated tools. This occurs when unique organizations are too complex, or when transformation introduces force structure change faster than data updates can be made. For example, analysis is required for BRAC moves or global repositioning of units/organizations before these moves are reflected in the ASIP. In these cases, the requirements analysis must be performed manually.

Generally, the automated tools used to routinely develop RPMPs that are described in Section 6.2, "TAB Management" are not useful for the following major initiatives which, consequently, require manual analysis:

- Force Modernization
- Unit Conversions
- Stationing Studies

Outside agencies frequently ask installation planners if these types of moves can be accommodated, and, if not, what it would cost to accomplish the action. These actions often produce broad impacts to many areas, including:

- Facilities in the cantonment area
- Range and training lands
- Local jurisdictions

Depending on the nature and magnitude of the action, impacts to range/training lands can be the most expensive; analysis of these impacts must be part of the final answer.

The Range Office, the installation, and local communities must carefully coordinate, especially when an action could significantly increase stationed/area populations. Due to potential political implications, it is wise to include local representatives in the actual analysis process.

Force Modernization initiative.

Force modernization occurs when a unit or organization's structure, equipment or systems changes with no significant change in mission. This modernization usually affects the current range and training requirements.

The Sustainable Range Program (SRP) manager recognizes these changes as new range and training requirements. These are included in the modernization initiative description.

Stakeholders

Same as Section 6.2, "TAB Management"

Tools / Data Needed

- Statement of Work on development of a requirements analysis can be found in the IMCOM SOW Repository (https://eko.usace.army.mil/fa/arpmp/SOW)

Contacts Needed

Same as Section 6.1, "The TAB"

Closely work with the Range Officer on the Integrated Planning Team (IPT). The IPT must evaluate new equipment and system requirements to determine if existing range and training areas possess the capability, availability, and accessibility to accommodate them. If not, the installation performs an Analysis of Alternatives Study (AAS), and includes it in the Range Development Plan (RDP) submittal to the IMCOM Region. (See Section 10.6, "Ranges and Training" for further discussion.)

Unit Conversions initiative.

Unit conversions occur when an existing unit reorganizes under a different force structure document that alters its missions, equipment and capability; for example, the transformation of infantry/armor units to brigade combat teams.

These conversions require the Range Officer to perform a Doctrinal Analysis that considers both the new capabilities required and those capabilities no longer necessary. The IPT then conducts an update to the Operational Analysis. If this indicates significant changes, the IPT updates the Sustainability Analysis as well. Once requirements are defined, the Range Officer works with the Master Planner to ensure that the RCMP and GIS system are updated to reflect the new operational layer.

Work with the Range Officer to conduct the required Analysis of Alternatives Studies (AAS) and update the RDP. Large-scale unit conversions, such as a transformation, usually receive planning support from IMCOM, HQDA, and USACE. For small-scale conversions, installations may seek planning support from IMCOM or USACE.

Stationing Studies initiative.

A stationing study considers the impact of new units/organizations upon an installation. It must address impacts on:

- Services/infrastructure requirements in the cantonment area
- Range and training requirements

If both arriving and departing units are involved, the Range Officer provides a Doctrinal Analysis, to include the change in range and training requirements. The IPT then uses the Operational Analysis, the Sustainability Analysis, the operational layer, and the installation GIS data to determine an installation's ability to accommodate ranges and training.

In every case, the principles that drive automated systems should also guide the manual determination of requirements. Analysis is always based on the three pillars of the TAB – Assets, Force, and Criteria.

References

- **AR 405-70: Utilization of Real Property**
- **Army Publications Center, the Corps of Engineers, or the Reimer Digital Library**
- **DA PAM 415-28: Guide to Army Real Property Category Codes**

Purpose

Occasionally, time does not permit the use of RPLANS. In these instances, a requirements analysis without the TAB is manually performed. This permits the Master Planning process to move forward and effectively respond to the needs of the Force.

Key Steps to a Requirements Analysis Without RPLANS

There are seven steps to conducting a requirements analysis without RPLANS.

STEP 1: Identify the Force.

The Force consists of personnel, equipment, and missions. It is also shaped in part by criteria, used to develop the eligible population. These criteria are not always apparent without full knowledge of the organization's structure and mission(s). So become aware of all aspects of the Force organization, in order to create a comprehensive list of all that comprises it, including authorized personnel and assigned equipment/space. In theory, a requirement can be determined without referencing existing facilities.

STEP 2: Determine the composition of the Force.

Identify any organization undergoing a manual requirements analysis. Be comprehensive: even if correctly included in the ASIP, an organization may consist of more than one unit identification code (UIC). For Army units/ organizations, begin this process with TAADS – The Automated Army Documentation System. To access these data, contact the Plans, Analysis and Integration Office (PAIO), the Directorate of Resource Management (DRM), and the Directorate of Plans, Training, Mobilization and Security (DPTMS). The identified organizations can also serve as sources of information, but make certain they are providing approved data.

STEP 3: Assess TOE Units.

(See Section 10.2, "Army Structure" for background information on TOE units.) For Table of Organization and Equipment (TOE) units, request the Objective TOE (OTOE) and Modified TOE (MTOE) to determine if any significant differences exist. Normally, it is better to base requirements on the OTOE, especially if the difference is based on equipment not yet fielded. For brigades and battalions, it may be necessary to define all elements. Brigade Combat Teams (BCT) have specific organizations that do not vary significantly between BCTs of the same type. Similarly, Combat Aviation Brigades (CAB) and Fires Brigades are relatively consistent, and have a generally standard array of organic companies. But Battlefield Surveillance Brigades, Combat Support Brigades (maneuver enhancement), and Sustainment Brigades can differ radically in the number and type of assigned battalions. In short, while battalions organic to a BCT, CAB or Fires Brigade tend to be composed of a consistent number of organic companies and battalions, other functional brigades generally do not.

STEP 4: Identify TDA Organizations and other tenants.

First, identify the main tenant, and then associate contractors, service elements, and relevant missions. For schools, this includes identifying student loads associated with courses offered. Obtain authorized personnel and equipment for Army TDA organizations from FMSWeb. Obtain information on other tenant activities from the tenants themselves.

STEP 5: Determine missions.

The best way to understand what a unit or organization does is to visit it. Interview key staff and tour existing facilities. However, be careful to focus on the mission and not the facilities. The goal is to understand what they do, how they do it, and why they do it that way. For common types of units/ organizations, standard designs and design guides can help perform this analysis. These are often oriented towards TOE units, and, to a lesser extent, TDA organizations. But these can also help analyze other types of organizations. Study these standard designs prior to a visit, and then focus on whether the assumptions significantly differ and, if so, how.

When a unit visit is impossible, use the internet to gather general information about an organization. If possible, obtain a list of existing facilities. Use this to understand the types of space in use. For example, a unit with laboratories in its current location will probably require similar laboratories elsewhere. Keep in mind that a space's current use does not automatically validate a requirement.

Space requirements for most organizations come under three categories:

- Organization mission
- Organization support
- Administrative overhead

For many TDA and tenant activities, all three exist within an administrative building. In other cases, each has a distinct category code, and may be physically dispersed as well.

The mission space is where personnel and equipment perform the tasks the organization was designed to accomplish. This might be a laboratory, a warehouse, a production plant, a maintenance facility, an ammunition bunker, or a range complex. In the case of command and control or professional/institutional organizations, it could be the same as administrative overhead space. In some cases, it may be "generic" space, such as the readiness module of the company operations facility.

Organization support space facilitates the mission, but is not unique to the mission. This might include spaces for: storage, maintenance, classrooms, meetings, computers, and communications, among others. This space is considered generic, as it is required, but can support other missions as well.

For example, a forward support company may use a maintenance facility to repair vehicles from other units (mission space) while using a maintenance facility elsewhere to repair its own equipment (support space); or it may use a single facility for both.

Administrative overhead is space required to house managers and management functions. These might include a command group, a human resources staff, an operations staff, communications staff, resource management staff, and logistics staff. By their nature, these functions could, in theory, be performed anywhere. Therefore, these might not be located in the organization's primary mission facility, or might be fully integrated into its footprint.

STEP 6: Determine criteria.

Mission analysis defines the general types of space requirements. Review the DA Pamphlet 415-28 to identify the required specific category codes, and then determine applicable criteria where criteria exist. If necessary, obtain copies of these source documents, where criteria are derived. Most official criteria source documents are now available on-line through the Army Publications Center, the Corps of Engineers, or the Reimer Digital Library.

Using mission analysis and staffing authorization documents (TOE, TDA, or organization-provided data), determine the number of personnel that require administrative overhead space. Then use AR 405-70 to determine the amount of office space allowed. Calculate special space – filing, meeting/conference space, etc. – based on information provided in Appendix D of AR 405-70. Determine the total net administrative space required (office space plus special space).

Use the criteria to determine the amount of organizational mission space required. Office space, even when embedded in other types of space, is still limited to that prescribed in AR 405-70. Where criteria exist, determine the "trigger" for space. For example, general instruction space relates to the number of students, instructors, and courses. Use staffing documents or equipment lists to determine the amount of mission space needed by category code.

Classify organization support space requirements by category code. Review criteria to identify applicable triggers (for example, volume of material stored for organizational storage).

STEP 7: Document requirements.

The Army is in constant change, so it is important to keep version data for all information supporting requirements analysis. Unit workbooks are helpful for assembling/maintaining data and recording analysis results. In addition to the document date, the most useful TOE and TDA version data is the E Date, which reflects when document authorizations become effective. Some TOEs and TDAs change every year, so the E Date is key to tracking changes as an implementation timeline progresses.

Note: Allowances are the objective application of standard Army planning criteria to a standard force structure. Requirements reflect factors related to missions, personnel, and equipment that are not adequately reflected in the standard force. RPLANS automatically computes allowances and sets requirements equal to allowances as a default value.

Approval and Maintenance

Approval: ACSIM requires an annual RPLANS TAB Certification for each garrison. This approval certifies that the garrison has RPLANS TAB data.

Maintenance: The Army updates RPLANS semi-annually. However, installations may need to address changes not yet reflected in RPLANS during periods of force structure turbulence or repositioning. When addressing out-of-cycle changes, apply the same general principles of TAB management.

Examples

Example 6.1 Force Structure

Force Structure

The new brigade based force structure provides the regional combatant commander with a more responsive, capable, lethal, and sustainable force. Rapid deployment and joint capabilities are supported by the new packaging of concepts, capabilities, people, and organizations.

The 2nd Armored Cavalry Regiment (Light), stationed at Fort Polk, Louisiana, has begun the transformation to an Infantry-based Stryker Brigade at Fort Lewis. Figure 5 and Table 4 summarize the organization and military strength of the SBCT 4, based on an analysis of the unit's MTOES and guidance from the installation. The transformation process has been dynamic up to this point, and will most likely change in the future.

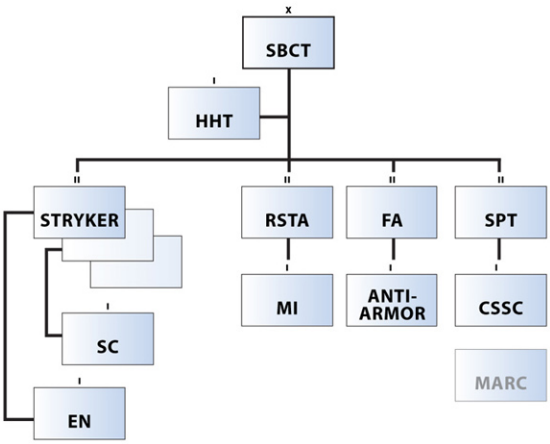


Figure 5 - SBCT 4 Organizational Chart

Table 4 - Force Structure

SRC	UIC	Unit	Officer	Warrant	Enlisted	Total	
47102F300	WAY7AA	HHT, 2nd Cavalry Regiment	41	9	73	123	
07096F300	WG2GAA	HHC, 1 Sqdn, 2 CR	20	0	148	168	
07097F300		Rifle CO	7	0	169	176	
07097F300		Rifle CO	7	0	169	176	
07097F300		Rifle CO	7	0	169	176	
05063F300	WJKRAA	Engineer Troop	6	0	121	127	
		Total	**47**	**0**	**776**	**823**	
07096F300	WG2HAA	HHC, 2 Sqdn, 2 CR	20	0	148	168	
07097F300		Rifle CO	7	0	169	176	
07097F300		Rifle CO	7	0	169	176	
07097F300		Rifle CO	7	0	169	176	
11103F300	WJH3AA	Signal Troop	4	2	58	64	
		Total	**45**	**2**	**713**	**760**	
07096F300	WG2JAA	HHC, 3 Sqdn, 2 CR	20	0	148	168	
07097F300		Rifle CO	7	0	169	176	
07097F300		Rifle CO	7	0	169	176	
07097F300		Rifle CO	7	0	169	176	
		Total	**41**	**0**	**655**	**696**	
17096F300	WH6DAA	HHT, 4 Sqdn, 2 CR (RSTA)	16	1	77	94	
17097F300		Recce Troop	6	0	87	93	
17097F300		Recce Troop	6	0	87	93	
17097F300		Recce Troop	6	0	87	93	
34117F300		Surveillance Troop	5	1	60	66	
34143F300	WJKSAA	MI Troop	5	4	69	78	
		Total	**44**	**6**	**467**	**517**	
06386F300	WJKPAA	HSB FA BN 155	17	2	90	109	
06387F300		FA Btry	4	0	57	61	
06387F300		FA Btry	4	0	57	61	
06387F300		FA Btry	4	0	57	61	
07093F300	WJKQAA	Anti-Armor Troop	6	0	48	54	
		Total	**35**	**2**	**309**	**346**	
63106F400	WC0CAA	HHC, BSB	18	4	138	160	
63107F400		Distribution CO	5	1	129	135	
43107F400		Forward Maint CO	5	10	232	247	
08108F400		BDE SPT Medical CO	12	0	58	70	
63390F000	WJHNAA	CSSC	4	5	214	223	
		Total	**44**	**20**	**771**	**835**	
		SBCT Total	**297**	**39**	**3764**	**4100**	
		MARC				75	Civilians
		Total for SBCT, and MARC	**297**	**39**	**3764**	**4175**	

Example 6.2 Facility Requirement Analysis

Facility Allowances / Requirements

Allowances have been developed for the operational facilities in support of the 2nd CR. They are based on the latest facility standard design criteria, unit MTOES, FPS, ACTS and local installation guidance. Vehicle maintenance requirements were provided by Fort Lewis planning staff. The allowances are summarized Table 6.

Currently there is some uncertainty about UPH rates. The figure of 1842 barracks spaces in Table 6 is based on FPS and includes 97 spaces for the CSSC. Planning should take into account the possibility that the UPH rate for the 2nd CR may be higher.

Following Table 6 is a summary of the criteria used for each of the eight category codes.

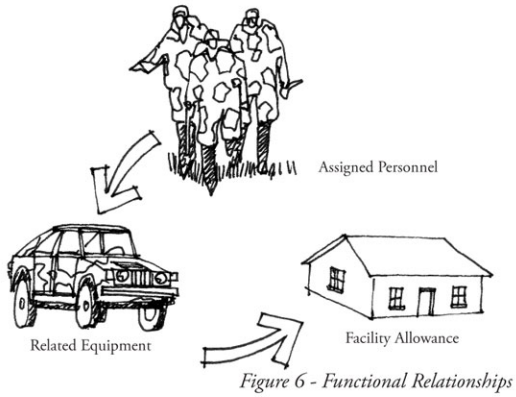


Figure 6 - Functional Relationships

Table 6 - Facility Requirements

UIC	UNIT	SRC	BDE HQ 141 82 (SF)	BN HQ 141 83 (SF)	CO HQ 141 85 (SF)	VEH MAINT 214 10 (SF)	VEH BAYS 214 10 (VEH)	UNIT STOR 442 24 (SF)	UPH 721 11 (SF)	UPH 721 11 (SP)	DFAC PN 722 10 (SF)	ORG PKG 852 10 (SY)	NOTES
WAY7AA	HHT, 2nd Cavalry Regiment	47102F000	19,684		11,608				8,784	24		5,034	Vehicle maintenance performed by Support Squadron. Bde HQ includes 3,000 sf req for SCIF.
	Total		**19,684**		**11,608**			**2,100**	**8,784**	**24**		**5,034**	
WG2GAA	HHC, 1 Sqdn, 2 CR	07096F300		12,499	14,056	12,672	4		25,254	69		5,749	SPT Sqdn CRTs provide unit level maintenance for this unit.
	Rifle CO	07097F300			14,056				30,744	84		4,707	
	Rifle CO	07097F300			14,056				30,744	84		4,707	
	Rifle CO	07097F300			14,056				30,744	84		4,707	
WJKRAA	Engineer Troop	05063F300			11,608				21,228	58		6,921	EN Trp grouped with Stryker Sqdn.
	Total			**12,499**	**67,832**	**12,672**	**4**	**10,815**	**138,714**	**379**		**26,791**	
WG2HAA	HHC, 2 Sqdn, 2 CR	07096F300		12,499	14,056	12,672	4		25,254	69		5,749	SPT Sqdn CRTs provide unit level maintenance for this unit.
	Rifle CO	07097F300			14,056				30,744	84		4,707	
	Rifle CO	07097F300			14,056				30,744	84		4,707	
	Rifle CO	07097F300			14,056				30,744	84		4,707	
WJH3AA	Signal Troop	11103F300			9,185				8,418	23		4,320	Unit also has a 4,050 GP Admin requirement (cat code 61050) not included. SC Grouped with Stryker Sqdn.
	Total			**12,499**	**65,409**	**12,672**	**4**	**10,815**	**125,904**	**344**		**24,190**	
WG2JAA	HHC, 3 Sqdn, 2 CR	07096F300		12,499	14,056	12,672	4		25,254	69		5,749	SPT Sqdn CRTs provide unit level maintenance for this unit.
	Rifle CO	07097F300			14,056				30,744	84		4,707	
	Rifle CO	07097F300			14,056				30,744	84		4,707	
	Rifle CO	07097F300			14,056				30,744	84		4,707	
	Total			**12,499**	**56,224**	**12,672**	**4**	**10,815**	**117,486**	**321**		**19,870**	
WH6DAA	HHT, 4 Sqdn, 2 CR	17096F300		12,175	9,185	13,272	4		13,908	38		4,509	SPT Sqdn CRTs provide unit level maintenance (except for TUAV maint) for this unit. RSTA also has a 9,720 GP Admin requirement (cat code 61050) not included.
	Recce Troop	17097F300			9,185				13,908	38		4,509	
	Recce Troop	17097F300			9,185				13,908	38		4,509	
	Recce Troop	17097F300			9,185				13,908	38		4,509	
	Surveillance Troop	34117F300			9,185				11,346	31		2,659	TUAV Platoon included.
WJKSAA	MI Troop	34143F300			9,185				11,712	32		4,113	Unit also has a 9,558 GP Admin requirement (cat code 61050) not included. MI Trp grouped with RSTA Sqdn.
	Total			**12,175**	**55,110**	**13,272**	**4**	**10,815**	**78,690**	**215**		**24,808**	
WJKPAA	HSB FA BN 155	06386F300		12,337	9,185	12,672	4		9,882	27		4,296	
	TGT ACQ HQ Team	06530FA00							366	1		1,839	
	1 WLRS (TPQ-36) Team	06530FB00							2,196	6		1,301	
	1 WLRS (TPQ-37) Team	06530FC00							3,294	9		1,979	
	Meteorological Team	06530FD00							2,196	6		1,273	
	Survey Section Team	06530FE00							1,464	4		1,187	
	FA Btry	06387F300			9,185				13,908	38		4,727	
	FA Btry	06387F300			9,185				13,908	38		4,727	
	FA Btry	06387F300			9,185				13,908	38		4,727	
WJKQAA	Anti-Armor Troop	07093F300			9,185				8,784	24		2,363	Unit also has a 4,050 GP Admin requirement (cat code 61050) not included. Grouped with FA Sqdn.
	Total			**12,337**	**45,925**	**12,672**	**4**	**10,815**	**69,906**	**191**		**28,419**	
WC0CAA	SPT SQ	63105F400											Unit has a 2,106 GP Admin requirement.
	HHC, BSB	63106F400		12,013	14,056				21,594	59		10,431	
	Distribution CO	63107F400			11,608				24,888	68		19,526	
	Forward Maint CO	43107F400			16,201	43,090	9		41,358	113		25,736	
	BDE SPT Medical CO	08108F400			9,185				11,346	31		4,405	
WJHNAA	CSSC	63390F000			11,605	21,120	6		35,502	97		19,549	5 / 5 / 04 RPLANS allowances applied for CO HQ, UPH, and Org Pkg.
	Total			**12,013**	**62,655**	**64,210**	**15**	**10,815**	**134,688**	**368**		**79,647**	
	MARC					43,078	15						DOL Contractor. Unit not organic to SBCT. Maint facility in SBCT footprint.
	SBCT Total		**19,684**	**74,022**	**364,763**	**171,248**	**50**	**66,990**	**674,172**	**1,842**	**30,233**	**208,759**	**Includes MARC Allowance**

Lessons Learned

- Question those who use self-serving regulations or standards.

7

CAPITAL INVESTMENT STRATEGY

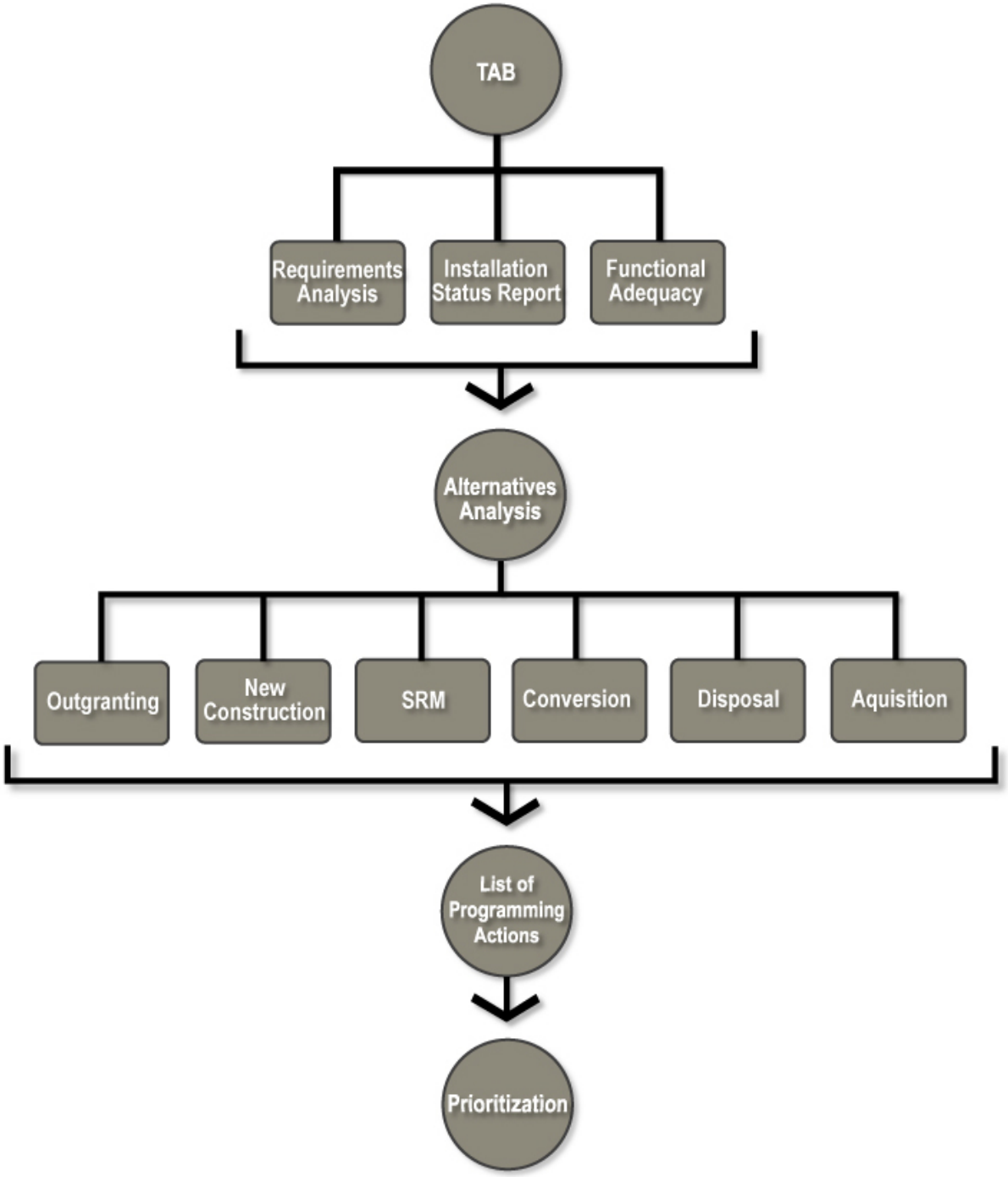
7.1 Capital Investment Strategy Introduction

The Capital Investment Strategy (CIS) is one of the five components of the Real Property Master Plan. It describes long term solutions, as well as short-term actions necessary to correct deficiencies and meet real property requirements. The CIS also identifies Real Property projects scheduled in the Future Years Defense Plan (FYDP). The CIS supports the Real Property Vision and long-range plans contained in the Long Range Component, and forms the basis of necessary programming actions. Figure 7.1, "RPMP Process: Capital Investment Strategy" illustrates the CIS process.

Stakeholders

- **Garrison Commander**
- **Mission Commanders**
- **Directorate of Public Works**
- **Plans, Analysis, and Integration Office (PAIO)**

Figure 7.1 RPMP Process: Capital Investment Strategy



Description

The CIS is the plan the installation uses to support its mission and Department of the Army objectives and directives. It provides a framework for making decisions. It describes how to implement Army strategy and identifies facility resources for national security objectives to installation missions, programs, and finally known requirements.

The CIS reflects all installation facilities programming action(s) that changes the quantity, quality or adequacy of facilities. These actions – the use of real property, construction, demolition, conversion, real estate transactions, etc. – are prioritized in this document.

It includes actions that respond not only to installation priorities but also to other programs and initiatives. These might include greater emphasis on antiterrorism and critical infrastructure protection, reduced manpower and resources, base realignments and closures or other stationing initiatives like the migration of base operations (BASOPS) functions from the government to the private sector.

The CIS consists of a prioritized list of all real property actions. A Future Development Plan provides a general location for each action, which is documented in the LRC. Statements of work on CIS development can be found in the IMCOM SOW repository.

Tip

This list may include utilities privatization, demolition, ECIP, SRM, EUL, PAL.

While the TAB is a useful tool throughout all aspects of Master Planning, balancing the TAB is a requirement of the CIS. The CIS identifies and prioritizes actions necessary to balance the Tabulation of Existing and Required Facilities (TAB) and is closely integrated with the TAB process. (For more information on the TAB process, see Section 6, *Tabulation of Existing and Required Facilities*.)

Purpose

The Capital Investment Strategy:

- Integrates the installation Real Property Vision Goals and Objectives, the installation mission (as a vital component of the Army Strategic Plan), and the Real Property Master Planning process.
- Integrates Real Property Master Planning into the Army's budgetary and operational planning processes by tracking recommended Real Property Master Planning initiatives into the Army's POM process and Project Priority System (PPS).

Tools / Data Needed

Tools

- The Installation Mission, Vision, Goals and Objectives
- The TAB Management Process Section 6, *Tabulation of Existing and Required Facilities*
- A statement of Work on CIS development can be found in the IMCOM SOW Repository
- RPLANS

Data

- Real Property Inventory (RPI) maintained in the GFEBS
- Force structure data maintained in the Army Stationing and Installation Plan (ASIP)
- Facilities infrastructure Quality and Quantity ratings from the Installation Status Report (ISR)
- Future Years Defense Plan (FYDP)
- Requirements analysis using Army legacy planning systems (RPLANS, etc)
- 1391 Charrettes

Contacts Needed

- Garrison Command personnel
- Real Property Accountable Officer
- Unit/Organization Points of Contact
- Corps of Engineer District Representative
- IMCOM Regional Representative

- Ensures all facility needs and functions assigned to the installation are addressed.
- Tracks Real Property Planning Initiatives into the Army's Future Years Defense Plan (FYDP).
- Provide a framework for competing for and allocating installation resources to balance the TAB. (See Section 6, *Tabulation of Existing and Required Facilities*.)
- Aids the installation in justifying, prioritizing and competing for resources to support real property actions, such as construction, demolition, and renovation.
- Responds to other facilities planning issues, such as stationing actions, mission changes, HQDA planning initiatives, etc.

Key Steps to Creating Capital Investment Strategies

There are five key steps to developing the CIS.

STEP 1: Ensure accuracy of supporting documentation.

- Ensure that the Tabulation of Existing and Required Facilities (TAB) data derived from RPLANS is correct. The TAB should be updated regularly and certified at least once a year. If it is not up to date, derive installation project requirements from the TAB Management process – Section 6, *Tabulation of Existing and Required Facilities*.
- Collect and Consider Functional Adequacy (FA) and ISR ratings for facilities. FA and ISR ratings of 3 or above require consideration for significant repair or replacement and must be factored into investment alternatives.

STEP 2: Refer to the Plan

- Research and summarize the Real Property Vision, Goals and Objectives of the installation. Identify priorities. Develop a concise, clear, bulleted list of objectives on how its capital and resources should be allocated to meet installation infrastructure objectives.

Leveraging Technology

- Section 6.2, "TAB Management"

STEP 3: Develop Alternatives that address facility excesses and deficits.

- Use the Real Property Planning and Analysis System (RPLANS) to determine facility excesses and deficits for each installation. (For more information on the TAB, see Section 6, *Tabulation of Existing and Required Facilities*.) Include the full TAB list of FCGs in the CIS.
- Determine the best course of action for each out-of-balance FCG. Develop actions – construction, demolition, renovation, conversion, facility reassignments, real estate transactions (leases, out-leases, acquisitions, etc.) – for the largest excesses and deficits. Base this determination on an analysis of current and anticipated missions and HQDA planning initiatives. Each action should describe executable projects. Detailed projects will be addressed at the ADP level.
- Multiple strategies should be reviewed before a proper course of action can be determined. A feasibility analysis can help the installation weigh the costs and benefits various alternataives. For exampe, a study can determine whether it is most cost effective to renovate a builing or to build on an alternate site.

STEP 4: Develop a list of projects.

- Determine the most feasible alternative for each out-of-balanced FCG (or FCC) and create an exhaustive list of projects. Demonstrate how each project balances the relevant FCG or FCC.
- From this master list, identify those projects that can be funded within the five- to seven-year FYDP window. These are typically those projects that are most important to the installation. These decisions will be made with input and approval from the RPPB and should be incorporated into the web-based HQ IMCOM Project Prioritization System (PPS).

STEP 5: Prioritize the project list.

Create a table that contains, at a minimum, a prioritized, time-phased list of projects. This list should include: all projects contained in the FYDP window that are programmed and guaranteed funding and projects currently under construction. If the installation is located overseas, include projects funded through additional host nation funding sources. Be sure to include similar projects from the Range Development Plan. (See Section 4.2.2.8, "Ranges and Training Assessment"). All projects on this list have been approved by the RPPB. On the table, include:

- Funding source [Military Construction Army (MCA), Military Construction Air Force (MCAF), Military Construction Navy (MCN), Military Construction Department of Defense (MCD), Base Realignment and Closure (BRAC), Operations and Maintenance Army (OMA), Military Construction Army Reserve

Products

The Investment Strategies section of the CIS has the following components:

- **Rationale for Prioritization Summary, which summarizes the installation Real Property Vision, Mission, Goals and Objectives, and describes how these were used to develop and prioritize the CIS.**
- **Lists of all short- and long- range projects plannned for the installation.**
- **A narrative that details phased planning initiatives over the FYDP window (five to seven years)**
- **A balanced TAB and recommendations**

References

- **AR 420-1 Army Facilities Management**

(MCAR), National Guard (NG), Non-appropriated Funds (NAF), Army Family Housing (AFH), Morale Welfare & Recreation (MWR), Army Air Force Exchange Service (AAFES), Defense Commissary Agency (DeCA), private, or any other funding type]

- Region
- Garrison
- Installation name
- Project number
- Project title
- Cost estimate
- Major command
- Category code
- PPS investment category
- Installation priority
- Construction year
- Management Decision Package (MDEP), if any

Develop a narrative that provides supporting information for the projects. Consider phases of development. Document the process and any supporting information. Describe the rationale used to prioritize the list. This prioritized list is the Capital Investment Strategy. The installation's CIS feeds into the Project Priority System (PPS), which is the Army's Capital Investment Strategy. Include:

- Project description/Category Code
- Project scope
- Tenant Organization/Unit defined by UIC
- Project-specific site
- Planning charrette reports, if available
- Project-specific environmental layers
- Facility requirements analysis output from Real Property Planning and Analysis System (RPLANS)
- DD Forms 1391, if required

Tip

Conjunctive funding allows the Army to combine funding sources which are typically kept separate, and provides a vehicle for implementation of mixed-use development - multiple commercial/retail/office functions within the same facility. Consider conjunctive funding or alternative funding like the Residential Communities Initiative (RCI).

Tip

Once you have project list, encourage strategies that increase density and mxed-use of community buildings, like:

- redirecting concession dollars toward the construction of a building's second story.

Maintenance

The CIS is a document that guides long-term infrastructure and facility planning policy. Many of the strategies in the CIS change only when significant stationing actions, missions, or other Department of the Army/ Department of Defense initiatives affect the installation. However, as projects that support these strategies are completed, the prioritized project list will require updating. Periodic review is always a good idea.

- Maintain and update the CIS semi-annually in conjunction with the installation Real Property Planning Board (RPPB) meetings, RPLANS updates, and as planning initiatives are added or completed.
- Submit annually with the MILCON program submittal.
- Revalidate any charrette report over two years old.

Examples

Example 7.1 Capital Investment Strategy List

- Reorient land use patterns to the current land use plan through redistribution and reutilization of existing permanent facilities.
- Eliminate WWII wood barracks through renovation and construction.
- Renovate the historic garrison area by replacing existing barracks with administrative spaces to meet shortages.
- Complete barracks build-out with brigade combat team complexes.
- Redevelop existing inadequate facilities; redistribute adequate ones to functional brigades and Echelon Above Brigade units.
- Create a training support campus that consolidates facilities and services tactical units.
- Redevelop the logistics center into a consolidated operational support and power projection platform.
- Reorient on-post installation traffic to isolate tactical, training, and industrial traffic from general traffic network.

Example 7.2 PPS Priorities

Fund Source	Region	GARRISON	Installation Name	Project #	Project Title	PA ($000)	MACOM	Cat Code	Invest. Cat. Cd.	Installation Objective Criteria	Installation Priority
MCA	WEST	USAG FORT SILL	FORT SILL OK	67037	MODIFIED RECORD FIRE RANGE	$2,350	TRADOC	17806	AFS3	27	1
MCA	WEST	USAG FORT SILL	FORT SILL OK	48125	NCO ACADEMY COMPLEX	$34,000	TRADOC	17120	FFS4	54	2
MCA	WEST	USAG FORT SILL	FORT SILL OK	75953	AIT BARRACKS (PHASE 2 OF 2)	$87,000	TRADOC	72121	FFS2	68	3
MCA	WEST	USAG FORT SILL	FORT SILL OK	75661	INITIAL ENTRY RECEPTION COMPLEX (PHASE 2 OF 2)	$97,000	TRADOC	72181	FFS2	46	4
MCA	WEST	USAG FORT SILL	FORT SILL OK	73179	FIXED WING PAVED RUNWAY EXTENSION	$22,000	FORSCOM	11110	IFG12	4	5
MCA	WEST	USAG FORT SILL	FORT SILL OK	71058	POST ACCESS CONTROL POINT - SHERIDAN	$21,000	IMCOM	14113	IFG3	39	6
MCA	WEST	USAG FORT SILL	FORT SILL OK	20693	ARMY CONTINUING EDUCATION SYSTEM FACILITY	$14,200	IMCOM	74025	IFG14	41	7
MCA	WEST	USAG FORT SILL	FORT SILL OK	68743	JLENS TRAINING FACILITY	$75,000	TRADOC	17120	IFG9	61	8
MCA	WEST	USAG FORT SILL	FORT SILL OK	78456	CONSOLIDATED FIRE, SAFETY AND SECURITY FACILITY	$19,000	IMCOM	73010		0	9
MCA	WEST	USAG FORT SILL	FORT SILL OK	65297	REMOTE SWITCHING UNIT (RSU)	$6,000	IMCOM	80800	AFS6	9	10
MCA	WEST	USAG FORT SILL	FORT SILL OK	71059	POST ACCESS CONTROL POINT - FT SILL	$15,500	IMCOM	14113	IFG3	38	11
MCA	WEST	USAG FORT SILL	FORT SILL OK	65165	ARRIVAL/DEPARTURE AIR CONTROL GROUP (A/DACG) COMPLEX	$16,500	FORSCOM	14132	AFS4	49	12
MCA	WEST	USAG FORT SILL	FORT SILL OK	75946	POST ACCESS CONTROL POINT - KEY GATE EAST AND WEST	$17,000	IMCOM	14113	IFG3	43	13
MCA	WEST	USAG FORT SILL	FORT SILL OK	75164	FIRES BDE COMPLEX PH2	$58,000	FORSCOM	14185	AFS2	25	14
MCA	WEST	USAG FORT SILL	FORT SILL OK	65739	AMMO HOT LOAD AREA	$8,700	FORSCOM	11380	AFS4	70	15
MCA	WEST	USAG FORT SILL	FORT SILL OK	68333	COMBINED ARMS COLLECTIVE TRAINING FACILITY	$31,000	TRADOC	17901	AFS3	66	16
MCA	WEST	USAG FORT SILL	FORT SILL OK	62750	COMMUNICATIONS CENTER	$4,500	IMCOM	13120	Other	12	17
MCA	WEST	USAG FORT SILL	FORT SILL OK	59580	MULTI-PURPOSE FITNESS CENTER	$14,600	IMCOM	74028	IFG14	17	18
MCA	WEST	USAG FORT SILL	FORT SILL OK	71060	POST ACCESS CONTROL POINT - 52ND ST GATE	$16,000	IMCOM	14113	IFG3	40	19
MCA	WEST	USAG FORT SILL	FORT SILL OK	72222	POST ACCESS CONTROL POINT - APACHE GATE	$10,400	IMCOM	14113	IFG3	44	20
MCA	WEST	USAG FORT SILL	FORT SILL OK	78457	UNMANNED AERIAL SURVEILLANCE TRAINING FACILITY W/AIRSTRIP	$2,500	FORSCOM	17134		0	21
MCA	WEST	USAG FORT SILL	FORT SILL OK	65402	CONSTRUCT CHAPEL	$7,900	IMCOM	73017	IFG14	62	22
MCA	WEST	USAG FORT SILL	FORT SILL OK	78458	GENERAL INSTRUCTION BUILDING (MEADS)	$45,000	TRADOC	17120		0	23
MCA	WEST	USAG FORT SILL	FORT SILL OK	61846	RAILROAD TRACKS (WYE)	$2,750	FORSCOM	86010	AFS4	56	24
MCA	WEST	USAG FORT SILL	FORT SILL OK	71056	INDIRECT FIRE PROTECTION CAPABILITY (IFPC) TRAINING FACILITY	$20,000	TRADOC	17135	FFS8	48	25
MCA	WEST	USAG FORT SILL	FORT SILL OK	53589	AMMUNITION STORAGE COMPLEX	$69,000	IMCOM	42280	Other	57	26
MCA	WEST	USAG FORT SILL	FORT SILL OK	73258	SUB-STATION CONNECTION	$6,300	IMCOM	81242	IFG15	16	27
MCA	WEST	USAG FORT SILL	FORT SILL OK	78439	COLD STORAGE WAREHOUSE (TISA)	$14,400	IMCOM	43211		0	28
MCA	WEST	USAG FORT SILL	FORT SILL OK	45046	DEPARTMENT OF EMERGENCY SERVICES (DES) TRAINING FACILITY	$2,000	IMCOM	17981	IFG14	50	29
MCA	WEST	USAG FORT SILL	FORT SILL OK	61400	ALERT HOLDING AREA EXPANSION	$3,450	FORSCOM	85212	AFS4	3	30
MCA	WEST	USAG FORT SILL	FORT SILL OK	55332	BAND TRAINING FACILITY	$6,400	TRADOC	17115	FFS8	30	31
MCA	WEST	USAG FORT SILL	FORT SILL OK	59577	VEHICLE MAINTENANCE SHOP - ATC	$13,400	TRADOC	21410	FFS1	21	32
MCA	WEST	USAG FORT SILL	FORT SILL OK	45020	VEHICLE MAINTENANCE SHOP	$11,000	FORSCOM	21410	FFS1	22	33
MCA	WEST	USAG FORT SILL	FORT SILL OK	61399	RAILCAR STORAGE SIDING	$4,900	IMCOM	86010	AFS4	58	34
MCA	WEST	USAG FORT SILL	FORT SILL OK	55550	DPW MAINTENANCE FACILITY	$11,400	IMCOM	21885	FFS1	31	35
MCA	WEST	USAG FORT SILL	FORT SILL OK	75943	CONSOLIDATED HOUSING FURNITURE STORAGE	$2,000	IMCOM	44271	IFG15	1	36
MCA	WEST	USAG FORT SILL	FORT SILL OK	78461	FRISCO RIDGE FLIGHT LANDING STRIP IMPROVEMENT	$37,000	TRADOC	11110		0	37
MCA	WEST	USAG FORT SILL	FORT SILL OK	59579	MULTI-PURPOSE FITNESS CENTER	$14,600	IMCOM	74028	IFG14	18	38
MCA	WEST	USAG FORT SILL	FORT SILL OK	49622	150 CAPACITY CHILD DEVELOPMENT CENTER	$6,200	IMCOM	74016	AFS8	26	39
MCA	WEST	USAG FORT SILL	FORT SILL OK	66114	TRANSPORTATION MOTOR POOL (TMP) ADMINISTRATIVE BUILDING	$1,400	IMCOM	61050	FFS1	23	40
MCA	WEST	USAG FORT SILL	FORT SILL OK	75942	CENTRALIZED WASH BUILDING	$370	FORSCOM	14963	FFS1	37	41
MCA	WEST	USAG FORT SILL	FORT SILL OK	64996	ABOVE GROUND FUEL STORAGE	$6,900	FORSCOM	12412	AFS6	69	42
MCA	WEST	USAG FORT SILL	FORT SILL OK	78438	CONSOLIDATED SIMULATOR TRAINING FACILITY	$12,200	TRADOC	17210		0	43
MCA	WEST	USAG FORT SILL	FORT SILL OK	65300	FITNESS FACILITY	$14,200	IMCOM	74028	IFG14	19	44
MCA	WEST	USAG FORT SILL	FORT SILL OK	57977	POST ACCESS CONTROL POINT-LETRA GATE	$1,000	IMCOM	14113	IFG3	1	45
MCA	WEST	USAG FORT SILL	FORT SILL OK	75948	RECYCLING FACILITY	$11,200	IMCOM	83320	IFG14	64	46
MCA	WEST	USAG FORT SILL	FORT SILL OK	48158	PURCHASE ADDITIONAL TRAINING AND MANUEVER LAND	$117,000	IMCOM	17720	Other	63	47
MCA	WEST	USAG FORT SILL	FORT SILL OK	71420	UEPH BARRACKS	$48,000	IMCOM	72111	AFS1	14	48
MCA	WEST	USAG FORT SILL	FORT SILL OK	62397	AUTOMATED INFANTRY PLATOON BATTLE COURSE	$7,300	TRADOC	17897	AFS3	57	49
MCA	WEST	USAG FORT SILL	FORT SILL OK	78437	MULTI-PURPOSE RANGE COMPLEX-MOUNTED FIRES	$6,700	TRADOC	17860		0	50
MCA	WEST	USAG FORT SILL	FORT SILL OK	75947	ENVIRONMENTAL QUALITY DIVISION ADMINISTRATIVE FACILITY	$4,900	IMCOM	61050	Other	24	51
MCA	WEST	USAG FORT SILL	FORT SILL OK	61398	AIRCRAFT PARKING APRON	$17,000	FORSCOM	11310	AFS4	6	52
MCA	WEST	USAG FORT SILL	FORT SILL OK	65740	RUNWAY/TAXIWAY EXTENSION	$23,000	FORSCOM	11110	AFS4	20	53

Lessons Learned

- Coordination with the Directors is important in getting the support needed for a project.
- If a project is not in the FYDP, it's only a dream.
- Good planning can be big dollars... and little dollars (eg: reconnecting sidewalks).
- Look at all projects where a shovel hasn't yet hit the ground: are planned projects in accordance with the new master plan?

8

REAL PROPERTY MASTER PLAN DIGEST

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8.1 Real Property Master Plan Digest

The RPMP Digest is optional. If prepared, develop the contents described in AR 420-1 Army Facilities Management.

References

- AR 420-1 Army Facilities Management

9

REAL PROPERTY PLANNING BOARD

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9.1 Real Property Planning Board

The Real Property Planning Board (RPPB) is a group of individuals that oversees and approves all actions related to real property and Master Planning. It has significant influence over every aspect and product of Master Planning. It is important to fully participate in the establishment and functioning of the RPPB.

Description

The RPPB functions as a city planning council to ensure the orderly development and management of installation real property in support of missions, management processes, and achieving community objectives. The RPPB meets a minimum of once a year to make recommendations and approvals on plans, policies, and strategies relating to the management of real property on the installation. Each garrison commander is required to establish an RPPB.

The RPPB differs from the Installation Strategic Planning Board, which exists to address the broad aspects of installation management. The RPPB instead focuses on facilities.

Purpose

The Real Property Planning Board:

- Guides the development and maintenance of the Real Property Master Plan (RPMP).
- Coordinates installation Master Planning with other installations, Federal and local agencies, and non-governmental groups.
- Ensures maximum use of existing facilities and adjudicates conflicts in facility assignments.
- Formulates and justifies construction and major repair programs.
- Approves architectural and design themes and variances to the IDG.
- Enhances and protects the community environment.
- Promotes sustainable design, development policies, and principles.
- Sets installation priorities and gives initial approvals, which are then forwarded to appropriate channels for final approval. Approval items include: military construction, land acquisition, project siting, facilities construction and maintenance, real estate and property management, facility utilization, environmental management and compliance, other facility-related programs.
- Oversees other items designated in the charter by the commander.

Note: The RPPB plays a major role in the hierarchy that reviews and approves military construction (MILCON). (For more information, see Section 10.7, "Programming")

Stakeholders

- HQ IMCOM
- IMCOM Region
- Army Staff
- USACE
- Major Commands
- Reserve Components
- Garrison Commander
- Mission Commanders
- Directorate of Public Works
- PAIO (Plans, Analysis, and Integration Office)
- Garrison Staff
- Tenants
- External Users

Contacts Needed

- Garrison Commander
- Senior Mission Commander
- Garrison Staff
- Tenant Commanders
- Supporting Agencies
- AAFES
- DeCA
- DoDDS
- IMCOM Region
- Project Proponents
- National Guard Bureau (NGB): Real Property Development Planning

Key Steps to the Real Property Planning Board

There are three key steps in the RPPB process.

STEP 1: Establish the RPPB.

Establish the RPPB via a charter (see Section F.1, "Example I" for example charters). The senior commander or a designated delegate is to serve as chairman. (Note: The DPW is restricted from serving as chairman). The garrison staff, usually the DPW, typically serves as RPPB executive secretary and provides logistical/staff assistance, prepares the agenda, and records and distributes minutes to all committee members. The garrison commander, in consultation with the IMCOM region director, establishes, convenes, and maintains records of the RPPB in accordance with AR 25-400-2 The Army Records Information Management System (ARIMS).

Within the RPPB, assemble an executive board and working group.

- The executive board consists of the garrison staff directors, along with the commanders/directors of each major installation unit and independent activity. This includes the tenant Army Reserve and National Guard. The executive board considers issues presented by the working group and forwards recommendations to the garrison commander.
- The working group consists of various staff action officers. At the direction of the executive board, it investigates, researches, and reports on issues of interest within its purview, develops position papers, and makes recommendations to the executive board. Specifically, the working group:
  - Ensures accuracy of the real property/population data used to create the RPMP.
  - Conducts studies, analyses on unit stationing, realignment, and mission changes, and their impacts on requirements/resources/ management.
  - Assists in the preparation of the Installation Status Report (ISR) and Strategic Readiness System.

The functioning RPPB consists of voting members, associate (non-voting) members, and guests. The garrison commander may also designate additional members. A representative from the Corps of Engineers should be included. Working groups typically include staff-level personnel from member organizations. A sample RPPB membership is shown in Section F. 1, "Example I".

Also consider establishing RPPB sub-working group(s). Created at the discretion of the garrison, these groups have individual charters that respond to the executive steering committee and the larger RPPB board. These groups exist to address issues which are beyond the purview of the RPPB board and its steering committees. Many installations benefit from these groups because they typically meet more frequently than the RPPB, foster dialog on issues among staff, resolve controversial or specialized planning issues prior to RPPB meetings and present workable drafts to the RPPB.

STEP 2: Conduct RPPB meetings.

The RPPB is required to meet once a year for formal deliberation. Generally, installations hold RPPB working group meetings just prior to the scheduled formal meetings. Suggestions on how to conduct these meetings are listed below.

Meeting suggestions: Preparation

The Chairman's executive secretary (DPW), assisted by the Master Planner and the planning staff, is responsible for meeting preparation. The planning staff should be aware of every proposed action prior to the RPPB meeting to avoid "surprises". A number of high-level commanders and directors attend RPPB meetings. To avoid wasting their time, it is better to over-prepare than under-prepare. Be ready through off-line pre-briefings with the DPW and garrison command group.

- Coordinate the agenda with staff. Develop a list of agenda items, with input from DPW and, if necessary, the installation command group. Consult working groups for agenda items.
- Develop a format for each item. Ask "Is this item for information only, or does it require a decision?"
- Organize the agenda so that most important issues are addressed first, such as new business that impacts the installation plan.
- If requested, pre-brief the installation command group.
- Prepare audiovisual aids and a narrative for any project presented for approval and/or recommendation.

Tools / Data Needed

- **Installation Status Report (ISR) to analyze the condition of facilities/ installations.**
- **Strategic Readiness System (SRS)**
- **Army Performance Improvement Criteria (APIC)**
- **RPLANS (TAB) to analyze excesses and shortfalls.**
- **Army Stationing and Installation Plan (ASIP) to analyze demographics and force structure changes**

Leveraging Technology

- **Use GIS for graphic presentations.**
- **Use Web or email for distribution of read-ahead packages/minutes.**

Products

- **Minutes of the meeting: Recorded recommendations, approvals, decisions, and tabled items**

- Prepare read-ahead packages. These range from full presentation folders in colorful detail to a brief outline of the meeting agenda. The package should explain the purpose of the meeting, summarize key points of the presentation and provide details of all issues requiring RPPB approval (project prioritization, space allocation, etc). Adjust the contents to meet the commander's intent.
- Distribute read-ahead packages to commanders, directors and other planning board members a minimum of two weeks in advance of the RPPB meeting.
- Ensure that the presentation and meeting logically lead to the decisions expected.

Meeting Suggestion: Logistics

The following tips provide information on how to set-up and conduct a meeting. Refer to Robert's Rules of Order, A Step-by-Step Guide to the Rules for Meetings (available online at http://www.rulesonline.com).

- Reserve and set-up the conference facility.
- Hold the meeting at the chairman's convenience. Schedule the meeting to start mid-morning or mid-afternoon, and conclude within 90 minutes.
- Have a planning staff member serve as "master of ceremonies". This allows the chairman time to observe, participate in, and listen to discussions.
- Have in attendance all those who can answer detailed questions. At a minimum, this includes the garrison planning staff and various project stakeholders.
- Ensure that the presentation is understandable and clearly displayed.

Meeting Suggestion: Opening

The opening of the meeting is critical to its success.

- If time allows, start by having all attendees introduce themselves and their organizations.
- Circulate a sign-in sheet to compile a complete list of attendees. This list shows organization represented, phone number, and electronic mail address. Later, include this list in the meeting minutes.
- After introductions, thank everyone for their attendance and read a brief statement on the purpose of RPPB. Iterate that the entire garrison "owns" the Real Property Master Plan, not just the DPW, a fact that is supported by their attendance.

References

- **AR 420-1 Army Facilities Management**
- **AR 25-400-2: The Army Records Information Management System (ARIMS)**
- **Commander's Guide: Installation Standards**
- **AR 210-14: The Army Installation Status Report Program**
- **The Army Strategy for the Environment**
- **FM 5: Army Planning and Orders Production**
- **FM 6: Mission Command: Command and Control of Army Forces**
- **Robert's Rules of Order [http:// / www.rulesonline.com]**

- First, go over the meeting agenda. This reminds attendees of issues to be covered. Specify when the floor will open for questions and which matters will be presented for approvals/decisions. (Note: The floor is always open to the command group.)

Meeting Suggestion: Old and New Business

Discuss future stationing actions, specific project updates, and other detailed subjects, such as siting actions, as well as individual documents, studies, and matters relating to decisions/approvals.

- In a presentation, address some or all of the following:
  - The structure of the RPPB
  - The allocation of facility assets (highlight shortfalls and excesses)
  - Key factors affecting installation development (real estate limitations, critical infrastructure, and environmental standards, etc.)
  - Changes in Force structure (Locally generated Capability Analysis data is used to present plans for realignment or adjustment of units.)
  - Results of the latest Installation Status Report, Part 1, Infrastructure; responsibilities for the upcoming data collection cycle
  - Issues and deficiencies by installation
  - Goals and objectives by installation (Future Development Plans are used to display the selected sites of planned and programmed development.)
  - Status of programmed development and project execution
  - Status review of the RPPB/MILCON program, followed by future proposals
- With the chairman's advance approval, invite others to present certain agenda items (which should already be on the agenda).
- Only permit the chairman, who has the authority and privilege, to deviate from the agenda at any time.
- The meeting may or not may culminate in a vote, depending on command preference. Often, the RPPB is asked to vote on new developments, adjustments to the plan, and project priorities within established programming parameters. Some meetings consist only of discussions followed by a commander's decision. In either case, inform participants in advance. Keep in mind that all decisions are subject to veto by the senior mission commander.

Meeting Suggestion: Closing

- Reiterate decisions reached and any specific guidance/task assignments made by the chairman.
- Poll the participants for any last minute questions, comments, and observations.
- Invite members to call or drop by the Master Planning office during normal working hours for further explanation or additional information.
- Offer post-meeting briefings to any major organization requiring further explanation of the issues discussed.
- Allow the chairman to make any closing remarks and adjourn proceedings.

STEP 3: Distribute meeting products

- After the meeting, it is essential to distribute DPW-approved meeting minutes in a timely manner to all stakeholders. This way continuity is not lost. Minutes are prepared by the secretary and approved by the senior commander. be sure to include decisions made and voted upon by the RPPB along with any tabled items.
- Respond to any unanswered questions as soon as possible. This demonstrates a competent and responsive Master Planning staff.

Maintenance

The RPPB is required to meet at least once a year for formal deliberation, consistent with the functions already described. The RPPB may convene more frequently, as the needs of the installation require.

Examples

Charter examples are located in Section F.1, “Example I” and Section F.2, “Example II” .

Lessons Learned

- Consider setting up sub-working groups of the RPPB. These groups maintain individual charters that respond to executive steering committees and the larger RPPB board for issues beyond their authority and responsibility.

- Working group members must keep voting members they represent up-to-date on RPPB actions, provide them with guidance, and have the authority to speak on their behalf.

- Recommend two to three working group meetings for every RPPB meeting. The working group should include a representative for every voting member.

- Try to ensure continuity; minimize bringing in new members who are not aware of ongoing group efforts.

- Schedule RPPB meetings to coincide with the local Commander Conference. While this has the disadvantage of time restrictions (schedule should reserve a minimum of two hours), it ensures command presence.

- Hold dress rehearsals with the garrison command and senior tactical commander before formal, collective RPPB meetings. In the absence of formal working groups, hold intermittent meetings with the technical directorates and agencies within the on-post community on specific issues.

- To aid the progress of the meeting, "strawman" listings, previously coordinated with the garrison commander and senior tactical commander, are presented and used as a basis for the prioritization process.

- Be creative and innovative; the worst thing they can say is NO.

- Use metrics discussing life cycle costs and sustainable measures to evaluate and compare cost.

- Try to anticipate and answer the commander's questions prior to the briefing.

- The best way to sell a plan is to demonstrate its cost savings.

- Make the case for change; ideally, the Garrison Commander will champion the plan.

- Resistance is usually based on money and time.

10

MASTER PLANNING CONSIDERATIONS

U.S.ARMY

MASTER PLANNING TECHNICAL MANUAL

10.1 Master Planning Considerations Introduction

Master Planning considerations are topics of special importance to the Army. While previous sections focus on the process and the products of the RPMP, this section provides additional background, detail and explanation on topics relating to Master Planning, including appropriate levels of coordination. As emphasized in AR 420-1 Army Facilities Management, Chapter 10, the following must be considered carefully and thoroughly during the assemblage of each Master Planning product.

There are eleven topics within this section:

- Section 10.2, "Army Structure" – outlines the basics of Army organization and culture.
- Section 10.3, "National Environmental Policy Act (NEPA)" – describes the NEPA process and its relevance to Master Planning.
- Section 10.4, "Sustainability" – defines sustainability and its application during Master Planning.
- Section 10.5, "Antiterrorism & Critical Infrastructure Protection" – defines critical infrastructure protection and its application during Master Planning.
- Section 10.6, "Ranges and Training" – describes the Range development planning process and its significance to Master Planning.
- Section 10.7, "Programming" - addresses Army programming, which is the next step following the Master Planning process.
- Section 10.8, "Tools and Techniques" - addresses both Army-specific and general planning tools used during development of the RPMP.
- Section 10.9, "Maps and Plans" - provides examples of RPMP maps and plans.
- Section 10.10, "Acquisition of Planning Services" - outlines the process of contracting for Master Planning services.
- Section 10.11, "Professional Development" - outlines opportunities for professional education, with regard to Army Master Planning and the planning profession.
- Section 10.12, "Local Issues" - addresses approach to local planning issues and regulations worldwide.

10.2 Army Structure

Planning for Army installations follows many of the same principles of planning for the private sector. Generally, planning coordinates the needs of those who share resources to achieve the best outcome for the most individuals. The Army, however, differs from the average planning entity. These differences are derived from the nature of Army units, organizations, missions, culture, resource management, and the installation's relationship with surrounding communities.

Army Forces

The Army is divided into two broad forces: general purpose and general support. General purpose forces are referred to as Table of Organization and Equipment (TOE) units and organizations. General support forces are normally referred to as Table of Distribution and Allowances (TDA) organizations.

In addition to TOE units and TDA organizations, other tenants must also be considered. These include contractors, defense agencies, other service units and organizations, federal agencies, state and local government activities, and even foreign military activities.

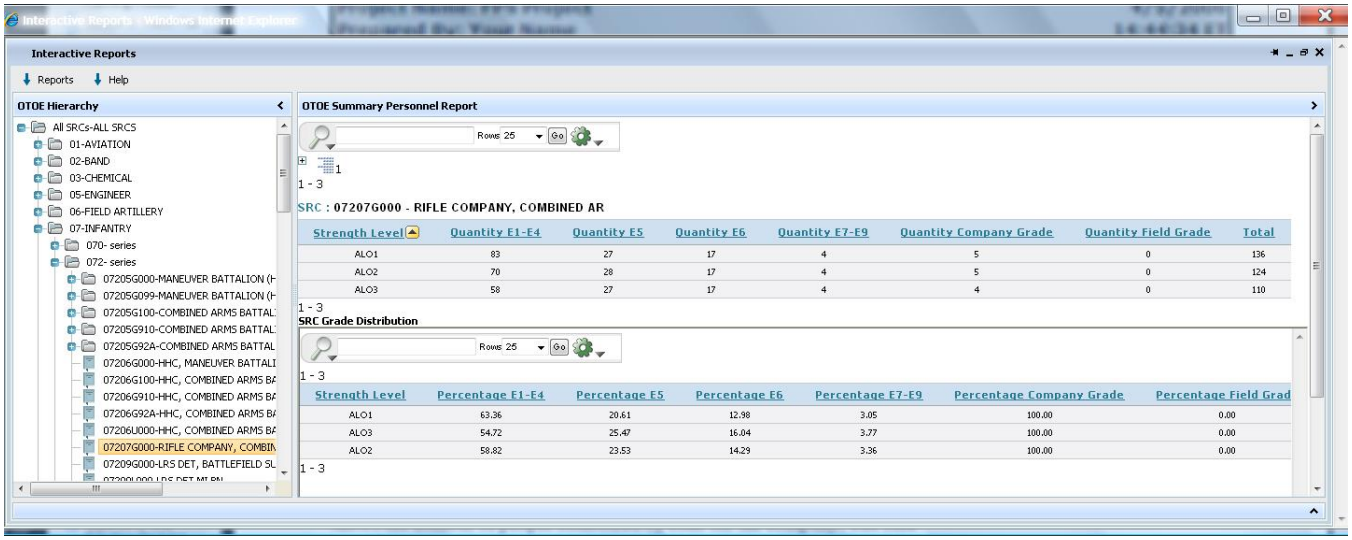
Units and Organizations

While the terms "unit" and "organization" are often used interchangeably, each represents a distinctly different element within the Army. A "unit" is the first level of command (company, troop, or battery) upon which all higher formations and organizations are built. An "organization" is composed of units or other organizations. For example, all authorized people within a company are listed in a single table of organization and equipment. One type of Infantry Company is a Rifle Company organized according to TOE 07207G000.

References

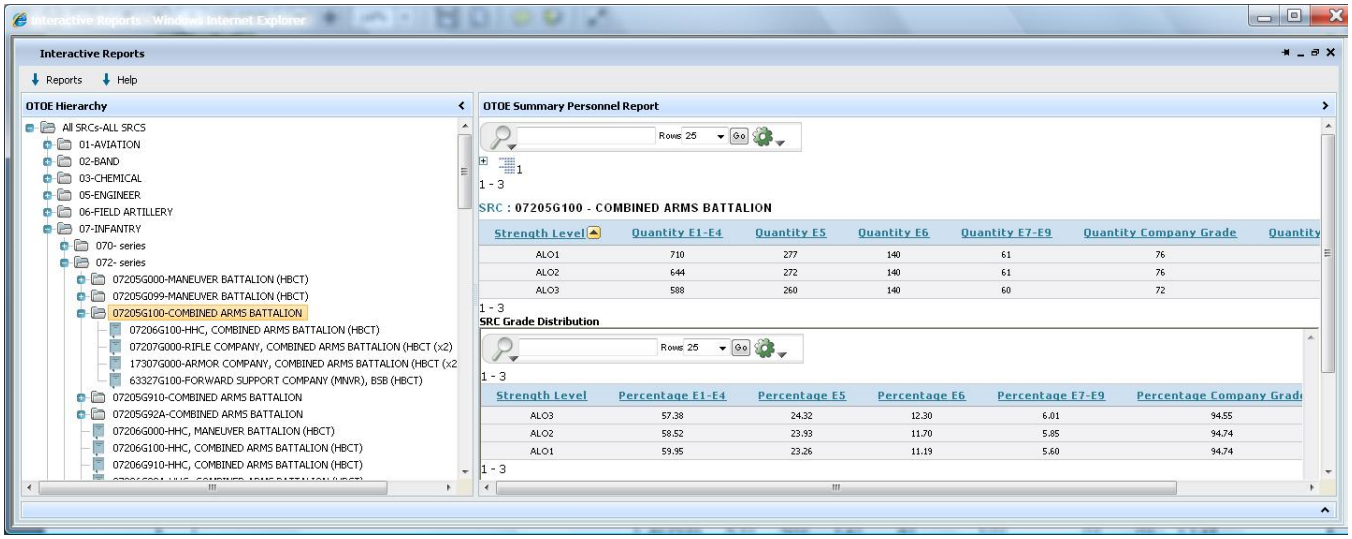
- AR 420-1: Army Facilities Management
- DA PAM 10-1: Organization of the United States Army
- FM 101-5-1: Operational Terms and Graphics
- Army Future Combat Systems News [http:/ / www.army.mil/ fcs/ articles/ index.html]
- "How the Army Runs" manual, updated annually [http:/ / www.carlisle.army.mil/ usawc/ dclm/ linkedtextchapters.htm]
- Army Knowledge Online [https:/ / www.us.army.mil/ suite/ login/ welcome.html]
- Engineering Knowledge Online [https:/ / eko.usace.army.mil/ public/ fa/ arpmp/]

Figure 10.1 Rifle Company Personnel Summary



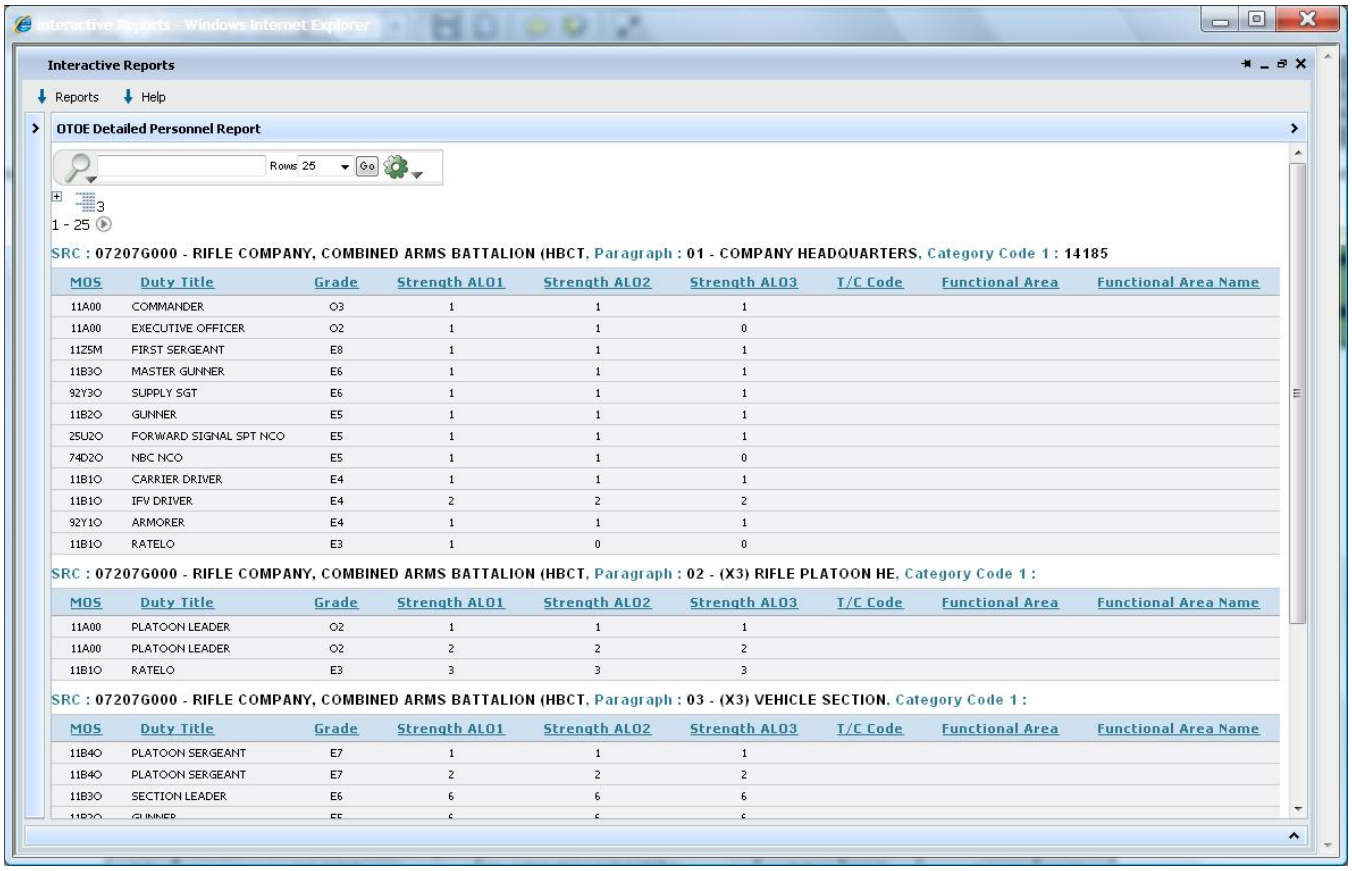
The TOE summary in Figure 10.1, “Rifle Company Personnel Summary” shows the number of people authorized by rank for the company. The rifle company is part of a maneuver battalion within a heavy brigade combat team. The battalion is comprised of six companies, as shown in Figure 10.2, “Maneuver Battalion Personnel Summary”.

Figure 10.2 Maneuver Battalion Personnel Summary



As Figure 10.2, “Maneuver Battalion Personnel Summary” shows, individuals associated with the battalion are determined by looking up each type of company. This process provides a list of personnel that is similar to the one in Figure 10.3, “Rifle Company Personnel List”, which shows organizational structure, authorized personnel strengths, grades, and military occupational specialties (MOS).

Figure 10.3 Rifle Company Personnel List



In the strictest sense, the company is a unit and the battalion is an organization. Soldiers may loosely refer to their unit as their company, battalion, brigade, or other organization, depending on the context.

General Purpose Forces (TOE Units and Organizations)

General Purpose Army forces are those units and organizations that are generally deployable, organized for combat, and exist for wartime (although they can and do support operations other than war). While General Purpose Forces consist solely of military personnel, they may be augmented by civilians under certain circumstances. The number and types of TOE units and organizations are threat based.

General Purpose Forces are built on a series of templates that define specific units. These templates are objective or base TOEs, and referred to as OTOEs. They are identified by an alphanumeric designator, consisting of five numbers, which are followed by a letter and three more numbers or letters. (More than one unit may be organized under any given TOE or approved derivative known as a Modified TOE or MTOE.)

As shown in Figure 10.1, “Rifle Company Personnel Summary”, the first two numbers designate a branch. For example, "07" indicates that a unit or organization belongs to the infantry branch, as shown with the battalion and maneuver company TOEs. An OTOE that begins with the number "05" belongs to the engineer branch.

The various branches within General Purpose Forces are broken into three broad categories: Combat Arms (CA), Combat Support (CS) and Combat Service Support (CSS).

- **Combat Arms** units are those with a primary mission of engaging enemy forces with direct or indirect fire. Included in this category are infantry, armor, artillery, Special Forces, engineers, air defense artillery, and aviation units.
- **Combat Support** units are those that provide critical combat functions in conjunction with combat arms units in forward areas, but do not normally engage enemy units except in self-defense. This can include chemical, civil affairs, military intelligence, military police, and signal units.
- **Combat Service Support** consists of the essential capabilities, functions, activities, and tasks necessary to sustain forces in a theater of operations at all levels of war. CSS units are those that provide services associated with sustainment. This includes adjutant general, chaplain, finance, judge advocate general, medical, ordnance, transportation, and quartermaster units.

Distinctions between units are not absolute. Also, not all units within the same branch are correctly categorized. For example, some engineer units are more accurately described as combat support than as combat arms. While CS and CSS are not "front line combat" units, the nature of the modern battlefield exposes all types of units to hostile threats.

Throughout the Cold War, the "division" was the primary combat formation of the Army. It normally consisted of a headquarters, three combat brigades, supporting brigades, battalions, companies including artillery, support, aviation, engineers, communications, and intelligence. But this division structure did not adapt well to the nature of military operations after the fall of the Berlin Wall. Following the Cold War, the Army experimented with a variety of organizational concepts. What emerged is a concept called modularity. Modularity is based on self-contained combat brigades that are able to deploy and operate without "borrowing" CS and CSS units for the duration of the deployment. Borrowing occurs when units that do not belong to the commander in garrison are provided for a period of time, and then returned to the parent organization upon completion of mission.

The basic unit under this concept is the "brigade combat team" or BCT. There are three types of BCTs: the Stryker BCT, the Heavy BCT, and the Light BCT. Some Light BCTs are equipped to perform airborne operations.

The vision of the Army is to convert most, if not all, BCTs to Future Combat System (FCS) BCTs. At the core of the FCS BCT is a highly integrated structure of systems – manned and unmanned (MUM), air and ground maneuver, maneuver support, and sustainment – bound together by a distributed network to support the soldier. It acts as a unified combat force in the Joint environment.

Key attributes of the FCS BCT:

- Situational awareness that enables superior knowledge and survivability for the Soldier
- Networked information, along with advanced, seamless command and control that allows soldiers to make faster decisions and move more quickly and more lethally than the enemy
- Reduced platform (manned and unmanned) and organizational size, to create the agility needed to get the right force to the right place at the right time
- Embedded training and networked support that reduces the traditional logistics footprint for fuel, water, ammunition, and repair parts by 30-70%

Technologies and equipment envisioned as part of the FCS BCT are inserted into the units as it becomes available.

Figure 10.4 Vehicles

Modularity also involves five types of functional brigades that provide augmentation to BCTs or a theater of operations when needed. These brigades include:

- Combat Aviation
- Fires
- Battlefield Surveillance
- Combat Support (Maneuver Enhancement)
- Sustainment

Combat Aviation and Fires Brigades are relatively consistent in structure. The other three types of functional brigades can vary widely beyond its headquarters and special troops battalion.

Figure 10.5 Route Reconnaissance

Command Relationships

The military uses specific terms to describe relationships between commanders. These relationships can directly affect the ability to standardize facilities. The two most relevant terms are "organic" and "assigned".

- **Organic:** The relationship between units that comprise a BCT and its headquarters is considered organic. A BCT is a complete set. Each piece is an integral and inseparable part of the whole. All of its components are permanently and irrevocably attached, and each

element is designed to optimize its performance within the system. A BCT consists of a headquarters, a Brigade Troop Battalion, two infantry battalions, a reconnaissance squadron, an artillery battalion, and a support battalion. Each is tailored to the missions that assume the presence of, and are dependent on, the other elements of the brigade. It is an "all or nothing" proposition. BCTs are similarly structured. Therefore, facilities requirements are predictable, from one BCT to another. "Organic" then implies a permanent relationship. And if one component can be detected, the others are nearby.

- **Assigned:** The second relationship is assigned. Not all brigades are composed like a BCT set. These functional brigades have a headquarters and organic elements that serve as a basic core. Although each element is organic, the overall system is incomplete, creating a need for assigned components. The relationship between components is somewhat permanent, but an assigned component can be added or removed without jeopardizing the role of organic elements. Information on one of these organic elements does provide information on the others, but not on assigned components. Information on an assigned component, on the other hand, does not indicate information on others, as those may differ or belong to a particular type of functional brigade.
- **Special Cases:** The Army has many TOE units and organizations that are not included in either a BCT or functional brigade. These are the ones most likely to create planning problems, because commanders at local levels can change relationships between units. When performing requirements analysis for these units and organizations, it is particularly important to be aware of any ad hoc relationships, provisional headquarters, or other local factors that might change. For example, brigade commanders can create "provisional" battalions, and then request an additional battalion headquarters. For any clarification, it is best to seek advice from force structure staff or the IMCOM Region regarding the requirements of these types of units.

General Support Forces (TDA Organizations)

General support forces represent the institutional Army. These are generally not deployable and include both military personnel and its civilian workforce. These TDA organizations have functional missions, such as command and control (Major Commands), base operations (Installation Management Command), hospital-based health care, institutional training, production, procurement, and research. The size and structure of each TDA organization is based on missions and workloads, and, therefore, is unique. In many cases, TDA organizations embed one or more companies.

The key to working with TDA organizations is understanding their missions and identifying contracted or other support that is an integral part of their organization, but not reflected on their TDA.

Figure 10.6 Command Ceremony

The Army Culture

Many factors contribute to the Army culture. Five are of overriding importance: command, mission, readiness, training, and soldiers.

- **Command:** Commanders at all levels have significant responsibilities and are given corresponding authority to fulfill those responsibilities. While good commanders seek input from diverse sources to build consensus before making decisions, they in fact have broad discretion. Unlike civilian leaders who must build consensus among voters, businesses, and other constituents, commanders can exercise decision-making authority without consensus and even without consultation. But the informed commander makes good decisions. So planners must provide them the necessary information for sound decision-making. Commanders must also consider other factors that go beyond those directly impacting any current decision.
- **Mission:** Commanders are judged by how well they accomplish their assigned or implied missions, many with life and death implications. Failure to accomplish missions can have wide-reaching, adverse consequences for the commander and the command. Because they also allocate resources to accomplish missions, commanders often find it necessary to make decisions that may sacrifice long-term gains for short-term results. Planners need to inform commanders of the long-term impacts of their decisions. But ultimately, responsibility for the decision and the consequences rests with the commander.
- **Readiness:** A priority in every commander's mind is readiness – being prepared to respond to any task on short notice with the right equipment and personnel trained and ready to accomplish a mission with maximum effectiveness and minimum expenditure of resources. Besides training and soldiers, readiness involves logistics and maintenance. This means the right equipment that is fully operational, properly maintained, and ready to go into military operations without further preparation. It also means functioning logistics systems in place with sufficient supplies on hand to meet initial requirements without requesting additional resources.
- **Training:** The Army is a team comprised of many different parts and specialists. Each needs to be individually trained in common skills, competent in their specialty, drilled as a team, and tested in tough, realistic exercises that do everything possible to replicate

environments in which missions occur. This requires institutional training, unit training, as well as live, simulated, constructive, and virtual environments. Effective training is the backbone of a ready Army.

- **The Soldier:** The most basic element of Army culture is the soldier. From the infantry commander in the theater of operations to the research scientist in the laboratory, the focus of the Army is providing the individual soldier with the training, weapons, equipment, systems, supplies, and support needed to maximize effectiveness and minimize risk. As part of this focus, the Army strives to provide a quality of life for soldiers and their families that recognizes their needs and sacrifices.

10.3 National Environmental Policy Act (NEPA)

Description

The National Environmental Policy Act (NEPA) is a process that requires that all decision makers consider, document, and disclose the environmental impacts of any proposed action. All major federal actions, including preparing a Real Property Master Plan (RPMP), must comply with NEPA.

The National Environmental Policy Act (NEPA) of 1969 was enacted under the Council on Environmental Quality (CEQ) regulations (Title 40 of the U.S. Code of Federal Regulations [CFR], Parts 1500-1508). Army regulations regarding NEPA are found in 32 CFR Part 651 and AR 200-2 (Environmental Analysis of Army Actions).

The Garrison Commander is responsible for budgeting the funds to implement NEPA documentation. The DPW Environmental Branch supports the preparation of all NEPA documentation, not the Master Planner. Environmental staff may opt for the Master Planner to conduct the environmental analysis or that a contractor prepare the document. However, the environmental staff is ultimately responsible for ensuring that NEPA documentation is complete.

However, it is in the best interest of the Army to maintain an installation that complies with NEPA and minimizes negative impacts to the environment. It is the job of the Master Planner to ensure that all environmental constraints and issues are considered to the greatest degree possible, prior to any decisions regarding installation development. The Master Planner should engage the environmental staff throughout the planning process to ensure that environmental issues and concerns are addressed. If the installation Master Planner regularly and proactively considers and complies with NEPA environmental regulations and keeps the environmental staff aware of these actions and decisions, then the required NEPA analysis of the RPMP and its associated projects should be smooth, efficient, and result in a timely approval.

NEPA applies to all 50 states and U.S. territories. Installations located outside the U.S. are subject to the guidance outlined in DoD 4715.5-G Overseas Environmental Baseline Guidance Document and DoD 6050.7 Environmental Effects Abroad of Major DoD Actions. (See Section 10.12, "Local Issues" for a description of environmental regulations outside the U.S.)

Levels of NEPA Analysis

Army and Federal regulations provide for three levels of NEPA analysis. These levels are:

1. Categorical Exclusions (CXs)
   a. CX(s) with no documentation

Stakeholders

- Garrison Commander
- DPW Environmental Branch
- State Environmental Regulators

Tools / Data Needed

- Latest RPMP
- GIS/CADD Data
  - Environmental
  - Operational
  - Infrastructure
- Existing Environmental Plans
  - Integrated Natural Resource Management Plan (INRMP)
  - Integrated Cultural Resource Management Plan (ICRMP)
  - Endangered Species Management Plan (ESMP)
  - Erosion and Sediment Control Plan
  - Spill Prevention, Control, and Countermeasures Plan (SPCC Plan)
  - Installation Action Plan
  - Other NEPA documents for actions at the Installation
- Existing Studies, as available:
  - Geo-technical
  - Utility
  - Environmental
  - Noise
  - Air Quality

b. CX(s) requiring a Record of Environmental Consideration

2. Environmental Assessment (EA)
3. Environmental Impact Statement (EIS)

LEVEL 1: Categorical Exclusion (CX)

A CX is intended to reduce paperwork and eliminate delays in the initiation and completion of proposed actions having no significant environmental impact (32 CFR 651.28). Appendix B of 32 CFR 651 provides the complete list of Army CXs. Army actions that fall within these categories do not, individually or cumulatively, substantially impact the environment, so no further documentation is necessary. Minor actions, listed in Appendix B, may require a Record of Consideration (REC). A REC is a signed statement submitted along with project documentation that briefly states (in 1-2 pages) that the Army action underwent an environmental review and poses no impact. Because a CX can be applied only if all three of the following criteria are met, a CX is not typically used or useful for installations:

1. The action was not segmented to meet CX definition.
2. No exceptional circumstances exist.
3. One (or more) CX encompasses the proposed action.

LEVEL 2: Environmental Assessment (EA)

If the proposed action fails even one of the CX criteria, an EA must be conducted to determine the extent of impacts. If that EA shows:

- No significant impacts – A "Finding of No Significant Impacts" (FNSI) is prepared.
- Significant impacts – An "Environmental Impact Statement" (EIS) is prepared to provide additional information on the context, duration and intensity of impacts.

Tip

To save time and money, the EA step may be skipped and an EIS prepared whenever environmental impacts are obvious or strongly suspected.

LEVEL 3: Environmental Impact Statement (EIS)

An EIS is required (32 CFR 651.41) whenever a proposed action has the potential to:

- Significantly affect environmental quality, public health, or safety
- Significantly affect historic, cultural, or archaeological resources
- Significantly affect a species of plant or animal listed, or proposed for listing, under the Endangered Species Act

Products

There are two main products:

- **An RPMP with environmental constraints and issues integrated throughout the document**
- **A separate NEPA document (EA or EIS) to carry the RPMP through the public notification process**

References

- **DoD 4715.5-G: Overseas Environmental Baseline Guidance Document**
- **DoD 6050.7: Environmental Effects Abroad of Major DoD Actions**
- **Installation Management Agency guidance memorandum titled "Clarification of Army National Environmental Policy Act (NEPA) Documentation Funding"**
- **Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500-1508)**
- **32 CFR Part 651 (Environmental Analysis of Army Actions)**
- **AR 200-1 Environmental Protection and Enhancement**

- Cause significant or uncertain environmental effects and risks
- Create environmental controversy

Other impacts that must be discussed in the EIS include:

- Unavoidable adverse impacts
- Relationship of short-term uses and long-term productivity
- Irreversible and irretrievable commitments of resources

The EIS should not be an exhaustive survey or scientific study, but rather a concise, well-written document revealing environmental impacts to the public and stakeholders prior to any actions. An EIS includes an assessment of impacts to:

- Climate
- Geology and Soils
- Noise
- Air Quality
- Hydrology and Water Quality
  - Surface Water
  - Groundwater
  - Wetlands
- Terrestrial Environment
  - Wildlife
  - Vegetation
- Marine Environment (several subsections possible)
- Threatened and Endangered Species
- Land Use and Infrastructure
  - Land Use
  - Utilities
  - Transportation
- Cultural Resources
- Coastal Zone Management
- Hazardous Materials and Waste
- Socioeconomics

Depending on the nature of the action, consultation with one or more resource agencies may be necessary to assess natural resource impacts. Under NEPA regulations, the public must be given an opportunity to review and comment on the EIS.

References Cont'd

- **AR 200-3 Natural Resources – Land, Forest and Wildlife Management**
- **AR 200-4 Cultural Resources Management**
- **"How to Write Quality EISs and EAs", Second Edition, The Shipley Group**
- **"How to Manage the NEPA Process", The Shipley Group**
- **"Guide to Development of the Description of Proposed Action and Alternatives (DOPAA)", U.S. Army Environmental Center**
- **IMCOM Circular 200-08-1, National Environmental Policy Act (NEPA) Policies and Procedures**
- **Army Range New Construction NEPA Document Templates, U.S. Army Environmental Command**

At the end of the NEPA process, the decision made by the decision-maker is documented and signed. This occurs either through a Finding of No Significant Impact (FNSI) at the EA level, or a Record of Decision (ROD) at the EIS level. Unless the impacts can be successfully mitigated with assured funding, an EA with impacts will not result in a FNSI; the analysis will be pushed to the next level and an EIS will be prepared.

Tip

Cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what entity undertakes the other actions. 40 CFR 1508.7

Programmatic NEPA Analysis and Tiering

One programmatic NEPA analysis can be applied to several programs that are similar in nature or scope. This method reduces redundant analyses and more effectively demonstrates cumulative effects. Two broad categories of similarity are:

- Geographic – actions that occur within the same general area
- Generic – actions that share timing, impact alternatives, implementation, media, or subject matter. This often occurs when one Army-wide action affects multiple installations.

Installation RPMPs are ideally suited for programmatic NEPA analysis, and may even qualify under both categories. Programmatic NEPA documents can be either EISs or EAs, depending on the anticipated significance of environmental impacts. IMCOM Circular 200-08-1 provides instructions for implementing six new procedures intended to streamline the NEPA process.

Tiering is another method used to streamline the NEPA process. Tiering addresses broad programs and issues in an initial (Tier 1) or systems level analysis and analyzes site-specific proposals and impacts in subsequent studies.

Purpose

The purpose of preparing a NEPA document is to provide a decision-maker with sufficient environmental impact facts, enabling an informed decision on a potential course of action. Keep in mind that NEPA documents are not prohibitive. An action that will result in environmental impacts but has met all regulatory requirements (permits and agency consultation) can still occur. NEPA only requires that environmental impacts be adequately disclosed and considered before the action is undertaken.

The ultimate goal of the Master Planner is to integrate environmental constraints, opportunities and issues into the RPMP. All NEPA regulations, both Army and Federal, must be satisfied. The RPMP should:

- Define purpose and need (through the visioning process)
- Define a reasonable range of alternatives (through Long Range/ Future Development Plans and NEPA scoping process)
- Define the baseline environment (through the Existing Conditions Assessment)
- Consider environmental impacts of actions (through use of the opportunities and constraints information)

Even though NEPA regulations may be fully integrated and satisfied within the RPMP, a separate NEPA document must be prepared. Creation of this document is an easy task, if environmental information was appropriately integrated into the RPMP; much of the desired information is simply extracted. The process outlined in this MPTM lends itself to compliance with the NEPA process.

Approval and Maintenance

Approval: NEPA documents are approved at a State level. EAs are approved by the Garrison Commander; EIS' are approved through ACSIM, unless delegated otherwise.

Maintenance: After completion of a programmatic environmental document, review any project proposed to determine if it is adequately addressed or requires additional analysis. If adequately assessed, simply prepare a REC for smaller actions and cite the original programmatic analysis. This process of referencing the programmatic document and extrapolating pertinent data is termed "tiering."

If a project substantially deviates from the NEPA document, supplemental environmental analysis may be required. Whenever the installation makes substantial changes to the RPMP that impact the environment, or whenever significant new circumstances impact the environmental concerns of a proposed action or baseline environmental conditions change, prepare a supplemental NEPA document.

Examples

For examples of completed NEPA documents, visit the Army NEPA repository at: http://aec.army.mil/usaec/nepa/library00.html.

Lessons Learned

- A Master Planning contract may include development of the appropriate NEPA documentation and public review. Enlist the assistance of the installation environmental officer, and ensure concurrence and signature on the resulting NEPA document and public hearings.

- Define Purpose and Need along with screening criteria up-front to narrow down alternatives for evaluation.
- Do not over-analyze; focus on relevant issues only.
- Sufficiently research and evaluate potential cumulative impacts.
- Minor, inexpensive alterations can often reduce environmental impacts.
- Include anticipated mitigation measures in planning and budgeting up front.
- An adequate programmatic EIS based on a thorough Master Planning process (including visioning and environmental documentation) simplifies approvals for all compliant follow-on developments.
- Engage environmental staff early in the master planning process.

10.4 Sustainability

Description

"Sustainability" is not a program, process or system. It is a concept - a way of thinking about the long-term effects of actions taken today. A sustainable action or plan:

- Meets the needs of the present without compromising the ability of future generations to meet their own needs
- Maintains economic growth while producing an absolute minimum of pollution
- Maintains a balance between development, social equality, ecology, and economics

A sustainable installation:

- Is focused on the mission within the context of its natural and built environments that includes land management, operations and infrastructure
- Fully executes present missions without compromising either its ability to accomplish future missions or the ability of neighboring communities to realize their aspirations
- Requires additional focus on the social, economic, and physical well-being of soldiers and civilian personnel, their families and communities, all of whom are impacted
- Is cross-functional, involving all stakeholders

The Army Strategy for the Environment addresses the principles of Army-wide sustainability.

Stakeholders

- **All levels (from the Master Planner to the garrison commander). "Decision-makers must interject protection and enhancement of the long-term military viability of our installations into planning and operations."**

Products

- **Sustainability incorporated into the RPMP**
- **A project's sustainability rating developed as part of the DD Form 1391**

Purpose

Sustainable planning combines the best technologies and design methods to yield better human, environmental, resource, and financial performance, simultaneously and without compromise.

The Master Planner incorporates sustainability into the planning process for a number of reasons. Overall, sustainable measures support the Army's mission and goals. Sustainable measures will:

- Ensure compliance with Government Executive Orders and environmental regulations
- Enhance awareness of the relationship between the natural and built environments
- Establish the natural context as the framework for the built environment
- Increase productivity
- Improve quality of life
- Reduce total cost of ownership
- Guide investment toward long-range installation capabilities
- Engender long-term cooperation with surrounding communities
- Steer operational and managerial practices to ensure continued mission support
- Strive to enhance the relationship between the natural and built environments
- Endeavor to incorporate human development into the natural context at all scales

Tools / Data Needed

- **U.S. Green Building Council, LEED for New Construction (LEED®-NC) Version 2.2 Registered Project Checklist**
- **U.S. Green Building Council, LEED for Neighborhood Development (LEED®-ND)**
- **U.S. Green Building Council, LEED for Homes (LEED®-H)**
- **U.S. Green Building Council, LEED for Existing Buildings, Upgrades, Operations, and Maintenance checklist (LEED®-EB)**
- **U.S. Green Building Council, LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects (AGMBC)**
- **Garrison Waste Management Plans**
- **Integrated Natural Resource Management Plan**
- **Integrated Cultural Resource Management Plan**
- **Installation Sustainability Plan**
- **Installation Strategic Plan**
- **Latest RPMP**
- **Installation Design Standards (IDS)**
- **Federal Green Construction Guide for Specifiers http://www.wbdg.org/design/greenspec.php**

Key Steps to Incorporating Sustainability

Installation Sustainability Plan

Ideally, an installation has developed a Sustainability Plan that covers all aspects of how an installation will incorporate sustainability. Those aspects that are relevant to Master Planning can be integrated into the RPMP. (See the U.S. Army Sustainability web site [http:// www.sustainability.army.mil/ resources/ library_activity.cfm] for the latest information on and examples of Installation Sustainability Plans.) ISP's are not mandated at this time, though many installations have elected to create one for their own benefit. There are a few key elements in establishing an ISP:

- Gather stakeholders for a meeting to discuss issues,
- Develop long range goals over a 25 year period specifically addressing the major impacts identified in the stakeholder meeting.

- Develop an implementation plan to be incorporated into a 5 year strategic plan.

The Plans, Analysis and Integration Office (PAIO) houses the ISP.

Leadership in Energy and Environmental Design (LEED)

The Deputy Assistant Secretary of the Army (Installations & Housing) issued an update to the Army Sustainability Strategy, directing the transition from SPiRiT to the U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) rating system.

All vertical construction projects with climate-controlled facilities will achieve at a minimum the SILVER level of the LEED®-NC Green Building Rating System and must adhere to standards outlined in ASHRAE 189.1 (See DA Memorandum, Sustainable Design and Development Policy Update, 27 October 2010). Tenant organizations must coordinate directly with the installation DPW if this requirement cannot be met.

The Army is determining the appropriate rating level for Existing Buildings and will issue additional policy once completed. In the interim all major renovation and repair projects exceeding $7.5 million will incorporate sustainable design features to achieve a SILVER level of certification of the LEED® Existing Buildings rating system. See Examples below for LEED projects underway. Also refer to https://ten.usace.army.mil/. The References box includes links illustrating Army, Federal, and non-Federal examples of green building.

The Army has adopted LEED®-H for scoring residential housing. Army Family Housing (AFH) is required to meet LEED SILVER certification. (See DA Memorandum, Construction/Renovation and Condition Standards for Residential Communities Initiative Family Housing Program, 4 March 2010)

LEED requirements are included as targets at a project level during the planning charrette/development of the DD Form 1391. One of the deliverables of a planning charrette is a sustainability rating for the project. Documenting sustainable design and development costs on the DD Form 1391 is required, either as a full estimate of costs, or if unknown as 2% of total project cost. Optimally, sustainable measures are also incorporated prior to the charrette stage during land use and future development planning.

The USGBC has also developed LEED Neighborhood Development (LEED®-ND). LEED®-ND encourages the creation of compact, walkable, vibrant, mixed-use neighborhoods with good connections to nearby communities. Research has shown that living in a mixed-use environment within walking distance of shops and services results in increased walking and biking, which improve human cardiovascular and respiratory health and reduce the risk of hypertension and obesity. Fragmentation and loss of habitat are major threats to many imperiled species. LEED encourages compact development patterns and the selection of sites that are within or

adjacent to existing development to minimize habitat fragmentation and also help preserve areas for recreation. LEED®-ND also increase transportation choices and decrease automobile dependence. Convenient transportation choices such as buses, trains, car pools, bicycle lanes and sidewalks, for example, are typically more available near downtowns, neighborhood centers and town centers, which are also the locations that produce shorter automobile trips. Incorporate these measures during Master Planning. For example, the "connectivity credit" (LEED®-ND, LEED®-H) addresses the relationship between housing and resources, including public transportation.

The Master Planner incorporates sustainable development and design into all components of the RPMP, as outlined in the following ten steps. The USACE Army LEED Implementation Guide [http://en.sas.usace.army.mil/enweb] outlines the details of how LEED is to be implemented within the Army framework. (For more information on LEED visit the U.S. Green Building Council [http:/ / www.usgbc.org].)

STEP 1: Visioning.

- Incorporate sustainable measures at the initiation of the the master planning process as described in Section 3.1, "Vision Plan".
- Sustainability has optimal benefit when addressed throughout the entire life cycle of a project -- from concept to planning, to programming, design, construction, and ownership. Refer to the Installation Sustainability Plan (if it has been developed) and Installation Strategic Plan during Visioning. Incorporate sustainable concepts into the Real Property Vision to ensure they are carried through the RPMP.

STEP 2: Installation layout design, density and structure.

- Incorporate Step 2 into the Framework Plan of the Long Range Component (See Section 4, *Long Range Component*).
- To protect greenfields and preserve natural resources, channel development to cantonment areas with existing infrastructure.
- Consider an installation layout that is responsive to changing needs over time in order to maximize accommodation of future uses.
- When possible, channel development to brownfields: sites contaminated by previous uses or sites that have been restored through remediation under the Installation Restoration Program.
- To optimize infrastructure investment, assess the functional life and supporting systems of a facility.
- Provide a high quality, functional, healthy, safe work environment to promote soldier and workforce productivity and retention.
- Promote developments that will become good neighbors to the surrounding community.

Contacts Needed

- **Director of Public Works**
- **Director of Plans, Training, Mobilization and Security (DPTMS)**
- **Plans, Analysis and Integration Office (PAIO)**
- **Environmental Office**
- **Security Office**
- **Provost Marshal**
- **Utility agents (privatized or DPW)**
- **Other Garrison staff**
- **Local area Government**

- Conserve land.
- Encourage public health through walkability and pedestrian pathways.
- Promote compact, connected neighborhoods.
- Promote direct and safe connections for pedestrians. Consider bikeways and pedestrian paths.
- Note: Increased levels of development density must be accomplished within the limitations imposed by Anti-Terrorism/ Force Protection (AT/FP) set back restrictions.
- LEED Applicability: Consider LEED®-NC Sustainable Sites Credits and LEED®-ND Smart Location and Linkage Credits.

STEP 3: Transportation.

- Incorporate Step 3 during the development of the Framework Plan (see Section 4.3, "Framework Plan") and the Area Development Plans (see Section 4.5, "Area Development Plans").
- Reduce pollution/dependence on fossil fuels and land development impacts from automobile use by selecting sites near public/base transportation.
- Make access convenient with regard to transit systems, parking, building locations, and bicycle use.
- Concentrate development to minimize the need to drive.
- Consider a mix of integrated community uses - housing, shops, workplaces, schools, parks and civic facilities - within walking or bicycling distance.
- Consider human-scaled development that is pedestrian-friendly.
- Consider satellite parking and commuter parking.
- LEED Applicability: Consider LEED®-NC Sustainable Sites Credits and LEED®-ND Neighborhood Pattern and Design Credits.

STEP 4: Utility design and energy.

- Incorporate Step 4 during the development of Area Development Plans and Programming (see Section 4.5, "Area Development Plans"). In accordance with DA Memorandum Sustainable Design and Development Policy Update, all new construction must comply with standards outlined in ASHRAE 189.1.
- To reduce environmental impacts from fossil fuels, encourage greater self-supply through renewable technologies. For more information on lowering energy use, go to the following sites:
  - Energy Star [http:/ / www.energystar.gov/ index.cfm? fuseaction=find_a_product]
  - U.S. Department of Energy, Energy Efficiency and Renewable Energy [http:/ / www.eere.energy.gov]
- Consider Distributed Power Generation. This refers to any small-scale power generation technology that provides electricity from a site closer to customers than a central station. Various technologies are available for distributed generation. (For a summary of Distributed Generation Technologies, see Distributed Power Coalition of America [http:/ / www.distributed-generation.com/ dpca/ technologies.html].)
- Consider alternative and renewable energy sources.
- LEED Applicability: Consider LEED®-NC Energy and Atmosphere Credits and LEED®-ND Green Infrastructure and Buildings Credits.

References

- AR 420-1: Army Facilities Management
- USACE Army LEED Implementation Guide [http://en.sas.usace.army.mil/ enweb] updated June 2010
- U.S. Army Sustainability concept and examples [http:/ / www.sustainability.army.mil]
- Army Strategy for the Environment, October 1, 2004.
- DA Memorandum, Army Energy Conservation, 22 June 07.
- DA Memorandum, Sustainable Design and Development Policy Update - Life-Cycle costs, 27 April 07.
- DA Memorandum, Sustainable Design and Development Policy Update - Environmental and Energy Performance, 8 July 2010
- DA Memorandum, Sustainable Design and Development Policy Update (Environmental and Energy Performance), 27 October 2010
- DA Memorandum, Managing Stormwater with Low Impact Development, 29 July 2010
- DA Memorandum, Construction/ Renovation and Condition Standards for Residential Communities Initiative Family Housing Program, 4 March 2010
- EKO Engineering Knowledge Online: Sustainability, Encroachment and Room to Maneuver [https:/ / eko.usace.army.mil/ fa/ sdd]

STEP 5: Conservation of water and other resources.

- Incorporate step 5 in Framework Plans (see Section 4.3, "Framework Plan"), Area Development Plans (see Section 4.5, "Area Development Plans") and the Installation Design Guide (see Section 5, *Installation Design Guide*).
- Army policy requires the full implementation of low impact development (LID) techniques to restore predevelopment hydrology to the maximum extent technically feasible. This policy applies to both new and renovation construction projects regardless of size. Full compliance with LID requirements is mandatory in FY11 for all sustainment, restoration and modernization (SRM) funded projects and FY13 for all other Army construction. See DA Memorandum Sustainable Design and Development Policy Update, 27 Oct 2010.
- To limit disruption of natural water flows and reduce negative impacts on water and air quality, minimize storm water runoff, increase on-site infiltration, and reduce contaminants. Consider open swales, curbless parking/roads, bio-filtration/infiltration, impermeable surface water run-off capture, management, and re-use (irrigation, vehicle wash, etc.).
- To enhance or create new habitat, identify and mitigate all existing site problems, including contamination of soil, water, and air, as well as any negative impacts caused by noise, eyesores, or lack of vegetation.
- Reduce generation of waste water and potable water demand, while increasing local aquifer recharge. For multiple buildings/ installations, address strategies for Innovative Waste Water Technologies, such as shared gray water systems and on-site sewage treatment systems.
- To reduce the burden on municipal water supply and waste water systems, maximize water efficiency within buildings.

Tip

Net Zero Water use requires rainwater harvesting to obtain all water supplies and reuse of all wastewater. This, in turn, forces strict water conservation measures to ensure adequate water supply users.

- LEED Applicability: Consider LEED®-NC Water Efficiency Credits and LEED®-ND Green Infrastructure and Buildings Credits.

References Cont'd

- ETL 1110-3-491 Sustainable Design for Military Facilities [http:/ / www.usace.army.mil/ usace-docs/ eng-tech-ltrs/ etl1110-3-491/ toc.htm]
- Distributed Power Coalition of America [http:/ / www.distributed-generation.com/ dpca/ technologies.html]
- Energy STAR [http:/ / www.energystar.gov/]
- Energy Policy Act of 2005.
- U.S. Department of Energy, Energy Efficiency and Renewable Energy [http:/ / www.eere.energy.gov/]
- 'Official' Corps case studies [https:/ / ten.usace.army.mil/ TechExNet.aspx?p=s&a=AreasOfExpertise;522]
- USGBC Examples [http:/ / www.usgbc.org/ LEED/ Project/ CertifiedProjectList.aspx]
- ASHRAE Standard 189.1 Standard for the Design of High-Performance Green Buildings except low-rise residential, 2009

STEP 6: Site selection.

- Incorporate Step 6 into the Framework Plan (see Section 4.3, "Framework Plan"), or Future Development Plan (Section 4.4, "Future Development Plan").
- Avoid development of inappropriate sites. Consider building placement to minimize on-site environmental impacts.
- Consider infill or a previously developed site.
- Base site selection on functional adjacencies/relationships and land use compatibility.
- To reduce pressure on undeveloped land, rehabilitate damaged sites whenever development is complicated by real or perceived environmental contamination.
- Whenever building sites/structures are appropriate for re-use and re-use is cost effective, adopt this alternative. This extends the life cycle of existing building stock, conserves resources, retains cultural resources, reduces waste, and minimizes environmental impacts of a construction program.
- Locate site near existing or planned services, utilities, and water/ waste water infrastructure.
- LEED Applicability: Consider LEED®-NC Sustainable Sites Credits and LEED®-ND Smart Location and Linkages.

STEP 7: Site design.

- Incorporate Steps 7-8 in Area Development Plans (see Section 4.5, "Area Development Plans".
- To minimize negative site impacts on neighboring properties and buildings, avoid or mitigate: excessive noise, shading on green spaces, increases in traffic, obscuring significant views, etc.
- Optimize use of a site's existing natural and man-made features.
- To reduce impact on nocturnal environments, eliminate light trespass from the site. For multiple buildings/sites, consider implications of lighting for safety and critical infrastructure protection. This includes site/street lighting and shared walkway lighting.

Tip

Project design for light pollution reduction must be accomplished in balance with the Installation Design Guide (see Section 5, *Installation Design Guide*) and AT/FP considerations (see Section 10.5, "Antiterrorism & Critical Infrastructure Protection").

- Incorporate Low Impact Development (LID) to manage storm water. LID addresses storm water through small, cost-effective landscape features located at the lot level. LID can be applied equally well to new development, urban retrofits, and redevelopment/revitalization projects. Contact the Low Impact Development Center [http:/ / www.lid-stormwater.net] for more information on LID techniques.
- LEED Applicability: Consider LEED®-NC Water Efficiency Credits and LEED®-ND Green Infrastructure and Buildings.

STEP 8: Landscape design.

- To minimize impacts on microclimate and human/wildlife habitats, reduce heat islands, thermal gradient differences between developed and undeveloped areas. For multiple buildings/sites, consider sharing as a strategy; for example, a shared parking garage.
- Limit or eliminate use of potable water for landscape irrigation. For multiple buildings/sites, consider water efficient landscaping and/ or opportunities for shared rainwater and storm water runoff collection to supply irrigation systems.
- LEED Applicability: Consider LEED®-NC Water Efficiency and Sustainable Sites Credits and LEED®-ND Green Infrastructure and Buildings Credits.

STEP 9: Facility/building design.

- Incorporate step 9 and 10 into DD Form 1391 during the planning charrette. (See Section 10.8.4, “Charrettes”).
- Ensure that fundamental building elements and systems are designed, installed, and calibrated to operate as intended and buildings are energy efficient.
- Encourage a facility delivery process that actively engages all stakeholders in the design process. This delivers a facility that meets all functional requirements, while effectively optimizing tradeoffs among sustainability, first costs, life cycle costs, and mission requirements.
- Encourage facility design that is responsive to change over time. This maximizes product life and accommodation of future uses without creating waste.
- Encourage adaptive re-use, especially of historic buildings.
- Create flexible workspaces and healthy working environments within all buildings. Include measures that ensure daylight, views, and noise control. Improve indoor air quality (IAQ) by incorporating low-emitting materials, IAQ monitoring, effective ventilation, and indoor chemical/pollutant source control.

- Encourage the development of a facility delivery process that enhances efficient building operation and maintenance.
- Design "green" facilities that are LEED®-NC certified.
- LEED Applicability: Consider LEED®-NC Materials and Resources and Indoor Environmental Quality Credits and LEED®-ND Green Infrastructure and Buildings.
- Establish a minimum level of energy efficiency for the building and its systems. For multiple buildings/sites, first establish energy performance goals for the installation, and then the individual building. Be sure plans accommodate central energy systems.
- To protect the ozone, reduce chlorofluorocarbon (CFC) use in heating, ventilation, air conditioning and refrigeration (HVAC&R) equipment. For multiple buildings/sites, first set CFC reduction goals for the installation.
- To reduce environmental impacts from excessive energy use, strive for higher energy performance levels than the prerequisite standard.

STEP 10: Construction materials and practices.

- Incorporate recycling strategies. Do this in concert with local municipalities and in accordance to garrison waste management plans. Establish building and installation-wide recycling centers to reduce the waste generated by building occupants that is hauled to landfills. Whenever local recycling programs do not exist, the installation should consider taking the lead in establishing them.
- Whenever possible, re-use construction materials. This extends their life cycle, reduces environmental impacts related to disposal, and minimizes demand for new construction materials. Manage a demolition program through building deconstruction and recycling/ sale of reusable materials. Redirect these materials back into construction and/or manufacturing.
- To reduce demand for raw materials, increase the use of building products that incorporate recycled material.
- To reduce the environmental impacts from long-distance transporting of goods, increase use of building products manufactured locally.
- To reduce depletion of finite raw and long-cycle renewable materials, increase use of rapidly renewable materials.
- Encourage acquisition of Forest Stewardship Council (FSC) certified wood-based materials and products.
- LEED Applicability: Consider LEED®-NC Materials and Resources Credits and LEED®-ND Green Infrastructure and Buildings Credits.

Approval and Maintenance

Approval: Within the RPMP, document selected strategies for sustainability to demonstrate that the garrison embraces sustainability as an operating principle.

Regarding LEED requirements, Army policy requires that all projects beyond FY13 be certified Silver by the USGBC. The supporting Engineer District is responsible for reviewing the project documentation and validating all credits, in accordance with the USGBC standard, from design through construction closeout.

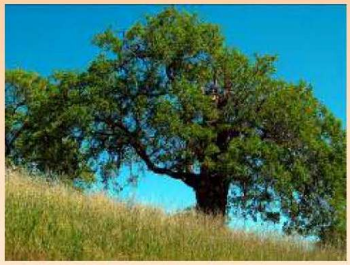
Maintenance: Identify the standards and timeframe for measuring progress in sustainability.

Examples

Example 10.1 Fort Lewis Sustainability Goals

Example 10.2 AIA Design Principles

Building



Installation

Current Real Property Master Plan Revision based on principles of sustainable community design

American Institute of Architects
10 Principles for Sustainable Communities

1. Design on a Human Scale
2. Provide Choices
3. Encourage Mixed-Use Development
4. Preserve Urban Centers
5. Vary Transportation Options
6. Build Vibrant Public Spaces
7. Create a Neighborhood Identity
8. Protect Environmental Resources
9. Conserve Landscapes
10. Design [Excellence] Matters

Neighborhood

Region

Example 10.3 LEED Certification in the Army

US Army Corps of Engineers

Brigade Combat Team – 1
LEED at Fort Bliss, Texas

COF
Company Operations Facility
****PROJECT UNDER CONSTRUCTION****

LEED Rating Projections

• Target – LEED Silver	33 Points
• Government / LDE / SCC	5 Points
• Design / Builder	28 Points

Current Scorecard at 38 Points

Green Results

Sustainable Sites
- Storm Water Control for Quantity and Quality

Water Efficiency
- Water Efficient Fixtures
- 20% Water Use Reduction

Energy and Atmosphere
- Up to 38% Energy Use Reduction

Materials and Resources
- 10% Regional Materials
- 75% of Construction Waste Recycled
- 20% Recycled Materials

Indoor Environmental Quality (IEQ)
- Indoor Chemical & Pollutant Control
- Construction IAQ Management
- Low /Zero VOC Carpets, Paints, Sealants

~ One Team – Relevant, Ready, Responsive, Reliable ~

LDE, Jacobs/Huitt Zollars 214-424-7500

US Army Corps of Engineers

Brigade Combat Team – 1
LEED at Fort Bliss, Texas

- Company Operations Facility

Thinwall concrete panels

Stormwater Management
Quantity and Quality

~ One Team – Relevant, Ready, Responsive, Reliable ~

LDE, Jacobs/Huitt Zollars 214-424-7500

10.5 Antiterrorism and Critical Infrastructure Protection

Description

Antiterrorism (AT) is a security program designed to protect soldiers, civilian employees, family members, information, equipment, and facilities in all locations and situations. This protection is accomplished through the planned integration of physical security, information operations, high-risk personnel security, and law enforcement operations; all of which are supported by foreign intelligence, counterintelligence, and other security programs.

Critical Infrastructure Protection is defined as essential DoD and non-DoD cyber and physical assets, along with associated infrastructure, that protect and support military forces worldwide. When these infrastructures are located on a DoD site, their protection is the responsibility of the commander or facility manager.

According to AR 525-13, garrison commanders are responsible for establishing an installation AT program and appointing a garrison AT officer to manage the program. The garrison AT officer is a major stakeholder in the installation planning process and typically resides in the garrison DPTMS section. The garrison AT officer ensures all tenant and supported reserve component (RC) units/activities are participants in the AT planning process and are included in AT plans, providing guidance and assistance as required.

Stakeholders

- Army Major Commands
- Reserve Components
- Garrison Commander
- Mission Commanders
- Garrison AT Officer
- Garrison Provost Marshal
- Directorate of Public Works
- PAIO (Plans, Analysis, and Integration Office)
- Garrison Staff
- Tenants
- External Users

Data Needed

- Threat assessments that follow guidelines contained in DoD 2000.12 Protection of DoD Personnel and Activities against Acts of Terrorism and Political Turbulence
- Installation AT Program guidelines
- Garrison commander's annual reviews of installation critical assets
- DD Forms 1391
- AT/Security Plans

Purpose

The purpose of antiterrorism and critical infrastructure protection planning is:

- To protect DA personnel, information and critical resources from acts of terrorism in all locations and situations
- To build greater resistance to terrorist attacks into installations at all levels

Key Steps to Incorporating Antiterrorism into the RPMP

The Master Planner should consider AT measures at various stages of the Master Planning process. Incorporating measures early in the Master Planning process may preclude the need to do so at facility design. Including AT as an element in the Real Property Vision ensures that AT is consistently addressed throughout all components of the RPMP. The Master Planner ensures that the garrison's AT officer and Physical Security Officer:

- Are involved in the planning process especially as DD Form 1391s are delivered

- Participate in planning and design charrettes
- Are involved in the appropriate RPPB working group

DoDD 6160.54 requires that commanders of DoD installations conduct an annual review with all tenant activities of all critical assets associated with their installation, to include supporting DoD and non-DoD infrastructures and facilities. Planners should incorporate information from the garrison commander's annual reviews to ensure that critical assets both on and off the installation are adequately considered during the planning process.

Garrison commanders, not Master Planners, are responsible for continuously conducting assessments of antiterrorism efforts. There are four key steps to this effort. The process starts with an overall determination of threats, followed by a determination of how vulnerable the installation is to those threats. It concludes with the development of strategies to respond to threats. Many of these strategies can be incorporated throughout the Master Planning process.

STEP 1: Threat Assessment.

A "hazard" is "a source of potential danger or adverse condition" that may be natural or manmade (either accidental or intentional) in origin. "Threats" are a subset of hazards that generally refer to intentional actions by an adversary. A Threat/Hazard Assessment evaluates potential dangers. Threats considered include:

- Unauthorized entry – forced and covert
- Inside threats – from persons with authorized access to a facility, such as disgruntled employees, contractors, or support personnel
- Explosives (criminal or terrorist weapons of choice) – with possible delivery of large devices by stationary and or moving vehicles; and smaller explosives via mail, package, or hand-carried into unsecured areas
- Ballistic – small arms and high-powered rifle-threats, ranging from random drive-by shootings to direct attacks on specific facility targets
- Weapons of mass destruction (WMD) – chemical, biological, and radiological attacks of low probable occurrence but with extremely high consequences
- Cyber-terrorism – threat to cyber and Information Security Systems that support critical business continuity and mission functions
- Non-hostile occurrences - disease, weather, natural disaster, or non-hostile chemical, biological, radiological/nuclear or explosive (CBRNE) events, accidents or incidents.

The Master Planner should consult previous and current installation threat assessments as a part of the planning process.

Contacts Needed

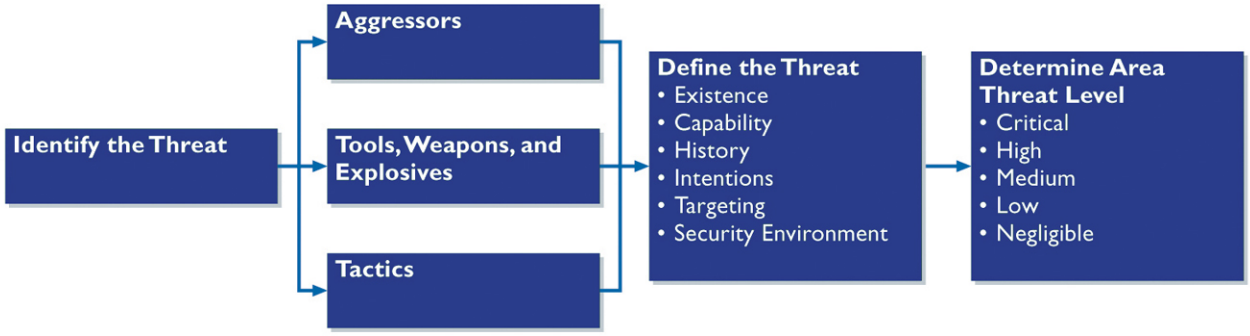
- **Garrison Commander**
- **Garrison Provost Marshal**
- **Planners, Designers and Engineers at Army Command level – oversee and provide guidance on implementation of force protection standards at installation level**
- **Garrison AT Officer**
- **Garrison Physical Security Officer**
- **The Defense Special Weapons Agency (DSWA), Force Protection Division – the central DoD office for accomplishing the WMD Vulnerability Assessment**
- **USACE Protective Design Center, Omaha District**

STEP 2: Vulnerability Assessment.

A Vulnerability Assessment addresses susceptibility to attack from the threats identified in Step 1. Assessments follow guidelines contained in DoD 2000.12 Protection of DoD Personnel and Activities against acts of Terrorism and Political Turbulence. A Vulnerability Assessment:

- Identifies assets to be protected
- Determines whether those assets can be protected
- Identifies and analyzes land use, circulation and infrastructure considerations that may improve the installation's ability to contend with a threat

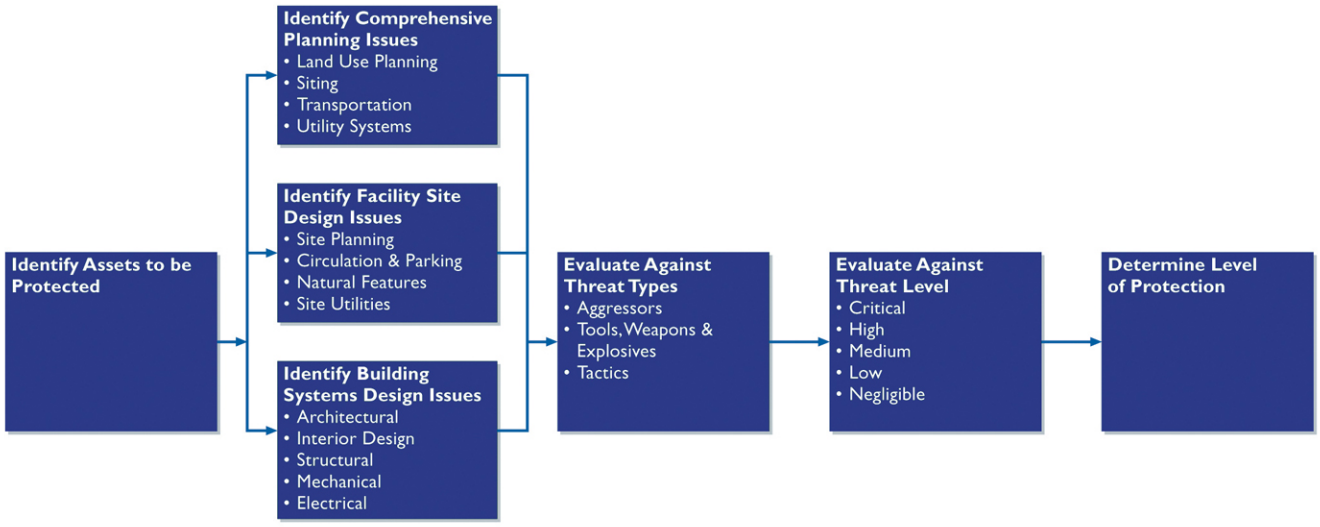
Figure 10.7 Vulnerability Assessment Chart



Vulnerability Assessments serve as a basis and justification for AT plans, enhancements, program/budget requests, and establishment of critical infrastructure protection conditions. They are retained by the garrison AT officer for no less than three years.

The results of this analysis are then evaluated against threat type to determine the appropriate level of protection.

Figure 10.8 Strategies Responding to the Threat



STEP 3: Planning strategies responding to the threat.

After acceptable levels of protection are determined, appropriate protective strategies are identified. These strategies may be in the form of planning actions or construction projects (either new or renovation).

Layers of Defense is a concept addressing the mitigation of potential terrorist attacks against buildings. It is also the foundation of many, if not most, strategies for the mitigation of attacks against infrastructure systems. There are three layers. The strategies in the first two layers can be applied during Master Planning.

- The first layer of defense is defined as the surrounding area, including the site, infrastructure, and other buildings outside the site perimeter. These strategies are considered in the Long Range Component (LRC) of the RPMP.
- The second layer of defense focuses on the layout of the installation sites. It includes protective barriers – space, natural, and physical – that can be introduced, typically between building and sidewalk. This includes the design and location of access points, parking, roadways, sidewalks, footpaths, water elements, natural barriers, lighting, signage, and other features. These are considered during site design and are addressed in the Installation Design Guide (IDG), and Area Development Plans (ADP).
- The third layer of defense is the building itself. A primary goal of building systems design is to devise a safe structure that will not fail under attack and that permits the orderly evacuation of victims by rescue teams. If addressed early in the design process, these measures may be efficient and cost-effective. If introduced late or

if retrofitting an existing building, such measures may be economically difficult to justify. These measures are incorporated at the conclusion of the Master Planning process, during the development of the DD Form 1391.

First Layer of Defense: Future Development Planning

The Master Planner may incorporate antiterrorism strategies during:

- **Framework Plan** – Strategies include:
  - Location and consolidation of high risk land uses
  - Inclusion of additional land areas commonly associated with critical infrastructure protection
  - Consideration of off-post adjacent land use and zoning plans
- **Future Development Plan and Siting** –
  - Facility location relative to base perimeter
  - Adequate distance between perimeter fence and developed area
  - Open space along fence line
  - Elevation of sites to enhance surveillance
  - Placement of vegetation in proximity to facility
  - Avoidance of low-lying areas to mitigate effects of biological/ chemical weapons
  - Location of CBRNE facilities so that accidents/incidents pose the least threat to other facilities and mission areas.
- **Area Development Planning** – Strategies include:
  - Increased distances between facilities to minimize collateral damage
  - Building arrangements that form complexes to enhance surveillance opportunities
  - Siting of facilities within view of other occupied facilities

Note: It is crucial to balance the clustering of functionally compatible facilities against the cost of securing a high value cluster against targeting.

- **Transportation and Circulation Planning** – Strategies include:
  - Pull-over lanes and entry roads that do not provide straight-line approach
  - Controlled vehicular access
  - Minimization of signage
  - Location of parking areas and service entries away from high-risk resources

References

- AR 525-13: Antiterrorism
- Department of Homeland Security and DoD programs
- DoD Directive 3020.40 [http:/ / www.fas.org/ irp/ doddir/ dod/ d3020_40.pdf]
- Office of the Assistant Secretary for Homeland Defense, Defense Critical Infrastructure Program website [http:/ / www.dod-map.msiac.dmso.mil/ index.htm]
- UFC 4-010-01: DoD Minimum Antiterrorism Standards for Buildings
- AFJMAN 32-1071 Volume 1, Appendix C, Blast Resistant Component Selection
- Commander's Guide: Installation Standards
- DoD 2000.12: Protection of DoD Personnel and Activities Against Acts of Terrorism and Political Turbulence
- Strategy for Homeland Defense and Civil Support
- Installation Force Protection Guide, U.S. Air Force
- Whole Building Design Guide web site [http:/ / www.wbdg.org/]
- Ballistic protection rating systems: Underwriters Laboratories (UL), National Institute of Justice (NIJ), H.P. White Laboratory, and ASTM International
- USEUCOM, ANTITERRORISM, Operations Order 03-11 (Europe only)
- USACE Protective Design Center, Omaha District [https:/ / www.pdc.usace.army.mil/] (login required)

- **Utility Systems Planning** – Strategies include:
  - Screening and securing all utility penetration of installation perimeter
  - Preventing covert access (through trenches, ducts and manhole covers)
  - Fencing to prevent access
  - Installing utilities underground
  - Siting fuel tanks at elevations lower than operation buildings or utility plants
  - Decentralizing communication resources
  - Providing redundant loop service and back-up systems

Second Layer of Defense: Site Design

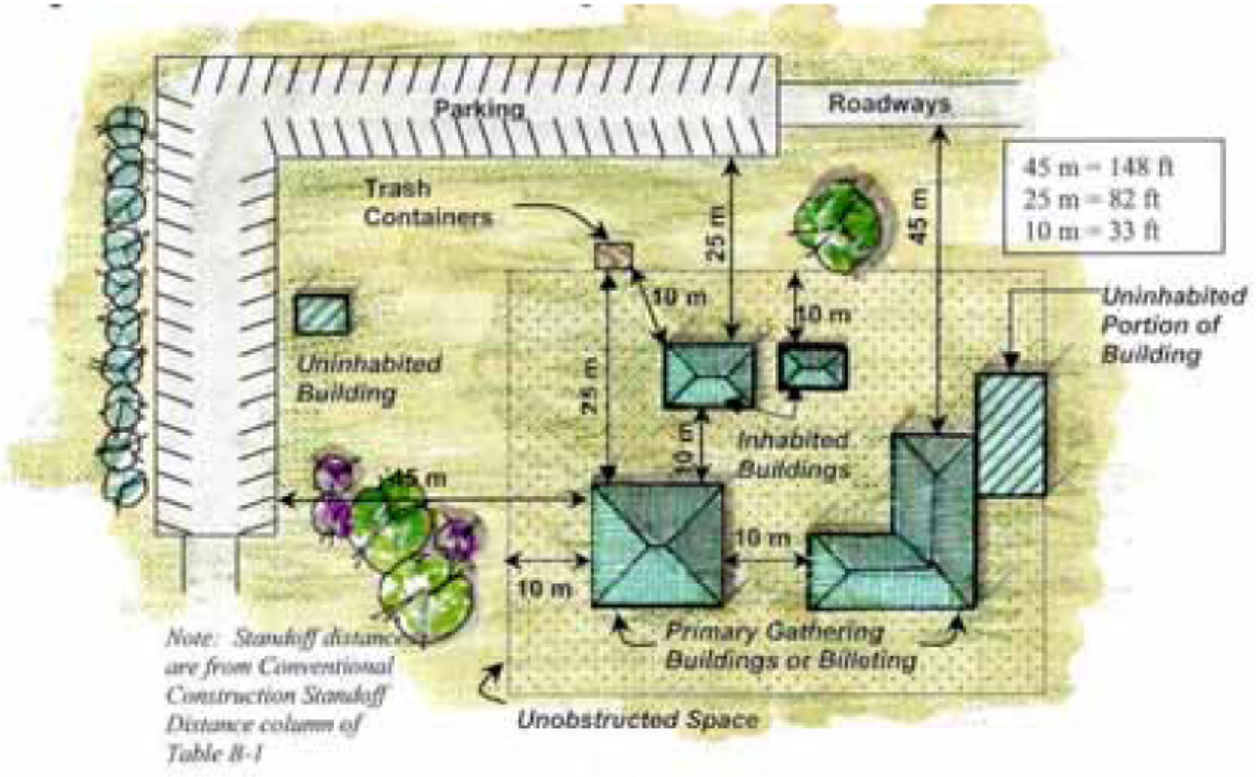
Distance is the most effective and desirable tool to provide protection of critical infrastructure in site design. Other measures vary in effectiveness and are more costly. Standoff distance is the space between an asset and a threat. It is determined by a number of variables, including type and level of threat, assets involved, the desired level of protection, type of construction, surrounding site conditions and site layout. Distance can also offer an additional level of protection by creating a clear zone that is free of visual obstructions. To determine appropriate standoff distances, see United Facilities Criteria (UFC) 4-010-01 DoD Minimum Antiterrorism Standards for Buildings Table B-1, and DoD O-2000.12-H, Appendix DD, Calculated and Analyzed Blast Effects.

Figure 10.9, "Standoff Distances and Building Separation – No Controlled Perimeter" and Figure 10.10, "Standoff Distances and Building Separation – Controlled Perimeter" illustrate how standoff distances can be incorporated into site design.

Tip

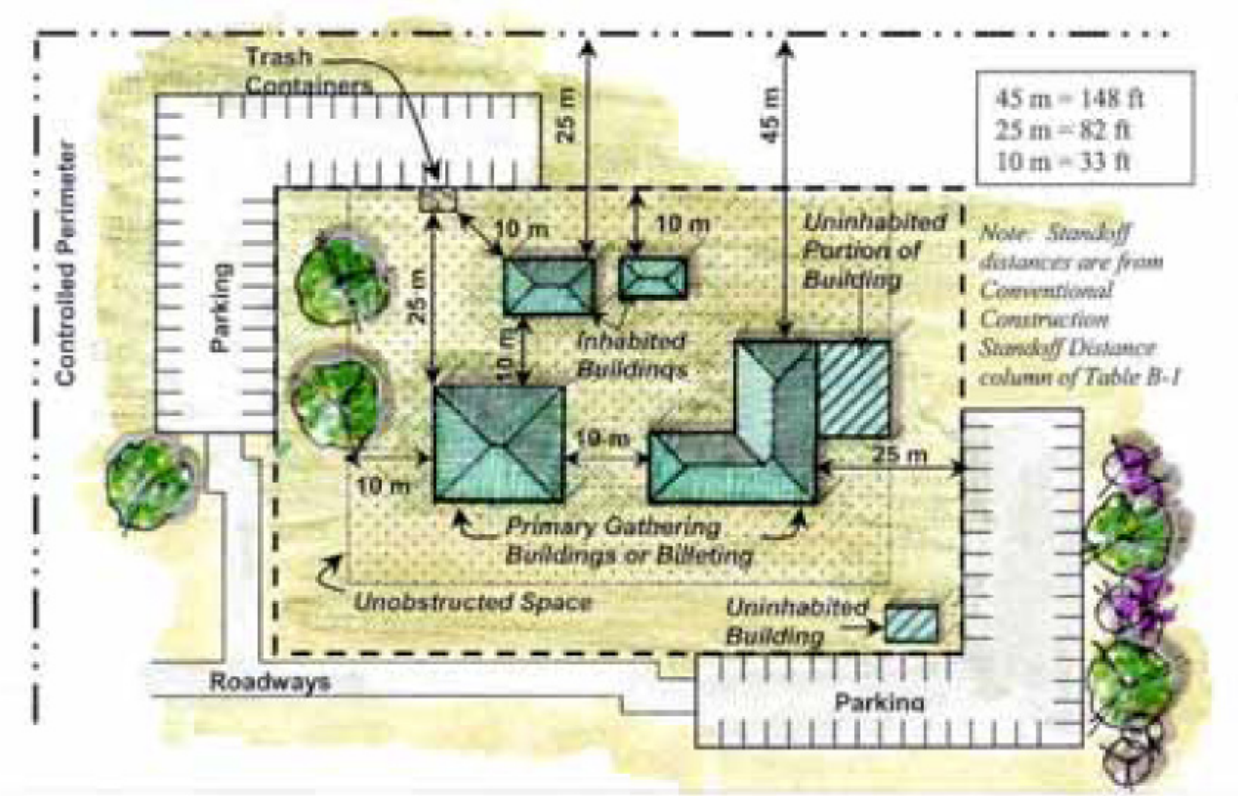
Any renovation that exceeds 50% of total building cost must comply with AT regulations.

Figure 10.9 Standoff Distances and Building Separation – No Controlled Perimeter



(Note: not valid in Europe; see OPORD 03-11)

Figure 10.10 Standoff Distances and Building Separation – Controlled Perimeter



(Note: not valid in Europe; see OPORD 03-11)

Within the standoff distance, established control zones of minimum standoff distance can provide even greater levels of protection. This is achieved through the installation of barriers, fountains, fencing, bollards, planters, landscaping, or other measures that stop persons and vehicle-delivered threats. Minimum standoff distances should be considered for buildings, parking areas, and trash containers.

Additional elements to incorporate at the site level include:

- **Orientation of Buildings** – Strategies include:
  - Denying aggressors a clear line of sight
  - Permitting building occupants and police to monitor adjacent areas
- **Relationship of Roads to an Asset** – Strategies include:
  - Selecting a site away from main thoroughfares
  - Controlling vehicle access
  - Correctly locating parking
  - Minimizing building entry points, access roads, and drive-up/ drop-off areas
- **Land Forms** – can be beneficial or detrimental to critical infrastructure protection planning. Strategies include:

- Avoiding sites that are adjacent to higher surrounding terrain, unsecured non-Army facilities, or tall vegetation and drainage channels/ditches that can conceal
- Using natural terrain features to deflect blasts or provide standoff zones

Third Layer of Defense: The Building Envelope

The UFC criteria code details how critical infrastructure protection can be incorporated at various points of facility design. Most of these measures occur after the last phase of Master Planning.

- **Architecture and Interior Design** – Components of building architecture that can enhance protection include building form, exterior envelope, glazing, window frames, exterior doors, sealing, and architectural layout. Doors and windows should meet minimum requirements for blast resistance and fragmentation. Architectural layout of entrances and location of functional areas, such as mailrooms, should be considered to mitigate terrorist threats. Good examples of facility layout concerns include the orientation and location of entrances relative to lines of sight from outside the installation, and redundant egress and other critical infrastructure to facilitate emergency evacuation and control during an event.

- **Structural Design** – This includes the fundamental components of the building, including walls, floors, and the specific performance characteristics of major load-bearing elements, such as beams or columns. Structure performance is measured through engineering analysis to determine if the building can withstand loss of at least one major structural element without triggering progressive collapse.

- **Structural Isolation** – This involves constructing building portions/additions more prone to attack in a way that prevents collapse of an entire structure. This strategy may include additions that physically join structures above the foundation, building overhangs, and under-building parking.

- **Electrical and Mechanical Design** – Often referred to as critical infrastructure, this category includes electrical distribution systems, HVAC systems, fresh-air intakes, ventilation systems, and electrical service connection points. The main strategy involves applying methods of construction and locating critical equipment in ways that minimize vulnerabilities that terrorists could exploit. Incorporating physical separation of systems, incorporating redundancy of systems, and creating multiple system entrances fall within this

category. Redundancy systems also supports natural disaster protection programs, e.g. back up generators, critical switches above the ground level, and transfer switches pre-designed and established at critical facilities.

STEP 4: Suitability Analysis.

All options undergo a suitability analysis, which takes into account factors that may limit the feasibility of an action or project. Limiting factors may include physical, resource, and political constraints, such as land use area restrictions, limited availability of construction materials, and host nation or civilian sensitivities. Following this evaluation, preferred measures are selected.

Approval and Maintenance

Approval: Submit all plans related to AT or critical infrastructure protection to the garrison provost marshal for approval.

Maintenance: Vulnerability Assessments serve as a basis and justification for AT plans, enhancements, and program/budget requests. They are retained by the garrison AT officer for no less than three years.

10.6 Ranges and Training Lands

Description

Training is the process by which soldiers/units acquire the necessary individual and collective skills to perform missions in an operational environment. Training is the cornerstone of readiness. Essential to this cornerstone are the areas on an installation where soldiers train, ranges and training lands. Thoroughly integrating these areas into the planning process is critically important.

Stakeholders

- **HQDA G-3 Directorate of Training, Training Simulations Division (DAMO-TRS)**

The Army uses three types of training – Live, Virtual, and Constructive – to hone troop skills in a realistic environment:

- Live training is executed in field conditions using tactical equipment, enhanced by training aids, devices, simulators, and simulations (TADSS) and tactical engagement simulation (TES) to simulate combat conditions.
- Virtual training is executed using computer-generated battlefields in simulators with approximate physical layout of tactical weapons systems and vehicles. Virtual TES training permits units to maneuver over much larger areas.
- Constructive training uses computer models and simulations to exercise the command and staff functions of units.

Today, local exercises can even be digitally linked to global Army training events, and utilize the same actual combat operational technologies.

Ranges and maneuver training lands are strictly controlled areas. The dangerous activities that occur here do not mix well with other land uses. Management practices, activities, or actions that diminish the capability of ranges and training areas degrade the overall value of the installation to the Army and nation. Ultimately, this adversely impacts readiness.

A "wall" often exists between range and cantonment planning. But it is imperative that the Master Planning staff work closely with range management staff to create an interdisciplinary range modernization planning team, due to the:

- High cost of ranges
- Growing role of information technology in weapons/targetry
- Increased emphasis on environmental stewardship
- Complexity of range modernization projects

The Sustainable Range Program (SRP) is the Army's overall approach for improving the design, management, and utilization of ranges to ensure long-term sustainability. SRP is defined by its two core programs – the Range and Training Land Program (RTLP) and the Integrated Training Area Management (ITAM) Program, which focuses on doctrinal capability. To ensure accessibility and availability of Army ranges and training land, SRP core programs are integrated with:

- Facilities management
- Environmental management
- Munitions management
- Safety program functions supporting doctrinal capability

Purpose

This section:

- Summarizes the Sustainable Range Program (SRP) as it relates to the range modernization program
- Provides an overview of how the Range Complex Master Plan (RCMP) and Range Development Plan (RDP) contribute to the Real Property Master Plan (RPMP)
- Identifies the Master Planner's responsibilities in supporting range and training project development
- Explains the Master Planner's role in programming actions, including DD Form 1391 development for Military Construction, Army (MCA) range projects
- Provides tips for understanding the Army Range Modernization Program

Tools

- **Army Range Requirements Model (ARRM)**
- **Range Facility Management Support System (RFMSS)**
- **Real Property Planning and Analysis System (RPLANS)**
- **Geographic Information Systems (GIS)**
- **Integrated Training Area Management Program (ITAM)**
- **Environmental Noise Management Plan (ENMP)**

Key Steps to the Range Modernization Planning Process

Range modernization involves a coordinated planning effort among:

- The Installation
- Command
- HQDA/IMCOM

Its purpose is to integrate mission support, environmental stewardship, and economic feasibility.

Range Modernization - Installation Level

There are two major products at the installation level:

1. Range Complex Master Plan (RCMP)
2. Range Development Plan (RDP)

The Range Officer is primarily responsible for the technical information of these products. Ultimately, these are integrated into the installation GIS.

Product 1: Range Complex Master Plan (RCMP)

The RCMP depicts the installation's current and future range and training land requirements, in addition to its other requirements that might impact ranges and training land. The RCMP displays related land assets, general siting of future range projects, and possible encroachment constraints. A GIS display of the RCMP allows visualization of the horizontal and vertical aspects of the range complex. This provides the capability to run "what if'" scenarios.

The Range Officer, with support from the IPT, develops an RCMP that:

- Includes contiguous/non-contiguous land parcels identified by the installation for acquisition
- Considers footprint of required non-Army ranges, as approved by the senior mission commander and garrison
- Graphically displays on the installation's Operational Overlay
- Provides source data for the installation RPMP and RDP
- Helps define range and training land projects developed in the RDP
- Is updated annually to review and correct range and training land assets and category codes

Product 2: Range Development Plan (RDP)

The RDP is a prioritized list of the installation's range modernization and land acquisition projects for the HQDA G-3/5/7 designated project year (PY). It lists new construction and upgrade projects by fiscal year, priority, standard range type, estimated cost, and project number. For projects

Products

Range Complex Master Plan (RCMP)

- **Installation's current and future range and training land requirements**
- **Other installation requirements that might impact ranges and training land**
- **GIS platform**

The Range Development Plan (RDP)

- **A list of the installation's prioritized range modernization and land acquisition projects for the HQDA G-3/5/7 designated project year (PY)**

References

- **AR 95-2: Air Traffic Control, Airspace, Airfields, Flight Activities and Navigation Aids**
- **AR 350-19: The Army Sustainable Range Program**
- **AR 385-63: Range Safety**
- **DA PAM 350-38: Standards in Weapons Training**
- **DA PAM 350-39: Standards in Weapons Training (Special Operation Forces)**
- **DA PAM 385-63: Range Safety**
- **DA PAM 415-28: Guide To Army Real Property Category Codes**
- **Installation Training Capacity (ITC) Methodology, HQDA, G-3**
- **TC 25-1: Training Land**
- **TC 25-8: Training Ranges**
- **U.S. Army Training and Testing Area Carrying Capacity (ATTACC) - Handbook for Installations, Version 1.1. U.S. Army Environmental Center**

meeting MCA program funding thresholds, the RDP specifies the funding classification as either New Mission or Revitalization. It also identifies targetry and its related equipment cost estimates. Every project in the RDP includes an Analysis of Alternatives Study (AAS). It is important to become familiar with all projects, their purpose, and potential impact on the constraints and opportunities overlay.

The Range Officer develops the RCMP and RDP by performing the following four analyses:

1. Doctrinal Analysis
2. Operational Analysis
3. Sustainability Analysis
4. Analysis of Alternatives Study (AAS)

The RDP Approval Process is illustrated in Figure 10.11, "The RDP Formal Approval Process".

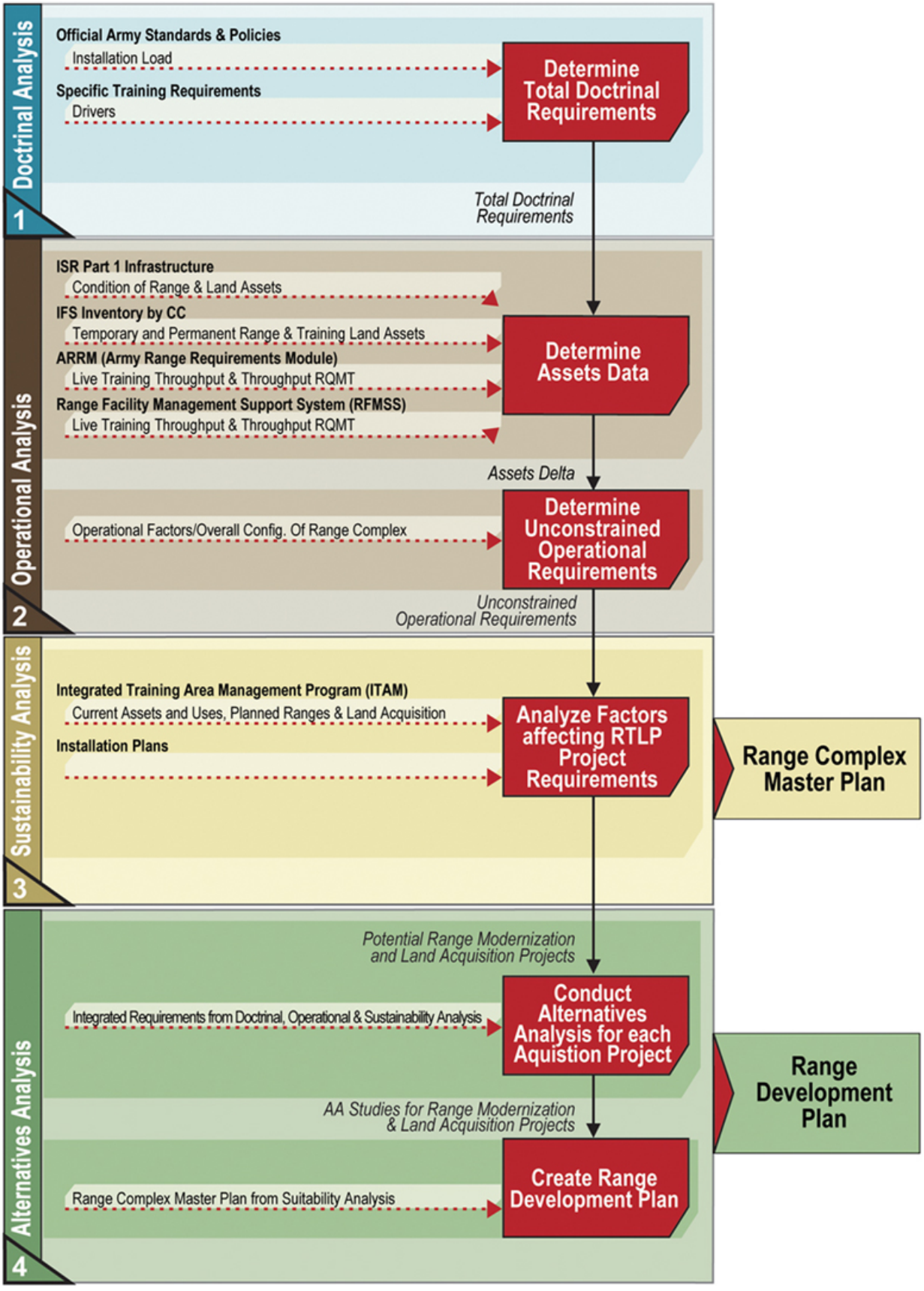
Analysis 1: Doctrinal Analysis The Doctrinal Analysis defines range and training land requirements for assigned, tenant, and routine Army units and mission activities associated with the Active Army, Army National Guard, and Army Reserve. Requirements are calculated by applying drivers and standards. It is the role of the Master Planner to monitor the process and provide any necessary support.

Analysis 2: Operational Analysis The Operational Analysis determines the unconstrained operational requirement for installation range and training land. It is calculated by applying the doctrinal requirement to current range/training land assets, the utilization rate, and other factors. The real property staff assists by identifying the total number and condition of temporary, semi-permanent and permanent range/training land assets through the Installation Status Report (ISR) Part 1 (Infrastructure). Utilization rates of ranges and training areas over time are drawn from the Range Facility Management Support System (RFMSS), as well as historical records. This analysis establishes requirements and identifies overages and shortages of range/training land assets.

Analysis 3: Sustainability Analysis The Range Officer conducts a Sustainability Analysis which relies heavily on the resources of the Integrated Training Area Management (ITAM) program and its associated GIS system. The analysis evaluates factors that are not part of the Operational Analysis, but that have the potential to affect range/training land requirements including infrastructure, encroachment, natural and cultural resources, economic impacts, the Real Property Master Plan, or range security factors. This interdisciplinary step must include participation from DPW Master Planning engineering and environmental information management, and specialists from the installation support Mandatory Center of Excellence (MCX). The product of these steps is the RCMP.

Analysis 4: Analysis of Alternatives Study (AAS) In order to justify new requirements, the Range Officer must conduct an Analysis of Alternatives Study (AAS) for every range modernization and land acquisition project. The DPW assists the Range Officer in determining whether a project is classified as New Mission or Revitalization. It also assists with preparing necessary programming documents/work orders, based on projected project cost and funding source. The installation's prioritized list of these projects becomes the RDP, which contributes to the Capital Investment Strategy and the Long Range Component's Future Development Plan of the RPMP.

Figure 10.11 The RDP Formal Approval Process



Range Modernization - the Command Level

- The Range Officer forwards all RDPs to command. Command then reviews, validates, and prioritizes these into a Live Fire Training Investment Strategy. This is sent to the Range Requirements Review and Prioritization Board (RRPB), which meets annually to validate/ prioritize projects for resource allocations. The DAMO-TRS and its Sustainable Range Program (SRP) Agent – the Army Training Support Center – chair the RRPB.

Range Modernization - HQDA/IMCOM Level

- All validated projects are placed into the HQDA G-3 Army Master Range Plan (AMRP). This is the Army's database of record for all approved/funded range modernization and training land acquisition projects.

SRP Key Steps

While the Master Planning staff is not responsible for the technical aspects in developing a Sustainable Range Program (SRP), it is responsible for:

- Integrating the RCMP and RDP into the RPMP
- Successfully executing MCA portions of the RDP
- Integrating considerations into the RPMP to support range/training operational requirements
- Ensuring cantonment development does not impact the ability to effectively train
- Working with local jurisdictions to prevent and/or minimize encroachment issues
- Working with the Range Officer to analyze impacts of force structure changes/stationing actions
- Supporting the RDP with programming and construction support for MCA and other major range development/modernization projects.

  Note: The USACE centrally prepares DD Form 1391s for range projects. Neither the range planner nor master planner are responsible for this step.

STEP 1: Avoid encroachment with off-site community.

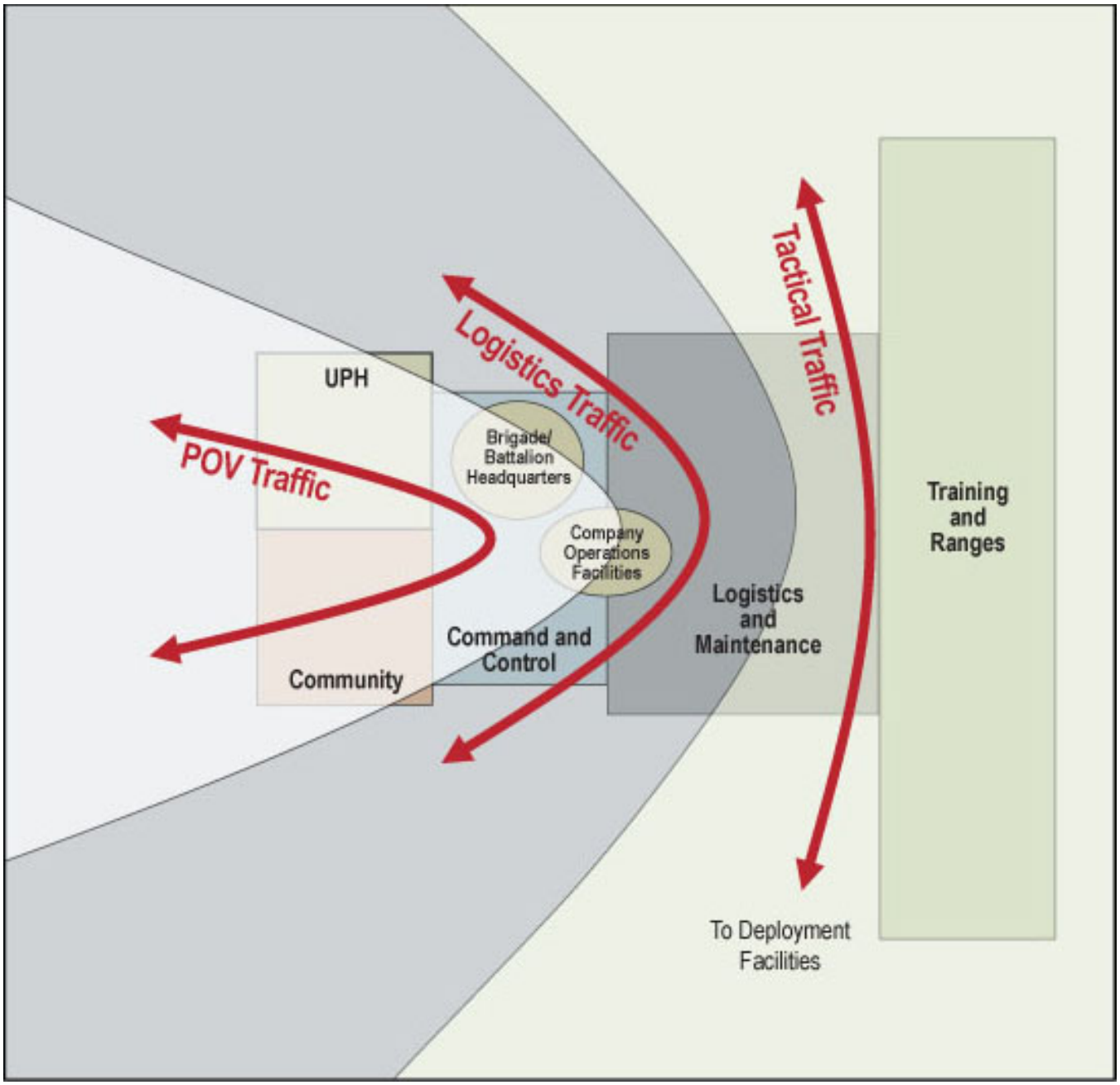
The Army has little control over off-post encroachment, which already places significant restrictions on training land. It is important to work with the garrison commander/staff and local communities to address land use planning issues outside the fence that can ultimately restrict training. Tools

– such as Army Compatible Use Buffers (ACUB) and Joint Land Use Studies (JLUS) – help to avoid or minimize conflicts and encroachment. Use these tools to synchronize installation mission requirements with community growth.

STEP 2: Avoid encroachment from cantonment area.

Ensure that cantonment area development does not encroach on training land, and that activities in this area do not interfere with maximizing the value of available range and training lands. Ideally, locate all public activities away from training areas and ranges. Allocate adjacent land to support mission functions of those organizations that use range and training areas on a recurring basis. Establish traffic patterns that allow tactical/operational vehicles ready access to training and deployment facilities, while minimizing crossing of non-tactical/non-operational primary arterials. Whenever possible, movement to deployment processing facilities should occur along the same route as movement to training areas and ranges. (See Figure 10.12, "Relationship of Cantonment to Ranges and Training Lands".)

Figure 10.12 Relationship of Cantonment to Ranges and Training Lands



STEP 3: Consider compatibility with adjacent uses.

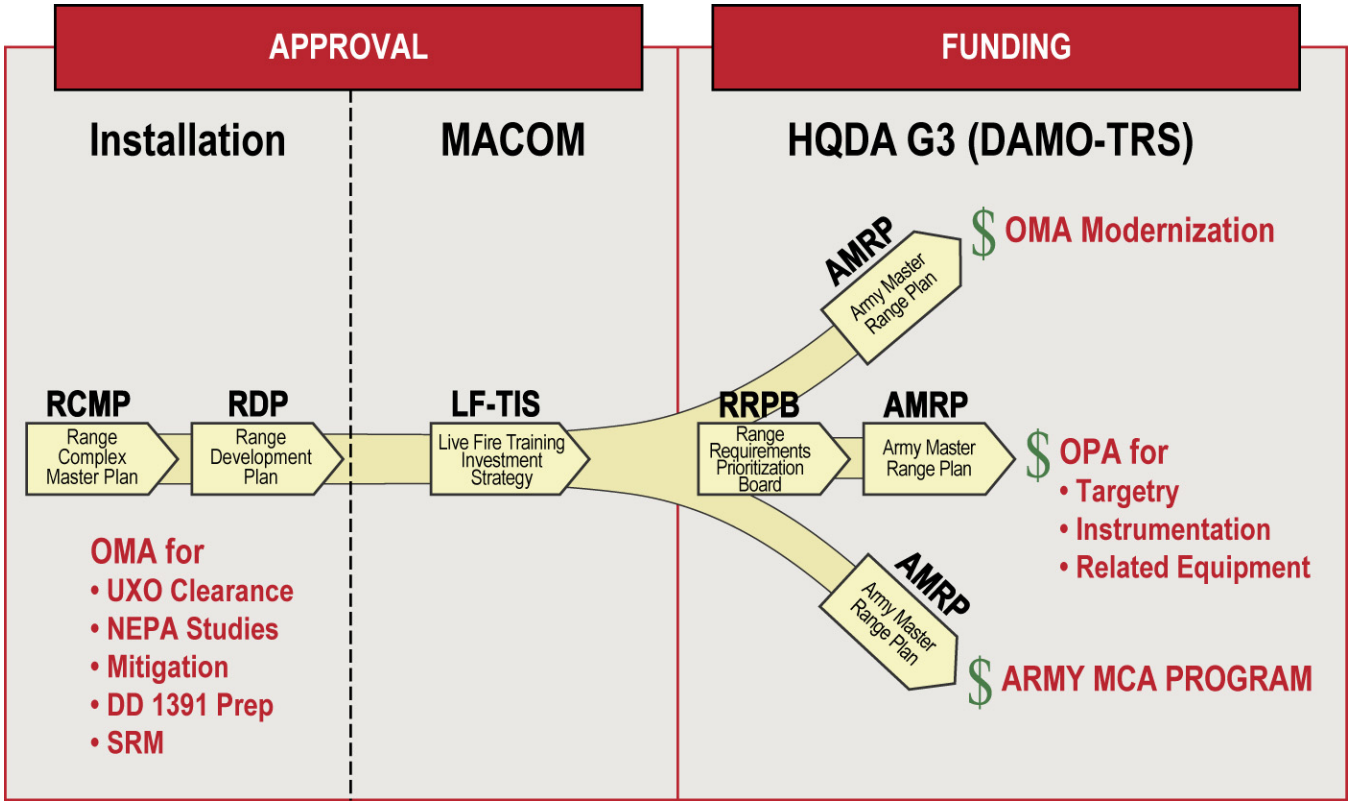
In addition to compatibility, consider potential impacts of vertical structures on training area aviation approaches and light-emitting sources on night training activities. Consider the impacts of training on the cantonment area. The most significant of these is noise. Do not plan future uses of the cantonment area that are inconsistent with the noise zones outlined in the

Environmental Noise Management Plan (ENMP). Also weigh the possible impacts of smoke and dust drift from training areas into the cantonment area. The cantonment plan should allow for expansion of the Surface Danger Zones (SDZ), expansion of ranges, and a growth or shift in training traffic.

STEP 4: Monitor the process.

The range project development and funding process is illustrated in Figure 10.13, "Range Modernization Approval and Funding". Projects that do not alter range function generally do not need HQDA approval unless funds are requested. Range modernization, modification, expansion, conversion, or consolidation must normally undergo an approval process. Be sure to monitor this process and actively participate in range and training land planning activities. Ensure that the RCMP and future development plans are mutually supportive, and that the RDP is incorporated in the Capital Investment Strategy, and Long Range Component.

Figure 10.13 Range Modernization Approval and Funding



Approval and Maintenance

Table 10.1 shows the planning, programming, and project development horizons for successful completion of range projects.

Table 10.1 Approval and Development Sequence for MCA or Acquisition

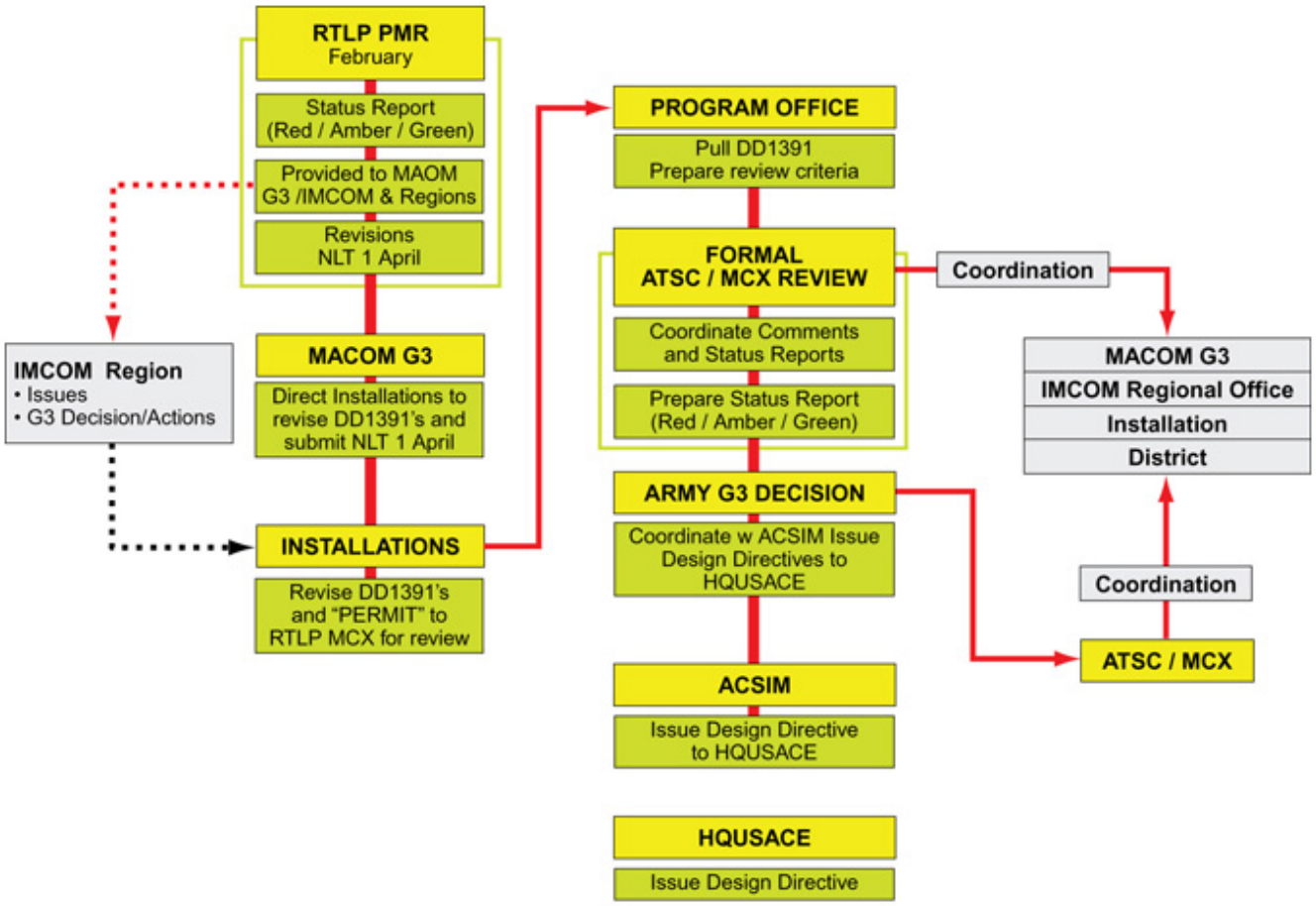
Input	Project Year (PY)	Review	Approve	Outcome
RDP with land acquisition project(s)	PY-5	RRPB PY-5 land acquisition projects	Installation land acquisition projects	RRPB authorizes installation(s) to develop the military land acquisition proposal package.
RDP/LF-TIS	PY-4	RRPB PY-4 proposals	POM build AMRP	RRPB issues planning directive to range modernization technical team for approved range modernization projects. RRPB authorizes installation to initiate preparation of MLAP for land acquisition.
MILCON and mini-planning charrette reports	PY-3	RRPB PY-3 revisions	POM build AMRP	RRPB issues directive to range modernization technical team to continue development of DD Form 1391, SDZ validation/update NEPA analysis, etc. USACE issues design directive to USACE district and RTLP MCX.
35% design Draft NEPA documentation; draft DD Form 1391 cost estimate	PY-2	RRPB PY-2 review	POM lock AMRP	RRPB issues directive to complete POM projects. USACE authorizes USACE district to finalize design.
Prefinal and final designs; Contract acquisition package	PY-1	Range mod tech team; Range mod team	Budget execution AMRP	Contract award

Projects involving land acquisition must be presented to the RRPB five years in advance of the desired program year. The RRPB authorizes installations to prepare the Military Land Acquisition Proposal (MLAP) package. The DPW assists this development by providing environmental and Real Property Master Planning support that assesses project impacts. (A sample format for the MLAP is contained in AR 350-19, Appendix B.)

Charrettes are essential to the planning, programming, and design process. These involve the Master Planning staff, other garrison staff, and the HQDA Tech Team, all working together to ensure project success. (See Section 10.8.4, “Charrettes”and Chapter 3-15 of AR 350-19.) However, neither the range planner nor master planner prepares programming documentation in this case. The USACE centrally prepares DD Form 1391s for range projects.

Unlike other major construction projects, range projects involve a separate approval process, illustrated in Figure 10.14, “ DD Form 1391 and the Ranges and Training Lands Plan (RTLP) ”. Close coordination is required between the DPW and the Range Officer to ensure that all necessary approvals are obtained in a timely manner.

Figure 10.14 DD Form 1391 and the Ranges and Training Lands Plan (RTLP)



Lessons Learned

The Master Planner must coordinate closely and continuously with the Range Officer.

10.7 Programming

10.7.1 Programming Introduction

Description

Programming is the process of translating planning decisions, guidance from Department of the Army (DA) and Office of the Secretary of Defense (OSD), and Congressional oversight into a comprehensive and detailed allocation of manpower and funds. More simply, programming is the process required when building a new facility on an army installation. Programming is considered the last alternative to satisfying a facility deficiency and balancing the TAB.

The Army Planning, Programming, Budgeting and Execution (PPBE) process is the Army's resource management system that simultaneously addresses strategy, program, and budget. It creates a comprehensive six-year plan to ensure an effective flow of Army resources – from requirements to programs, mission, and national security objectives.

ACSIM issues design codes (0-9) to USACE to authorize a project's movement through this system. Definitions are:

- 0 - Planning Charrette is approved for centralized funding.
- 1 - Project is authorized for AE selection, but no contract award.
- 2 - Project is authorized for preparation of a concept design (35% of total design effort).
- 3 - Project is authorized for parametric design (about 15% of the total design effort).
- 4 - Project design is withheld pending issue of a supplemental design directive.
- 5 - Project is deferred from the program. Do not start design. If concept or final project design has been started by in-house personnel, it will be discontinued. If concept or final design is being performed under an AE contract, it will be terminated or completed, whichever best serves the government. Completed work will be retained for future use.
- 6 - Project is authorized for final design.
- 7 - Preparation of an RFP for a design-build project is authorized.
- 8 - Project is cancelled.

  A. Authority to Advertise
- 9 - Construction contract is authorized for award.

Programming Documentation

The facility proponent is responsible for developing the appropriate programming documentation. DA 415-28 identifies the proponent for each facility type, and describes the proponent as "advocate that defines the requirement and defends the requirement".

Many programs require Department of Defense (DD) Form 1391 to document construction and major renovations. This form is the principal construction project justification document. Although prepared at installation level, these forms are seen or reviewed throughout the Army, OSD, and Congress. Military Construction, Army (MCA) is one of the few appropriations approved as budget line items.

A DD Form 1391 is broken into distinct parts or "tabs." Typically, tabs A and B are sent to OSD and Congress as part of the Army's Military Construction Justification Book.

1. Tab A (the "front page") is a synopsis of document details. It provides project description, construction cost, scope, and project justification.
2. Tabs B-J ("supporting documentation") include detailed information on the analysis of economic, environmental, planning, demolition, antiterrorism, communication, and a myriad of other issues that affect the cost and scope reflected in Tab A.

A DD Form 1391 must include:

- Cost and scope
- Justification
- Analysis of deficiency
- Alternatives considered with related economics
- Functional requirements
- Criteria used
- Related acquisitions
- Utility impacts
- Environmental documentation
- Completed planning, signatures, and coordination actions
- A project site
- DD Forms 1391 should be examined annually to ensure that the project as described and estimated is still the one required. Concurrence by the Real Property Planning Board (RPPB) guarantees the project's inclusion in the installation's Capital Investment Strategy (CIS). Refer to DA PAM 415-15 for

Contacts Needed

- **DD Form 1391 Processor: U.S. Army Engineering and Support Center - Huntsville, ATTN: CEHNC-ED-EA**
- **P.O. Box 1600**
- **Huntsville, AL 35807-4301**
- **Phone: (256) 895-1300**

Web Site: http:// www.hnd.usace.army.mil

information and guidance on completing the DD Form 1391. For instruction in using the DD Form 1391 Processor, contact the US Army Engineering and Support Center. [http:/ / www.hnd.usace.army.mil/].

Purpose

Army installations use a number of regulations and funding mechanisms to program construction and renovation of facilities identified in the RPMP. Appropriated funds are those normally budgeted, such as Operations and Maintenance, Army (OMA), or those Congressionally authorized and appropriated, such as Military Construction, Army (MCA). Non-appropriated, private or other funds are also used such as AAFES, DoDDS, DeCA, and host nation sources (PIK, ROK). Table 10-2 lists typical funding category types. Refer to governing regulations for approval processes.

Table 10.2 Programming Fund Types

FUND TYPE	GOVERNING REGULATION	REQUIRES DD FORM 1391
Military Construction; Army (MCA) Base Realignment and Closure (BRAC) Military Construction; Army Reserve (MCAR) Military Construction; Army National Guard (MCANG)	AR 420-1/DA Pam 415-15	yes
Unspecified Minor Military Construction, Army (UMMCA)	AR 420-1	yes
Medical Military Construction (MED MILCON)	AR 420-1	yes
Army Family Housing (AFH) , Unaccompanied Personnel Housing (UPH)	AR 420-1	yes
Operations & Maintenance, Army (OMA)	AR 420-10	yes[a]
Non-Appropriated Fund (NAF)	AR 420-1	yes
Army Working Capital Fund (AWCF)	AR 700-90 The DWCF Handbook [http:/ / www.dod.mil/ comptroller/ icenter/ dwcf/ dhintro.htm]	yes

[a]If project exceeds specified amount

Lessons Learned

- Write a very detailed DD Form 1391.
- Follow the money. Know what source best fits your need and go after it, OMA, MCA, UMMCA, etc. Congressionally added projects are a way of life (at least in CONUS). Keep a small ($0-$5M), medium ($5-$10M) and large ($10-$15M) project ready to go at all times in case your representative asks... "how can I help you?"

- Provide direction to the design/build community: the installation has to run the show; be sure the execution agent adheres to the master plan.

10.7.2 Military Construction, Army (MCA)

The MCA Program is derived from projects within the installation's Capital Investment Strategy (CIS). The CIS establishes priorities for determining funding requests. All installation construction requirements comprise its future construction program.

The Four Stages of the MCA Programming Process:

Guidance year (GY) In the GY, Headquarters, Department of the Army (HQDA) publishes The Army Plan (TAP) and the Army Planning and Programming Guidance Memorandum. These incorporate general instructions, current policy, and resource guidance for facilities from the latest Program Budget Guidance (PBG). Army Commands, Army Service Component Commands, and Direct Reporting Units (like IMCOM) submit a Program Objective Memorandum (POM) that contain updated construction programs for the POM period.

Leveraging Technology

- DD Form 1391 Processor
- Automated cost estimating systems
- ECONPACK system

First year POM projects are reviewed by the HQDA in the previous year, and the designs are released. Second year POM Projects are submitted for review,validated, ranked, and recommended for design by the HQDA Construction Requirements Review Committee (CRRC) at the annual Project Review Board (PRB). These reviews are scheduled before POM submission. This ensures that projects programmed for the first year (both design-build and design-bid-build) meet the parametric design milestone by 1 April of the following design year.

Products

- DD Form 1391 and supporting documentation

Design year (DY) During the DY, the Army prepares its POM for submission to OSD. It uses the design estimates to project an accurate budget number. Following the OSD Program Decision Memorandum (PDM), both first- and second-year projects are included in the Army's Budget Estimate Submission (BES) to OSD in September if it is a POM submission. If not, changes to the first year are only submitted to OSD during a Program Change Proposal (PCP) year.

Budget Year (BY) During the BY, the Army defends its projects before OSD, OMB, and Congress. Early in the BY, OSD reviews the construction projects contained in the Army's program. OSD then releases a Program Budget Decision (PBD), addressing the changes it intends to make. Generally, OSD decrements programs, based on political, funding, or other issues. The Army has the ability to comment (reclama) on these decisions. It then incorporates OSD-directed revisions before submission of the President's Budget (PB) to Congress in January. During the BY, the final design of the first-year projects is completed.

Program Year (PY) In the PY, or execution year, funds are made available for construction of first-year projects. During the PY, final design of the second-year projects is completed.

Preparing the Installation's Submittal

Submittal STEP 1: The garrison prioritizes construction projects based on guidance from ACSIM. The construction projects should be prioritized using the web-based HQ IMCOM Project Prioritization System (PPS) . The garrison forwards the prioritized projects to the IMCOM Region and/or the mission tenant parent organization.

Submittal STEP 2: The garrison typically develops two sets of prioritized projects - mission and base operations. Mission projects are submitted by mission tenants to their parent organization, usually an Army Command. Prior to having the RPPB prioritize a mission project, the planner should confirm that the proponent MACOM is aware of, and supports, the mission tenant's requirement. It is a waste of priority to make a mission project an installation priority, only to find out the proponent MACOM knew nothing about the tenant's request and cannot support it in the near term. Base operations projects (which include Army Family Housing) are submitted through IMCOM. The Installation derives prioritized projects from the CIS of the RPMP, covering the 5-7 year POM period. These comprise the installation's Future Years Programs (FYP).

Tip

Do not confuse the FYP with the Army's Future Years Defense Program (FYDP). The FYDP is the *only* official document that ties programmed projects to a fiscal year.

Submittal STEP 3: The Installation submits supporting project program documentation for each project, including the primary construction document – DD Form 1391. This is developed electronically using the DD Form 1391 Processor System (a PAX subsystem). These documents are used by IMCOM, Army Commands, HQDA, OSD, and the Congress to assess requirements. Refer to DA PAM 415-15 Army Military Construction Program Development and Execution for guidance on preparing DD Forms 1391.

Submittal STEP 4: HQDA merges all priority lists from all sources, and recommends a priority list for DA G-3/5/7 approval. This approved list is the basis for the Army's FYDP, and submission to OSD, Congress, and the President.

Project Certification

Certification STEP 1: Typically, certifications are only performed as updates to projects that were developed by the installation using a planning charrette process, or those that previously underwent the process. Charrettes can either be performed by the installation or as a contracted effort. Section 10.8.4, "Charrettes"

References

- AR 420-1 Army Facilities Management
- AR 210-50: Housing Management
- AR 420-10: Management of Installation of Directorates of Public Works
- DA PAM 415-15: Army Military Construction Program Development and Execution
- DA PAM 420-11: Project Definition and Work Classification
- PAX System
- AR 700-90: The Army Industrial Base Process
- AWCF Source: OSD Comptroller, iCenter [http:/ / www.dod.mil/ comptroller/ icenter/ dwcf/ gatewayarmy.htm]
- The DWCF Handbook [http:/ / www.dod.mil/ comptroller/ icenter/ dwcf/ dhintro.htm]
- FY 1997 - 2001 POM Preparation Instructions
- DD Form 1391 Processor: contact the US Army Engineering and Support Center – Huntsville, ATTN: CEHNC-ED-EA, PO Box 1600, Huntsville, AL 35807-4301, phone (256) 895- 1300. The US Army Engineering and Support Center's web site [http:/ / www.hnd.usace.army.mil/].
- PBBE Process

Certification STEP 2:

The IMCOM (typically the Region) will conduct a project review to ensure:

- Requirements are valid
- Requirements conform to current objectives, policies, priorities, and procedures
- Project sitings are consistent with the installation RPMP

- Requirements are valid
- Requirements conform to current objectives, policies, priorities and procedures
- Project sitings are consistent with the installation RPMP

The IMCOM engineer then certifies that all planning and related coordination is complete, and that IMCOM obtained certification from the design agent. This is done through electronic signature entered into Tab C of the DD form 1391. Concurrent with the IMCOM review, a subordinate command of the U.S. Army Corps of Engineers (USACE) reviews the project submitted by the IMCOM region for compliance with prescribed standards and criteria, as well as cost engineering estimates. If documentation is sufficient, USACE will issue a certification to start design, except: if a planning charrette has been performed with USACE involvement, the completed planning charrette validation form (Tab C) will suffice for USACE certification. Typically, USACE certification (DD Form 1391 Tab B) requires funding. Therefore, installations should either budget for this or request centralized funding from HQDA (OACSIM, DAIM-FDC).

In addition to the USACE review, IMCOM requests that U.S. Army Information System Engineering Command – Fort Detrick Engineering Directorate (USAISEC–FDED) – review the information systems requirement and cost estimate for technical adequacy. It then certifies projects in Tab F of the DD Form 1391.

Certification STEP 3: Once certification is complete, IMCOM submits the DD Form 1391 to HQDA for further review and processing. Certifications and/or charrettes are required for projects presented at the HQDA Construction Requirements Review Committee (CRRC) Project Review Boards (PRB). PRBs are usually held every March.

10.7.3 Unspecified Minor Military Construction, Army (UMMCA)

Programming Unspecified Minor Military Construction, Army (UMMCA) projects is addressed in AR 420-1 Army Facilities Management.

Military installations may execute UMMCA projects with costs as outlined in 10 USC Code 2805 and as amended annually. Although any project fitting the criteria can compete for UMMCA funding, urgency of need determines the Army program. As soon as these projects are identified and documented, the garrison notifies the supporting IMCOM Region of the requirement. IMCOM reviews the documentation and coordinates mission projects with the appropriate Army Command. IMCOM then submits projects to HQDA using the DD Form 1391 Processor System.

10.7.4 Medical Military Construction (MED MILCON)

Programming for medical facilities is addressed in AR 420-1 Army Facilities Management. The Office of the Surgeon General (OTSG) is the Army proponent for all military construction projects classified in:

- Category Code Facility Class 500 (Health Care Delivery Medical Facilities)
- Category Code 31060 (Medical Research Laboratories)
- Medical Training Facilities in Category Codes 171 and 179

Five-digit facility code designations are assigned per AR 415-28. If a Category Code Facility Class 500 project includes functions outside its classification, it is still classified as a 500 series if any one of the following conditions is met:

- Over 50 percent of space is in the 500 series
- Over 50 percent of cost is for 500 series functions
- There is a written mutual agreement between the Army OTSG and the Defense Medical Facilities Office (DMFO)

Programming for Army MED MILCON begins two years earlier than MCA projects for the same program year. Submission follows medical command lines to the OTSG. Individual medical units submit project requirements to the senior installation medical representative, who coordinates the requirements into the Medical RPMP and Medical Capital Investment Strategy (MED CIS). These projects are then submitted to their respective medical commands. Each Medical Command submits its prioritized projects to OTSG. Medical Commands outside the continental United States (OCONUS MEDCOMs) submit to OTSG through their IMCOM Region office.

10.7.5 Army Family Housing (AFH)

Congress authorizes and/or appropriates funds for permanent party and transient Army housing. The funding types are:

- Military Construction, Army (MCA)
- Operations and Maintenance, Army (OMA)
- These accounts are appropriately integrated and balanced in the planning, programming, and budgeting phases of the PPBE. As Congress approves the budget request, each appropriation is independently executed.

AR 420-1 addresses Government owned/controlled Army family housing (AFH).

AR 420-1 also addresses management of the Residential Communities Initiative (RCI) Program. It provides guidance on establishing/ administering rental rates for government owned/controlled housing, and charges for related facilities. It includes policies and procedures for housing managers to effectively support housing requirements of mobilization efforts. Section X specifically addresses the construction, planning, and programming of Army housing and barracks buildings.

10.7.6 Operations & Maintenance Army (OMA)

Procedures for OMA projects are addressed in AR 420-1, Army Facilities Management.

IMCOM Region directors may approve maintenance and repair projects when all of the following conditions are met. (Region approval may be delegated to garrisons):

- The funded project cost does not exceed $5 million
- If funded costs are over $750,000, the repair cost (or repair plus alterations cost for a combined undertaking) does not exceed 50 percent of the replacement cost of the facility.
- A WW II temporary building project has a total maintenance, repair, and alteration cost in excess of $20 per square foot, and the garrison commander has approved the project.
- Environmental documentation was completed in accordance with AR 200-1 and AR 200-2.

If the estimated funded cost of an approved project increases, but the conditions that follow are all met, project execution may continue without further HQDA approval, except for work on WWII buildings. If not all conditions are met, project execution halts immediately until re-approval is obtained. These conditions are:

- The revised funded cost does not exceed $5 million.
- The increase does not exceed 25 percent of the Department of Army (DA) approved funded project cost.
- The funded project cost with increase does not exceed 50 percent of the replacement cost of the facility.
- Environmental and historic preservation documentation was completed in accordance with AR 200-1, AR 200-2, and AR 420-40.

All work on a WWII temporary building halts as soon as it becomes apparent that its projected total funded cost exceeds the specific HQDA cost approval. HQDA must re-approve the project at the higher projected cost before work can resume.

If an OMA project exceeds the approval level of the garrison commander, the following documentation is required:

- Completed DD Form 1391, FY – Military Construction Project Data
- Operational necessity statement
- Decision analysis
- Detailed cost estimate

10.7.7 Non-Appropriated Fund (NAF)

Non-Appropriated Funds (NAFs) derive from sources other than Congress. Generally, they derive from service fees to military personnel, their families, and civilians, along with commissary store surcharges and private funds. NAFs may be used only when authorized and where appropriated funds (APF) are not authorized, or when authorized appropriated funds are unavailable. NAF project programming is addressed in AR 420-1.

If the installation can demonstrate that the separate elements of a single construction project serve different purposes, the installation may combine appropriated funds with non-appropriated funds, if necessary. Appropriated and non-appropriated funds cannot be combined, however, to increment projects or to circumvent statutory limitations.

The U.S. Army Corps of Engineers Installation Support Center approves any construction project with a combined funding source in excess of $300,000 in appropriated funds and $200,000 NAF. If less than that, the IMCOM Region can approve the combined funded project. Separate projects with different funding sources may be combined for contracting purposes without prior approval. However, costs for each project must be clearly identifiable, and separate bids must be obtained under a single solicitation.

Appropriated and non-appropriated funds may be combined in a single contract for projects at the same location, such as multi-purpose, joint usage facilities. A separate DD Form 1391 must be prepared for each appropriated and nonappropriated component. See AR 215-1 for detailed instructions for combined funding, and AR 420-1 for DD Form 1391 requirements for conjunctively funded projects.

10.7.8 Army Working Capital Fund (AWCF)

The AWCF is the Army component of the Defense Working Capital Fund (DWCF).

The Army operates a significant number of its commercial and industrial facilities under the revolving fund concept. This encourages more efficient, cost-effective operation of activities, and provides the flexibility needed to manage facilities under changing workload conditions.

The AWCF groups these activities on a break-even basis, and sets revenue rates to achieve positive or negative results, in order to bring the Accumulated Operating Result (AOR) to zero over the budget cycle.

Refer to the following sources for additional material:

- http://www.dod.mil/comptroller/icenter/dwcf/gatewayarmy.htm
- The DWCF Handbook [http:/ / www.dod.mil/ comptroller/ icenter/ dwcf/ dhintro.htm]

Approval and Maintenance

Approval: All programmable actions are reviewed by IMCOM and approved by the RPPB and senior mission commander.

Maintenance: DD Forms 1391 should be annually reviewed to ensure that project descriptions and estimates are still valid and meet the installation's need. Annual concurrence by the Real Property Planning Board ensures the project's inclusion in the Capital Investment Strategy.

10.8 Tools and Techniques

10.8.1 Tools and Techniques Introduction

This section provides a description of tools and techniques that are used to develop the RPMP. The first section contains a discussion of eight tools that are specific to the Army; these have no purpose or use outside of the Army but are critical to Real Property Master Planning. The remaining four sections discuss tools that are used both outside and within the Army. These sections are general to the planning profession and can be applied similarly during Real Property Master Planning. These tools are listed below:

- Section 10.8.2, “Army-Specific Tools”
- Section 10.8.3, “Geographic Information Systems (GIS)”
- Section 10.8.4, “Charrettes”

10.8.2 Army-Specific Tools

10.8.2.1 Army-Specific Tools Introduction

Description

The Office of the Assistant Chief of Staff for Installation Management (OACSIM) has maintained a continuous effort to standardize installation infrastructure management to include both qualitative and quantitative analysis. The result is an integrated group of systems used for planning, programming, and evaluating installations. Six of these tools are listed below:

- Real Property Planning and Analysis System (RPLANS)

Stand-alone systems that provide vital functions for the Army, as well as data integral to RPLANS:

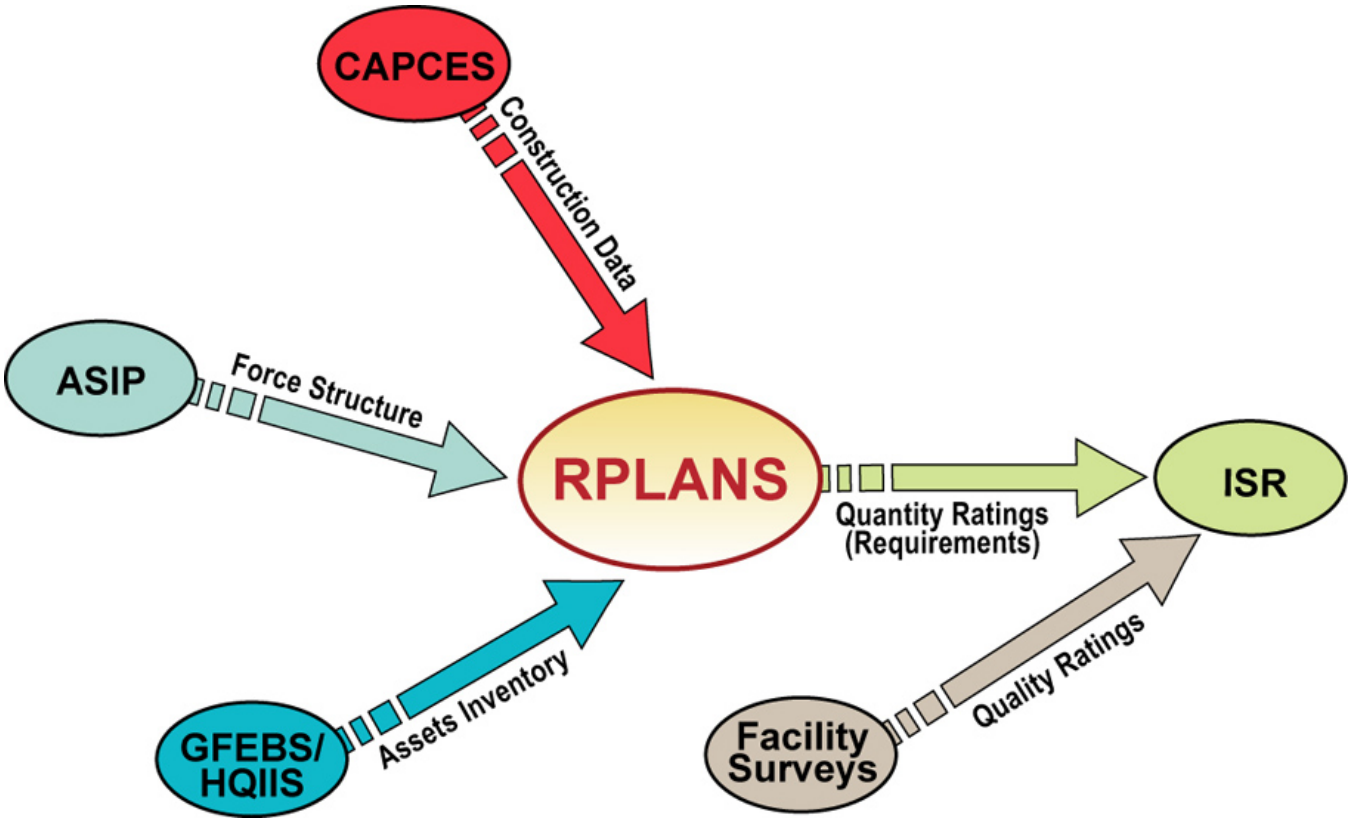
- Headquarters Installation Information System (HQIIS)
- General Fund Enterprise Business System (GFEBS)
- Construction Appropriation Programming Control and Execution System (CAPCES)
- Army Stationing and Installation Plan (ASIP)

A system, dependent on RPLANS for much of its data, that provides functionality independent of RPLANS:

- Installation Status Report (ISR)

These systems, the primary components of the Army's integrated system of planning tools, provide horizontal and vertical consistency for installation planning and analysis. Figure 10.15, “The Army's Integrated System of Planning Tools” illustrates the relationships between these systems.

Figure 10.15 The Army's Integrated System of Planning Tools



The TAB is the basis for evaluating installation infrastructure needs. Through a formula, information needed to develop and maintain a TAB is assembled, whether through automated systems or as a "stubby pencil" drill.

Figure 10.15, “The Army's Integrated System of Planning Tools” describes the TAB process in detail, and focuses on the use of the Army's legacy planning systems in producing and maintaining a balanced TAB.

10.8.2.2 Real Property Planning and Analysis System (RPLANS)

Description

Overview

The Real Property Planning and Analysis System (RPLANS) is an automated Master Planning tool that reports installation force structure, assets, and facility allowances. RPLANS gathers force structure asset and allowance data from external sources (see Figure 10.15, "The Army's Integrated System of Planning Tools"), and allows users to input requirements data. RPLANS aggregates these data to compute Tabulations of Existing and Required Facilities for units/organization and the installation.

Tip

ISR installations are those that participate in the annual installation status reporting process.

RPLANS produces the TAB using the principles described in Section 6, *Tabulation of Existing and Required Facilities*,Tabulation of Existing and Required Facilities. RPLANS can also produce reports that show how ASIP, inventory, and construction data are aggregated for the purposes of analysis in RPLANS. Data from RPLANS supports a number of other Army automated systems.

Building Blocks of RPLANS

Stakeholders

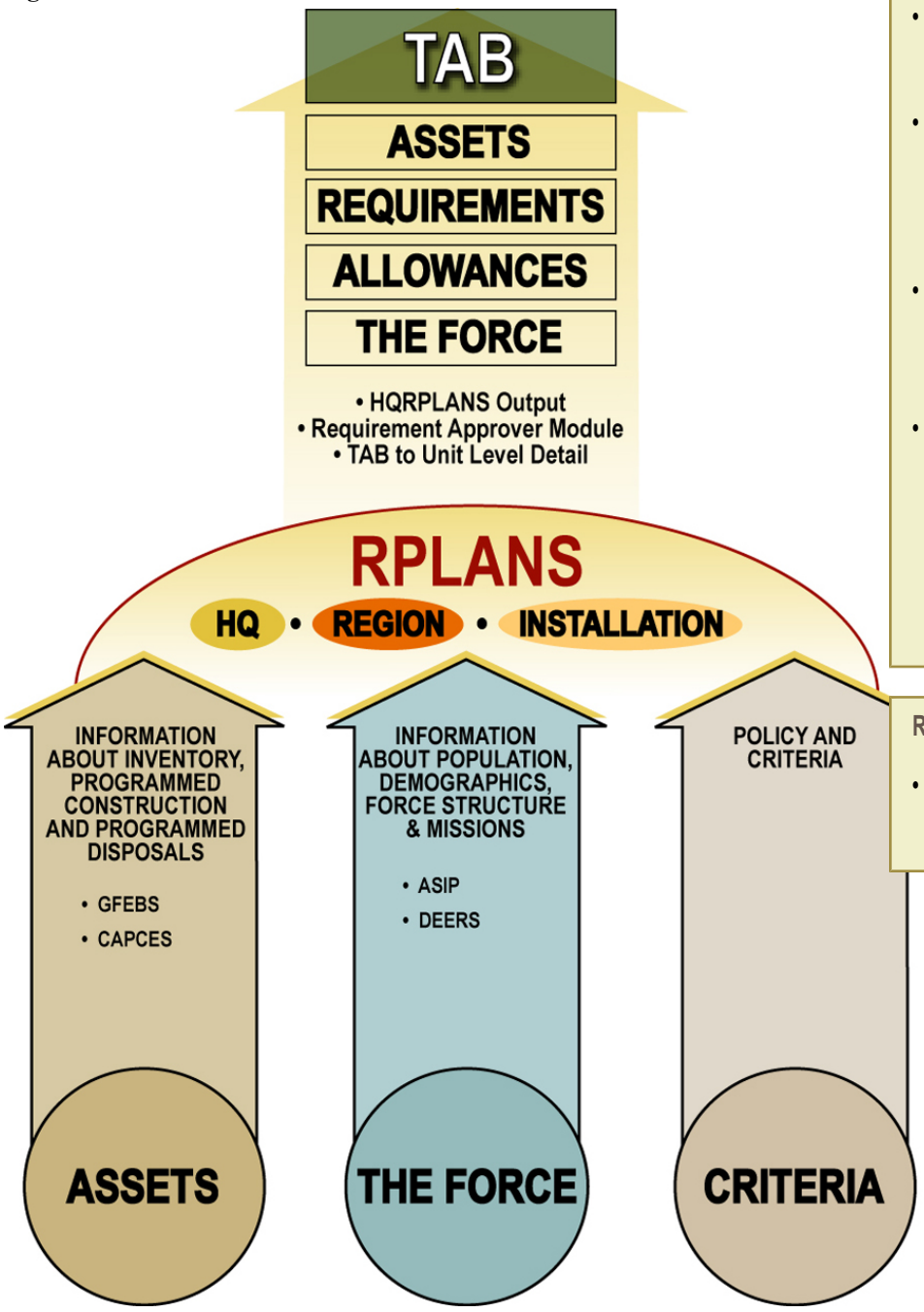
ACSIM Plans and Operations Division is the proponent

Tools / Data Needed Installation Input

Garrisons may edit requirements at UIC, FCG, or real property installation (INSNO) level. Edited requirements are submitted to the IMCOM Region for approval. Approved requirements are provided to HQRPLANS during semi-annual updates.

There are three "pillars" of information that RPLANS uses to produce the TAB – Assets, The Force, and Criteria. Figure 10.16, "Pillars of the TAB" illustrates the pillars of the TAB; each pillar is supported by one or more automated systems.

Figure 10.16 Pillars of the TAB



Products / Output

- The ASIP provides a variety of reports that identify installation populations and strengths by UIC, major command, and IMCOM Region.
- Analytical reports include TABs, requirements analysis, facility analysis, and maintenance analysis reports.
- Supporting data reports provide installation and unit ASIP reports, ASIP comparison reports, construction data reports, and Real Property Inventory reports.
- Reference reports provide background and systems information on planning factors and other data elements generated to support RPLANS analysis.
- Stationing analysis reports show the results of stationing on an installation, including after-stationing TABs, construction requirements due to proposed stationing, and changes in estimated maintenance costs after re-stationing.

References

- RPLANS Web Site [https://webrplans.hqda.pentagon.mil]

Pillar 1 – Assets

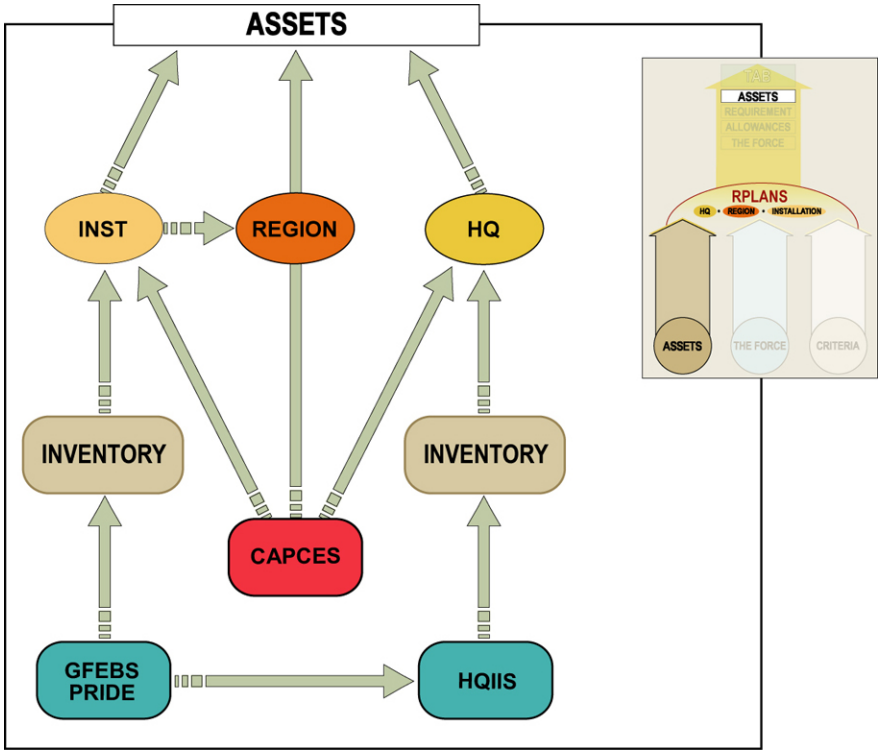
The first pillar consists of Assets data – existing inventory, programmed construction, and planned disposals.

Information on programmed construction is taken from the Future Years Defense Program (FYDP) by ACSIM and included in RPLANS.

In principle, programmed disposals or demolition are considered; however, as a matter of policy, installations do not receive credit for disposal or demolition until a facility has been removed from the inventory.

This information is maintained at the installation and in the Construction Appropriation Programming Control and Execution System (CAPCES). Assets data is illustrated in Figure 10.17, "Assets".

Figure 10.17 Assets



Pillar 2 – The Force

The Force contains information on force structure, missions, populations, and demographics that is needed to determine requirements.

The Force data is derived from several sources not usually associated with the engineering community, including:

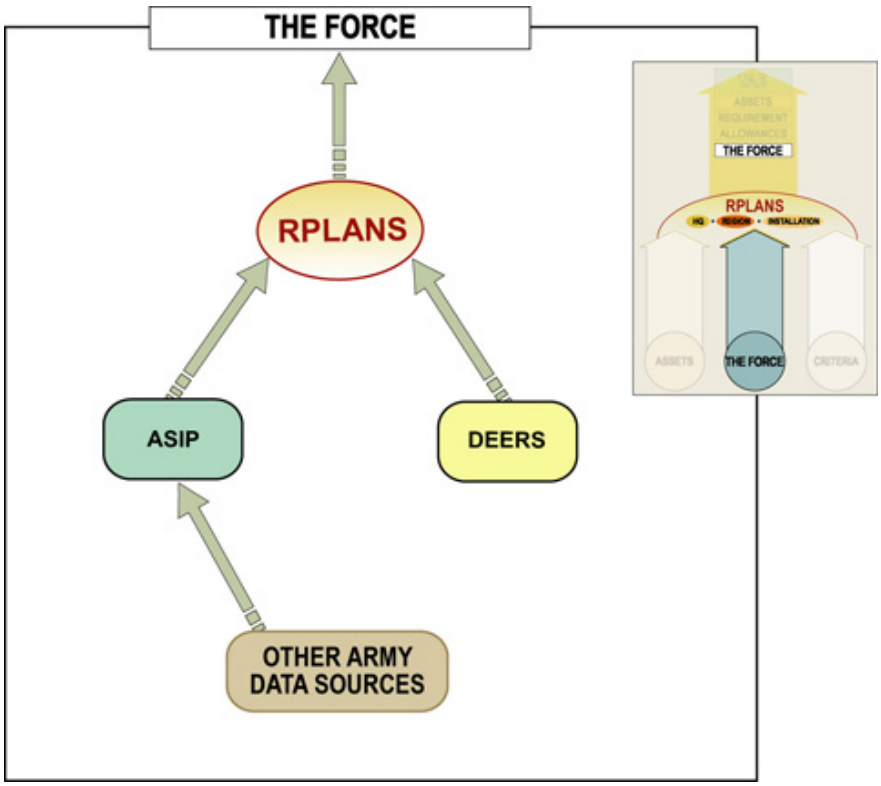
- The Structure and Manpower Allocation System (SAMAS)
- The Army Automated Documentation System (TAADS)
- The TRADOC Documentation System (TDS)
- The Army Training Resource Requirements System (ATRRS)

These sources influence the Army Stationing and Installation Plan (ASIP). Each installation has a designated ASIP Manager who is responsible for maintaining the force structure data in the ASIP and for updating the ASIP at least once a year.

The ASIP provides a troop list by Unit Identification Code (UIC) of units and organizations at a particular place. Authorized military, U.S. Civilian, and other civilian strengths are shown. RPLANS provides information on force structure, grade distribution, military occupational specialties, and other data (training strengths, etc.) needed to determine demographics in order to facilitate allowance calculation. The Defense Eligibility Enrollment and Reporting System (DEERS), provides marriage data by installation. Barracks, family housing allowances, and support algorithms for dependents for community and MWR facilities are based on this information.

RPLANS integrates the data from all these sources to define The Force as it relates to each different Facility Category Group (FCG). The Force data is illustrated in Figure 10.18, "The Force".

Figure 10.18 The Force



Pillar 3 – Criteria

The Criteria pillar addresses the basis for space allocation and whether appropriate conditions exist.

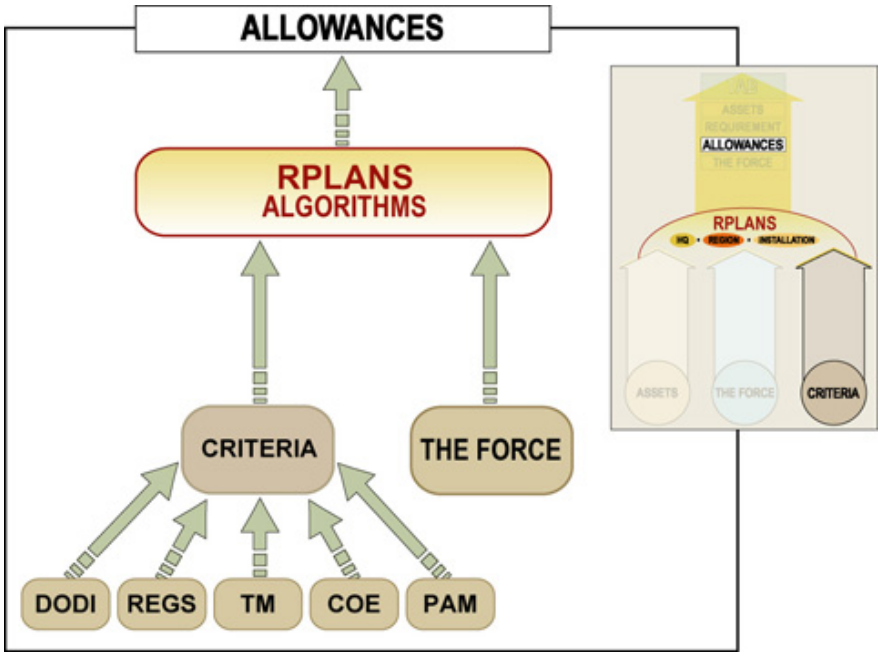
The RPLANS gathers criteria, including policy and technical information, from various sources. Each criterion is established at Category Code level.

For each installation, RPLANS combines criteria with The Force (generated from the ASIP and DEERS). RPLANS uses algorithms to calculate FCG allowances by UIC, INSNO (site), or Command Code (base).

RPLANS calculates unit allowances by TOE and TDA, and then matches them with UICs, based on information contained in the ASIP. Allowances data is illustrated in Figure 10.19, “Criteria”.

RPLANS calculates the allowances for OTOE and TDA in over 50 category codes. These are primarily unit level codes, such as general-purpose admin, unit headquarters, maintenance facilities, instructional buildings, and organizational parking. This calculation is done by algorithms using DA-approved criteria and various data elements from the OTOE or TDA document, such as strength figures, equipment counts, and position or job codes. To show an allowance and how it was calculated in RPLANS, a category code and organization are selected. This allowance is reflected by RPLANS.

Figure 10.19 Criteria



Requirements

"The Force," comprised of populations, units, and missions, is evaluated by "Criteria," policies that determine the type and amount of facility space allowed. "Allowances" are an objective statement of requirements, one based solely on automated analysis of corporate data. Allowances are then compared to "Assets" (inventory plus programmed construction). This process provides an initial quantitative status of an installation's ability to support its units, missions and populations with infrastructure.

Without further action from the Master Planner, the allowances in RPLANS are assumed to be an accurate statement of facility requirements, and are treated as such at HQDA.

RPLANS does, however, provide the user the capability to edit requirements to reflect missions, personnel, facilities, equipment, or other factors at the installation that cannot be captured in the automated systems. These other factors can impact facility requirements, and the Master Planner should follow the steps outlined in Section 6, *Tabulation of Existing and Required Facilities*, to determine the impacts of these factors, and then use the RPLANS editor to enter the requirements in the system. Note that requirements edits over a certain threshold require the approval of the IMCOM Region Office.

Purpose

The primary purpose of RPLANS is to help users assess the facility needs of the installation. RPLANS is designed to assess facility needs at three levels:

- Installation
- Installation Management Command (IMCOM) Region
- Department of the Army (HQDA)

At all levels, users share a common need to correlate data about real property assets, installation force structure, and facility allowances and requirements. RPLANS helps the Master Planner develop facility requirements for individual units and organizations as well as the installation. The RPLANS stationing module helps Master Planners determine the facility impacts of adding or removing units or organizations.

Update Cycle

RPLANS is updated semi-annually. Real Property Inventory data can be updated as needed at the installation level, but must be updated at least twice a year. Requirements can be updated in RPLANS at any time, using the RPLANS requirements editor. Regions approve edited requirements.

Related Tools

The RPLANS suite of systems receives data directly from the ASIP and GFEBS/HQIIS. It is indirectly supported by the ISR and CAPCES. RPLANS feeds the ISR.

Relationship to Master Plan Components

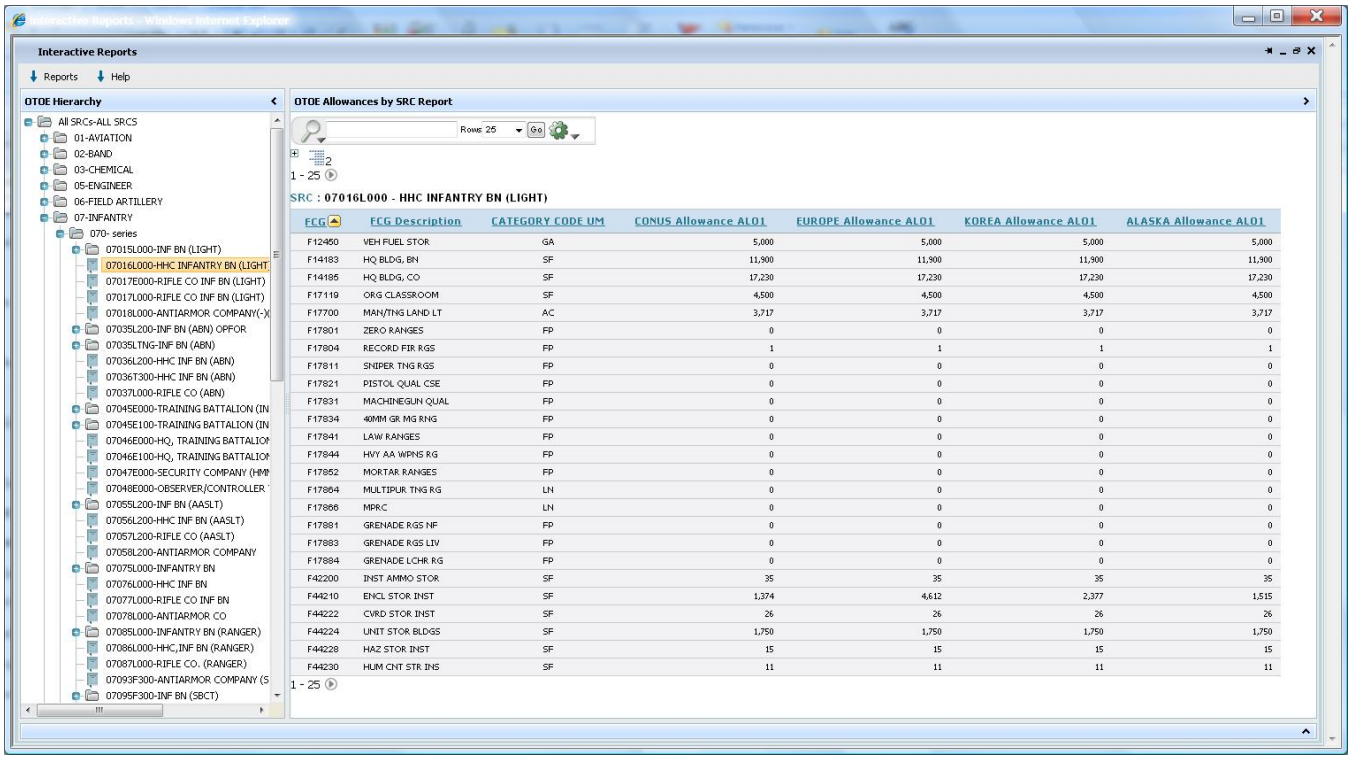
RPLANS produces the TAB, a major portion of the Capital Investment Strategy.

Access

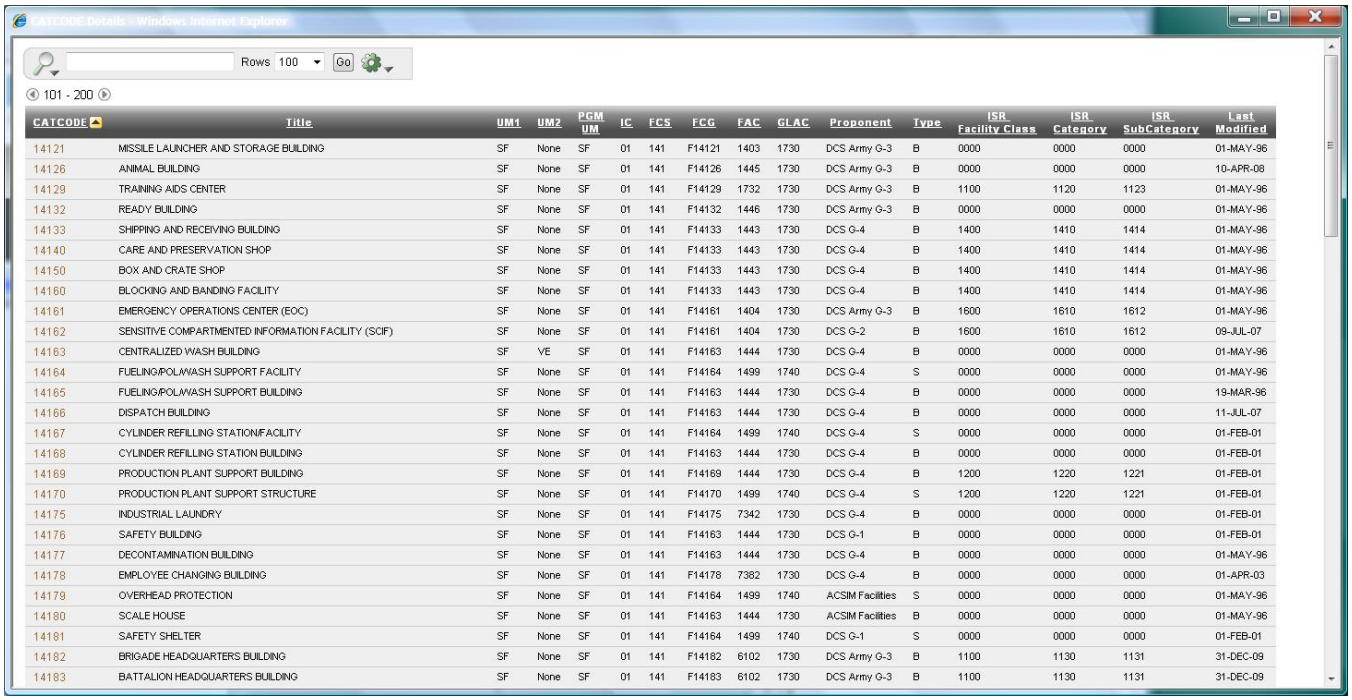
Installations can access RPLANS at the following site: https://webrplans.hqda.pentagon.mil

Examples

Example 10.4 OTOE Allowances by SRC Report



Example 10.5 Cat Codes List



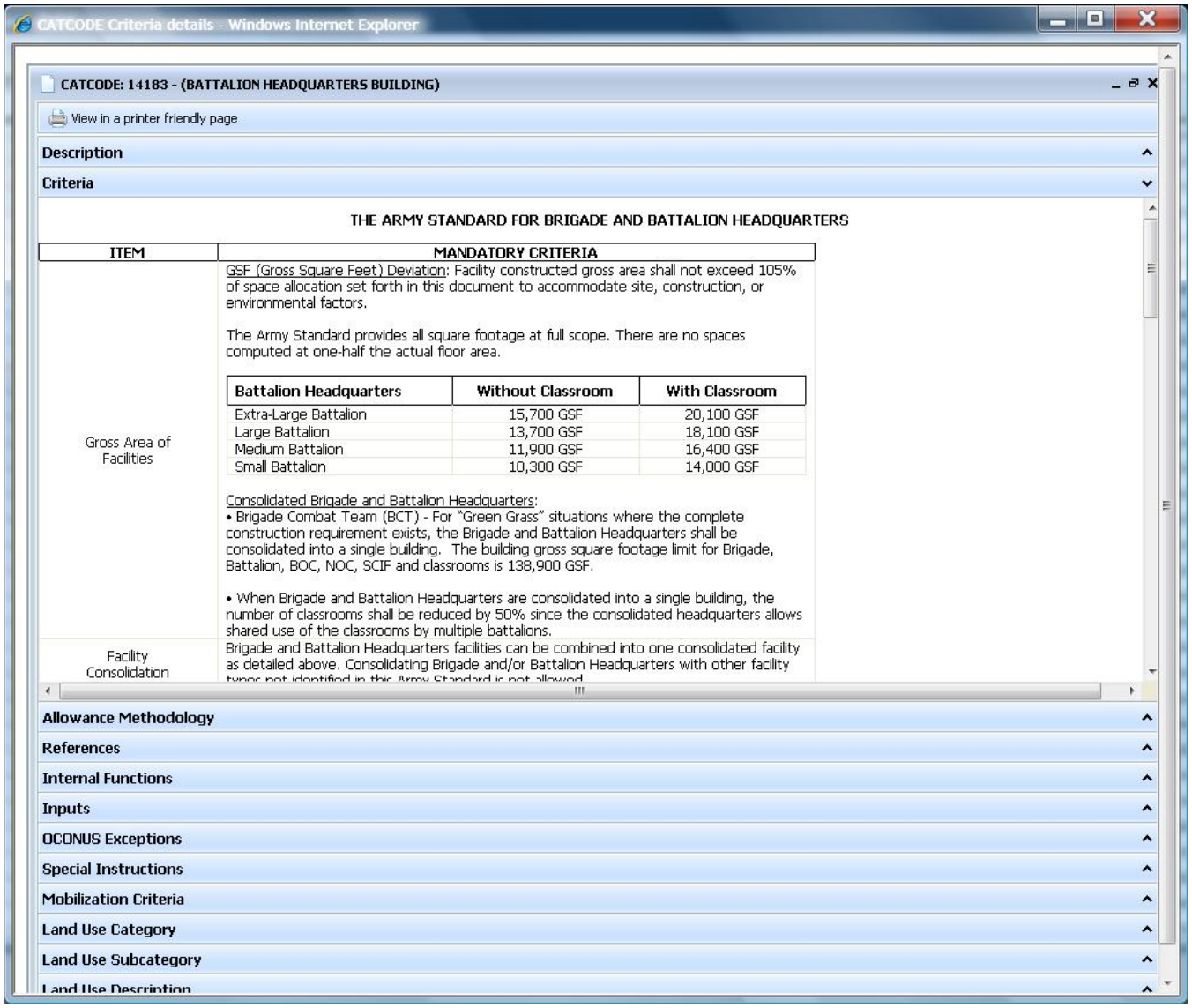
CATCODE Details - Windows Internet Explorer

Rows 100 Go

101 - 200

CATCODE	Title	UM1	UM2	PGM UM	IC	FCS	FCG	FAC	GLAC	Proponent	Type	ISR Facility Class	ISR Category	ISR SubCategory	Last Modified
14121	MISSILE LAUNCHER AND STORAGE BUILDING	SF	None	SF	01	141	F14121	1403	1730	DCS Army G-3	B	0000	0000	0000	01-MAY-96
14126	ANIMAL BUILDING	SF	None	SF	01	141	F14126	1445	1730	DCS Army G-3	B	0000	0000	0000	10-APR-08
14129	TRAINING AIDS CENTER	SF	None	SF	01	141	F14129	1732	1730	DCS Army G-3	B	1100	1120	1123	01-MAY-96
14132	READY BUILDING	SF	None	SF	01	141	F14132	1446	1730	DCS Army G-3	B	0000	0000	0000	01-MAY-96
14133	SHIPPING AND RECEIVING BUILDING	SF	None	SF	01	141	F14133	1443	1730	DCS G-4	B	1400	1410	1414	01-MAY-96
14140	CARE AND PRESERVATION SHOP	SF	None	SF	01	141	F14133	1443	1730	DCS G-4	B	1400	1410	1414	01-MAY-96
14150	BOX AND CRATE SHOP	SF	None	SF	01	141	F14133	1443	1730	DCS G-4	B	1400	1410	1414	01-MAY-96
14160	BLOCKING AND BANDING FACILITY	SF	None	SF	01	141	F14133	1443	1730	DCS G-4	B	1400	1410	1414	01-MAY-96
14161	EMERGENCY OPERATIONS CENTER (EOC)	SF	None	SF	01	141	F14161	1404	1730	DCS Army G-3	B	1600	1610	1612	01-MAY-96
14162	SENSITIVE COMPARTMENTED INFORMATION FACILITY (SCIF)	SF	None	SF	01	141	F14161	1404	1730	DCS G-2	B	1600	1610	1612	09-JUL-07
14163	CENTRALIZED WASH BUILDING	SF	VE	SF	01	141	F14163	1444	1730	DCS G-4	B	0000	0000	0000	01-MAY-96
14164	FUELING/POL/WASH SUPPORT FACILITY	SF	None	SF	01	141	F14164	1499	1740	DCS G-4	S	0000	0000	0000	01-MAY-96
14165	FUELING/POL/WASH SUPPORT BUILDING	SF	None	SF	01	141	F14163	1444	1730	DCS G-4	B	0000	0000	0000	19-MAR-96
14166	DISPATCH BUILDING	SF	None	SF	01	141	F14163	1444	1730	DCS G-4	B	0000	0000	0000	11-JUL-07
14167	CYLINDER REFILLING STATION/FACILITY	SF	None	SF	01	141	F14164	1499	1740	DCS G-4	S	0000	0000	0000	01-FEB-01
14168	CYLINDER REFILLING STATION BUILDING	SF	None	SF	01	141	F14163	1444	1730	DCS G-4	B	0000	0000	0000	01-FEB-01
14169	PRODUCTION PLANT SUPPORT BUILDING	SF	None	SF	01	141	F14169	1444	1730	DCS G-4	B	1200	1220	1221	01-FEB-01
14170	PRODUCTION PLANT SUPPORT STRUCTURE	SF	None	SF	01	141	F14170	1499	1740	DCS G-4	S	1200	1220	1221	01-FEB-01
14175	INDUSTRIAL LAUNDRY	SF	None	SF	01	141	F14175	7342	1730	DCS G-4	B	0000	0000	0000	01-FEB-01
14176	SAFETY BUILDING	SF	None	SF	01	141	F14163	1444	1730	DCS G-1	B	0000	0000	0000	01-FEB-01
14177	DECONTAMINATION BUILDING	SF	None	SF	01	141	F14163	1444	1730	DCS G-4	B	0000	0000	0000	01-MAY-96
14178	EMPLOYEE CHANGING BUILDING	SF	None	SF	01	141	F14178	7382	1730	DCS G-4	B	0000	0000	0000	01-APR-03
14179	OVERHEAD PROTECTION	SF	None	SF	01	141	F14164	1499	1740	ACSIM Facilities	S	0000	0000	0000	01-MAY-96
14180	SCALE HOUSE	SF	None	SF	01	141	F14163	1444	1730	ACSIM Facilities	B	0000	0000	0000	01-MAY-96
14181	SAFETY SHELTER	SF	None	SF	01	141	F14164	1499	1740	DCS G-1	S	0000	0000	0000	01-FEB-01
14182	BRIGADE HEADQUARTERS BUILDING	SF	None	SF	01	141	F14182	6102	1730	DCS Army G-3	B	1100	1130	1131	31-DEC-09
14183	BATTALION HEADQUARTERS BUILDING	SF	None	SF	01	141	F14183	6102	1730	DCS Army G-3	B	1100	1130	1131	31-DEC-09

Example 10.6 Cat Codes Criteria Details



10.8.2.3 Headquarters Installation Information System (HQIIS)

Description

HQIIS is a data warehouse for federally managed Real Property Inventory (RPI) data and for Sustainment, Replacement, and Modernization (SRM) budgeting. It is designed to allow users easy access to data without knowledge of Structured Query Language (SQL) or specialized computer skills. It is a multi-dimensional database that provides standard graphical, tabular, and spatial displays for multiple levels and fiscal years. Data may be displayed at the Army, Major Command, installation, base or site levels.

The HQIIS displays data from existing databases and sources such as:

- Real Property Inventory data from GFEBS and National Guard PRIDE system
- Project square-footage from Technical Data Report (TDR)
- Service Based Costing (SBC)
- Army Stationing and Installation Plan (ASIP)
- McKinney Act
- ACSIM's Facility Reduction Plan (FRP) credits
- Headquarters Installation Status Report (HQISR)
- Lease Management Database (LMD)

Purpose

HQIIS is primarily a management tool for Review and Analysis (R&A) and Program Objective Memorandum (POM) development.

Update Cycle

The HQIIS database is updated as new data becomes available. Inventory data is updated quarterly. ISR data is updated annually. UIC data is updated when the ASIP is updated.

Related Tools

HQIIS consolidates Real Property Inventory from the Army and Army National Guard installations. It provides Real Property Inventory data to HQRPLANS.

Relationship to Master Plan Components

HQIIS is a management tool primarily used by HQDA, IMCOM, and IMCOM Regions to verify planning information submitted by installations.

Stakeholders

ACSIM is the proponent of HQIIS. The system is managed and maintained by the software support team at Fort Lee.

Tools / Data Needed

Installation Input

- **The primary installation input is by automated transfer of ISR and GFEBS data.**

Products / Output

- **Real Property Assets**
  - **Summary and Facility Detail Information about an installation**
  - **Plant Replacement Value (PRV)**
- **Army Leases**
- **Facility Condition Assessment**
  - **ISR Condition through Standard FCG Query**
  - **Essential Facility Requirements (EFR) and Installation Status Report (ISR) Static Charts**
- **Planned and Actual Disposal Information**
  - **McKinney Act/HUD List**
  - **Facility Reduction Program (FRP) Credits**
- **Population Information: ASIP Unit Strength**
- **Real Property Cost Information**
  - **RPMA Costs (TDR-FY95-97)**
  - **Service Based Costing Data (SBC) FY96-present**
  - **SRM**

Access

Installations can access this tool at the following site: http://www.acsim-apps.army.mil/

10.8.2.4 General Fund Enterprise Business System (GFEBS)

Description

General Fund Enterprise Business System (GFEBS) is a Department of the Army-approved Standard Army Management Information System (STAMIS) that, along with its predecessor Integrated Facilities System (IFS), has supported the DPW community since 1976. The GFEBS customer base consists of more than 100 Army installations worldwide, Defense Logistics Agency (DLA) installations, and sixteen Army Reserve Centers.

GFEBS addresses the DPW business functions of Real Property, Sustainment Fund Allocation, Work Management, Job Cost Accounting, Work Estimating, Supply and Contract Administration.

Stakeholders

ACSIM is the proponent of GFEBS.

Tools / Data Needed

Installation Input

- **Installations: UIC, Customer ID, design and current use category codes, area assigned by facility and UIC, cost data, capitalization and recapitalization data, Facility Functional Adequacy, SRM coding and planned disposal.**

Products / Output

- **GFEBS directly feeds Installation RPLANS through an automated process initiated by the RPLANS administrator program. This program refreshes Region RPLANS whenever Installation RPLANS is updated.**
- **GFEBS provides real property data to HQIIS, which provides Real Property Inventory data to HQRPLANS.**
- **GFEBS can provide current facility details information using standard reports or ad hoc queries. Information can include assignment by UIC or customer ID, classification details by category code, ownership codes, year built, planned disposal data, and work order information.**

Purpose

GFEBS supports a wide range of work performed by the DPWs. It supports Real Property Master Planning as the real property database of record for active and reserve U.S. Army Installations.

Update Cycle

As a living database, GFEBS change may occur daily. System change packages are installed periodically to enhance capabilities and keep the system current. ASIP UICs are loaded after each ASIP update.

Related Tools

GFEBS provides Real Property Inventory data to HQIIS, RPLANS, and the ISR.

Relationship to Master Plan Components

It is critical that real property records are accurately maintained. As the source of Real Property Inventory data in RPLANS, GFEBS supports the TAB at base, site and UIC level. Inaccurate inventory data distorts the TAB and affects the Capital Investment Strategy and the Capital Investment Plan. Therefore, it is important to have access to GFEBS to regularly verify its accuracy and obtain information through basic queries.

Facility Functional Adequacy is recorded in GFEBS with the Functional Capability Code. Functional Adequacy is a measure of the extent to which an existing building meets the functional features of the AR 415-28 Category Code use that it has been assigned in the RPI. Facility Functional Adequacy IS EXCLUSIVE of physical condition (Quality as recorded in the Installation Status Report (ISR)) and overall Facility Category Group (FCG) quantities as recorded in the Real Property Planning and Analysis

System (RPLANS). Garrisons identify Facility Functional Adequacy Codes in the Real Property Inventory (RPI) and submit OMA modernization projects for Repairably Dysfunctional Operational and Community Support facilities.

10.8.2.5 Construction Appropriation Programming Control and Execution System (CAPCES)

Description

CAPCES is part of the Program Administration and Execution System (PAX). This system lets engineers throughout the world manage and track individual projects in the Military Construction Program through the planning, programming, budget, and execution phases. PAX supports the DD Form 1391 Processor and the Construction Appropriation Programming Control and Execution System (CAPCES) among others.

Note: PAX also support the Economic Analysis Program (ECONPACK), the PC-COST program, the DIRECTIVE Network (DIRNET) system, the Congressional View System, and the Accounting Control System (ACS). See Appendix H, *PAX System Modules* for a full description.

Stakeholders

Programming and Execution Support Office, Directorate of Military Programs, HQUSACE (CEMP-P)

Tools / Data Needed

Installation Input

- **Project data**
- **Initiation of DD Form 1391**
- **Programming Administration and Execution (PAX) website [https://pax.mech.disa.mil]**

Purpose

The CAPCES system provides project and program status reports to Congress, OMB, OSD, Assistant Secretary of the Army Installations and Environment, and various DA, Army Command, and USACE activities.

Update Cycle

The CAPCES system is updated continuously as DD Forms 1391 are edited.

Related Tools

CAPCES provides construction data to the RPLANS suite of systems. The construction data is screened manually by HQDA, and is included only when approved for construction in the POM.

Relationship to Master Plan Components

CAPCES is a tool for executing the MCA program of the Capital Investment Plan.

Access

Headquarters, Department of the Army personnel maintain the CAPCES database. Installations provide input through the DD Form 1391 processor. The PAX system is available at: https://pax.mech.disa.mil.

10.8.2.6 Army Stationing and Installation Plan (ASIP)

Purpose

The ASIP documents the location of every soldier, civilian, and trainee that works for the Army, and everyone with a permanent presence on Army controlled property.

Description

The ASIP is the official Army database of populations on Army installations worldwide. It is based on the Structure and Manpower Allocation System (SAMAS), the Army Authorization Document System (TAADS), and other official Army data sources. The ASIP is a baseline for installation planning. It provides a consistent look at forces to be supported and insight into potential planning issues. ASIP data is also a basis for Military Construction (MILCON), Installation Status Report (ISR) and Base Operations (BASOPS) service requirements, and is used by the Army Staff as the database of record for installation site strengths.

Tip

Installations must provide ASIP input on all non-Army tenants including contractors. Contractors should be broken down by contract level, to account for them in RPLANS requirements edits.

The ASIP also allows installations to review archived historical ASIP data, to help determine the composition of incoming units and organizations.

The ASIP is a web-based application. A user ID and access is available at the ASIP web site.

Purpose

The ASIP provides the troop list for each installation (called "station" in the ASIP). It is incorporated into RPLANS during semi-annual updates, and becomes the basis for both unit and installation allowances.

Update Cycle

The ASIP is updated annually. During periods of increased volatility in the Force, it is updated semi-annually. The normal update cycle is between April and July. Just prior to the annual update release, a brief review cycle is normally provided in August.

Related Tools

The ASIP provides the authorized troop list to the RPLANS suite of programs. It provides authorized UICs for ISR Services.

Stakeholders

The proponent for the ASIP is ACSIM.

Tools / Data Needed

Installation Input

- Parent TOE and TDA organizations are listed in the ASIP in accordance with SAMAS and TAADS.

Products / Output

- The ASIP provides a variety of reports that identify installation populations by UIC, major command, and IMCOM Region.

References

- Authority for the ASIP is in AR 5-18.
- ASIP Home Page [https:/ / asip.hqda.pentagon.mil/ default_asip/ default.htm]

Relationship to Master Plan Components

The ASIP is a critical element of the TAB. It documents populations (units and organizations) in need of infrastructure support on Army installations. The Standard Requirements Codes (SRC) associated with UICs in the ASIP link RPLANS to associate UICs with pre-calculated allowances.

Note: The ASIP documents population according to approved stationing actions; it does not reflect stationing actions under consideration and may not reflect long-term population shifts.

Access

Installations can access the ASIP at the following site:

https://asip.hqda.pentagon.mil/default_asip/default.htm

Examples

Example 10.7 Army Stationing and Installation Plan

10.8.2.7 Installation Status Report (ISR)

Description

The ISR is an important management decision support tool for garrison commanders, and is based on the mission commanders' Unit Status Report (USR). The ISR assesses the condition of installation infrastructure, environmental programs, and support services, using established Army-wide standards. Data is provided annually from all Army installations, with garrison and region approvals. Section 4.2.2.2, "Basic Information/ Facilities Assessment" provides details on the ISR rating system and graphic examples of the mission.

Stakeholders

ACSIM Plans and Operations Division is the proponent of this tool.

Tools / Data Needed

Installation Input

- **Installations perform facility inspections, and then enter results into the ISR database through the ISR web interface.**

Products / Output

The ISR provides quality and quantity ratings for installation facilities at facility and FCG level.

Leveraging Technology

ISR is a web-based application. Operation requires a specialized program installed on the desktop. The software can be downloaded from the following url address: http://isr.hqda.pentagon.mil/.

Purpose

ISR supports HQDA funding decisions, including those related to:

- Sustainment, Restoration and Modernization (SRM)
- Base Operations (BASOPS)
- Military Construction, Army (MCA)
- Army Family Housing (AFH)
- Base Realignment and Closure (BRAC)
- Stationing Actions
- Strategic Readiness System (SRS) measures
- HQDA initiatives

At the installation level, the ISR supports the Capital Investment Strategy by identifying qualitative and quantitative shortfalls in facilities. These shortfalls are used to develop SRM or MILCON projects.

Update Cycle

The ISR is designed as a real time reporting system. It is updated annually, and fielded at the beginning of the second quarter of the fiscal year. Data collection is normally completed early in the third quarter.

Related Tools

ISR provides data to HQIIS.

Relationship to Master Plan Components

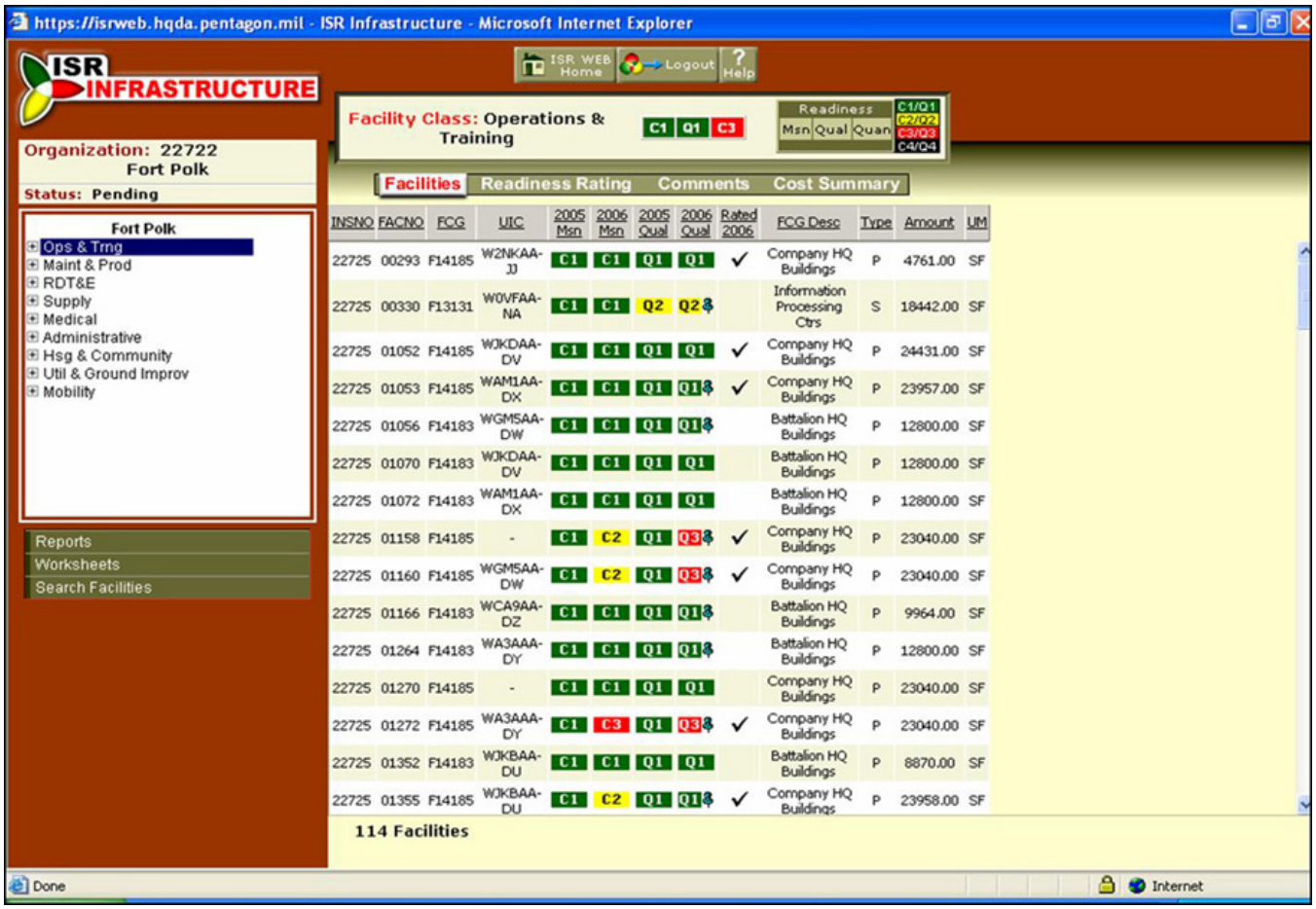
The ISR provides data that should be used to support development of the Capital Investment Strategy and the Capital Investment Plan. The ISR may be part of the Existing Conditions Assessment of the Long Range Component.

Access

Installations can access ISR at the following site: http://isr.hqda.pentagon.mil/

Examples

Example 10.8 Sample ISR Infrastructure Screen Shot



10.8.3 Geographic Information Systems (GIS)

Description

Geographic Information Systems, or GIS, is a computer-based data system that stores non-graphical data (building numbers, road names) and graphical data (building footprints, road networks).

Unlike CADD data, all GIS data is spatially geo-referenced, meaning that it is tied to a precise location on the surface of the earth. This spatially referenced data can be analyzed and converted to information for a specific purpose or application.

The use of GIS is beneficial during all stages of Master Planning, especially for:

- Spatial analysis
- Quantitative analysis
- Decision support

Specific applications of these analysis are described below. This list is by no means exhaustive.

Spatial Analysis:

- Analyze disparate physical, logical, and hidden spatial data to reveal:
  - Relationships between land uses, existing infrastructure (above ground and underground), and existing development
- Compare information between different topical layers to reveal:
  - Relationship between current development and proposed use
  - Relationship between existing infrastructure and proposed development
- Facilitate comprehensive visualization of large areas to reveal:
  - Relationship between training/range areas and large scale environmental constraints
- Illustrate change over time to reveal:
  - Relationship between past developable area and current development
- Generate implied constraints from regulations to reveal:
  - Relationship between existing structures and stand-off buffers
  - Environmental constraints like stream buffers, slopes and wetland areas

Stakeholders

- IMCOM Region
- Garrison Commander and Staff
- Mission Commander
- Directorate of Public Works
- PAIO (Plans, Analysis and Integration Office)
- Real Property Planning Board (RPPB)
- Reserve Components
- Tenants

Tools

- ACSIM Suite of Planning Tools - GISR provides similar capability through WEB enabled tools.
- Future Development Plan Tool, Quality Assurance Plan
- National Guard Training Center Plans
- Savannah District Spatial Data Retrieval System (SDRS) defines standards on creating thematic maps and displaying symbology so that maps are consistent
- MC2/PRISM web based tool
- ITAM GIS systems for range and training lands
- USAREUR CADD/GIS Real Property and Facility Utilization Tool
- The National Standard for Spatial Data Accuracy (NSSDA) provides data collection standards involving new data.

Quantitative Analysis:

- Measurements that provide supporting data for:
  - Infrastructure assets, building conditions
  - Populations, vacancies, total acreage
  - Estimates of maintenance efforts
  - DD Form 1391 estimating
  - Estimate of wetland mitigation area

Decision Support for:

- Army Stationing and Installation Plan (ASIP)
- Installation Status Report (ISR)

Examples of all these applications are contained in Section 10.9, "Maps and Plans".

Purpose

GIS enables the spatial visualization, and therefore a deeper understanding, of planning impacts. It synthesizes and quantifies information to clearly show intricate relationships and impacts of planning actions upon installation resources and missions. GIS gives Master Planners a highly visual and defensible way to clearly explain impacts, identify conflicts, and document resolution of planning issues to stakeholders.

Data

The following data sources provide guidance on maintaining quality assurance and information standards:

- **The Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE) is a data model standard that provides a relational geodatabase and CADD symbology standards for civil and environmental information.**
- **The Federal Geographic Data Committee (FGDC) Geospatial Metadata Standard addresses spatial documentation. It provides guidelines and standards governing metadata - the information that describes spatial information. It outlines collection procedures, data ownership, quality control methods, and specifies the type of metadata applied to each layer.**
- **The National Standard for Spatial Data Accuracy (NSSDA) provides data collection standards for new data.**

Army IGI&S: Data Standards

GIS is a major component of Installation Geospatial Information and Services (IGI&S). Throughout the Army, it is used to analyze and map installation training lands, infrastructure, and facilities in support of installation management and planning. AR 115-11 provides the guidance for Army IGI&S. Its standards for GIS, CADD, and metadata are crucial Master Planning considerations.

GIS data standards are based on the current release of the Spatial Data Standard for Facilities, Infrastructure and Environment (SDSFIE), developed by the Army Corps of Engineers. The SDSFIE can be downloaded at: https://cadbim.usace.army.mil/.

Range managers follow additional standards developed by the National Geospatial Intelligence Agency (NGA). Master Planners should follow these standards when developing maps and plans of ranges and training areas. These standards are available at: https://srp.army.mil/SrpWeb/Content.aspx?ModuleId=19.

CADD data standards are equally important. The Army standard for CADD data is the Facility Management Standard and the Architecture, Engineering and Construction (AEC)/(CADD) standards. CADD data used for planning purposes must also be geo-referenced. The installation can display data locally using an appropriate projection.

Metadata is perhaps the most crucial consideration when using GIS data for planning. Metadata stores dataset information – how it was created, when it was created, who created it, accuracy of its spatial position and temporal information. It must be reviewed prior to using any GIS data. The Army IGI&S standard for metadata is the Federal Geographic Data Committee (FGDC) Content Standards for Digital Geospatial Metadata. Numerous compliant metadata software programs are readily available at: http://www.fgdc.gov.

Whenever new GIS data is developed, its projection, datum, and coordinate system must be defined and then documented in metadata for both GIS and CADD. It must also be provided whenever data is distributed. The Army IGI&S standard for all spatial (GIS and CADD) data is the World Geodetic System of 1984 (WGS84) datum and the North American Vertical Datum of 1988 (NAVD88).

Because installation planning also involves its surrounding areas, the ability to share GIS and CADD data becomes crucial. The Army mandates that planners share this data with other federal, state, and local governments, as well as nongovernmental organizations (NGOs), according to applicable laws. Planners must also ensure that this information is network-accessible to the installation.

Contacts Needed

Standards

- **Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE): http://www.sdsfie.org/**
- **Federal Geographic Data Committee (FGDC) Geospatial Metadata Standard: http://www.fgdc.gov/**
- **National Standard for Spatial Data Accuracy (NSSDA): http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part3/chapter3**
- **GIS Data Repositories and Clearing Houses**
- **Army Mapper: http://mapper.army.mil/**
- **Sustainable Range Program [https://srp.army.mil/]**
- **Plans, Analysis and Integration office (PAIO)**
- **National Geospatial Data Standards: https://srp.army.mil/SrpWeb/Content.aspx?ModuleId=19 [https://srp.army.mil/ SrpWeb/ Content.aspx?ModuleId=19]**

Army IGI&S Community

- **Army IGI&S Program**
- **https://www.us.army.mil/suite/page/136293**

Finally, planners must ensure the resolution quality of all GIS and CADD data. This guarantees its usefulness and integrity for installation management and mission support. All GIS data related to installation planning must adhere to the Federal Geographic Data Committee Standard Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy, FGDC-STD-007.3-1999.

Army IGI&S: Available Data

There are 360 GIS data layers that are used to map installation training lands, infrastructure, and facilities. Many are useful in the Master Planning process. Master Planners should work within established Army IGI&S program channels to obtain pertinent data layers.

Master Planning will very likely require the generation of new/updated GIS data layers. This can be a costly process. However, Master Planners are uniquely positioned to build these layers. Teaming with installation stakeholders to reduce costs and increase efficiency is a good option. Also, coordination with the garrison PAIO is advisable. Possible stakeholders include:

- Engineering Division and Maintenance sections of DPW
- Environmental Division
- Emergency Response groups, such as MPs, Fire Departments
- Housing Division
- Range Officer

GIS specialists from various directorates provide specific GIS expertise and data. Table 10.3 details typical sources of GIS planning information found on Army garrisons. The garrison PAIO coordinates these groups.

References

- **AR 420-1 Army Facilities Management**
- **ER 1110-1-8156: Engineering and Design Policies, Guidance, and Requirements for Geospatial Data and Systems**
- **AR 115-11: Installation Geospatial Information and Services (IGI&S)**
- **OACSIM Memorandum Subject: Data Standards for Geographic Information Systems (GIS) dated Apr 05 and Computer Aided Drafting and Design (CADD) and Related Technologies**
- **FGDC-STD-007.3-1998, Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy**
- **Quality Assurance/Quality Control Procedures for ITAM GIS Databases**

Table 10.3 Sources for Planning Data Layers

Planning Data Layer	Typical Installation Data Steward
Buildings and Structures	DPW/FMO
Land Use	DPW/FMO, Environmental, DPTMS/Range
Utilities	DOIM, DPW/FMO
Transportation	DPW/FMO, DOL
Airfields	DPTMS/Range, DPW/FMO
Range and Training	DPTMS/Range, DPW, Environmental
Regional/Area	DPW/FMO
Natural Resources	Environmental
Operational/Man-made	Environmental, DPTMS/Range, DPW
Cultural	Environmental, DPW/FMO

Army IGI&S: Primary GIS Program and Support for Planners

There are two primary sources that support Master Planners with installation GIS data development.

The Installation Management Command (IMCOM) geospatial information officer (GIO) at HQ IMCOM is available to assist planners with issues not addressed by the garrison or IMCOM Region IGI&S resources. This officer coordinates all regional IMCOM IGI&S support and acts as a liaison between HQ IMCOM and IMCOM Regions.

Army Mapper is the Army's enterprise GIS. It includes three elements: a viewer, a web-based interactive mapping tool that can provide basic views and query installation data; commercial GIS and CADD software available through Citrix; and a Data Repository.

Army IGI&S: Other GIS Data Resources for Master Planners

Secondary sources of Army installation data include the Army Sustainable Range Program, which contains a central GIS product (Internet Mapping Service) and application support to SRP and other installation mission support offices. The SRP program can be accessed at: https://srp.army.mil.

Additional GIS resources of relevance to the installation exist outside of the Army. State and local agencies often maintain GIS data that may be useful to the installation Master Planner.

10.8.4 Charrettes

Description

This description contains two separate discussions:

- The General Charrette Process
- Army Charrettes

The General Charrette Process is a discussion of the charrette and its use as a tool throughout the planning world. It is followed by Army Charrettes, which outlines the specific functions, process and products of the charrette process as adapted and applied by the Army. The remainder of this section focuses on key steps of the Army planning charrette.

The General Charrette Process

A charrette is an intensive workshop that brings together an interdisciplinary team of stakeholders to brainstorm ideas and solutions. The charrette workshop (typically 3-5 days) provides a platform for an ad-hoc, comprehensive yet streamlined process, led by a facilitator. It is highly effective for collaborative, integrated decision-making. The goal is to develop a plan of action that is realistic, cohesive, and attainable.

The term "charrette" is derived from a French word meaning "little cart." At the Ecole des Beaux Arts in Paris – the world's top architecture school in the 19th century – proctors circulated with carts to collect final plans. Students would jump on the cart with their work, busily polishing their drawings up to the last minute. In the mid-1980's, community planners adopted the name to describe a process of dynamic, interactive community planning.

Charrettes are generally organized along the following steps, if applicable:

- Define issues to be resolved
- Analyze problem(s) and possible solutions
- Assign small groups to clarify issues
- Use staff to find supporting data
- Develop proposals to respond to issues
- Develop alternative solutions
- Present analysis of final proposal(s)
- Achieve consensus/final resolution of preferred approach

Stakeholders

- **Garrison Commander**
- **Project stakeholders**

Tools / Data Needed

- **Latest RPMP**
- **Latest Installation Strategic Plan (ISP)**
- **IMA Strategic Planning Model and Process Playbook**
- **Preliminary DD Form 1391**
- **Sustainable site**
- **Auditable project requirements**
- **Sample SOW's from IMCOM library**

Contacts Needed

- **Personnel from IMCOM and USACE**
- **IMCOM-recommended Charrette Facilitator**
- **Project/Program Proponent**
- **Environmental Division Staff**
- **Directorate of Information Management Staff**
- **Fire/Physical Security Staff**
- **Provost Marshal/Critical Infrastructure Protection Officer**
- **Tenant Organizations**
- **Engineers**
- **Architect**
- **Economist**
- **Cost Engineer**
- **PAX Operator**

Who participates and how? Anyone can participate in a charrette. The charrette should involve as many stakeholders as possible, representing various viewpoints and needs. Ideally, they should have input into, understanding of, and output from the process on some level. Exactly how and to what degree stakeholders participate depends on their interest level at any given point, along with the approval of the charrette leader. A list of participates must be included in the DD Form 1391 and the Charrette Report (if developed).

Why is it useful? A charrette is useful because it focuses on a specific opportunity and is solution-driven. The breadth of background of participants ensures full discussion of issues, challenges, interrelationships, interdependencies, and impacts. Its time limits challenge participants to rapidly, openly, and honestly examine problems and issues and work with adversaries to reach consensus on an appropriate solution. A charrette produces visible results, and opens the door for maximum involvement.

What are the products of the charrette process? The ideal outcome of a charrette is a consensus on the way ahead for the project or program. The successful charrette produces planning documents, project/program requirements, project costs, project challenges and issues, proposals and alternatives to problem(s), coordinated and collaborative solutions, and consensus/buy-in among stakeholders.

Leveraging Technology

- **Use databases and GIS to gather information, analyze the situation, and communicate the information.**

Products (Planning Charrette)

- **Completed DD Form 1391 with cost (See Appendix I, *DD Form 1391*.)**
- **Facility Sketch that shows look of building and ensures IDG compliance (especially if project is located in a high visibility area)**
- **Executive Summary: includes scope and final cost**
- **List of participants documenting concurrence, to be included in meeting minutes and/or charrette report.**
- **(Optional) Charrette report that documents details of the process from initial scope to final cost . (See example of a full charrette report in Appendix G, *Charrette Report*.)**

Purpose

The general charrette is a planning tool designed to:

- Improve agency stakeholder understanding and decision-making by providing the right information.
- Generate alternative solutions to problem(s) by encouraging open and creative dialogues among the stakeholders.
- Offer insight to potential competing interests, initiatives, challenges, and opportunities, as well as provide a baseline for potential solutions and consensus.
- Result in a quick consensus on how to proceed.

Army Charrettes

Army planners engage in various types of charrettes. The two that are most commonly used are:

- The Planning charrette, which is part of Master Planning
- The Design charrette, which occurs after Master Planning — Charrettes of this type are initiated after ACSIM issues the appropriate design directive to USACE. (See Section 10.7.1, "Introduction" for Design Code definitions.)

The charrette is also useful for developing the installation's vision, and for analyzing projects, areas, and installation-wide policy.

The Army requires that a planning charrette be conducted for the development of specific MILCON projects. The planning charrette is "the process by which all stakeholders - installation staffs, IMCOM Regions, Corps of Engineers Districts, users and commanders - come to a consensus on the content of the programming documentation (DD Form 1391) to be submitted as a valid requirement for a Unit level stationing action to HQDA for funding consideration."

The planning charrette marks the transition from the "planning" stage of Army project development to the "programming" stage. This collaborative process is useful for calling attention to a specific issue, project, or program area that might include several development projects. It can also involve review of an existing DD Form 1391 or the significance and duration of a planning action. The key steps to conducting a planning charrette are outlined later in this section.

The design charrette involves gathering information and defining project design requirements, both in written and visual form, in accordance with the validated DD Form 1391. Typically, a design charrette is used to provide a parametric cost estimate (5-15% of design). The intent of the design charrette is to:

- Validate the use of the DA Facility Standardization Program standard designs, scope requirements, and customer needs
- Validate that the project scope and costs are accurate and in compliance with the approved DD Form 1391 and the DoD pricing guide
- Establish optimum sitting for the project and validate all onsite requirements, demolition, and restrictions
- Obtain customer approval of a 35% level of design
- Update DD Form 1391 to reflect design charrette decisions
- Verify acquisition strategy and establish design process

The design charrette occurs after the conclusion of Master Planning; as such it is not discussed any further in this document. For more details on the design charrette, see Project Management Business Process (PMBP) for Conducting Charrettes.

References

- **Commander's Guide: Installation Standards**
- **Army Performance Improvement Criteria**
- **Project Management Business Process (PMBP) for Conducting Planning Charrettes**
- **AR 420-1: Army Facilities Management**
- **AR 210-21: Army Ranges and Training Land Program**
- **AR 200-1: Environmental Protection and Enhancement**
- **AR 200-2: Environmental Effects of Army Actions**
- **AR 200-3: Natural Resources – Land, Forest and Wildlife Management**
- **AR 200-4: Cultural Resources Management**

Key Steps for Conducting a Planning Charrette

There are six key steps for conducting a planning charrette. Refer to the Statement of Work repository (hosted on EKO) which contains sample Statements of Work on conducting a planning charrette.

STEP 1: Prior to the charrette.

- Develop an initial DD Form 1391. This results in the assignment of a form number, a requirement for planning charrette eligibility.
- Develop an initial scope of work.
- Ensure each project has a sustainable site. To identify these sites, refer to the products of the Long Range Component: the Land Use Plan, Future Development Plan, and Area Development Plan. These products drive all siting decisions. (For more information on siting, see Section 4.4, "Future Development Plan".)
- Ensure each project has valid "auditable requirements", derived from the TAB management process, that justify the project, enforce the installation Capital Investment Strategy, and balance the TAB.

STEP 2: Initiate the charrette.

Anyone can initiate a charrette. Typically, the supporting USACE District is the first to learn if a proposed charrette is approved by the Army, even before an installation. They might or might not share this information with the installation. If funding is available, the USACE district will move quickly to schedule the charrette. If it lacks access to the DD Form 1391, the Corps generally contacts the Master Planner.

Charrettes involve significant resources. Primary resources include: space, background materials, experienced staff or contract support, graphics support, and preparatory research which involves data collection, surveying, and interviewing. There are other numerous variables to also consider, such as location, number of attendees, and the purpose of the charrette.

STEP 3: Schedule the charrette.

The onus is on the Master Planner to ensure that the charrette does not proceed without the appropriate team in place. This includes:

- Team Leader/Facilitator
- Proponent: Personnel from the "tenant" organization(s) or appropriate garrison directorate
- Deputy Commander or DPW
- Personnel from DPW, Environmental, NEC, Fire, Security
- Personnel from IMCOM and the Corps of Engineers
- Engineers
- Architect
- Economist
- Cost Engineer
- PAX Operator

It is most essential to include the facility and/or program proponent. A facility proponent is an advocate that defines and defends the requirement. This person is responsible for programming documentation. A program proponent is an advocate that establishes priorities for a program. Each organization that is a stakeholder in a facility being programmed must indicate up-front its representative(s) for the charrette process. This is crucial to precluding arguments about requirements among competing factions, either within organizations or among facility tenants. Once stakeholder representatives are selected:

- Check schedules and availability of key participants.
- Coordinate scheduling of the charrette meeting space(s) and site tours.
- Send out invitations and confirm attendees. (This involves frequent reminders, which can include an agenda.)

STEP 4: Conduct the charrette.

Either lead the charrette or arrange for an experienced agent and technical support team to facilitate the process. Leadership is critical to success. Without it there is no real ownership of the result(s) or accountability. A team leader (facilitator) typically:

- Leads the charrette process
- Organizes the team
- Executes the schedule
- Establishes the charrette goals

STEP 5: Manage the process.

Ensure the charrette process is efficient. Conduct the workshop with a disciplined schedule, to achieve the most results in the shortest amount of time.

STEP 6: Complete the process.

The successful planning charrette results in a complete Appendix I, *DD Form 1391*, finalized minutes, a list of attendees and an optional Charrette Report. (See Appendix G, *Charrette Report*.) This permits the project to proceed to the approval stage. Examples of each are contained in the Appendices.

Green Tip

Incorporate sustainable design measures into the DD Form 1391 cost estimate. Include metrics illustrating cost savings over time. See Steps 9-10 in Section 10.4, "Sustainability".

Throughout this charrette process, it is critically important to ensure active stakeholder participation. It is also important to manage this compressed workshop process to ensure the best use of time. Ultimately, it is important to guide the process towards its goal – a workable solution based on consensus.

Approval and Maintenance

Approval: Approval is not required. USACE certifies the DD Form 1391 estimate, process, and that "the project is buildable."

Maintenance: Charrettes are designed to be a one-time occurrence with the outcome being a complete DD Form 1391. They do not require maintenance unless changes occur that affect force structure or the selected site.

Examples

See Appendix G, *Charrette Report*

See Appendix I, *DD Form 1391*

Lessons Learned

- Team work is the key element.
- Strong leadership is required.
- Communication and listening are paramount.
- Ask all stakeholders to share their input, issues, and concerns.
- Everyone needs a laptop to complete work on site.
- Because a charrette focuses on a specific problem/issue, it is usually a one-time event. Be sure that goals are clear, so expectations do not exceed viable solutions. After the charrette, also consider following up with participants to ensure successful implementation of the preferred solution(s).
- Invite the maximum number of participants, representing all disciplines and interests.
- Failures are caused when consensus is not achieved or the following critical items are not addressed or defined:
  - RPPB-approved site
  - User population and profile
- Be sure to include personnel who can address critical infrastructure protection and sustainability concerns.
- The timeframe of the charrette is very limited; too much time spent on indecision can result in no decision at all.

10.9 Maps and Plans

10.9.1 Mapping Introduction

Description

Maps and plans are an integral part of the RPMP. Maps display **existing** information. Plans portray the **future** of the installation.

All components of the RPMP rely heavily on maps and plans to display and effectively communicate information. Geographic Information Systems (GIS) software is a tool commonly used to create thematic maps, queries and databases. The GIS section of this document outline the sources and standards for obtaining and using data. This section addresses the next step: how to display that data.

The maps and plans described here should be considered a baseline for Master Planning. Data can be graphically displayed as overlays in many combinations. While graphic examples and overlays used throughout the RPMP to display and analyze information are not required to follow this format, the content and appearance of the maps and plans within each RPMP should be consistent with the examples listed in this section. Even though data and scale will vary, all maps and plans should be similar relative to format and content.

Purpose

Well-conceived maps and plans are important from the installation level to command level.

- Maps and plans visually convey information. At the installation level, good maps and plans enable planners to convey information regarding the current status of the installation and the decisions made directing its future.
- Maps will vary because installations they portray vary significantly in size, mission and geography. But consistency in content and presentation enables planners at IMCOM and above to "compare apples to apples" when making Army-wide planning decisions.

Approval and Maintenance

Approval / Maintenance Maps and plans should be created and maintained within the garrison GIS or CADD system.

References

- HQ IMCOM GIS Handbook
- EKO Maps and Plans Directory: https://eko.usace.army.mil/public/fa/arpmp/

Products

Maps (existing information)

- Regional
- Site/Base
- Facilities
- Tree Cover
- Topography
- Development Constraints
- Real Estate
- Utilities
- Transportation
- Airfields
- Ranges and Training Lands

Plans (the future installation)

- Framework
- Future Development
- Area Development
- Illustrative
- Transportation
- Regulating
- Utilities

10.9.2 Maps

10.9.2.1 Regional Map

The Regional Map illustrates the relationship of the Military community to the surrounding community and general settlement patterns. Develop this map at a scale that shows the installation's proximity to population centers and the highway network.

- Figure 10.20, “Regional Map - Legend”
- Figure 10.21, “Regional Map - Detail, actual size”
- Figure 10.22, “Regional Map”

Figure 10.21 Regional Map - Detail, actual size

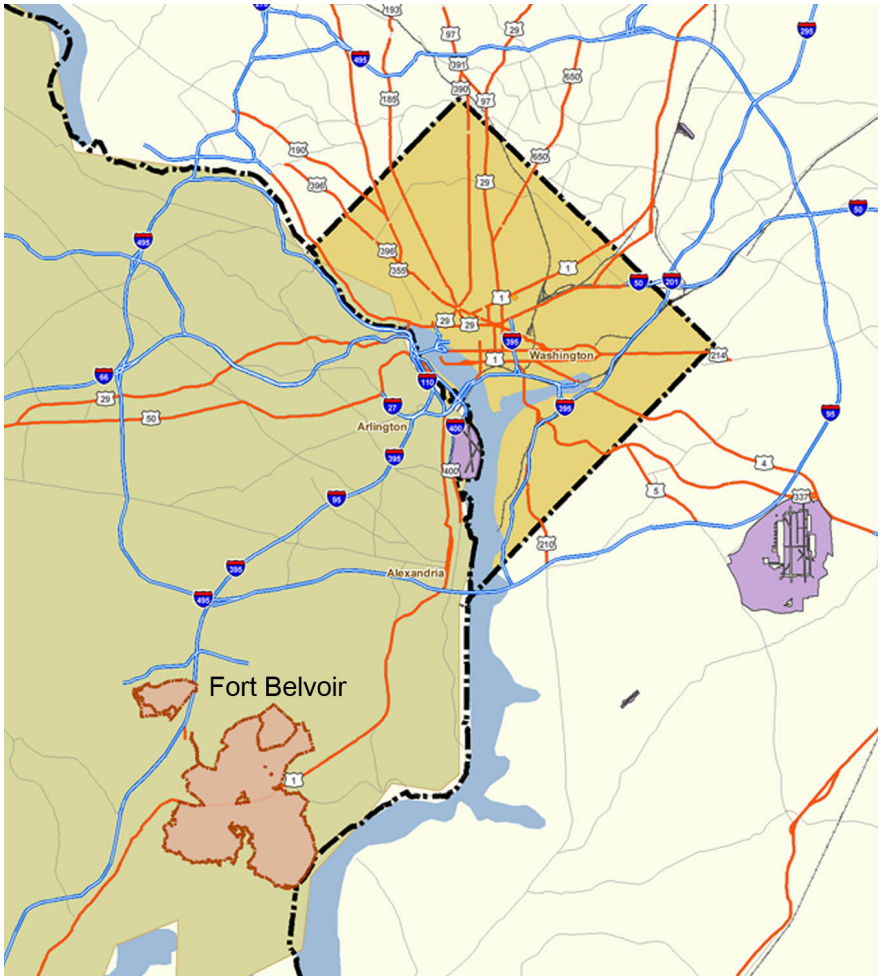
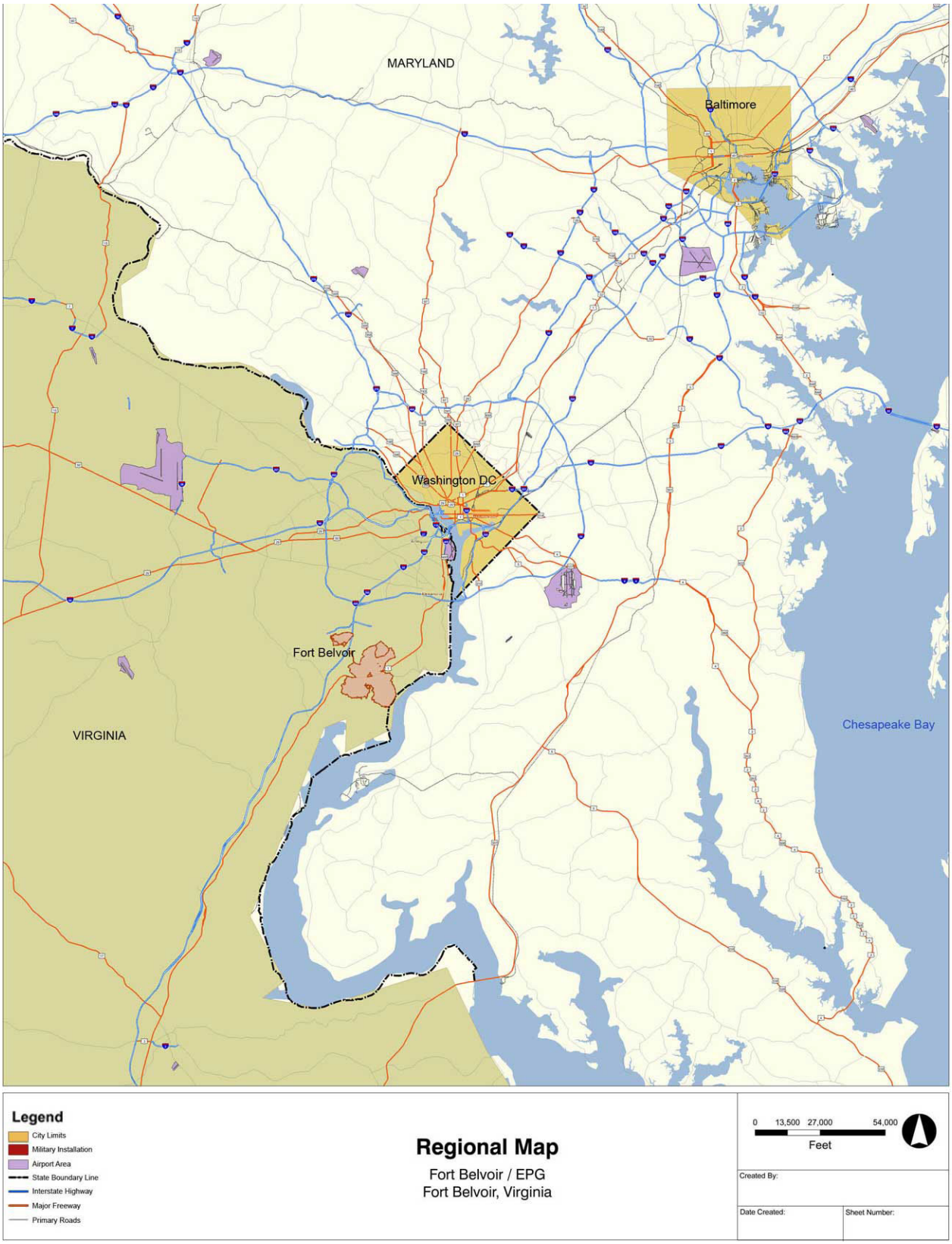


Figure 10.20 Regional Map - Legend

Figure 10.22 Regional Map



10.9.2.2 Site Map

Create a base map that shows planimetric data. Include parking, roads, buildings, installation boundary and perimeter fencing. Use of a geo-referenced aerial photo as background can enhance clarity of location and reference. Include a key map that shows the installation's location regionally and within the state(s). Use this as a baseline map for remaining sections.

For examples of site maps, see https://eko.usace.army.mil/public/fa/arpmp/

10.9.2.3 Facilities Map

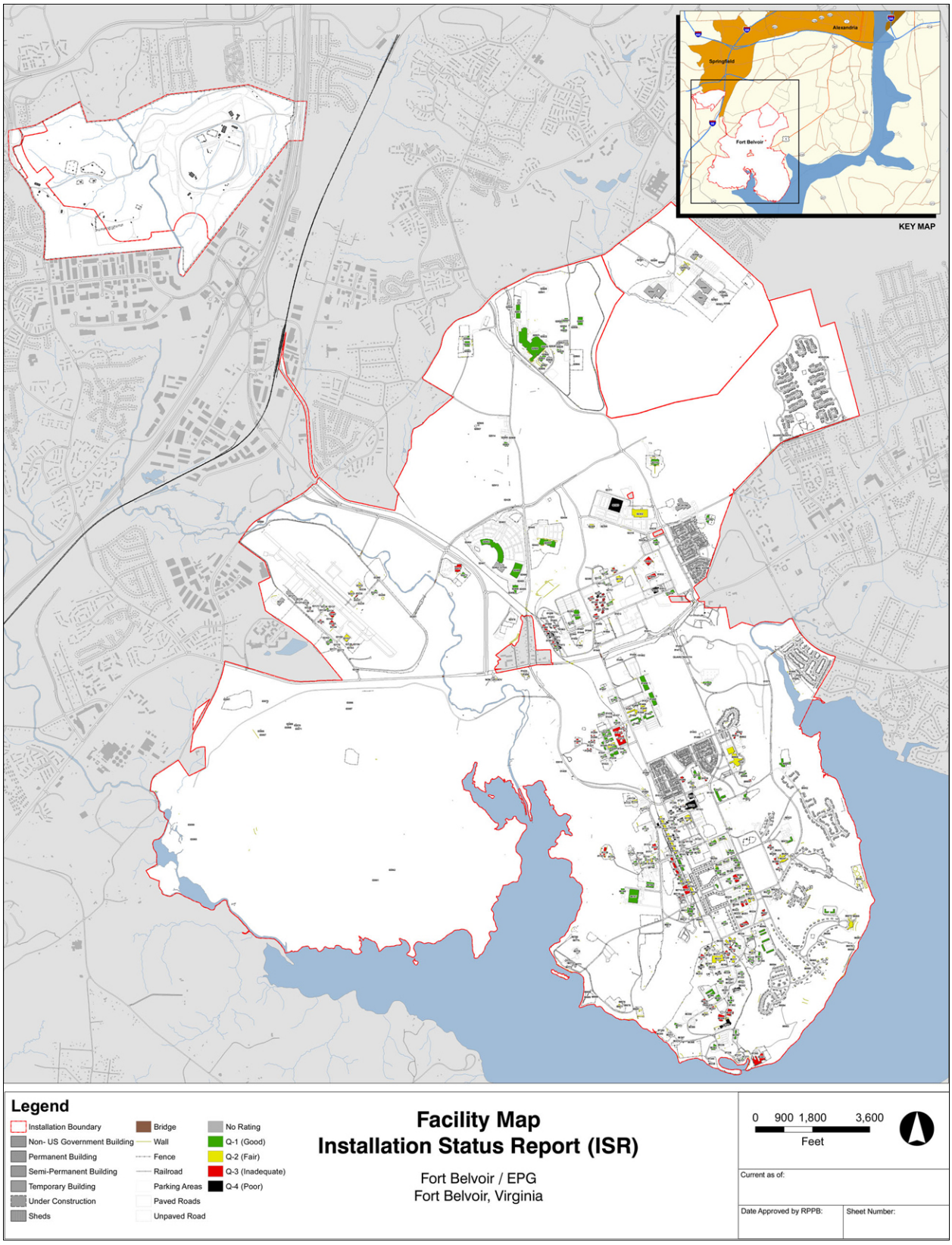
The specific number and types of maps required to represent facilities depends upon the features, conditions, and requirements of the installation. At a minimum, RPMPs should contain a map illustrating the Installation Status Report. Use Site Map features as a base.

- Figure 10.23, "Facilities Map - Installation Status Report (ISR) - Legend"
- Figure 10.24, "Facilities Map - Installation Status Report (ISR) - Detail, actual size"
- Figure 10.25, "Facilities Map - Installation Status Report (ISR)"

Figure 10.24 Facilities Map - Installation Status Report (ISR) - Detail, actual size

Figure 10.23 Facilities Map - Installation Status Report (ISR) - Legend

Figure 10.25 Facilities Map - Installation Status Report (ISR)



10.9.2.4 Environmental Resources Maps

Tree Cover Maps

- Figure 10.26, “Tree Cover Map - Legend”
- Figure 10.27, “Tree Cover Map - Detail, actual size”
- Figure 10.28, “Tree Cover Map”

Figure 10.27 Tree Cover Map - Detail, actual size

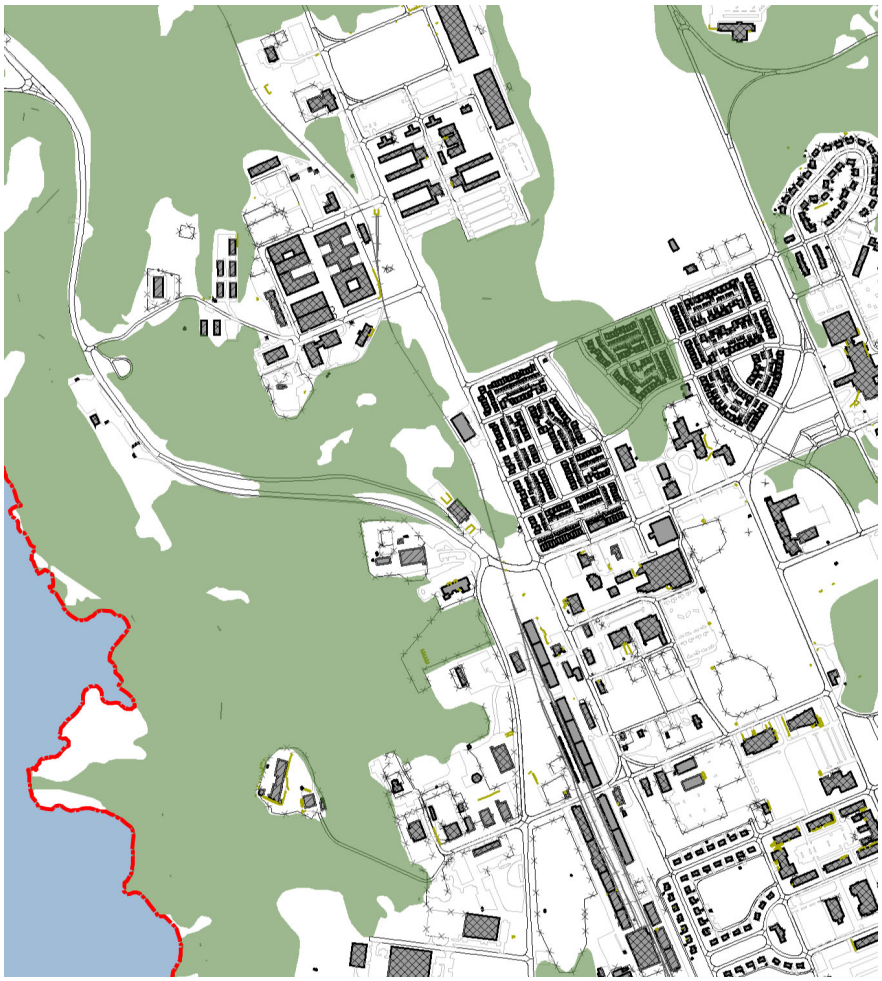


Figure 10.26 Tree Cover Map - Legend

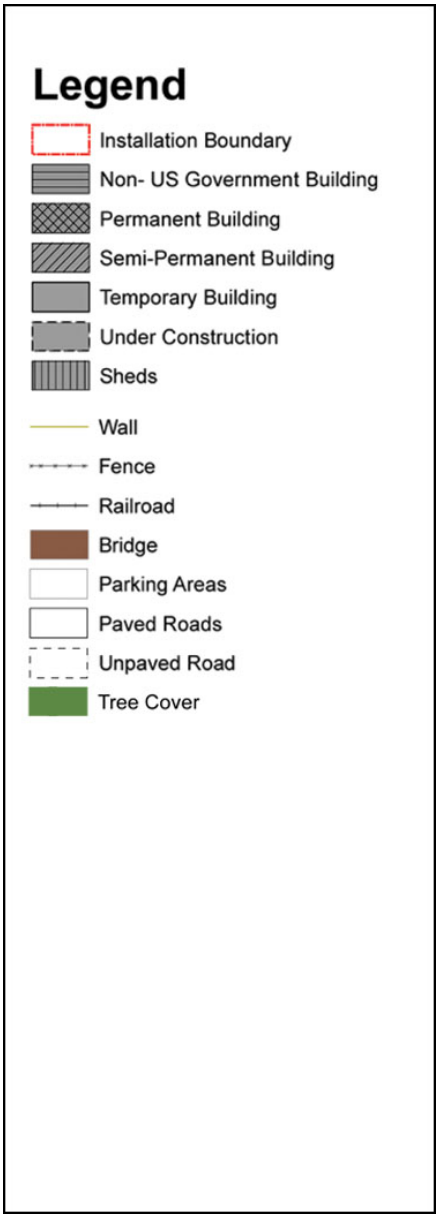


Figure 10.28 Tree Cover Map

Topography Maps

- Figure 10.29, “Topography Map - Legend”
- Figure 10.30, “Topography Map - Detail, actual size”
- Figure 10.31, “Topography Map”

Figure 10.30 Topography Map - Detail, actual size

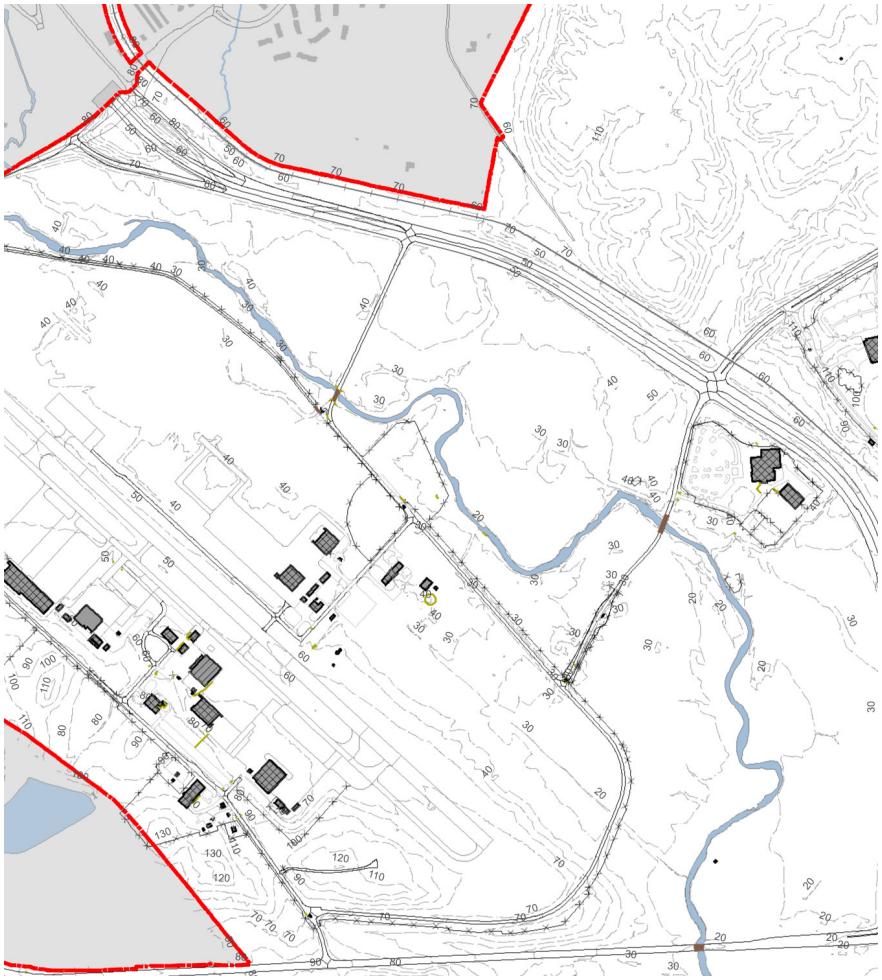


Figure 10.29 Topography Map - Legend

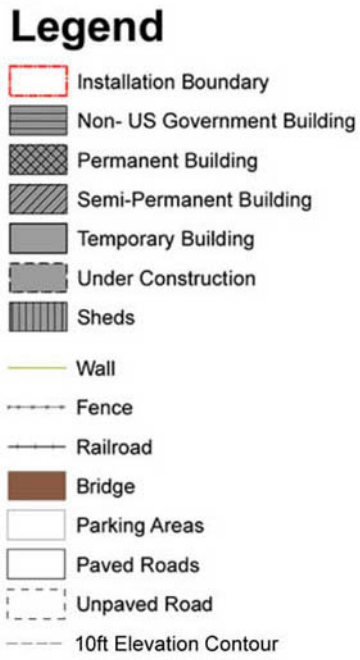


Figure 10.31 Topography Map

Composite Constraints and Opportunities Maps

In some cases, divide development constraints among multiple maps to improve readability. Use Site Map features as a base.

For examples of Composite Constraints and Opportunities maps, see https://eko.usace.army.mil/public/fa/arpmp/

10.9.2.5 Real Estate Map

These maps represent how land is used both on and off the installation.

The Real Estate Map depicts land on the installation where entities other than the Army have some degree of authority or ownership. Use Site Map features as a base.

For examples of Real Estate Maps, see https://eko.usace.army.mil/public/fa/arpmp/

10.9.2.6 Utility Maps

Utility Maps Introduction

These maps depict utility lines and service areas for each utility. Use Site Map features as a base.

Electrical Map

- Figure 10.32, “Electrical Map - Legend”
- Figure 10.33, “Electrical Map -Detail, actual size”
- Figure 10.34, “Electrical Map”

Figure 10.33 Electrical Map -Detail, actual size

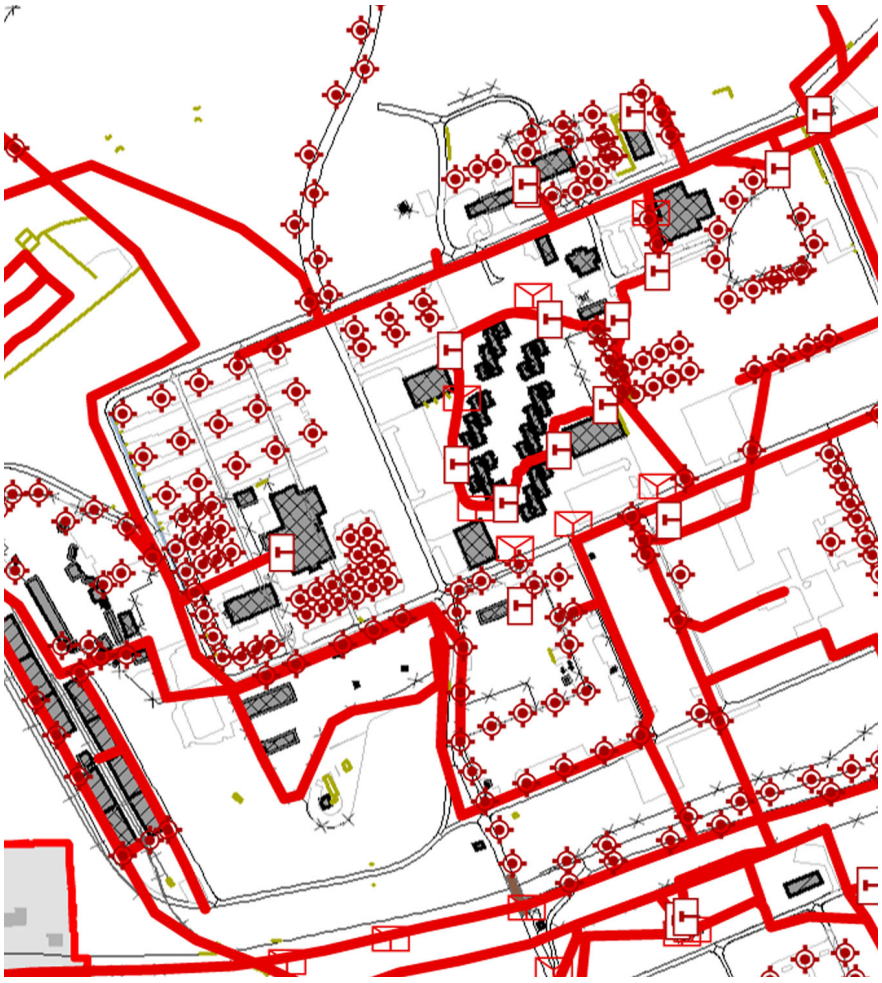


Figure 10.32 Electrical Map - Legend

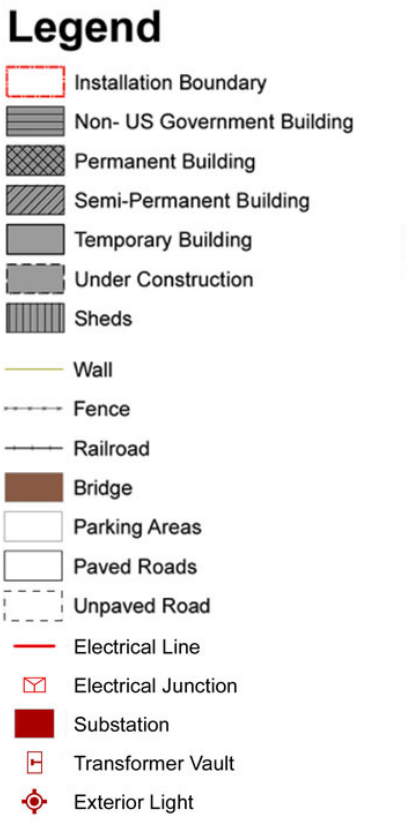
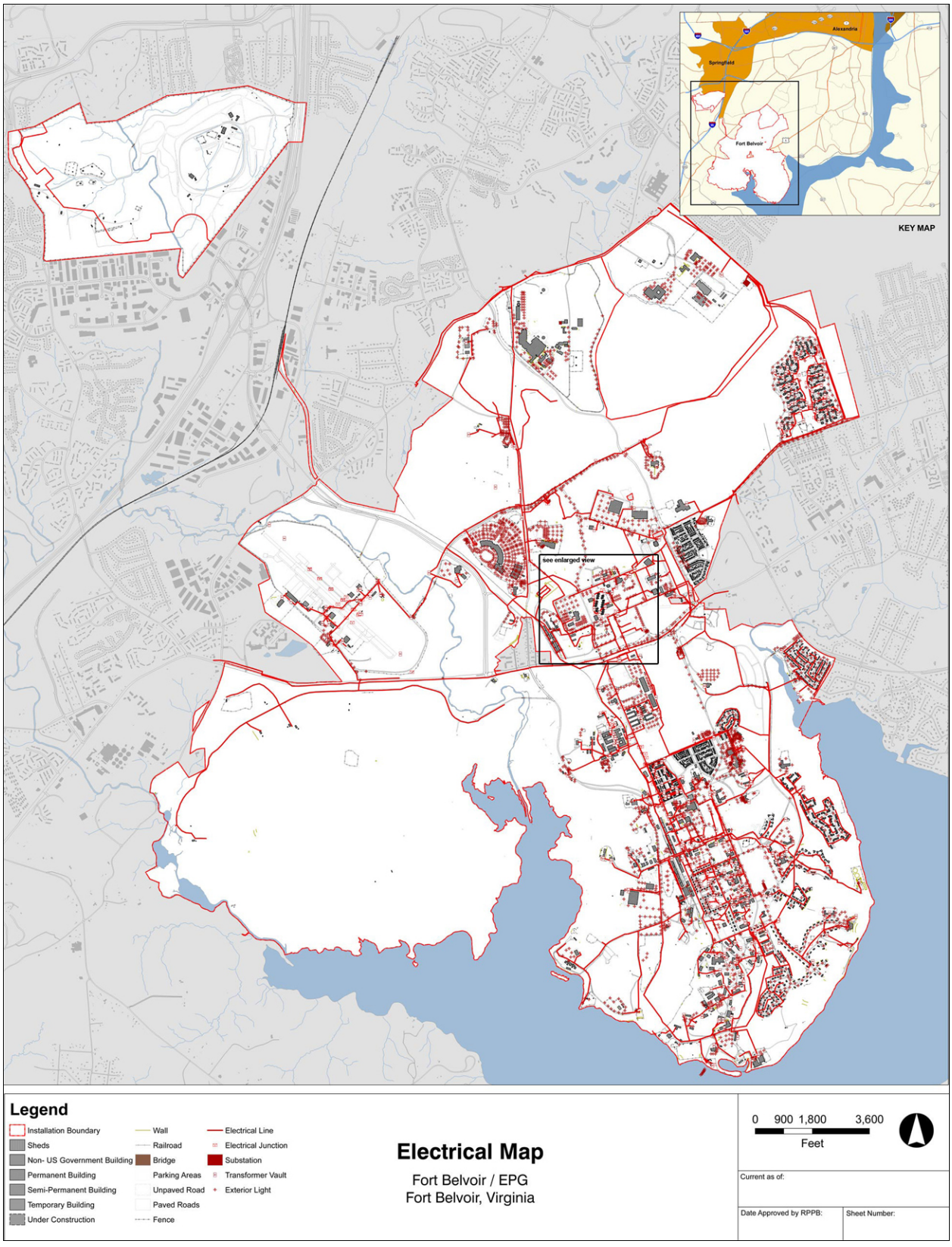


Figure 10.34 Electrical Map



Natural Gas Map

- Figure 10.35, “Natural Gas Map - Legend”
- Figure 10.36, “Natural Gas Map - Detail, actual size”
- Figure 10.37, “Natural Gas Map”

Figure 10.36 Natural Gas Map - Detail, actual size

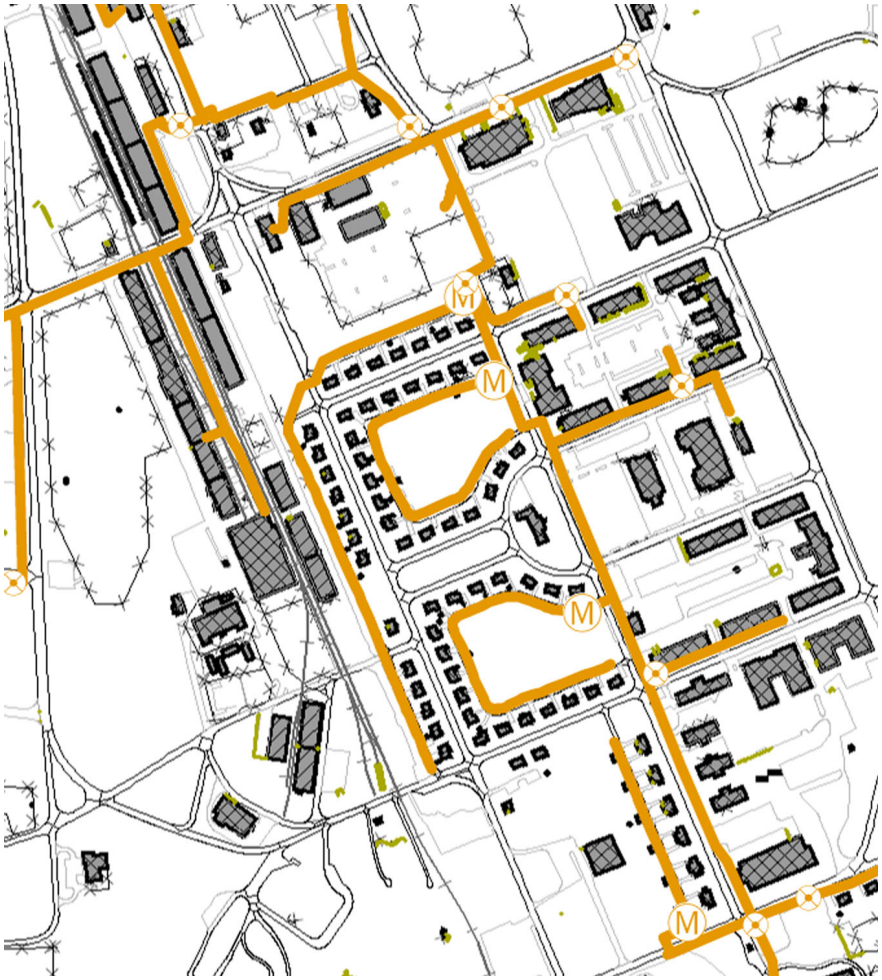


Figure 10.35 Natural Gas Map - Legend

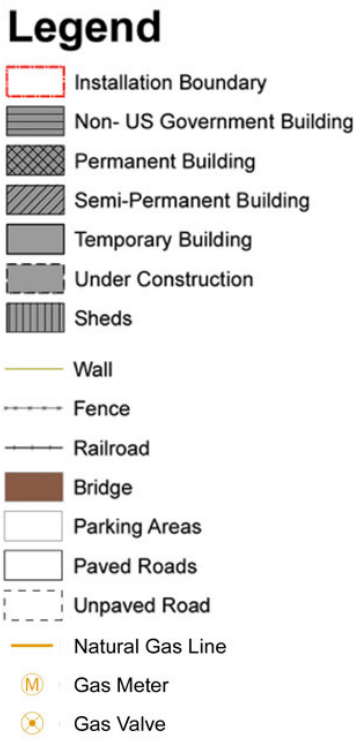
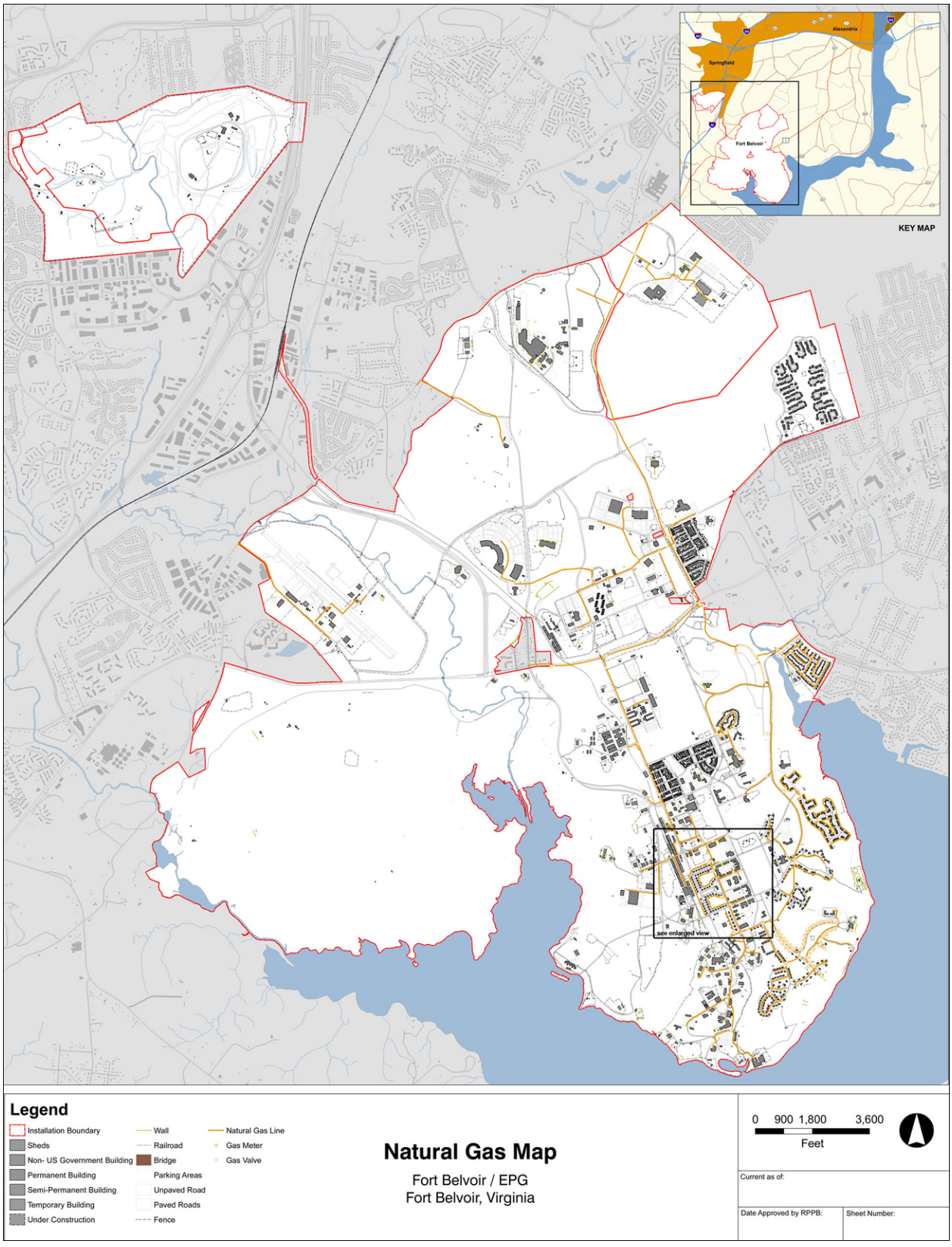


Figure 10.37 Natural Gas Map



Water Map

- Figure 10.38, “Water Map - Legend”
- Figure 10.39, “Water Map - Detail, actual size”
- Figure 10.40, “Water Map”

Figure 10.38 Water Map - Legend

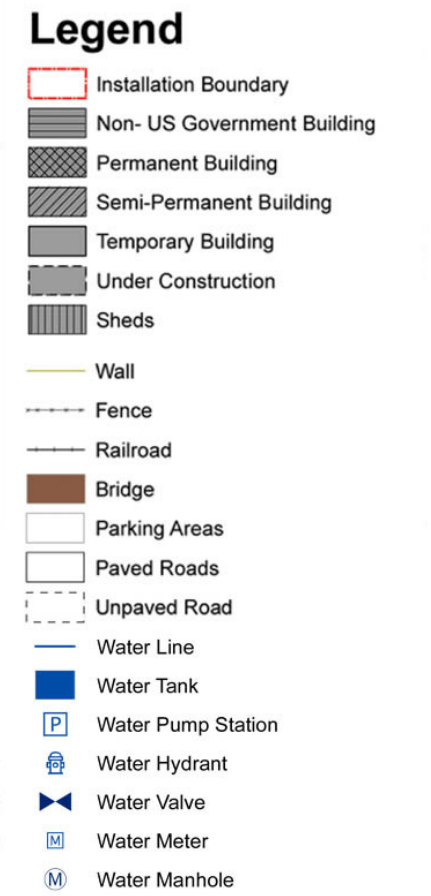


Figure 10.39 Water Map - Detail, actual size

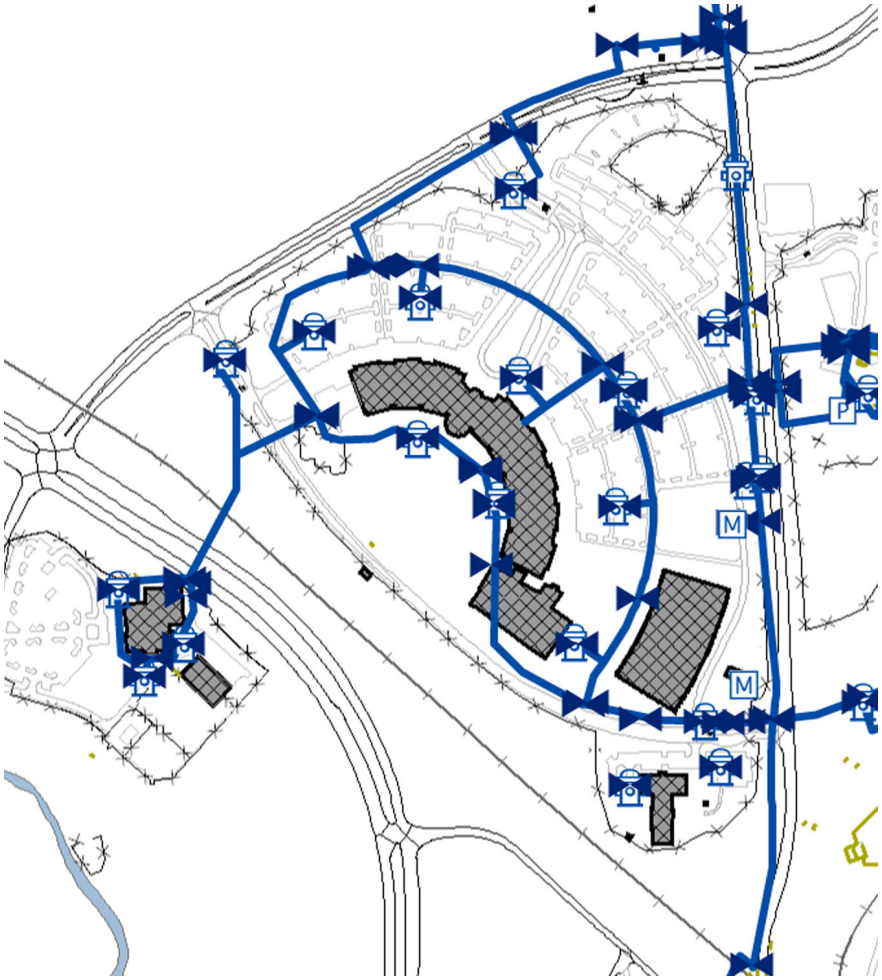
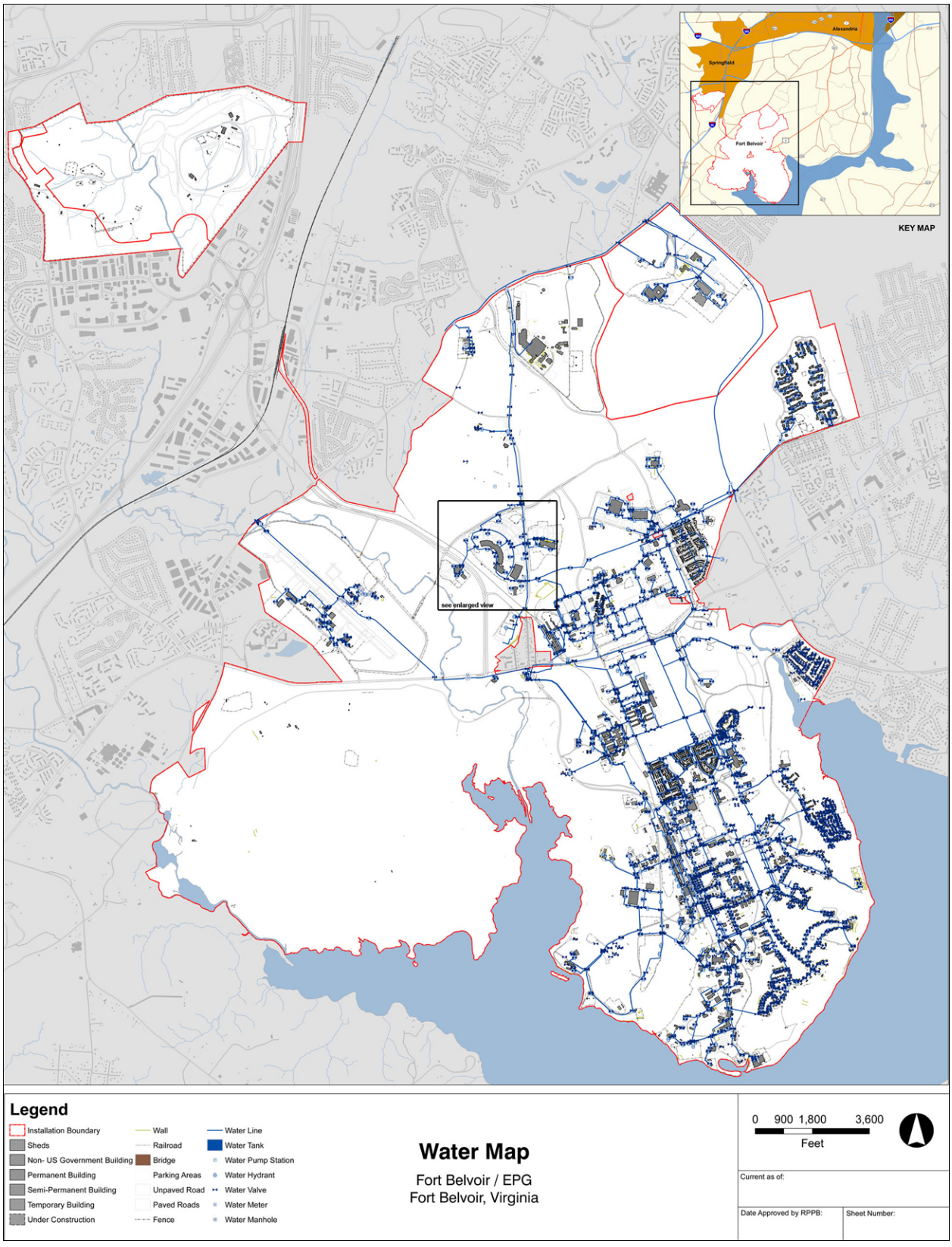


Figure 10.40 Water Map



Waste Water Map

- Figure 10.41, “Waste Water Map - Legend”
- Figure 10.42, “Waste Water Map - Detail, actual size”
- Figure 10.43, “Waste Water Map”

Figure 10.42 Waste Water Map - Detail, actual size

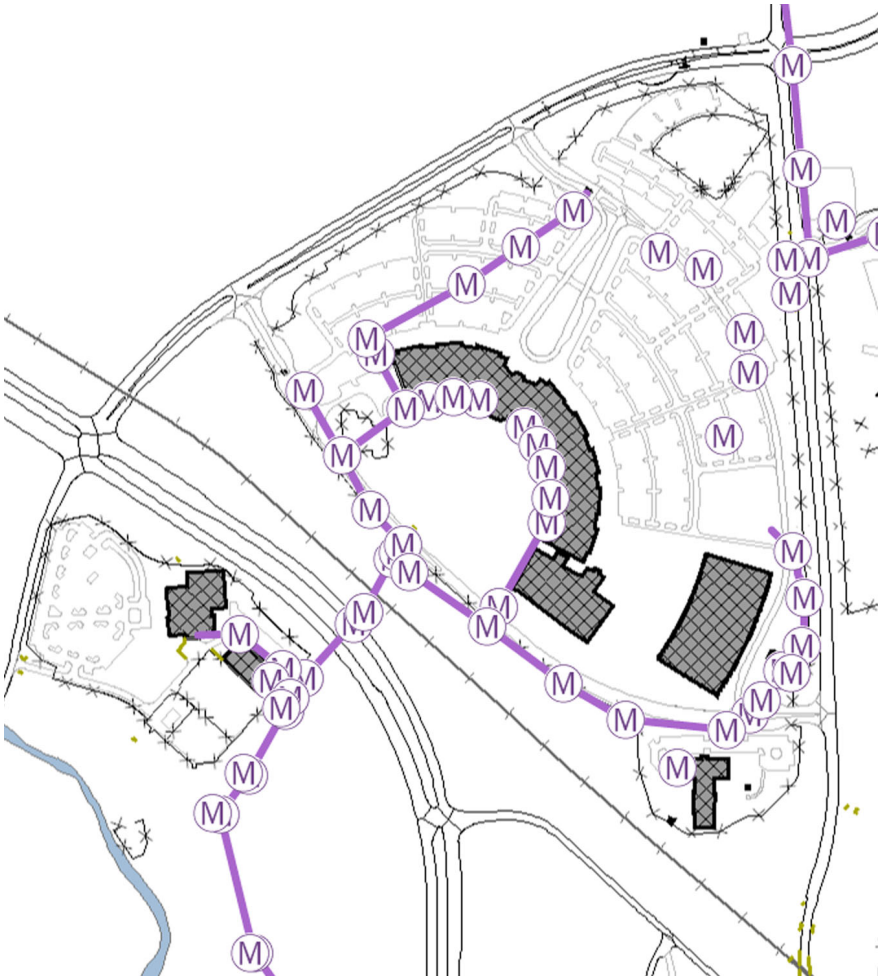
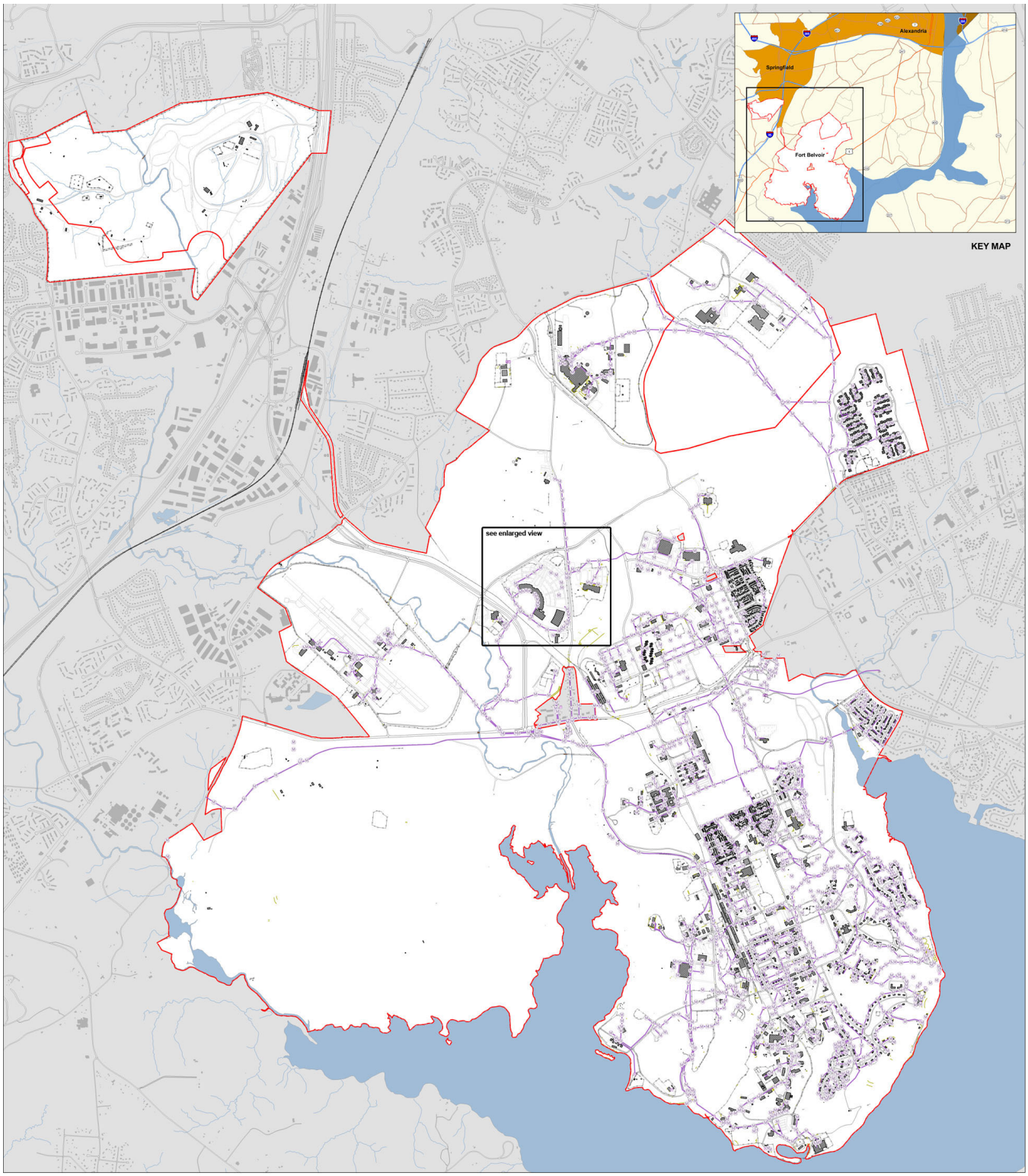


Figure 10.41 Waste Water Map - Legend

Figure 10.43 Waste Water Map



Storm Water Map

- Figure 10.44, “Storm Water Map - Legend”
- Figure 10.45, “Storm Water Map - Detail, actual size”
- Figure 10.46, “Storm Water Map”

Figure 10.45 Storm Water Map - Detail, actual size

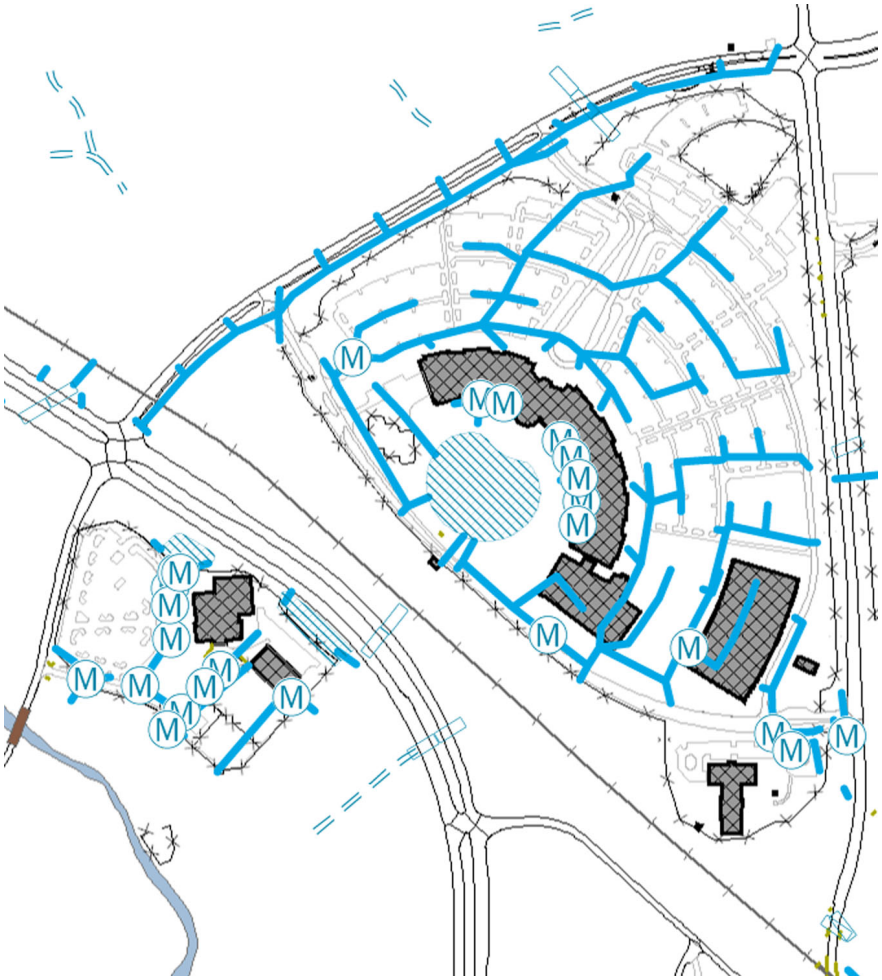
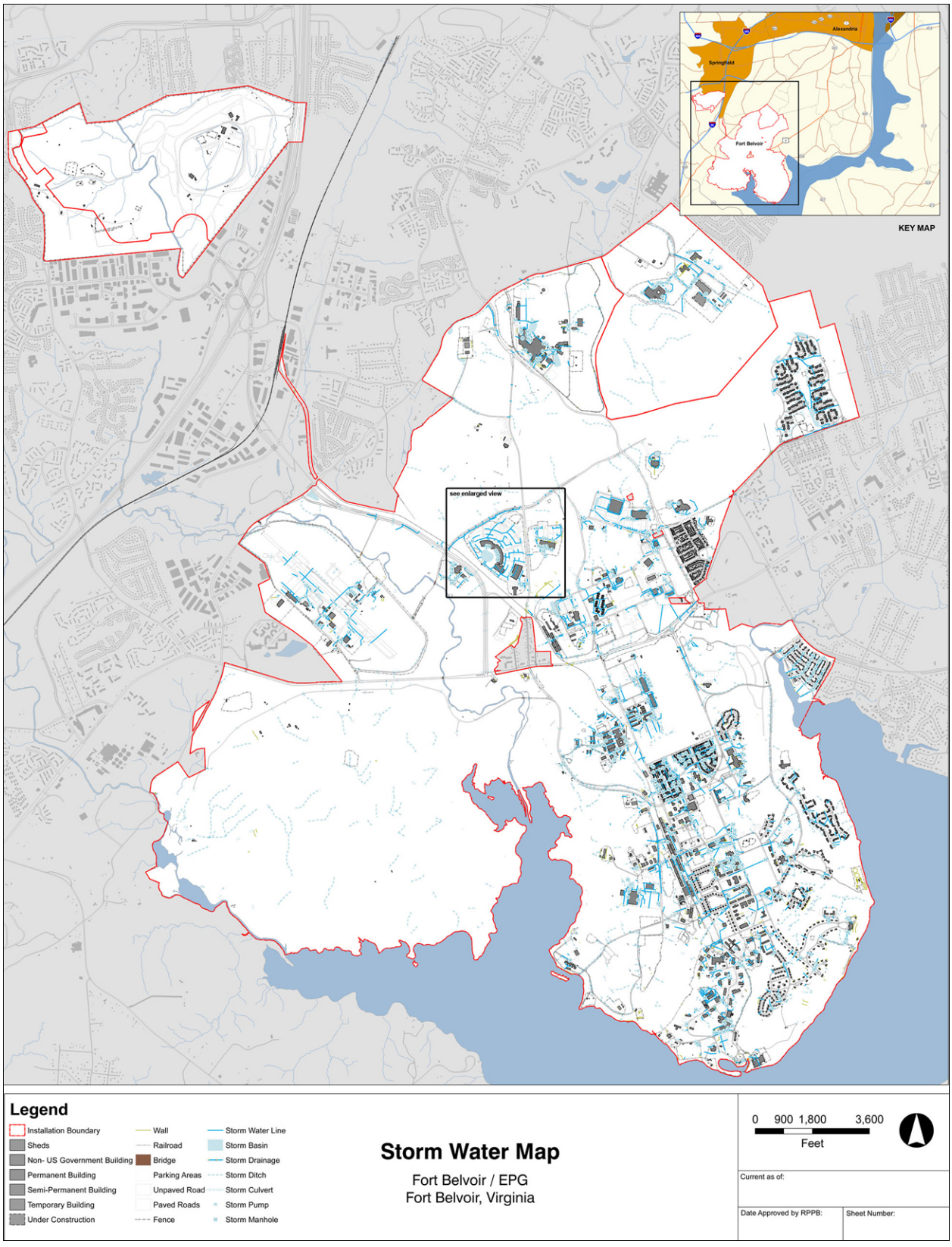


Figure 10.44 Storm Water Map - Legend

Figure 10.46 Storm Water Map



Central Energy System Map

- Figure 10.47, “Central Energy System Map - Legend”
- Figure 10.48, “Central Energy System Map - Detail, actual size”
- Figure 10.49, “Central Energy System Map”

Figure 10.48 Central Energy System Map - Detail, actual size

Figure 10.47 Central Energy System Map - Legend

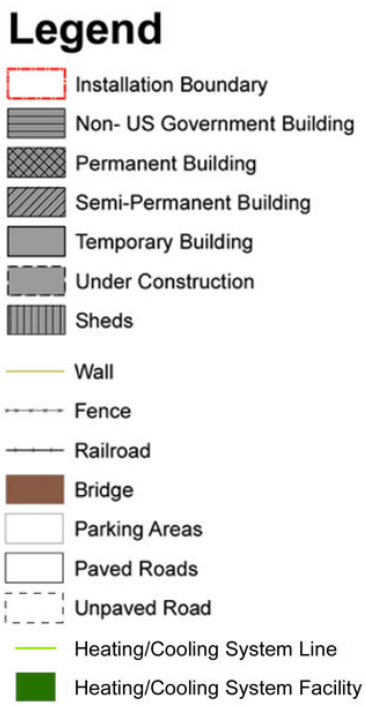
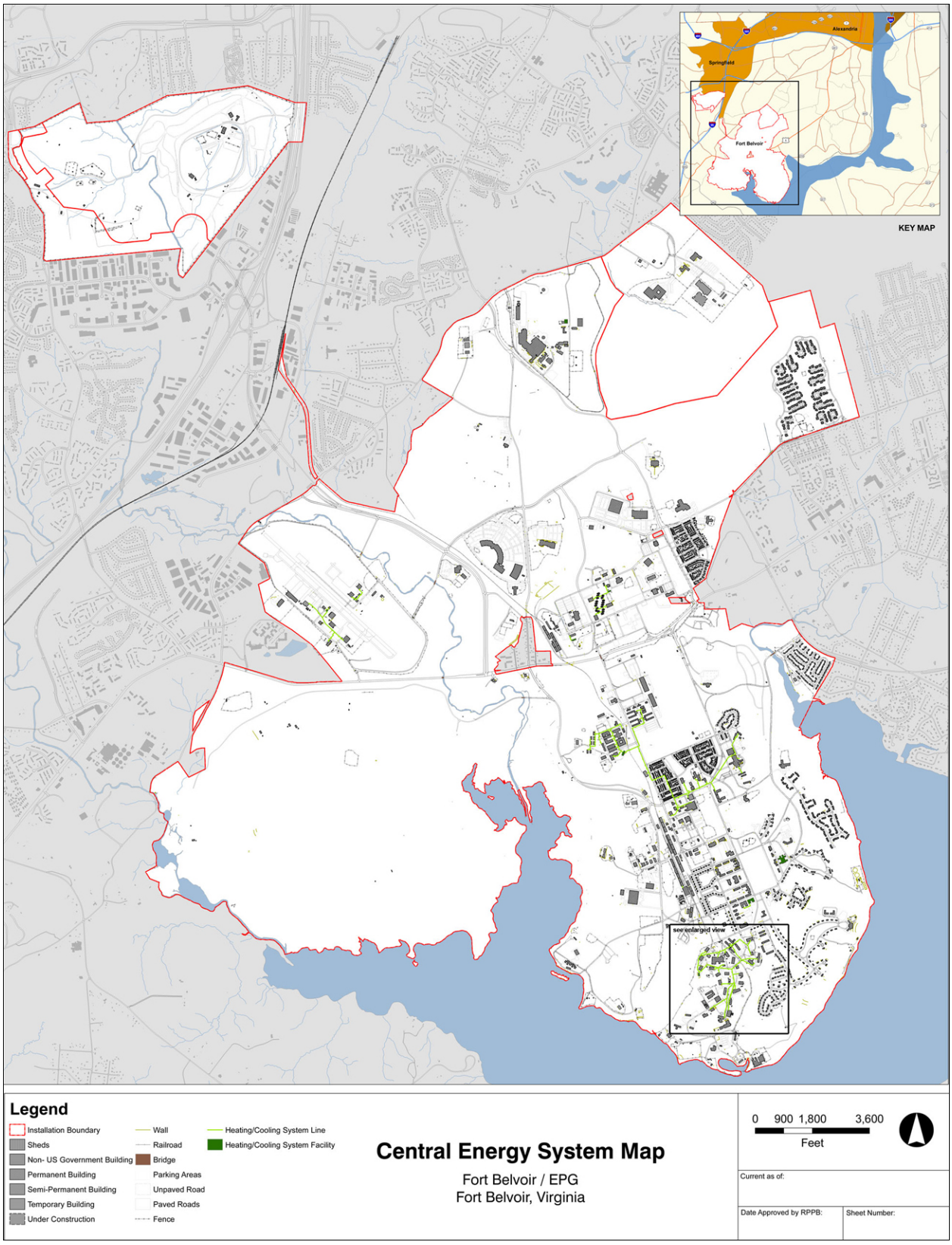


Figure 10.49 Central Energy System Map



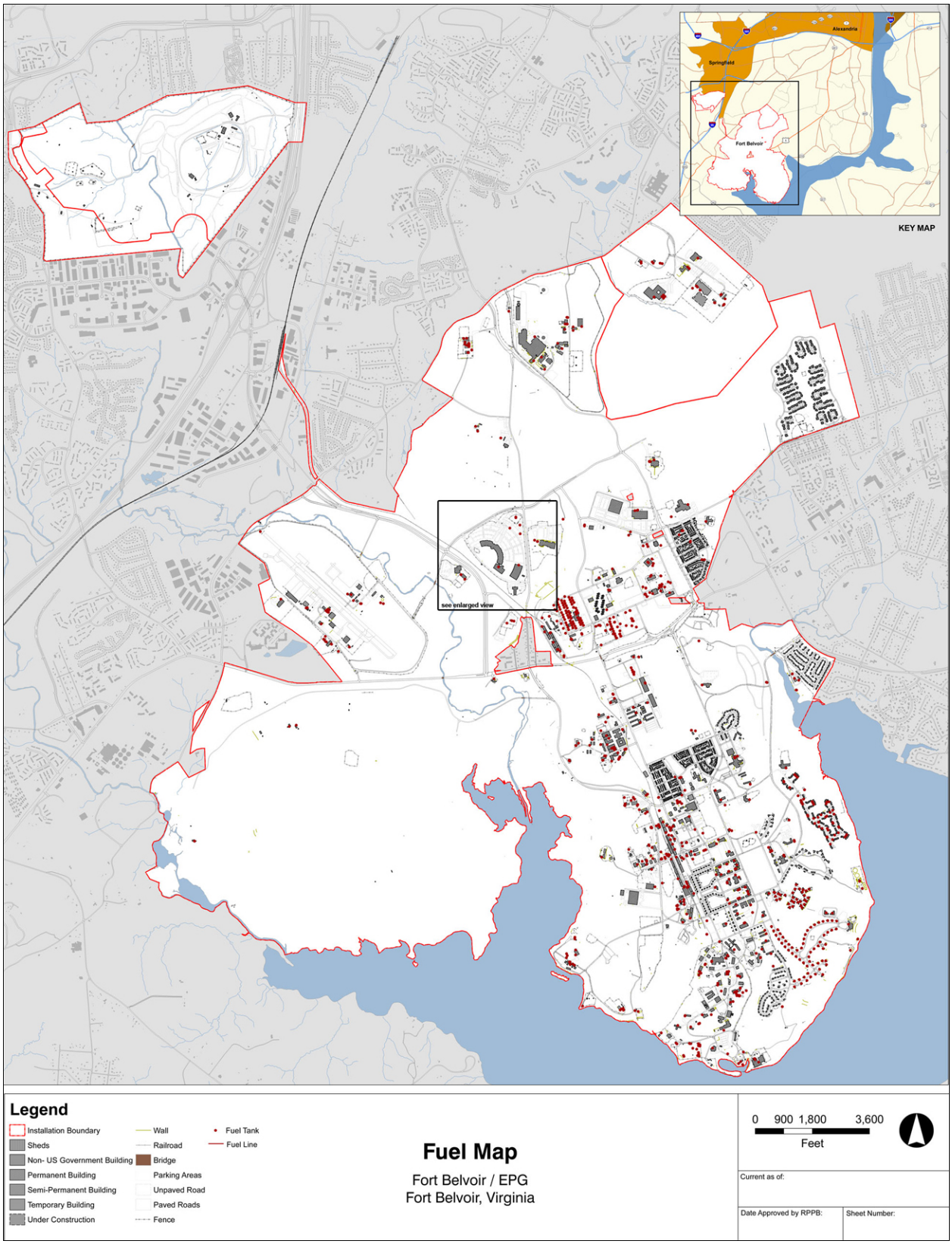
Fuel Map

- Figure 10.50, “Fuel Map - Legend”
- Figure 10.51, “Fuel Map - Detail, actual size”
- Figure 10.52, “Fuel Map”

Figure 10.50 Fuel Map - Legend

Figure 10.51 Fuel Map - Detail, actual size

Figure 10.52 Fuel Map



Communications Map

- Figure 10.53, “Communications Map - Legend”
- Figure 10.54, “Communications Map - Detail, actual size”
- Figure 10.55, “Communications Map”

Figure 10.54 Communications Map - Detail, actual size

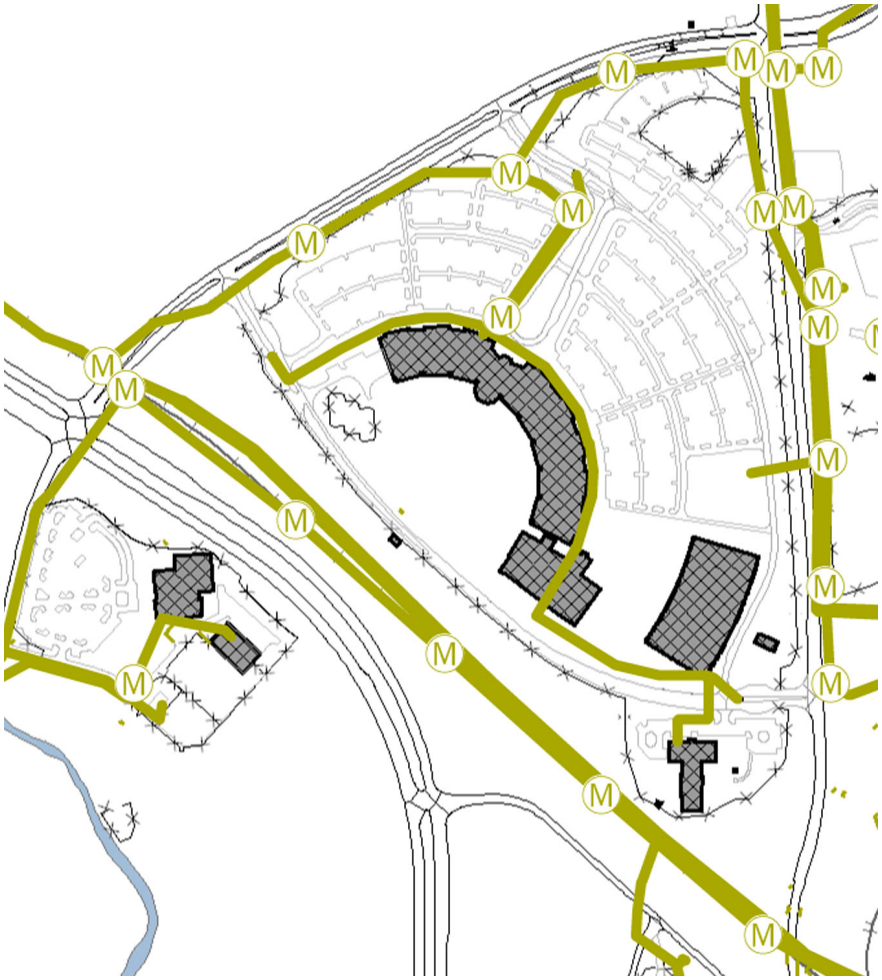
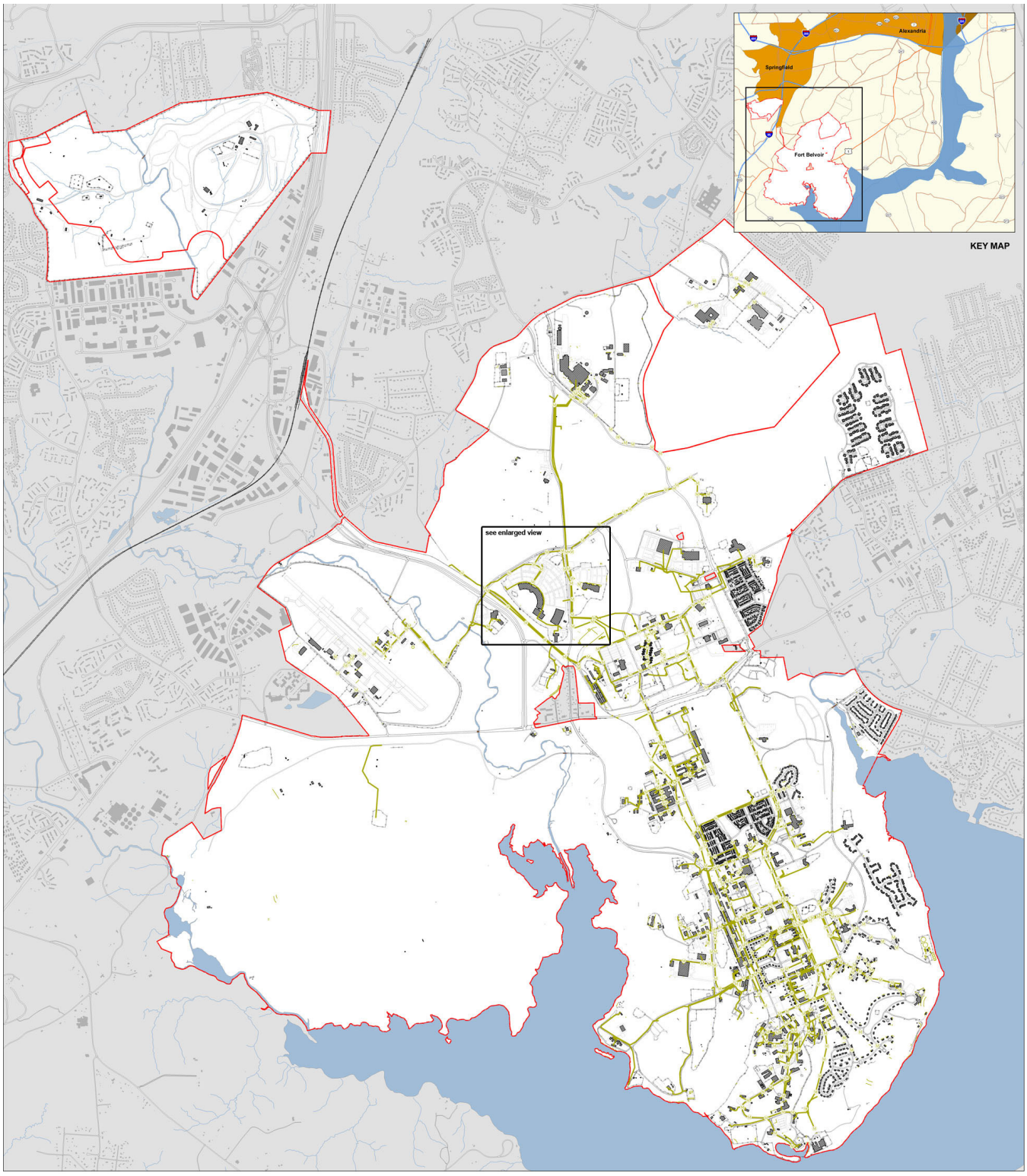


Figure 10.53 Communications Map - Legend

Figure 10.55 Communications Map



Combined Utilities Map

- Figure 10.56, “Combined Utilities Map - Legend”
- Figure 10.57, “Combined Utilities Map - Detail, actual size”
- Figure 10.58, “Combined Utilities Map”

Figure 10.57 Combined Utilities Map - Detail, actual size

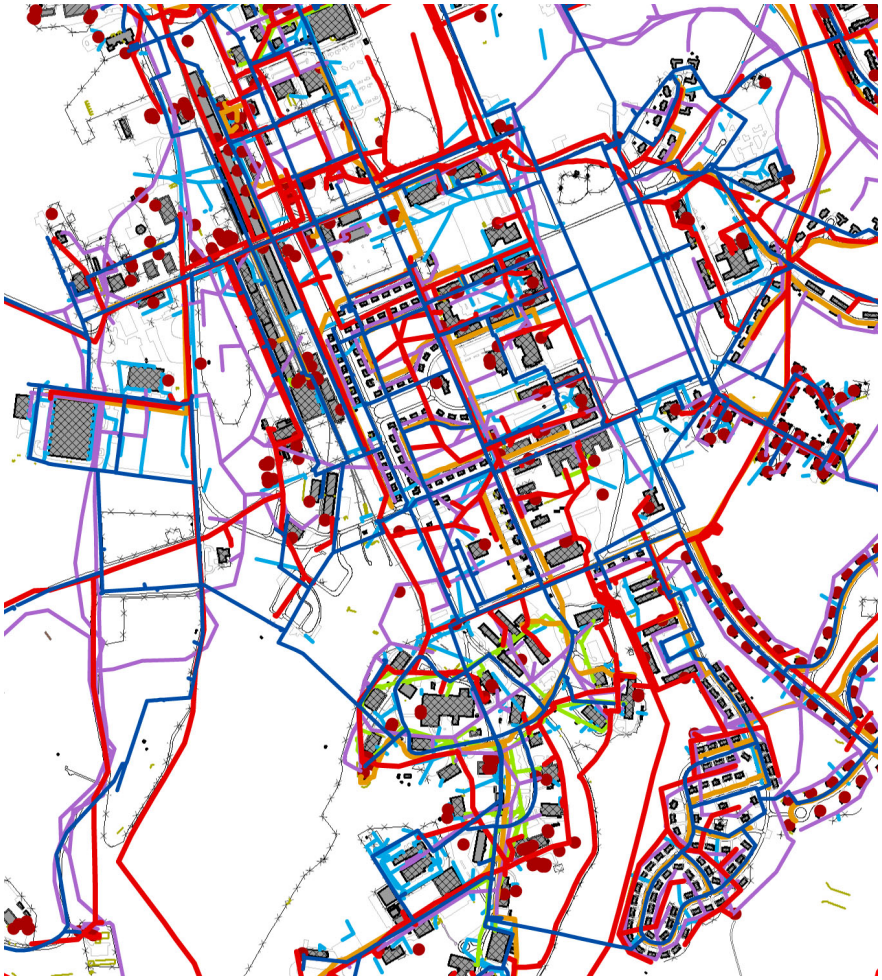
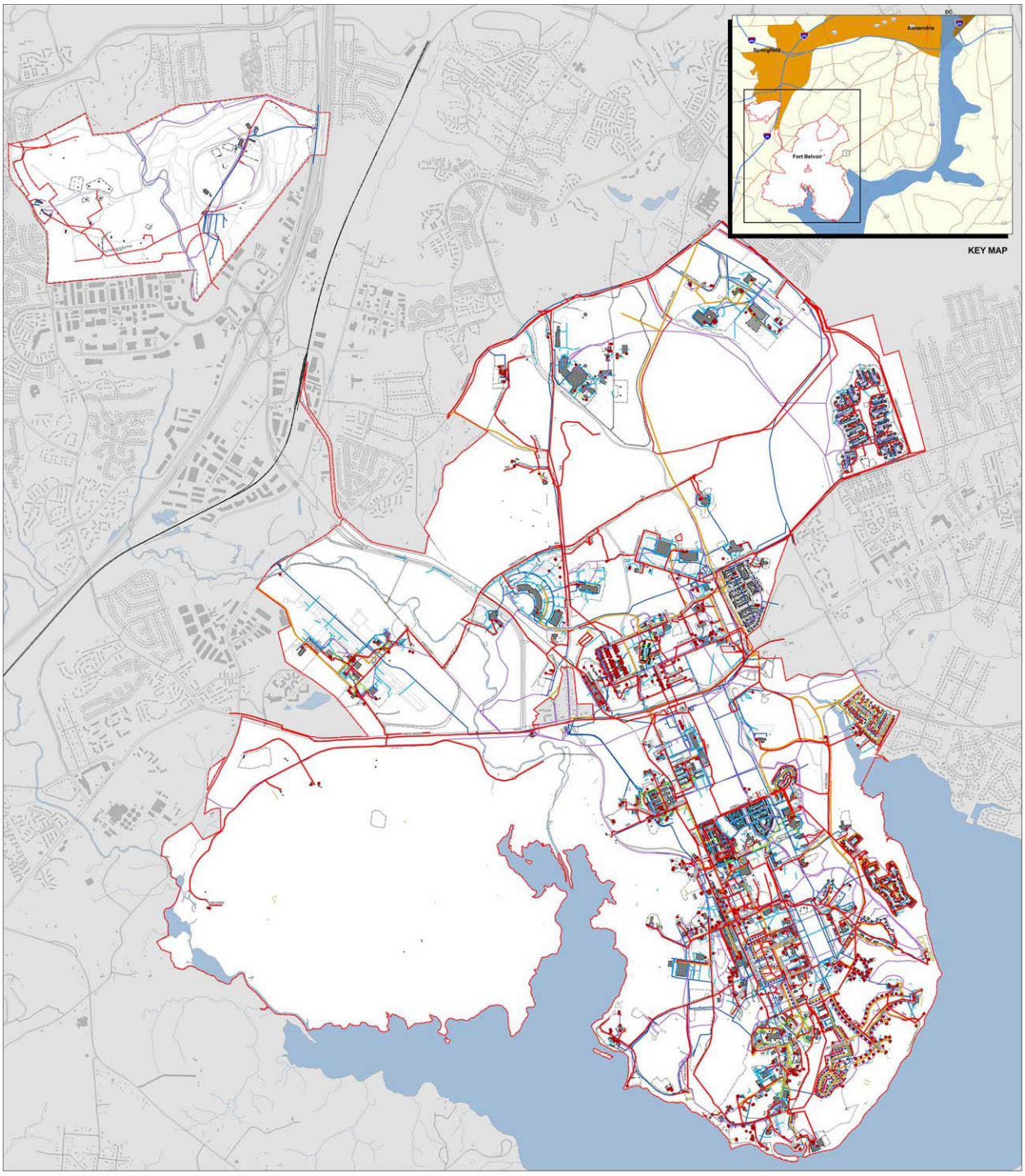


Figure 10.56 Combined Utilities Map - Legend

Figure 10.58 Combined Utilities Map



10.9.2.7 Circulation Maps

Circulation Maps

These maps depict the transportation network both on and off the installation. Use Site Map features as a base.

Transportation Map

- Figure 10.59, "Transportation Map - Legend"
- Figure 10.60, "Transportation Map - Detail, actual size"
- Figure 10.61, "Transportation Map"

Figure 10.60 Transportation Map - Detail, actual size

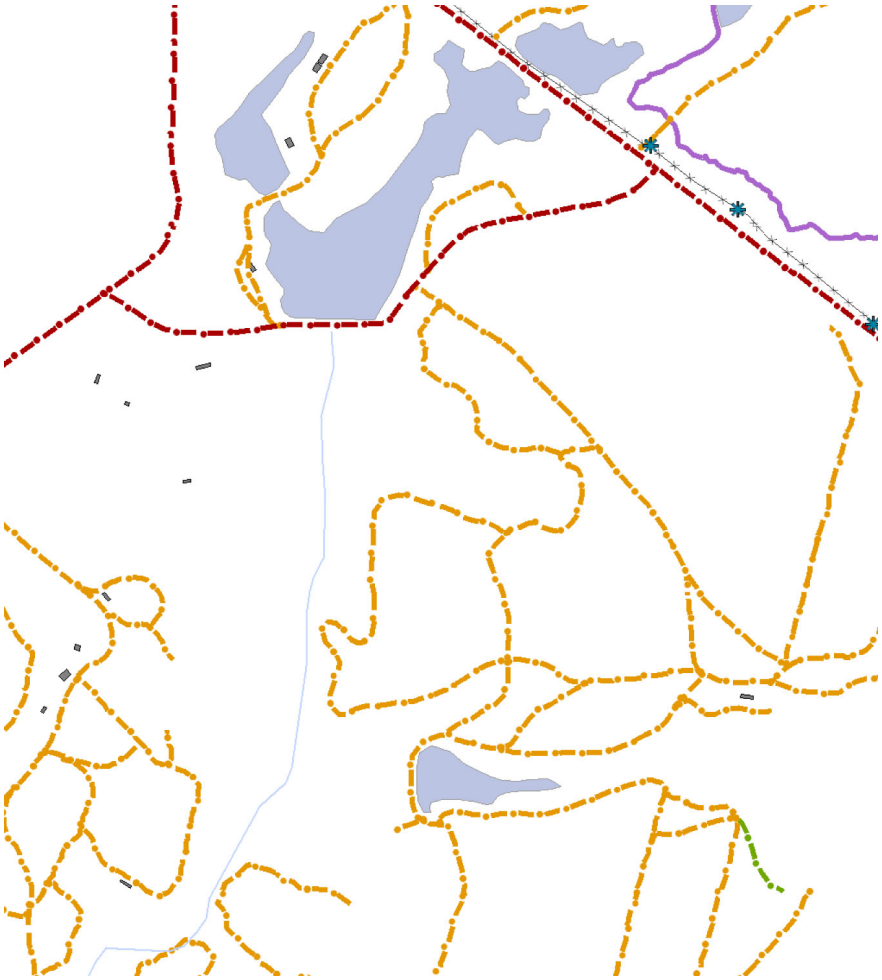


Figure 10.59 Transportation Map - Legend

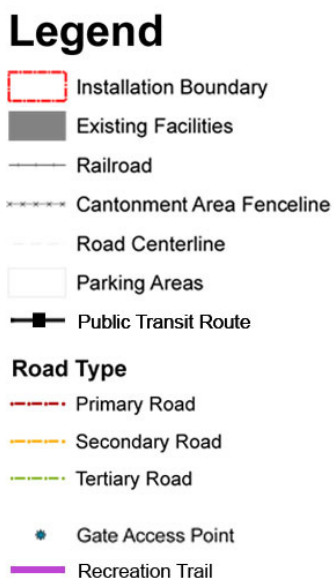
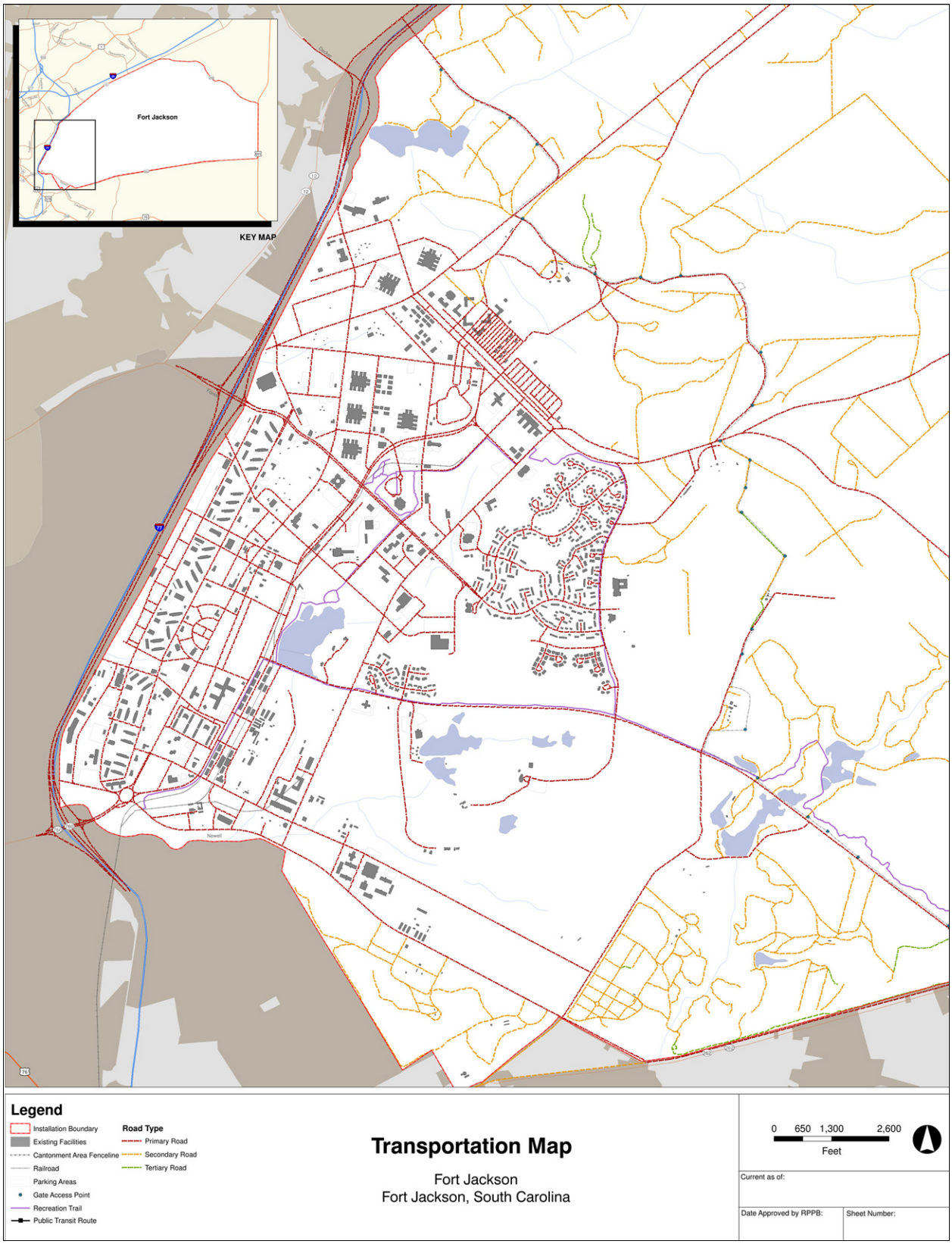


Figure 10.61 Transportation Map



Trails Map

Trails Map

- Figure 10.62, “Trails Map - Legend”
- Figure 10.63, “Trails Map - Detail, actual size”
- Figure 10.64, “Trails Map”

Figure 10.63 Trails Map - Detail, actual size

Figure 10.62 Trails Map - Legend

Figure 10.64 Trails Map

10.9.2.8 Airfields Map

This map shows the location of airfields on the installation, and depicts related constraints. Use Site Map features as a base.

- Figure 10.65, “Airfield Constraints Map - Legend”
- Figure 10.66, “Airfield Constraints Map - Detail, actual size”
- Figure 10.67, “Airfield Constraints Map”

Figure 10.66 Airfield Constraints Map - Detail, actual size

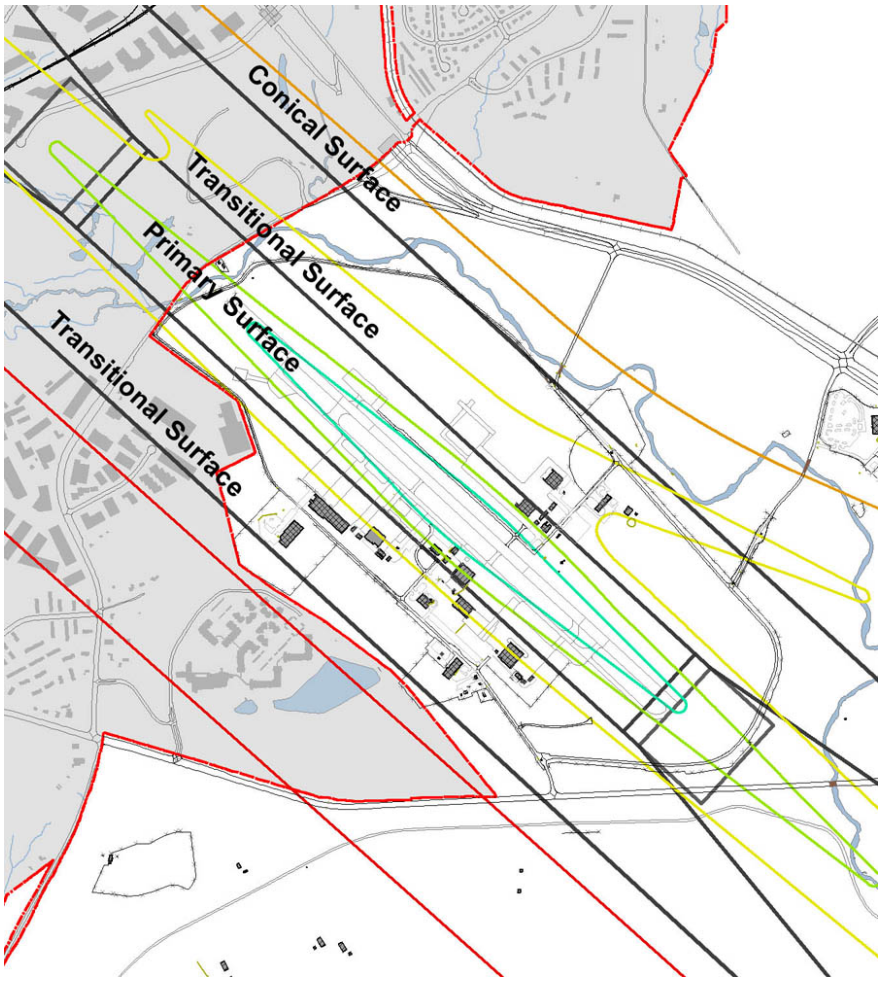
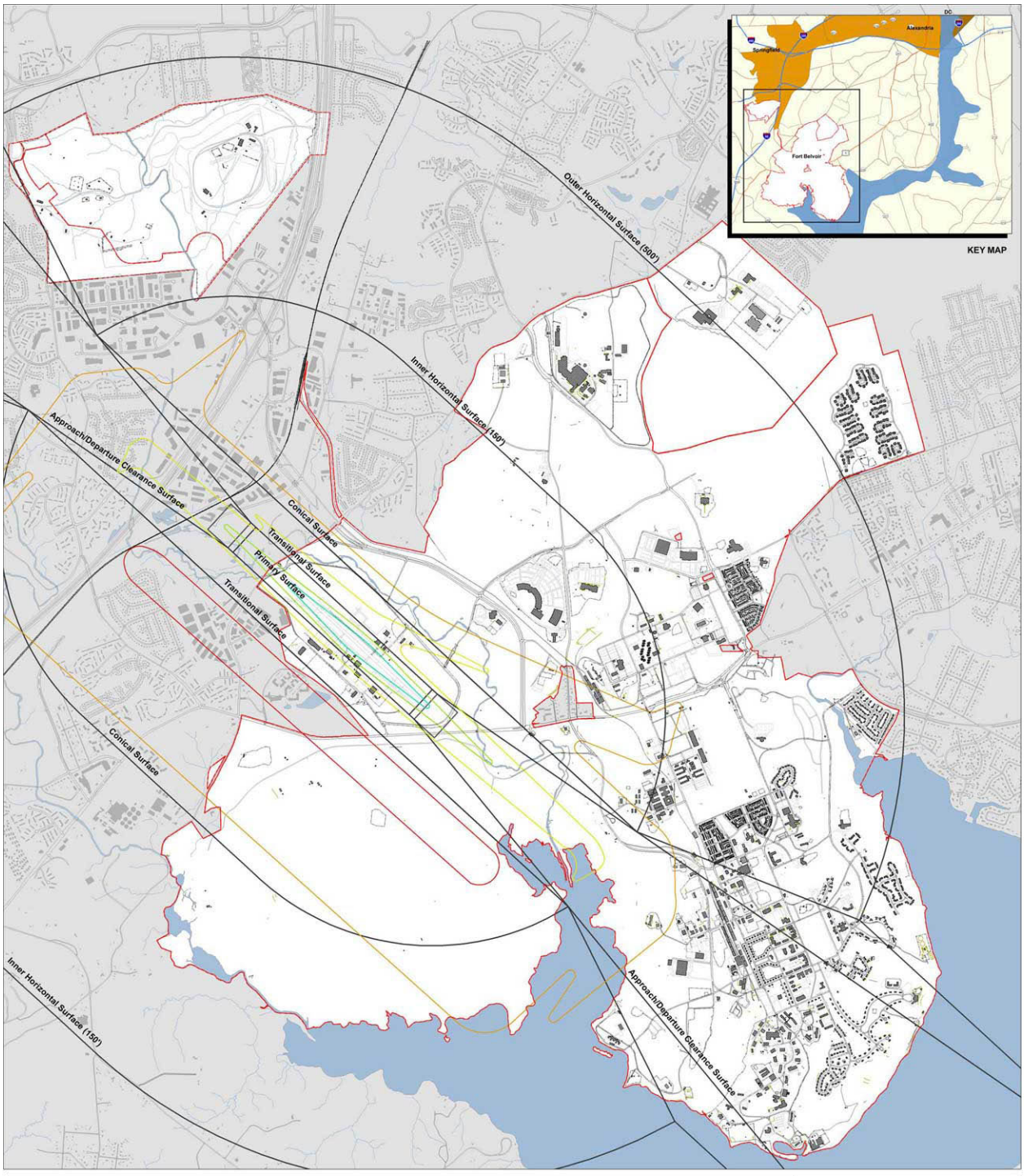


Figure 10.65 Airfield Constraints Map - Legend

Figure 10.67 Airfield Constraints Map



10.9.2.9 Ranges and Training Lands Map

This map shows the location of ranges and training lands on the installation, and depicts related constraints. Use Site Map features as a base.

- Figure 10.68, "Ranges and Training Lands Map - Legend"
- Figure 10.69, "Ranges and Training Lands Map -Detail, actual size"
- Figure 10.70, "Ranges and Training Lands Map"

Figure 10.69 Ranges and Training Lands Map -Detail, actual size

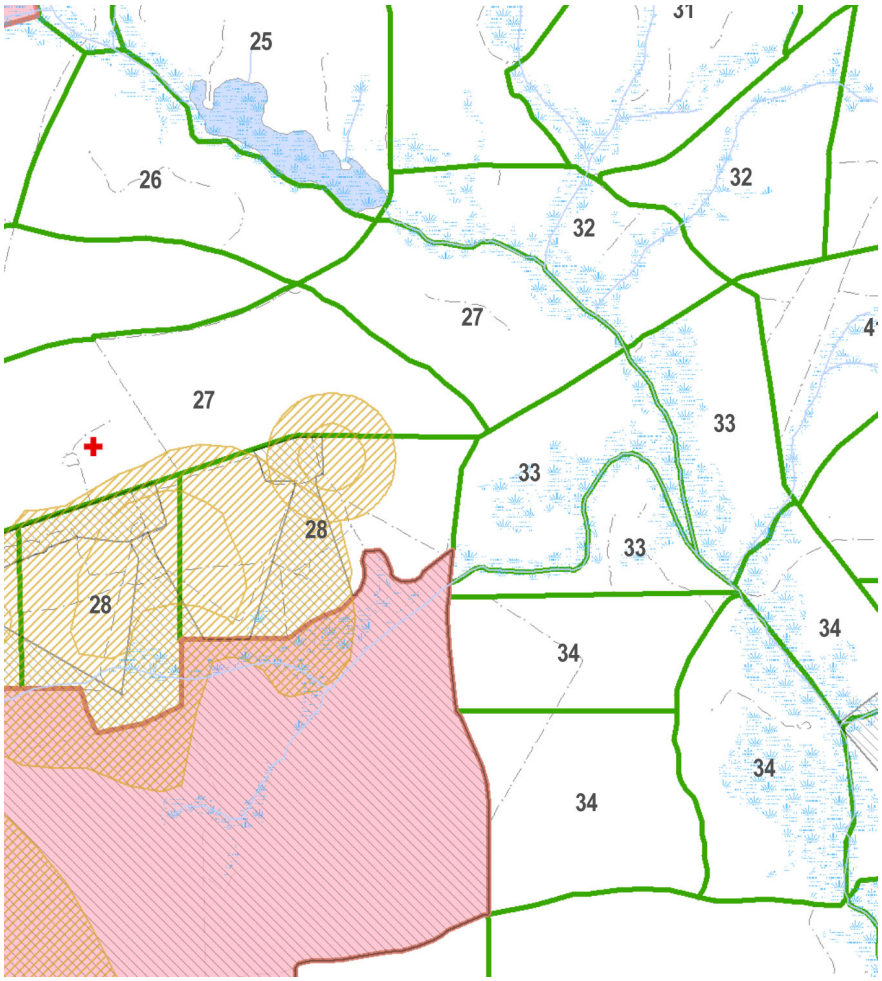


Figure 10.68 Ranges and Training Lands Map - Legend

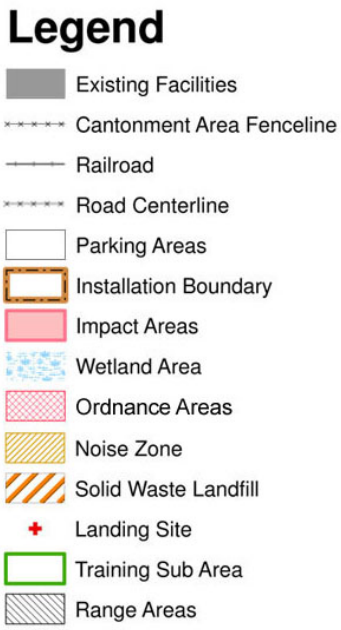
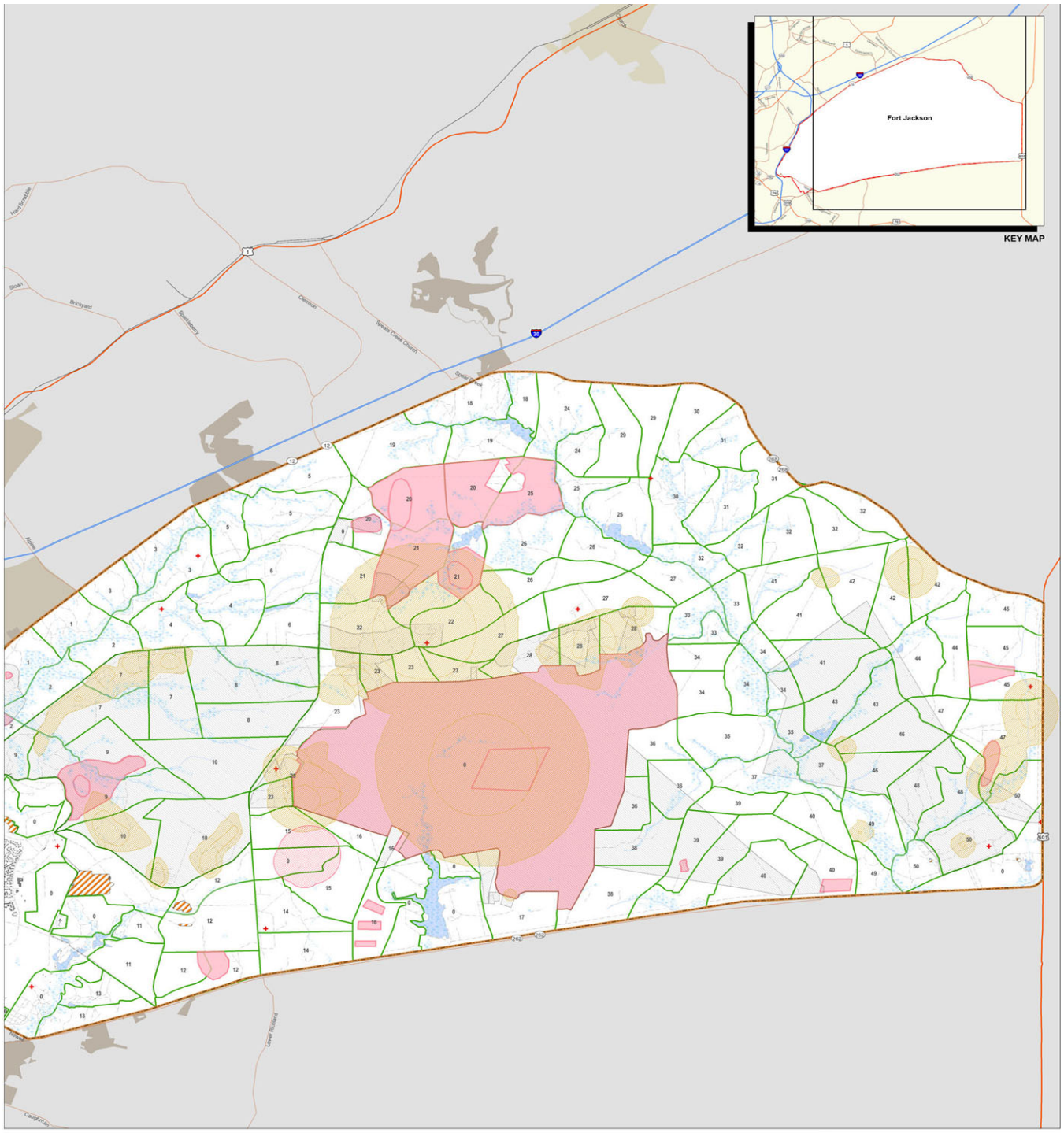


Figure 10.70 Ranges and Training Lands Map



10.9.3 Plans

10.9.3.1 Framework Plans

The Framework Plan depicts the installation-wide framework for how and where development densities and types, open space, circulation, and utilities will be distributed over time.

10.9.3.2 Future Development Plan

The Future Development Plan depicts planned and/or proposed projects that satisfy all (long and short term) installation requirements. Use Site Map features as a base. The Future Development Plan displays all RPPB-approved projects resulting from the Long Range Analysis. Include all required projects, valid but not essential, that result from the TAB buyout.

The Future Development Plan also represents the short-term future development of an installation over the next five to seven years. Each plan should show all projects contained in the Future Years Defense Plan window, projects under construction, and a table listing specific project information.

For examples of Future Development Plans, see https://eko.usace.army.mil/public/fa/arpmp/

10.9.3.3 Utilities

Electrical Plan

- Figure 10.71, “Electrical Plan - Legend”
- Figure 10.72, “Electrical Plan - Detail, actual size”
- Figure 10.73, “Electrical Plan”

Figure 10.72 Electrical Plan - Detail, actual size

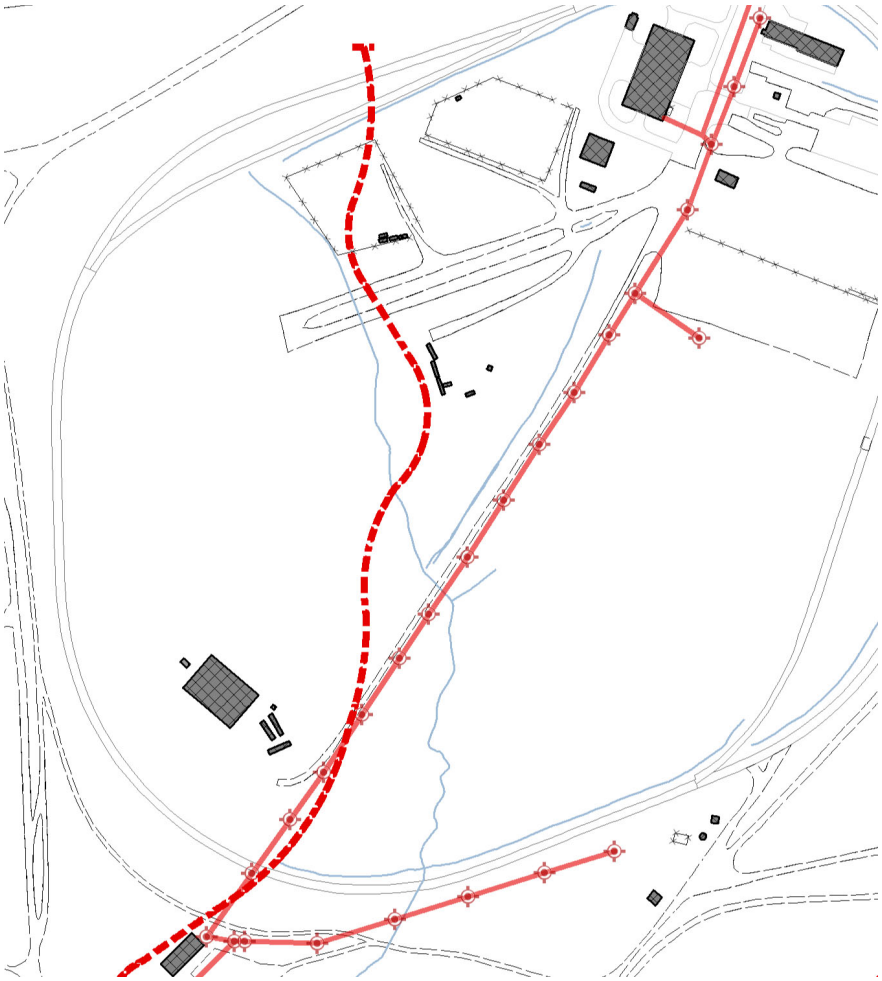


Figure 10.71 Electrical Plan - Legend

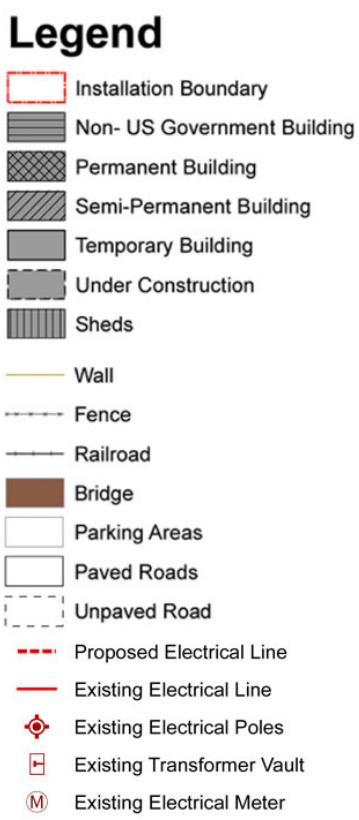
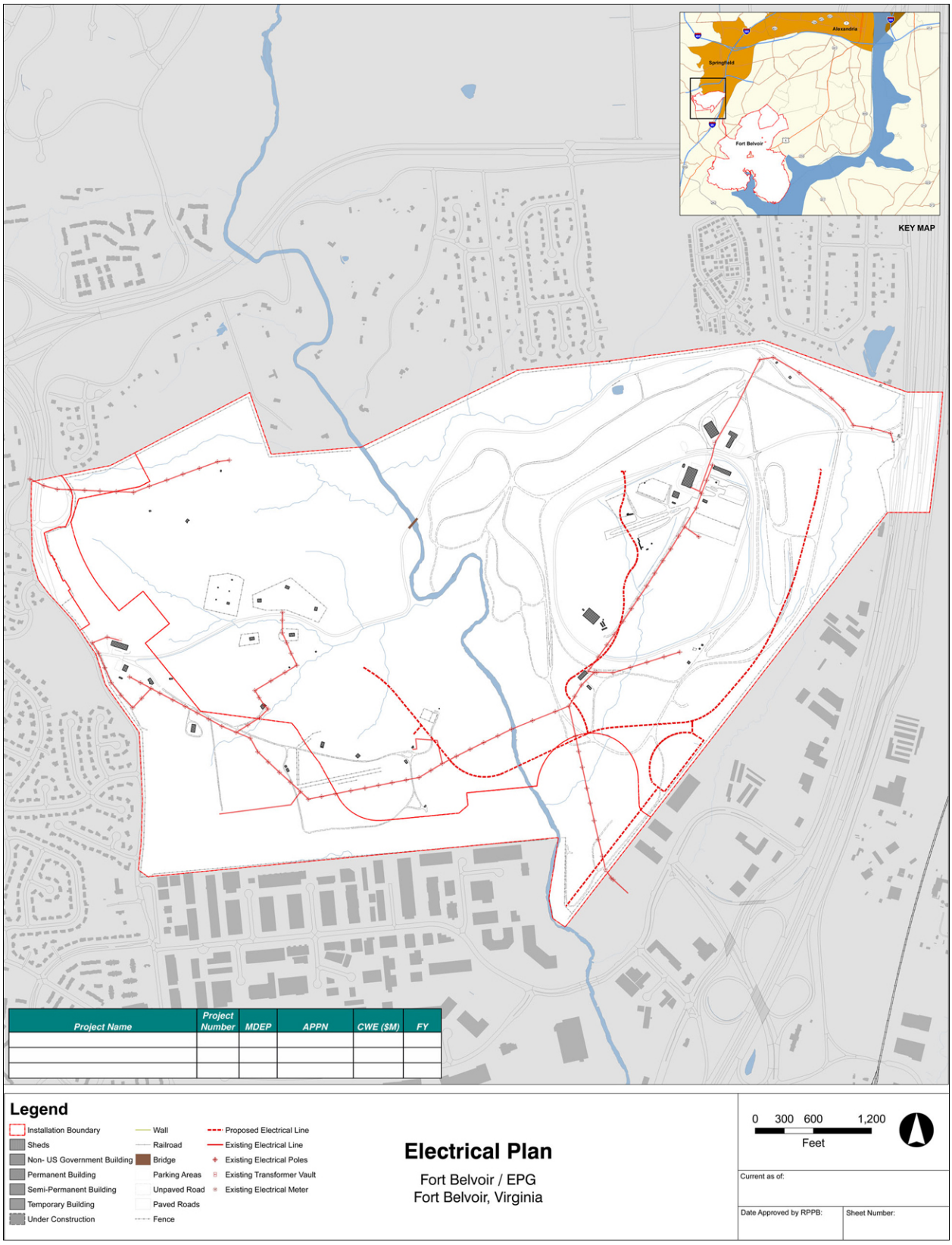


Figure 10.73 Electrical Plan



Natural Gas Plan

- Figure 10.74, “Natural Gas Plan - Legend”
- Figure 10.75, “Natural Gas Plan - Detail, actual size”
- Figure 10.76, “Natural Gas Plan”

Figure 10.75 Natural Gas Plan - Detail, actual size

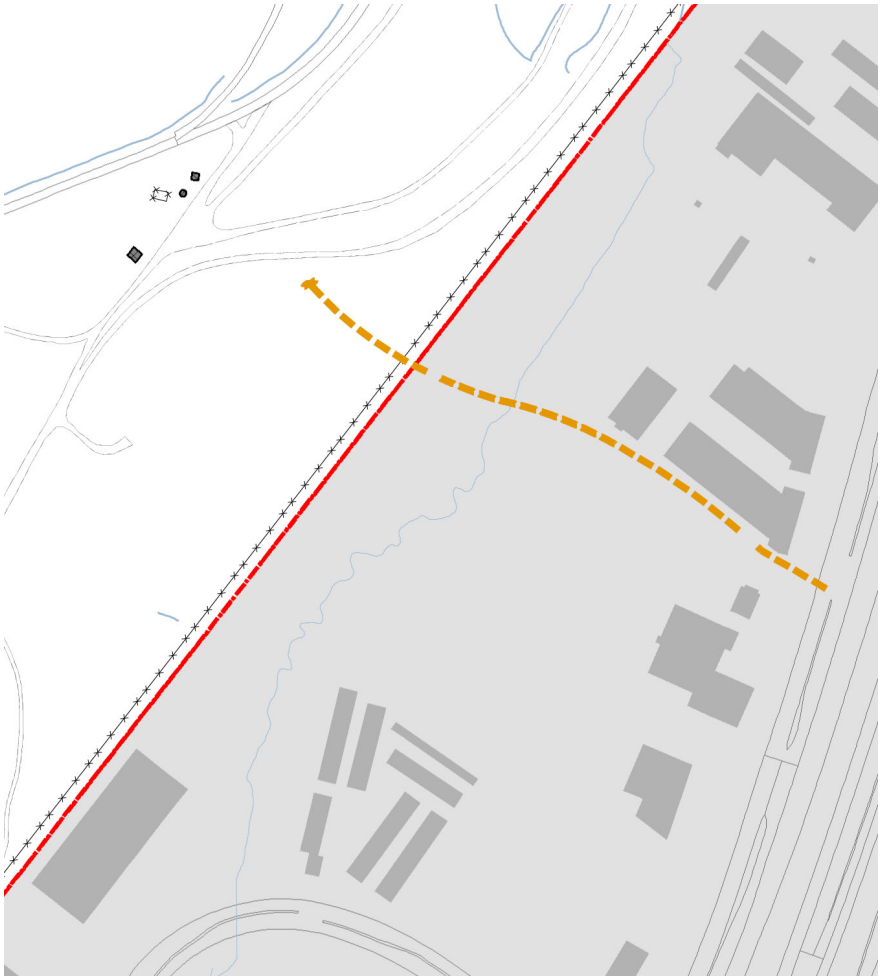


Figure 10.74 Natural Gas Plan - Legend

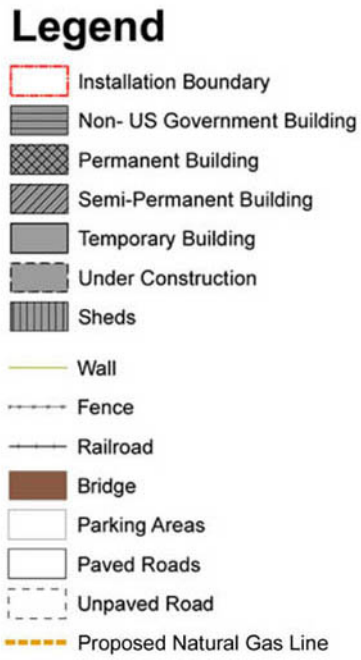
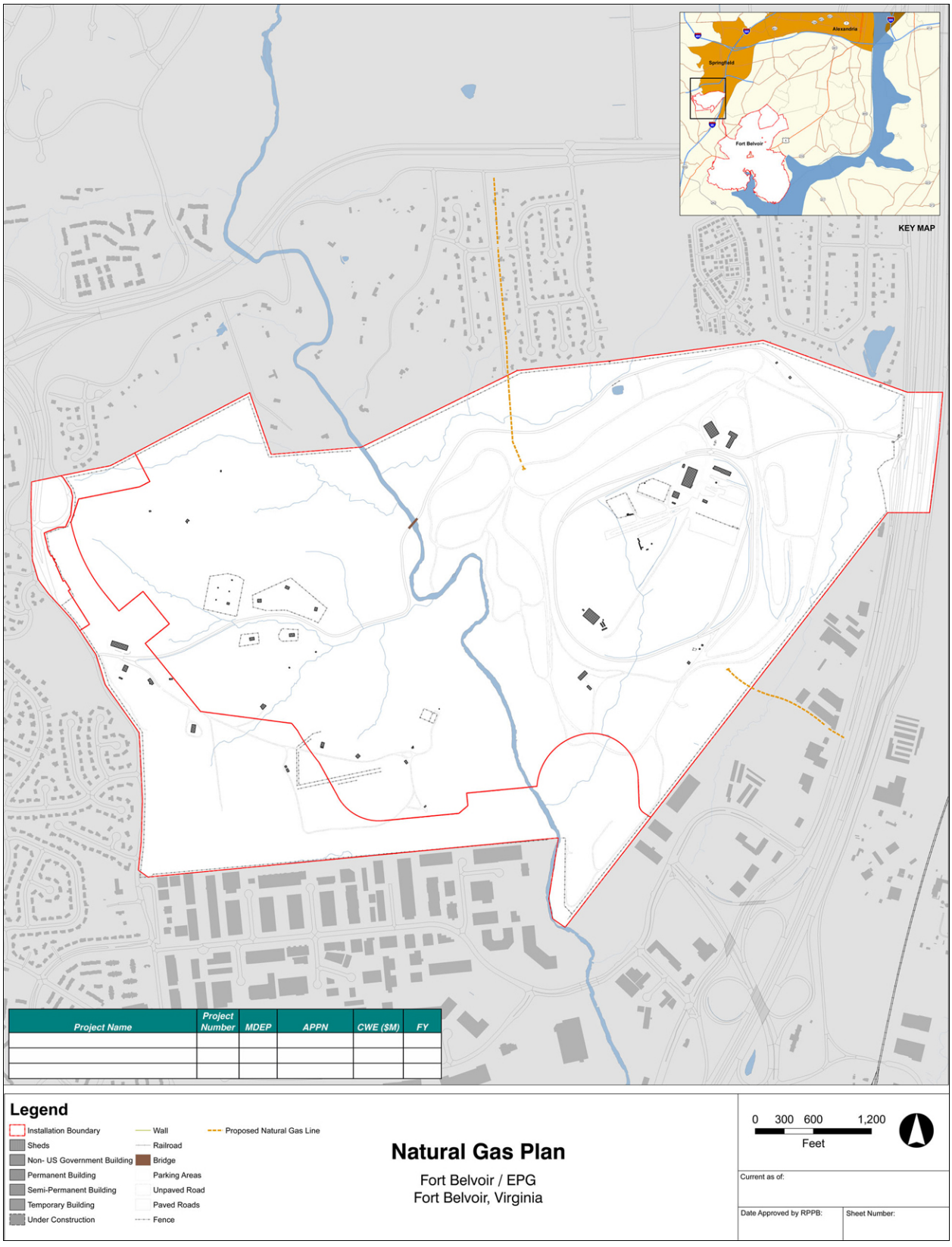


Figure 10.76 Natural Gas Plan



Water Plan

- Figure 10.77, “Water Plan - Legend”
- Figure 10.78, “Water Plan - Detail, actual size”
- Figure 10.79, “Water Plan”

Figure 10.78 Water Plan - Detail, actual size

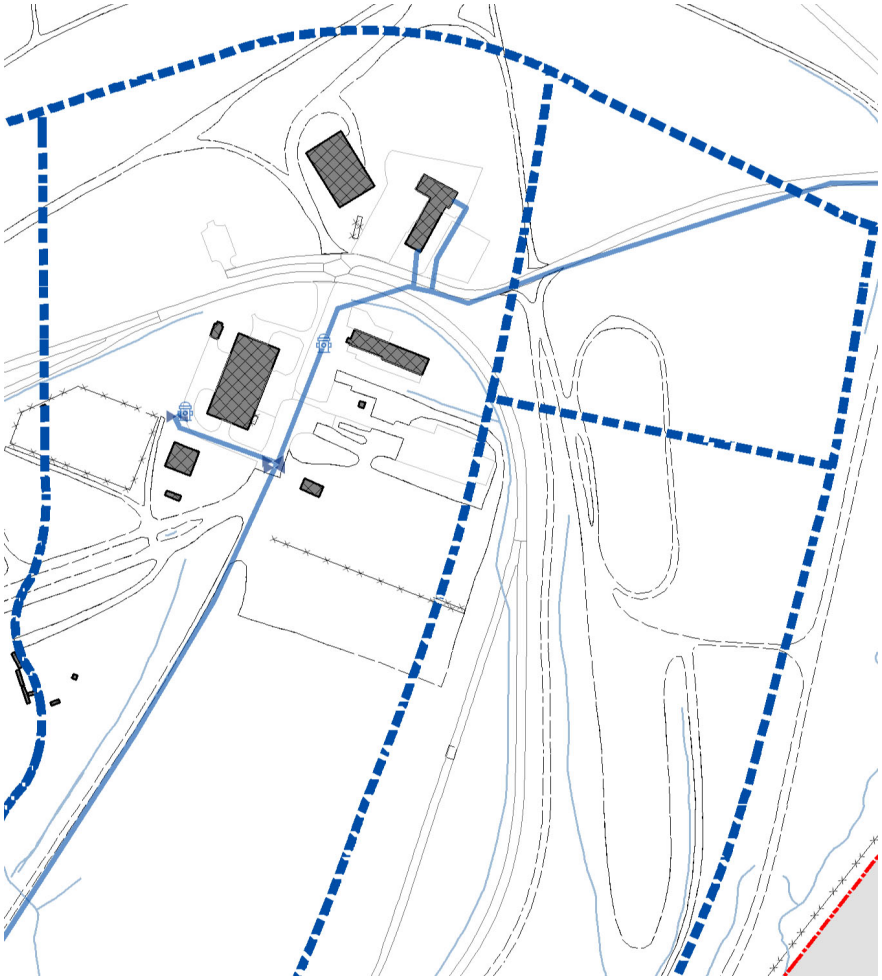
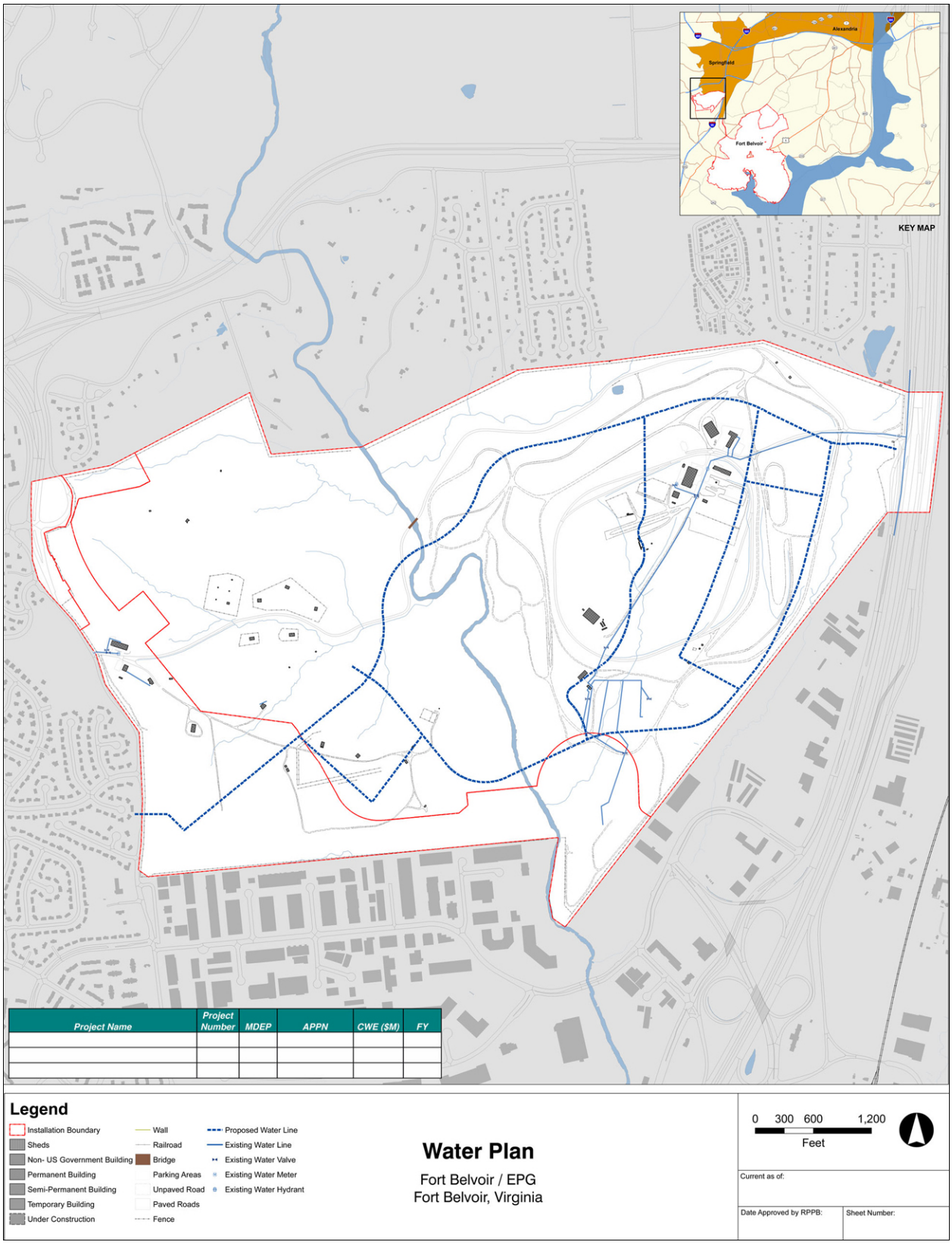


Figure 10.77 Water Plan - Legend

Figure 10.79 Water Plan



Waste Water Plan

- Figure 10.80, “Waste Water Plan - Legend”
- Figure 10.81, “Waste Water Plan - Detail, actual size”
- Figure 10.82, “Waste Water Plan”

Figure 10.81 Waste Water Plan - Detail, actual size

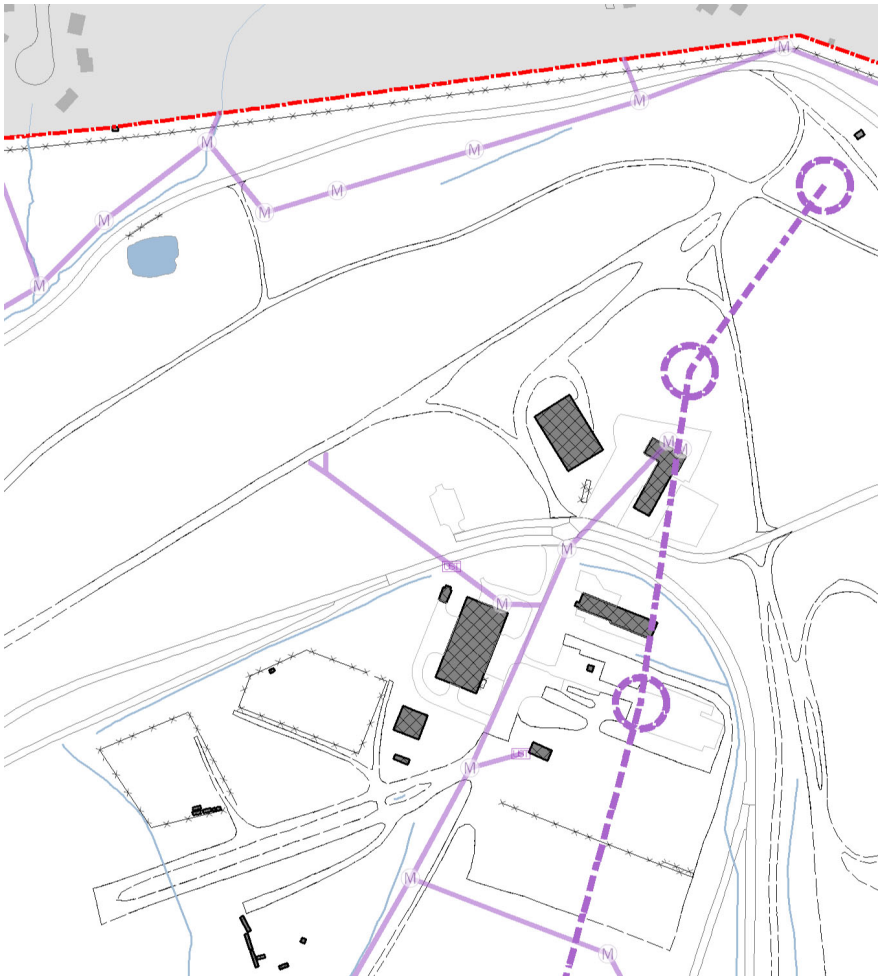
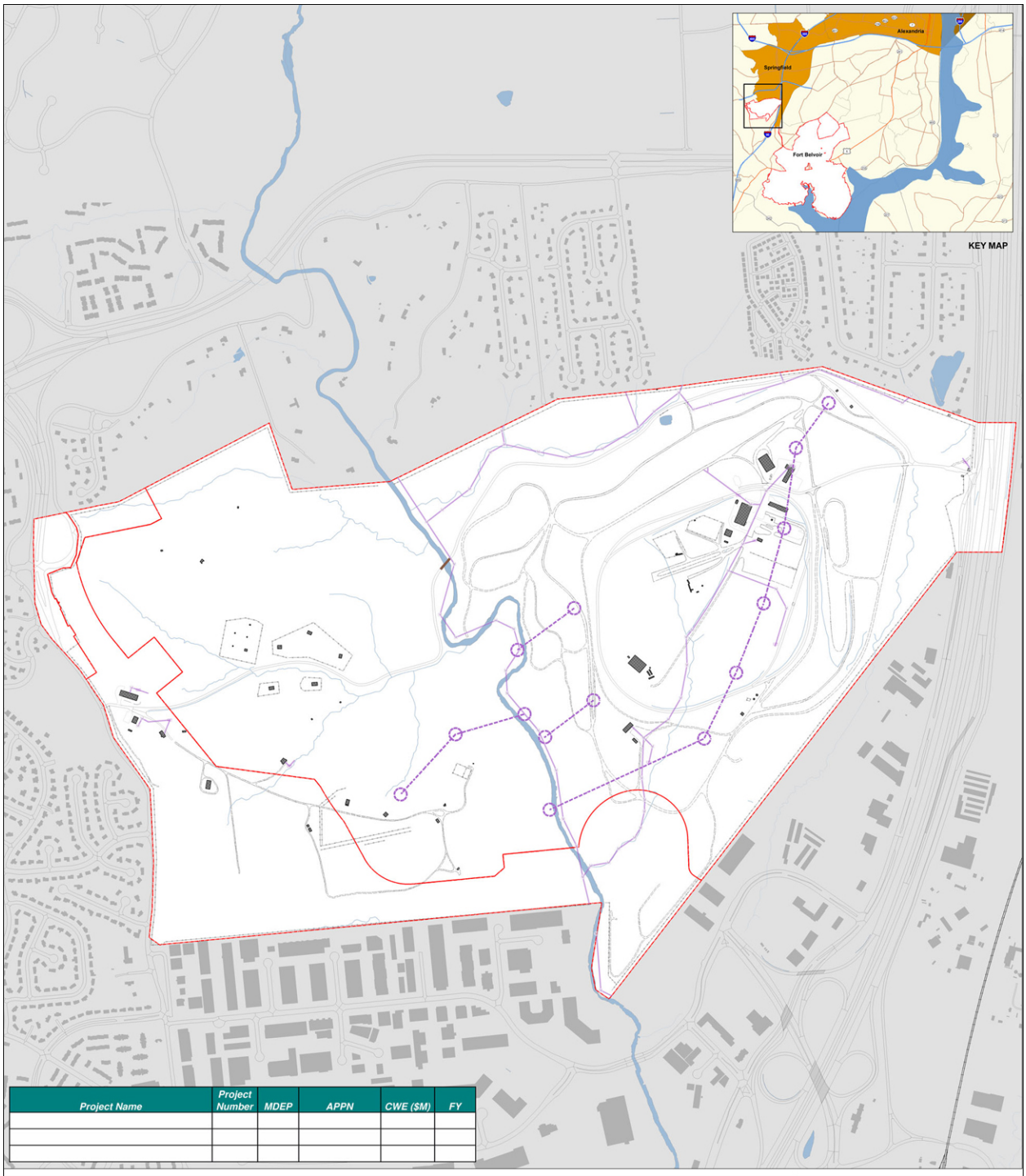


Figure 10.80 Waste Water Plan - Legend

Figure 10.82 Waste Water Plan



Storm Water Plan

- Figure 10.83, “Storm Water Plan - Legend”
- Figure 10.84, “Storm Water Plan - Detail, actual size”
- Figure 10.85, “Storm Water Plan”

Figure 10.84 Storm Water Plan - Detail, actual size

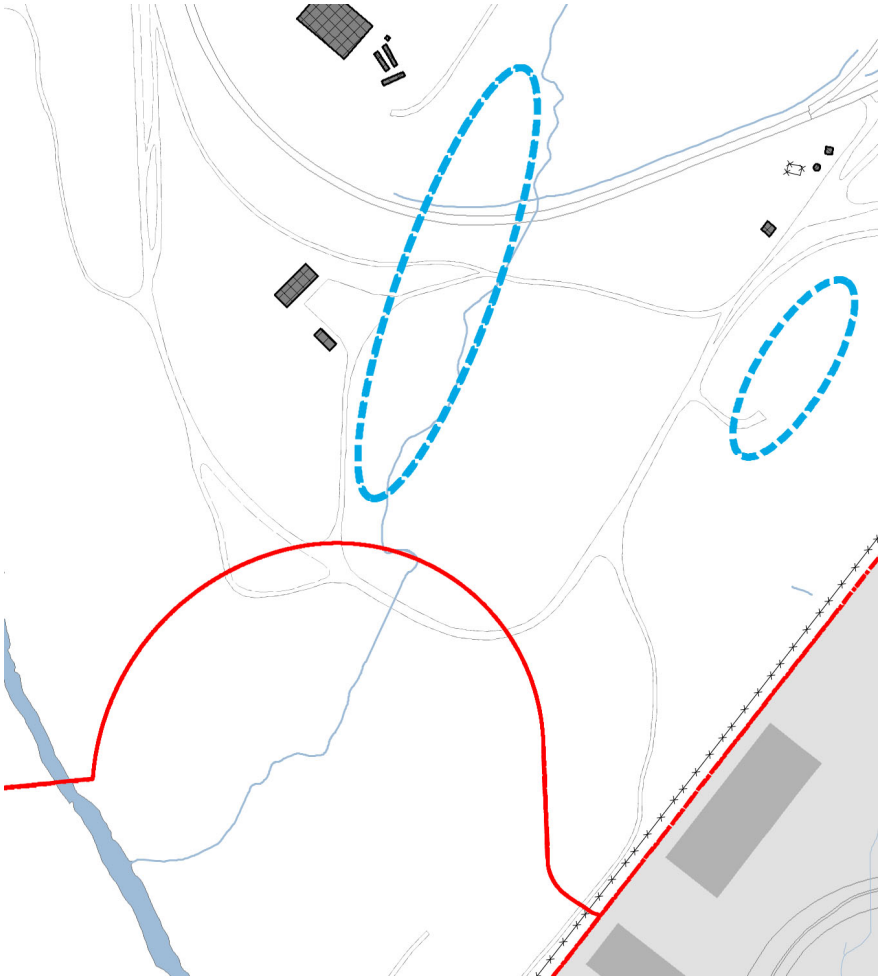


Figure 10.83 Storm Water Plan - Legend

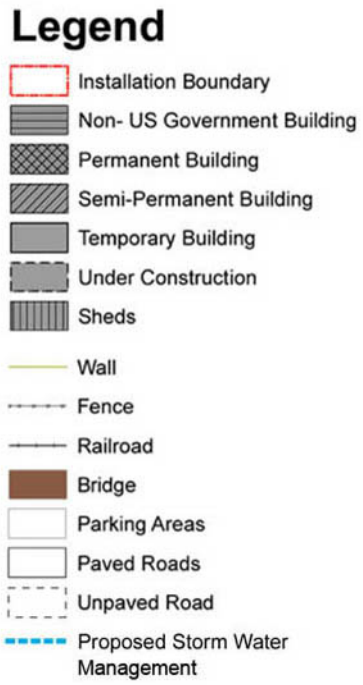
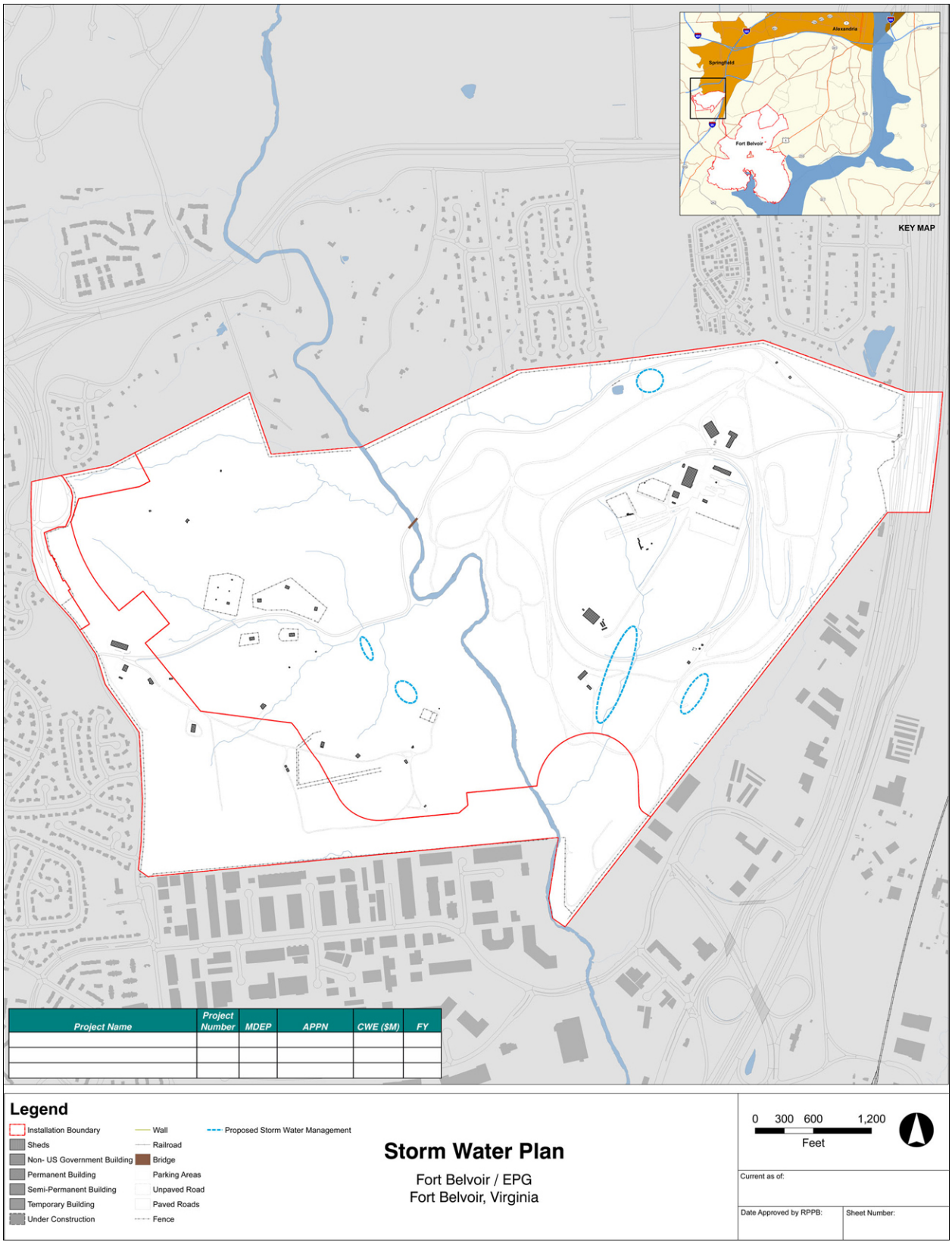


Figure 10.85 Storm Water Plan



Central Energy System Plan

- Figure 10.86, “Central Energy System Plan - Legend”
- Figure 10.87, “Central Energy System Plan - Detail, actual size”
- Figure 10.88, “Central Energy System Plan”

Figure 10.87 Central Energy System Plan - Detail, actual size

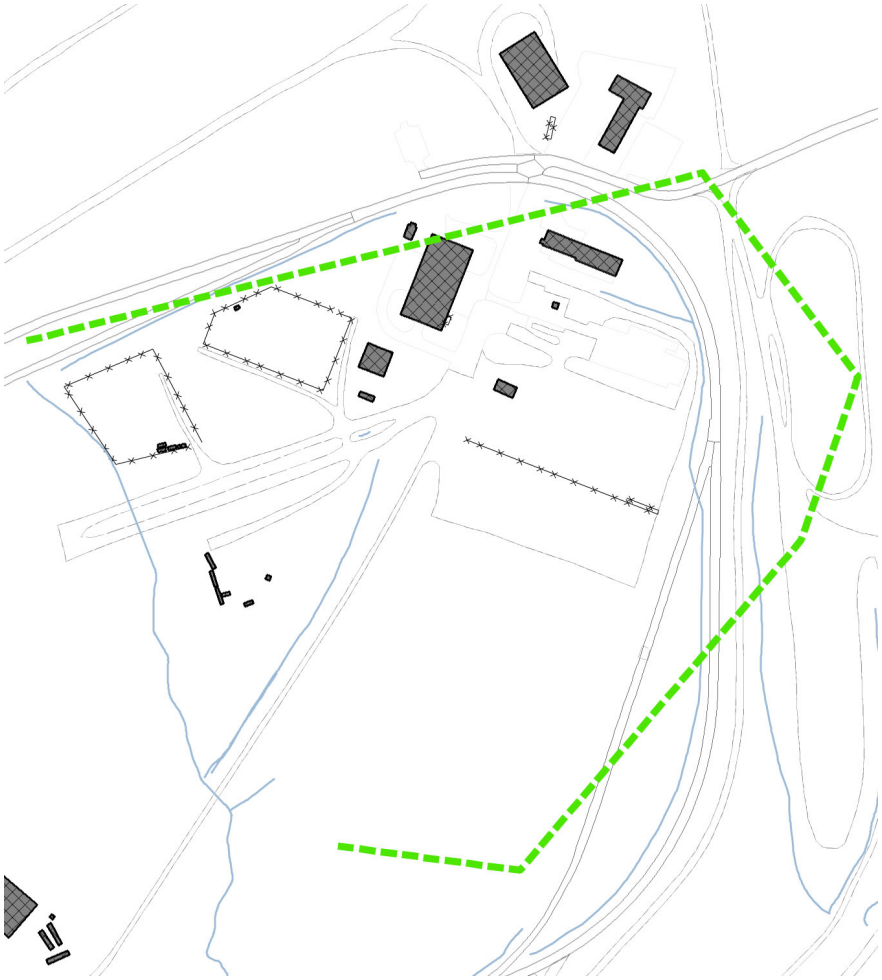


Figure 10.86 Central Energy System Plan - Legend

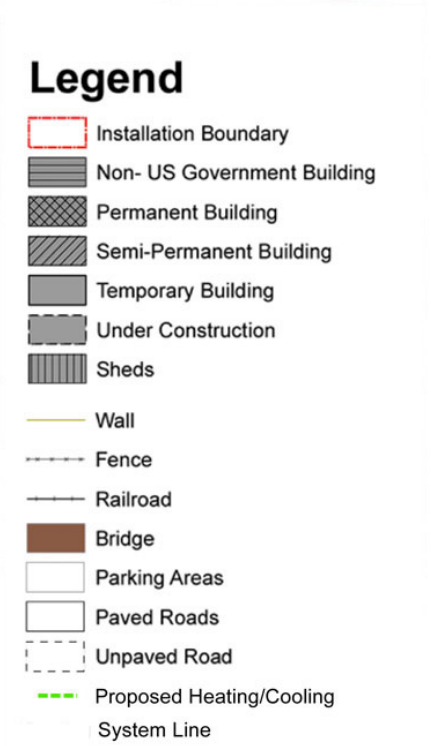
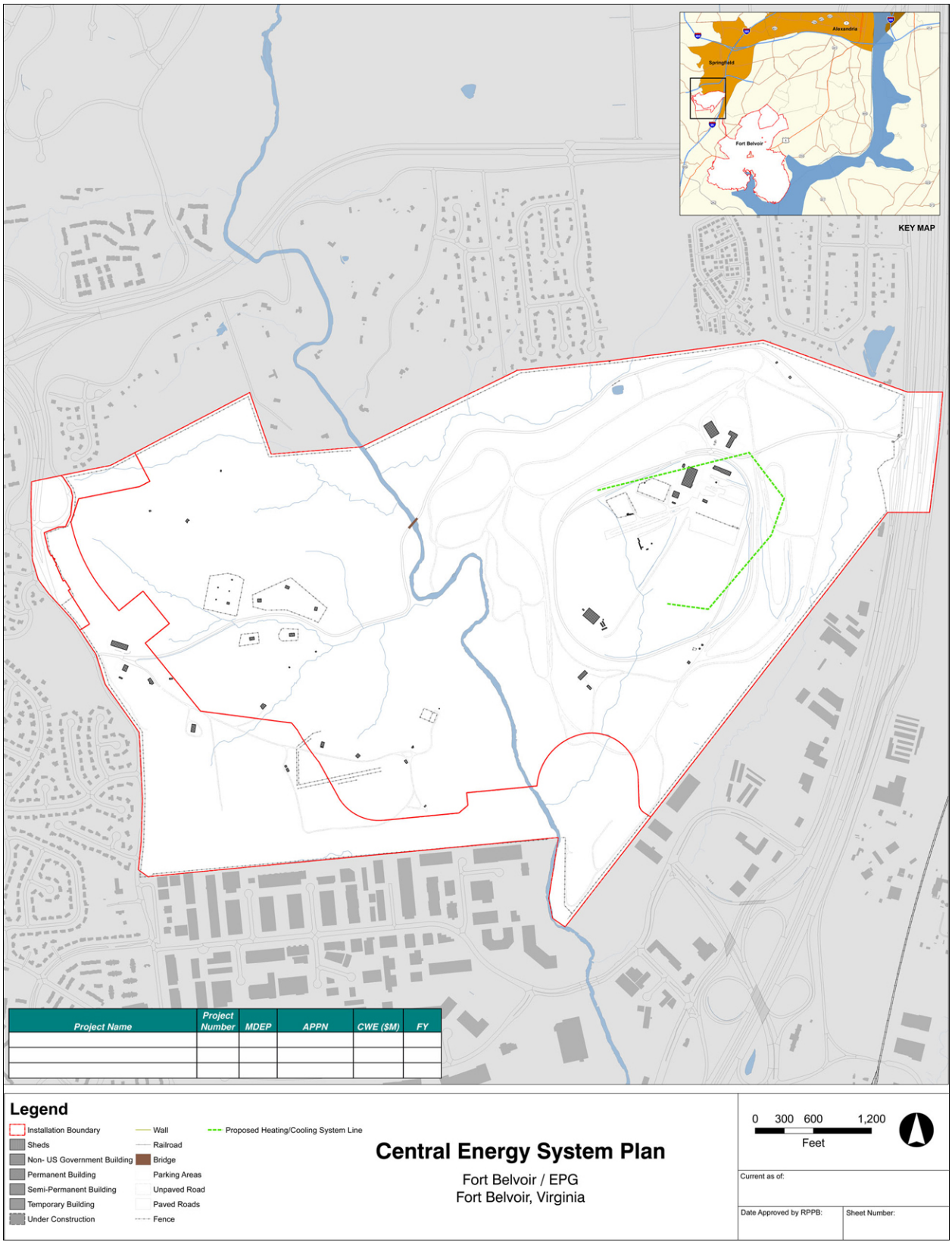


Figure 10.88 Central Energy System Plan



Fuel Plan

- Figure 10.89, “Fuel Plan - Legend”
- Figure 10.90, “Fuel Plan - Detail, actual size”
- Figure 10.91, “Fuel Plan”

Figure 10.90 Fuel Plan - Detail, actual size

Figure 10.89 Fuel Plan - Legend

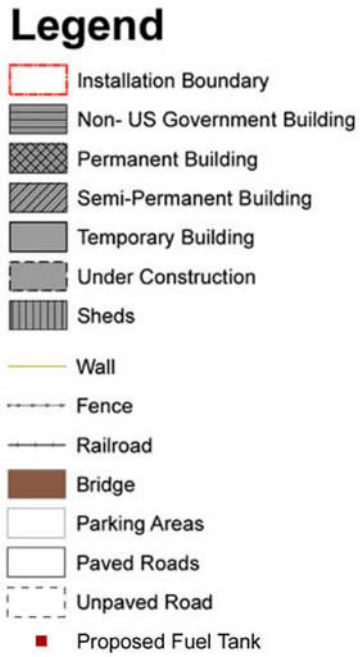
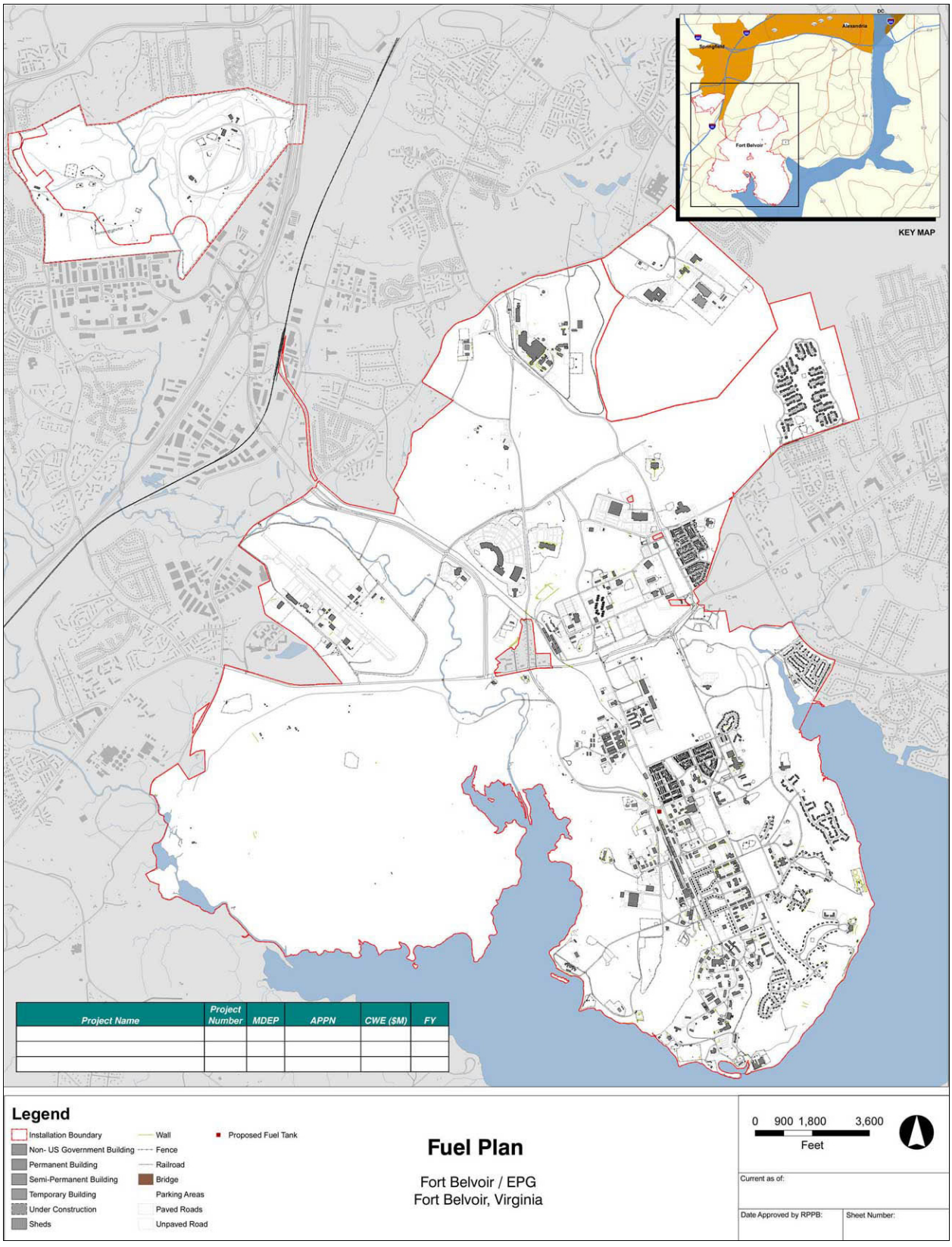


Figure 10.91 Fuel Plan



Communications Plan

- Figure 10.92, “Communications Plan - Legend”
- Figure 10.93, “Communications Plan - Detail, actual size”
- Figure 10.94, “Communications Plan”

Figure 10.93 Communications Plan - Detail, actual size

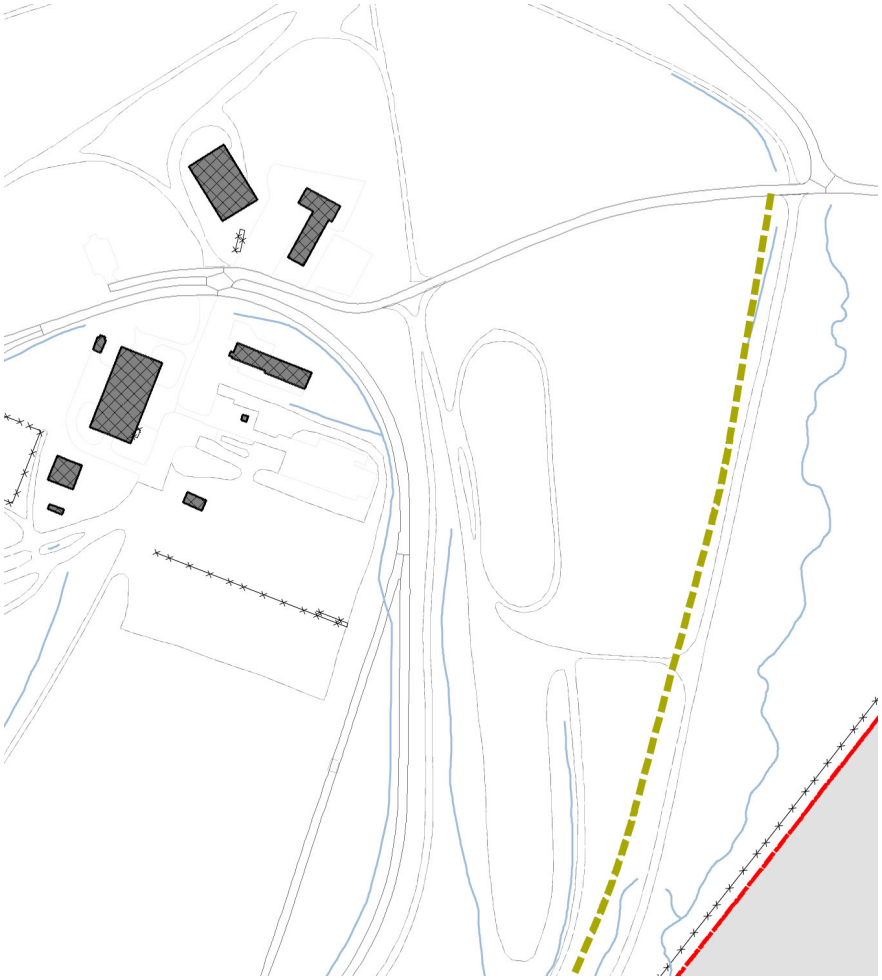


Figure 10.92 Communications Plan - Legend

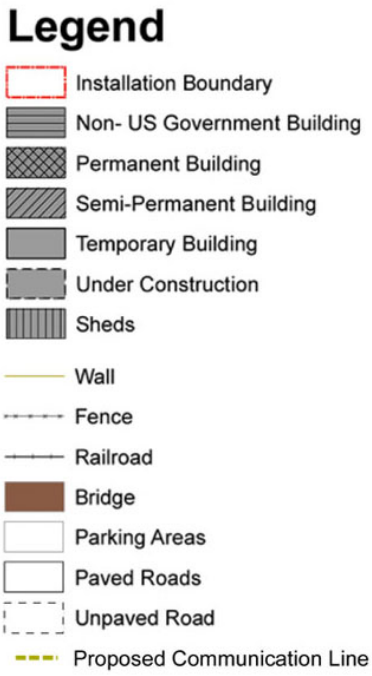
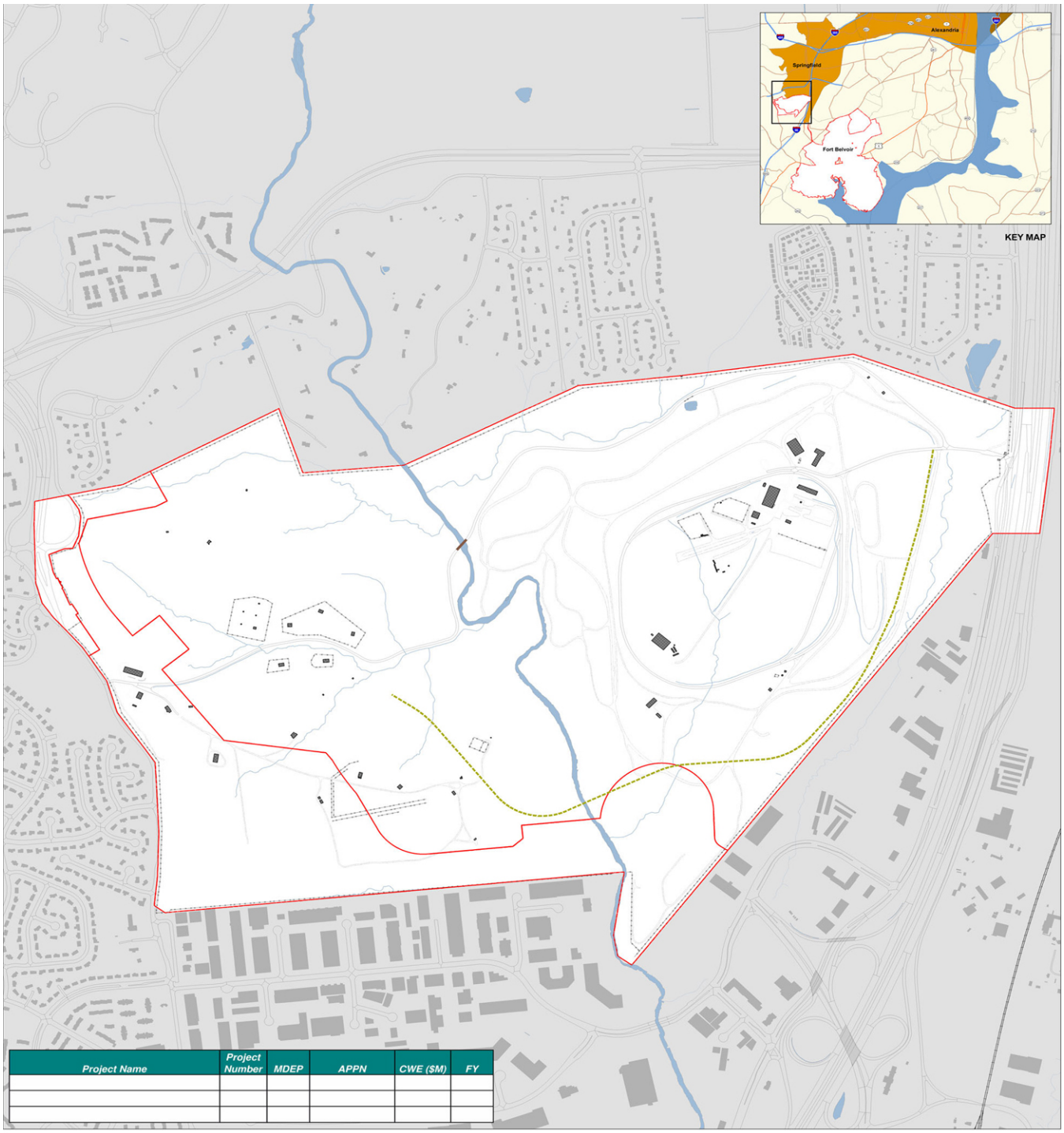


Figure 10.94 Communications Plan



10.9.3.4 Circulation

Transportation Plan

Transportation Plans depicts proposed transportation projects and infrastructure required to support the Future Development Plan.

- Figure 10.95, “Transportation Plan - Legend”
- Figure 10.96, “ Transportation Plan - Detail, actual size”
- Figure 10.97, “Transportation Plan”

Figure 10.96 Transportation Plan - Detail, actual size

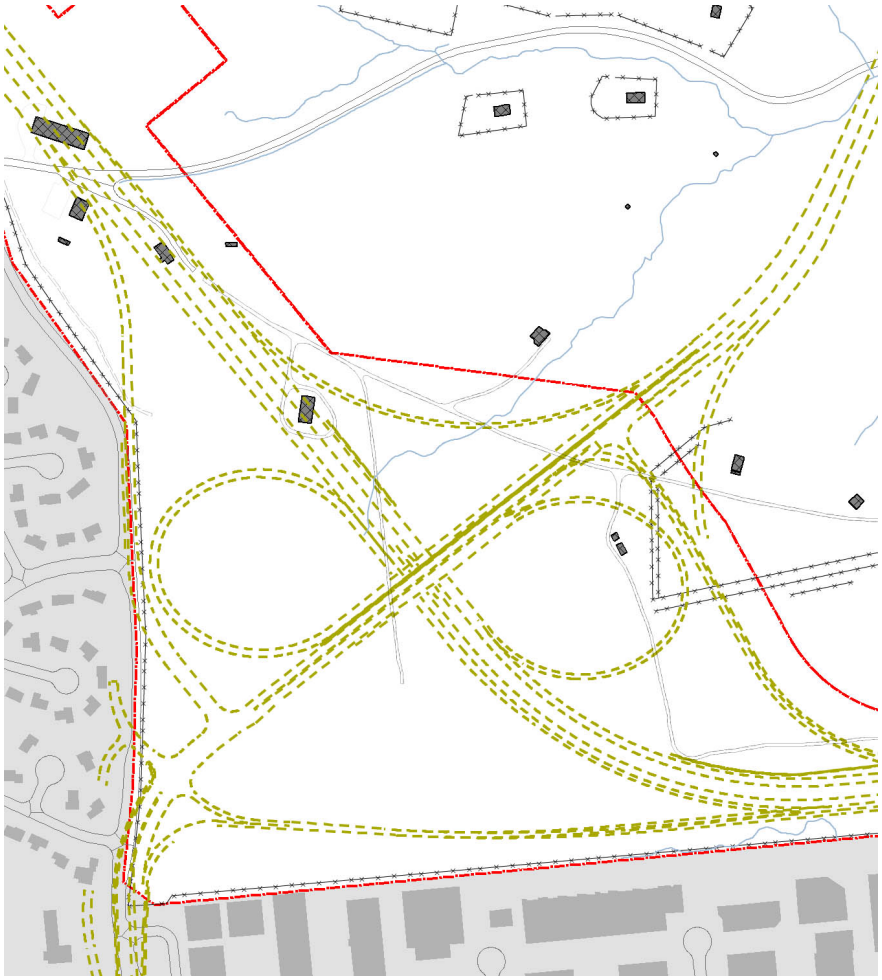


Figure 10.95 Transportation Plan - Legend

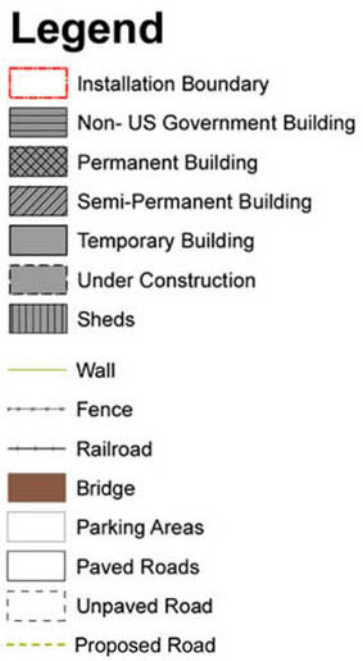
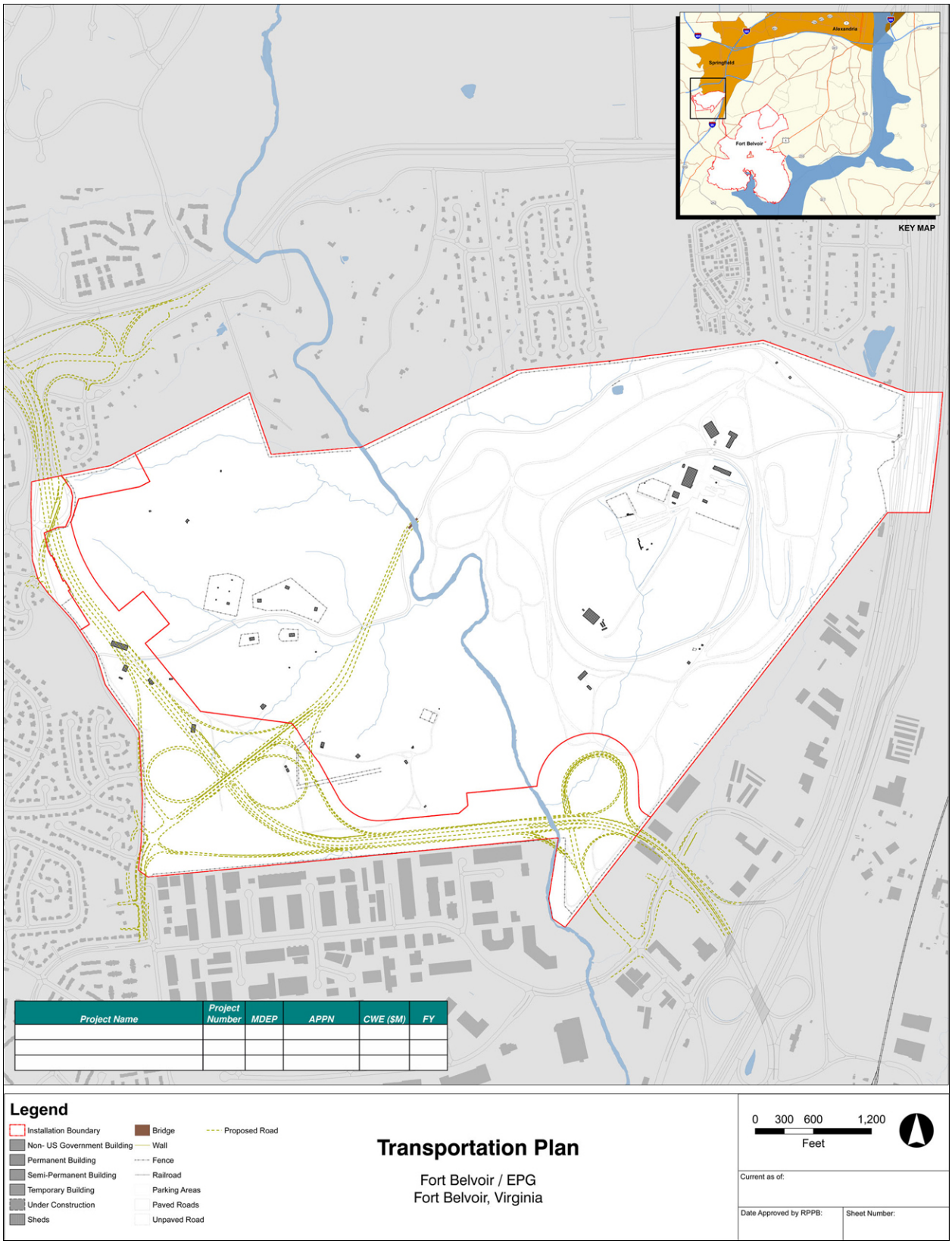


Figure 10.97 Transportation Plan



Trails Plan

- Figure 10.98, “Trails Plan - Legend”
- Figure 10.99, “Trails Plan - Detail, actual size”
- Figure 10.100, “Trails Plan”

Figure 10.99 Trails Plan - Detail, actual size

Figure 10.98 Trails Plan - Legend

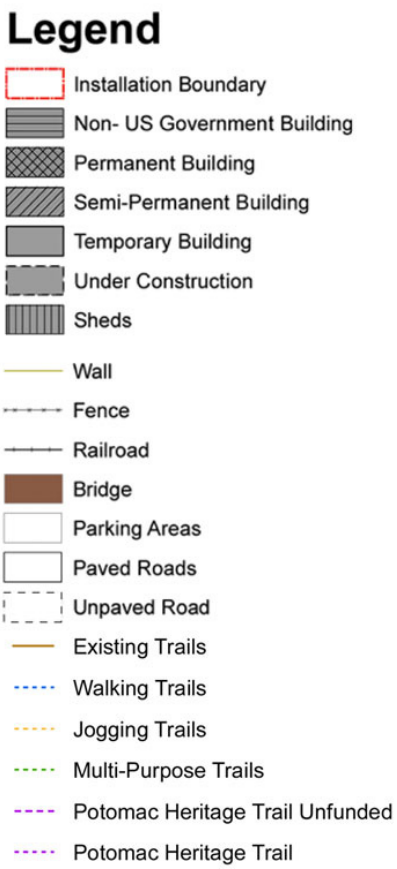
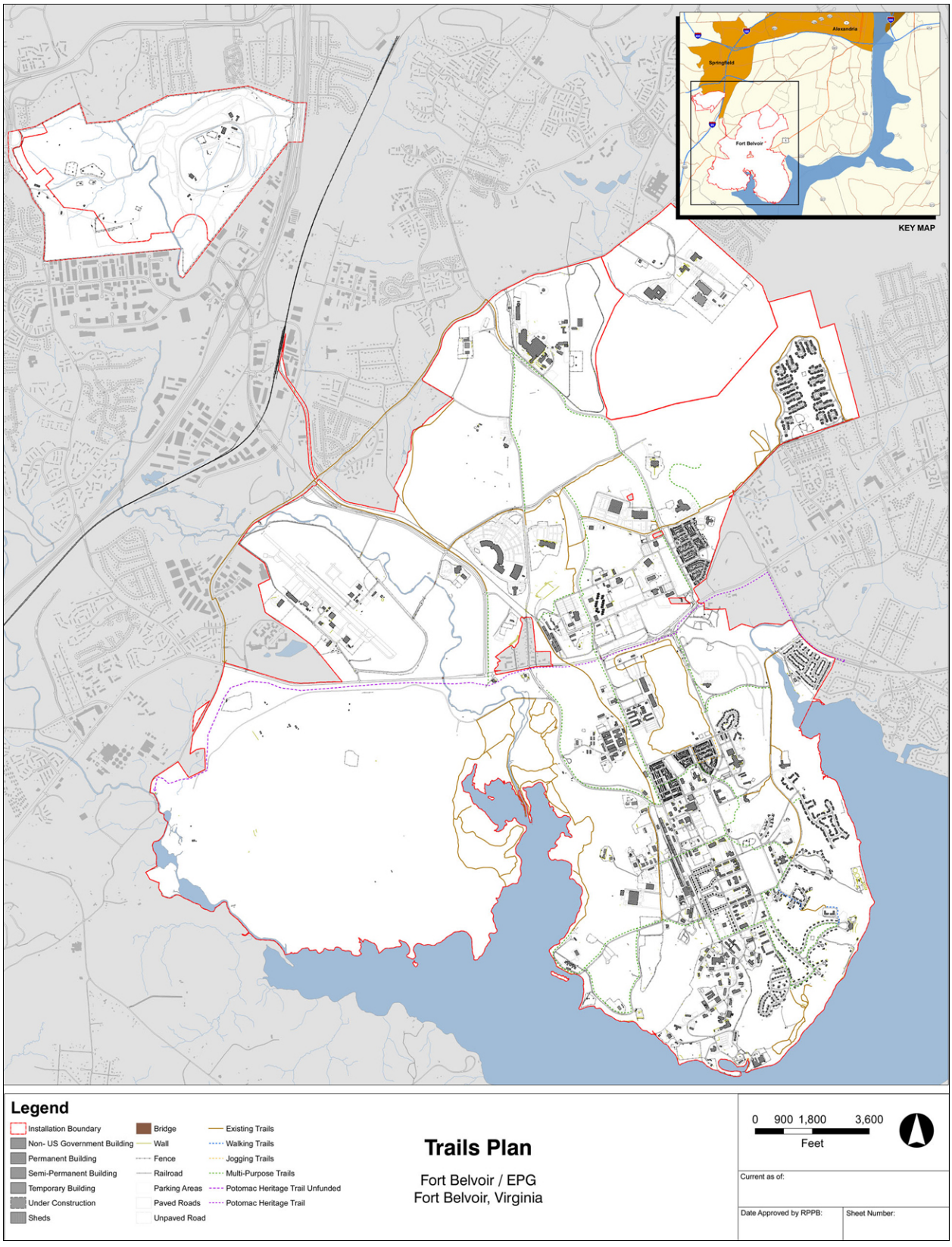


Figure 10.100 Trails Plan



10.10 Acquisition of Planning Services

Description

Components of the Real Property Master Plan (RPMP) are developed either by government in-house staff or by contract. While Army Planners have the knowledge and skills needed to develop planning products, often they do not have the time available to devote to this effort and services outside of installation staff are needed. In either case, the Master Planner must work with garrison staff throughout planning project development.

The Brooks Act governs the Federal Government selection process for contracting firms and individuals to perform architectural, engineering, and related services, including Master Planning services. A critical step in the process is to define the statement of work. Most contracts with outside consultants are "lump sum". For this type of contract, a detailed scope of work is important. It determines fee estimates for both the government and contractor.

Army Contracting Services, GSA or the Army Corps of Engineers all offer contracting services and are good places to start the contracting process. If the USACE District has Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts with planning firms already in place, installation support can happen relatively quickly. If not, the District must first select a firm – a process that can take up to six months. Within a district, an ID/IQ contract can support one or multiple locations. The USACE District may also be able to identify other possible contract vehicles available for its use.

Regulation

Federal Acquisition Regulation (FAR) Brooks Act, Sec. 902: *It is the policy of the federal Government to publicly announce all requirements for architectural and engineering services, and to negotiate contracts for architectural and engineering services on the basis of demonstrated competence and qualification for the type of professional service required and at fair and reasonable prices.*

Stakeholders

- Garrison Staff
- The contracting office
- Contractor

Tools / Data Needed

- Example Statements of Work found in the IMCOM SOW Repository (https://eko.usace.army.mil/fa/arpmp/SOW)

Contacts Needed

- Garrison Contracting
- USACE District Military Planning
- USACE District Contracting Office
- Army Contracting Agency Resource Library
- GSA Federal Schedules

Products

- Project Contract
- Task Order Contract
- Statement of Work

Purpose

When government professionals do not have the time or staff to devote to a planning effort, they augment their capability with specialized expertise by contracting services. This section focuses on how to procure planning services.

Key Steps to Acquiring Planning Services

The figure below shows major elements of the government contracting process, which consists of three basic steps.

Figure 10.101 Government Contracting Process

Major participants in this process are: the Master Planner, the contracting office, and contractor.

Tip

A-E firms are encouraged to enroll in the Army's PROSPECT courses covering Master Planning (See Section 10.11, "Professional Development").

STEP 1: Formulate the contract.

Regarding general requirements and funding, the Master Planner is the direct or indirect authority for any contracting agency and must coordinate closely with garrison staff.

- Start by identifying planning needs that cannot be met with in-house staff. Assess whether the most recent Master Planning components require updates.
- Next, identify a funding source and budget costs.
- Submit these actionable requirements and purchase requests to the contracting office. If centrally contracted by the IMCOM Region, Master Planners must submit requests for contract services through the Region. Also, the Secretary of the Army requires all contracts be approved by higher headquarters.

There are many contracting avenues available through DoD and other Federal Agencies, useful for obtaining planning services. The three most frequently used are:

- USACE Districts
- US Army Contracting Agency
- GSA Federal Schedules

Tip

Regardless of contracting arrangements, the installation Master Planner is responsible for the Real Property Master Plan products and their development through the Master Planning process.

References

- **FAR 36.1**
- **FAR 36.2**
- **FAR 36.3**
- **FAR 36.6**
- **Brooks Act, Public Law 92- 582**
- **Army Contracting Agency Resource Library**

USACE Districts

The most common approach to contracting planning services is through the Corps of Engineer District supporting the installation. Many USACE Districts maintain a planning branch of experienced military planners and project managers.

If this option is pursued, actively cooperate with the USACE District to write a Statement of Work (SOW). Whenever possible, start with a standard SOW from the SOW repository. Tailor it to reflect the specific needs of the installation. Be sure to provide project requirements and special considerations contained in the Master Plan. Use this opportunity to fill in information gaps, such as mapping or infrastructure data. Although adjusting a standard scope of work to an installation is typically necessary, any deviation from the standard SOW requires IMCOM Region approval.

Once the SOW is complete, USACE can customize the contract to fit the needs of the situation. USACE can also help select contractors and can serve as an agent throughout the entire project. USACE offers value-added contract management, review and administration expertise. The level and degree are based on the installation's ability to manage the contract.

If USACE is to be enlisted to contract the work, send the USACE District a Military Interdepartmental Purchase Request (MIPR). If the USACE District will also manage the contract, send funds that include the SOW and contract administration fee.

There is an upside and a downside to utilizing contracting entities other than USACE – such as the Regional Contracting Offices of the Army Contracting Agency or the GSA Federal Supply Schedule Contracts. Most require greater installation involvement.

U.S. Army Contracting Agency

The Secretary of the Army, in an overall Army reorganization, activated the Army Contracting Agency (ACA) on 1 Oct 02. This worldwide organization contracts for common use Army technology – IT hardware, software, and related services. It is responsible for all contracting in support of the:

- Installation Management Command (IMCOM) worldwide
- Network Technology Command
- PEO Enterprise Information Systems

- CIO of the Army

For additional information on how to contract through ACA, go to the ACA Resource Library. It includes Guides for Customers that make doing business with the ACA easier. Many of these newly revised guidebooks, including its Acquisition Instruction, also outline ACA policies. To find local contracts, contact the district contracting office. To find awarded contracts, check the ID/IQ Contract Sharing Bulletin Board.

GSA Federal Schedules

General Service Administration (GSA) provides procurement services for professional services through the following GSA Schedules:

- Advertising and Integrated Marketing Solutions (AIMS) [http:/ / www.gsa.gov/ Portal/ gsa/ ep/ channelView.do? pageTypeId=8211&channelPage=%252Fep%252Fchannel% 252FgsaOverview.jsp&channelId=-13007]
- Energy Management Services [http:/ / www.gsa.gov/ Portal/ gsa/ ep/ contentView.do? contentType=GSA_OVERVIEW&contentId=10128&noc=T]
- Environmental Services [http:/ / www.gsa.gov/ Portal/ gsa/ ep/ contentView.do? contentType=GSA_OVERVIEW&contentId=10126&noc=T]
- Financial and Business Solutions (FABS) [http:/ / www.gsa.gov/ Portal/ gsa/ ep/ contentView.do? contentType=GSA_OVERVIEW&contentId=8598&noc=T]
- Language Services [http:/ / www.gsa.gov/ Portal/ gsa/ ep/ contentView.do? P=FT5&contentId=10122&contentType=GSA_OVERVIEW]
- Logistics Worldwide (LOGWORLD) [http:/ / www.gsa.gov/ Portal/ gsa/ ep/ contentView.do? contentType=GSA_OVERVIEW&contentId=9966&noc=T]
- Management Organization and Business Improvement Services (MOBIS) [http:/ / www.gsa.gov/ Portal/ gsa/ ep/ channelView.do? pageTypeId=8211&channelPage=/ ep/ channel/ gsaOverview.jsp&channelId=-12983]
- Professional Engineering Services (PES) [http:/ / www.gsa.gov/ Portal/ gsa/ ep/ contentView.do? contentType=GSA_OVERVIEW&contentId=10138&noc=T]

The Professional Engineering Services (PES) (schedule number 871) and the Environmental Services (schedule 899) are those schedules most used for planning studies.

These multiple award GSA schedules grant agencies the ability to directly contract with commercial experts for professional services. To utilize one of these schedules, contact the local contracting office for help in defining the SOW.

STEP 2: Award the contract.

After receiving a purchase request, the contracting office solicits industry offers and awards a contract. Most planning products are obtained through an Architect-Engineer (A-E) contract.

For contracts other than A-E (such as construction or design-build contracts), selection is not based solely on qualifications. Construction firms are usually selected based on sealed-bid procedures (FAR 36.1). Design-build contractors usually undergo a two-phase selection process (FAR 36.3).

The use of GSA Schedules requires a quotation from three firms listed on the schedule. The order is placed with the contractor that represents the best value (FAR 8.404). The contract agreement is between the winning contractor and the installation contracting office. GSA is not directly involved in the contract or contracting process.

STEP 3: Monitor contract performance.

Monitor the activities of the contract. Ensure that contracted products/ services identified in the task order are delivered by the contractor to the government. Actively participate in review meetings and provide constructive direction.

Examples

To review Statements of Work designed to develop Master Planning components and studies, see see Engineering Knowledge Online for the IMCOM SOW Repository.

Lessons Learned

- Ensure the SOW defines, in detail, what is needed.
- Be efficient. Whenever possible, refer to previously developed SOWs to create one that fits your needs. Start by checking the IMCOM SOW Repository. If none match your needs, check with your region or district.
- Avoid nondescript SOWs.
- Identify the scope and project budget in advance of anticipated funding.
- Find someone who understands A-E Contracting.
- Collect "government supplied materials" before a contract starts.
- Select an experienced, qualified A-E.

- Develop a "doable" project schedule. Always provide an extended timeline; you will be the hero if the project is completed earlier.
- Be flexible. Work with the contractor as a partner, and stay involved.
- Using two A-E firms at the same time has its pros... and cons.

10.11 Professional Development

Description

This section discusses opportunities and strategies for improving the skills and knowledge necessary to work effectively in an Army Real Property Master Planning office.

Stakeholders

- Installation Master Planners
- A-E Contractors

Purpose

The purpose of professional development is to improve the knowledge of real property planning staff and in turn improve the quality of the RPMP.

Key Topics for Developing Master Planning Skills

At a minimum, the effective installation Master Planner should maintain a current understanding of the following topics:

- Military units and organizations
- Army processes and procedures
- Army planning techniques and tools
- The profession of planning

All four areas are dynamic, requiring planners to continue their education efforts to not only remain up-do-date but also to increase their knowledge and proficiency.

The Army offers correspondence courses under The Army Distance Learning Program (TADLP) [http:/ / www.atsc.army.mil/ tadlp/]. An Army Knowledge Online (AKO) account is required to access and register for TADLP courses. See related portions of this section for examples of helpful courses and sub-courses.

Topic 1: Military Units and Organizations.

Planners must fundamentally understand the missions, functions, and organizations of major tenant activities. For most installations, this means troop units, military schools, specialized agencies, or a combination of these.

Related Schools and Courses

TADLP offers a variety of courses to better understand Army clients. This includes sub-courses on general Army topics, listed in the catalog under the Command and General Staff College (organization 701). Courses include:

- Effective Army Writing
- Operational Concepts
- Army Organization and Equipment
- Plans, Orders, Annexes and Symbology
- Military Operations other than War
- Staff Procedures, Organizations and Functions
- Online Officers Basic Course

Tools / Data Needed

- **The Army Stationing and Installation Plan (ASIP) data and online help (See Section 10.8.2.6, "Army Stationing and Installation Plan (ASIP").)**
- **Army Civilian Training, Education and Development System (ACTEDS) [http:/ / cpol.army.mil/ library/ train/]**
- **Army Knowledge Online (AKO) [https:/ / www.us.army.mil/ suite/ login/ welcome.html]**
- **The Army Distance Learning Program (TADLP) [http:/ / www.atsc.army.mil/ tadlp/]**
- **Proponent-Sponsored Engineer Corps Training (PROSPECT) (the Purple Book) [http:/ / pdsc.usace.army.mil/ CourseListDetail.aspx?CtrlNbr=9]**
- **Army Force Management School (AFMS) [http:/ / www.afms1.belvoir.army.mil/ main.html]**
- **American Planning Association [http:/ / www.planning.org]**
- **Federal Planning Division (FPD) of the American Planning Association [http:/ / www.federalplanning.org/ index.htm]**
- **Office of Personnel Management, Qualification Standards for General Schedule Positions [http:/ / www.opm.gov/ qualifications/ standards/ IORs/ gs0000/ 0020.htm]**

Self-Help Opportunities

The best way to understand support units is to visit them. Request a command briefing and tour of operational areas. Words and pictures are no substitute for firsthand knowledge of an organization in action – seeing what it does, how it does it, and with what equipment.

RPLANS (Section 10.8.2.2, "Real Property Planning and Analysis System (RPLANS)") provides personnel and equipment lists for most Table of Organization and Equipment (TOE) units and many Tables of Distributions and Allowances (TDA) organizations, along with detailed requirements analyses that give insight into missions. Study these reports to better understand tenant activities. RPLANS also provides a comprehensive on-line help system that provides information on standard requirements codes (SRC), TOEs, TDAs, and detailed planning criteria for facility category codes.

The Army Stationing and Installation Plan (ASIP) (Section 10.8.2.6, "Army Stationing and Installation Plan (ASIP)") maintains an online help section that explains the terminology of force structure, provides background on various data sources, and explains other force structure related information.

The World-Wide-Web is another useful tool for learning about units and organizations. Follow links from the installation's web site to homepages of tenant activities. These sites often provide concise information about missions, organizations, key activities, and affiliated units.

Topic 2: Army Processes and Procedures.

Besides required technical knowledge, effective planners also understand how to navigate the Army system, mastering skills in staff procedures, military writing, the programming and budgeting process, and organizational decision making.

Related Schools and Courses

Civilian personnel offices have access to the Army Civilian Training, Education and Development System (ACTEDS), located on the web at: http://cpol.army.mil/library/train/. Many successful planners also use this resource to maximize their potential and growth.

The Army individual training web site (ATIA) provides links to other sources of training materials and courses at: http://www.train.army.mil/. An AKO account is required. The ATIA web site can locate courses and training references in the RDL. For example, simply look under "Commandant Approved Training" on the RDL Services page to find "Civilian Training Material" that identifies available training courses for DA civilians. One course is called "CIVILIAN COMMON CORE TASKS", which contains more than 85 sub-courses, including:

- Coordinate Activities with Staffs and Agencies

References

- ACSIM website [http:/ / www.hqda.army.mil/ acsim/ homepage.shtml]
- IMCOM website [http:/ / www.imcom.army.mil/ site/ command/]
- Journal of Installation Management [http:/ / www.imcom.army.mil]
- Public Works Digest [http:/ / www.imcom.army.mil]

- Supervise Staff Actions and Functions in a Staff Section
- Protect Classified Information and Materiel
- Identify the Roles and Organization of the U.S. Army and DoD
- Assess Impact of Change on Organizations' Operating Procedures, Structure, and Missions
- Solve Problems Using the Army Problem Solving Process
- Conduct Military Briefing
- Defend Yourself and Organization against Terrorism
- Employ Information Technology to Complete Assigned Tasks
- Identify Organizational Information Management Technology Requirements (Hardware/Software)
- Apply Critical Thinking to Workplace Situations
- Use Critical Thinking and Problem-Solving Skills Effectively
- Understand How the Army Plans for the Future
- Understand the Army Functional Life Cycle Model
- Understand the Role of the Garrison in Force Projection

TADLP also provides other training opportunities. Sub-courses on Army action officer and management development are available under TRADOC (organization 131), including:

- Management Development
- Action Officer Development Course

One of the biggest challenges to successful planning and plan execution is applying the right resource to the right initiative at the right time. To address this, TADLP provides several sub-courses under the finance school (801A in TADLP subcourses menu), including:

- Planning, Programming, Budgeting/Execution System
- The Military Construction, Army Program
- Resource Management: Installation Management Program

Self-Help Opportunities

The Army changes continuously. Read newspapers and magazines, including professional association journals, to stay abreast of current issues. IMCOM publishes the Journal of Installation Management and Public Works Digest [http:/ / www.imcom.army.mil] which are excellent soures for current information; in particular the January/February issue is dedicated to master planning.

Topic 3: Army Planning Techniques and Tools.

The RPMP process is very similar to civilian community/urban planning, but it also presents unique aspects derived from its military mission. Effective planners know how to discern between the common and unique, and then master the unique through available resources.

Related Schools and Courses

Effective planning for Army installations requires a working knowledge of numerous engineering-specific topics. The Corps of Engineers offers a variety of Proponent-Sponsored Engineer Corps Training (PROSPECT) courses to help members of the Master Planning and real property community gain and maintain skills. These courses are offered worldwide annually. Table 10-4 lists some available PROSPECT courses. The first four courses are focused on Master Planning and are listed by degree of difficulty. (For more information on course options and descriptions, see the "The Purple Book" located at the following website: http://pdsc.usace.army.mil/CrsSchedule.aspx.)

Table 10.4 PROSPECT Courses

Course Description
Real Property Master Planning (I) (Course #75)
Real Property Master Planning Visualization Techniques (Course #948) (See Section 10.8.2, "Army-Specific Tools".)
Advanced Real Property Master Planning (III) (Course #952)
Real Property Master Planning Skills (Course #326)
Economic Analysis Milcon
GIS Intermediate
Environmental Impact Assessment
Environmental Laws & Regulations
GIS Introduction
1391 Processor
1391 Preparation
Real Property Management
Enhanced Use Leasing
Installation Real Estate Management
Force Protection Design (See Section 10.5, "Antiterrorism & Critical Infrastructure Protection".)
DPW IFS Introduction
DPW Basic Orientation (DPWBOC)
DPW Management Orientation (DPWMOC)

The Army Force Management School (AFMS) at Fort Belvoir offers several courses on Basic and Advanced Force Management. The basic management course provides instruction on raising, provisioning, sustaining, maintaining, and training in the Army. This course teaches current force

management policies, procedures, processes and systems, and prepares students to assist in the management of organizations in the current force (projection Army) and the future force (modularity). (For more information, see the AFMS website at http://www.afms1.belvoir.army.mil/main.html.)

The Federal Planning Division (FPD) of the American Planning Association (APA) conducts a workshop in conjunction with the annual convention of the APA. The workshop provides sessions on topics of interest to government planners and an opportunity to meet and share ideas with other government planners outside the Department of Defense. (For more information, see the FPD web site at:http:/ / www.federalplanning.org/ .)

Self-Help Opportunities

Each section of this manual contains useful references. The World Wide Web is a valuable resource for self-directed study and research. Regularly check the ACSIM and IMCOM web sites for information on planning subjects. The Army Knowledge Online (AKO) and Engineering Knowledge Online (EKO) provide to join forums and groups that share common interests. It frequently posts presentations and other information that may not reach installations through normal distribution channels.

Topic 4: The Profession of Planning

Real Property Master Planners come from many educational backgrounds, including engineering, architecture, landscape architecture, and urban/ community planning. While professionals from all of these fields have excelled as Master Planners, the Army should pursue hiring those with a planning degree from an accredited planning school (See the Association of Collegiate Schools of Planning [http:/ / www.acsp.org]). Including language in the job description from the Office of Personnel Management Community Planning Series (GS-020) [http:/ / www.opm.gov/ qualifications/ standards/ IORs/ gs0000/ 0020.htm] will also target those with the appropriate skill set for the position. Changes in laws, regulations, and technologies present a challenge to any practicing professional.

Related Schools and Courses

Continuing education is one way to stay up-to-date on critical knowledge and skills. It is also important to consider qualifying for professional certification and/or registration, regardless of the primary field. Professional certification for the planning profession is through the American Institute of Certified Planners (AICP). Earned education credits are required to keep registrations current.

Self-Help Opportunities

Specific opportunities vary depending on location. But planning professionals and others seeking to remain current in planning subjects can easily access three key resource links at the APA web site (http:// www.planning.org). The "education" link provides information on

continuing education and certification programs. The "knowledge exchange" link permits access to professional papers, articles, and other valuable links on planning. The "conferences and workshops exchange" link provides relevant meeting information, including dates, location, and registration details.

Tip

When hiring a Master Planner, include interdisciplinary language in the job requisition; while all professionals will have to learn Army planning, those with a planning degree will already have a working knowledge of master planning fundamentals.

Volunteer opportunities offer another method of professional development. Forward deployment involves temporary field assignments to locations where planning is needed. Participating on a "planning assistance team" provides on the ground opportunities to practice and implement planning in an environment with different issues, constraints and needs.

Lessons Learned

- Don't limit yourself to planning career courses. Take the time to attend civilian education system (CES) courses (Foundation, Basic, Intermediate, and Advanced) to gain insights into the bigger world within which planning professionals operate.
- Provide good counsel to your DPW and commander.
- Find and follow a mentor; offer to be a mentor to someone less experienced.

10.12 Local Issues

10.12.1 Local Issues Introduction

Army installations located throughout the world function as small cites that are owned, operated and managed by a single entity, the Army. Despite the fact that all installations are operated under the same guiding principles and are required to follow the Master Planning policies outlined in AR 420-1, the location of the installation plays a role in how the garrison implements Real Property Master Planning.

Unless otherwise specified, all installations are required to adhere to the Federal regulations that are outlined in AR 420-1 and described in this manual. Within the U.S., location determines which state and local laws the installation must follow. Installations outside the U.S. must adhere to specific host nation regulations, country-specific environmental Final Governing Standards (FGS), as well as regulations relevant to the locality and region.

10.12.2 Planning at Army Garrisons within the United States

Description

Local rules and regulations are usually implemented in response to environmental, growth or planning issues the state or particular area has confronted in the past. Nations, states, regions, counties, cities, and towns maintain various degrees of governing powers and have developed area-specific regulations over time. As a result, Master Planners at Army garrisons within the United States have to deal not only with national laws and regulations but also with those at the local and regional level.

Every state has its own body of laws and regulations which affect planning on Army property. For instance, some states have laws protecting growth and encroachment on the borders of military property while other states do not have such laws. In the environmental area, many states have laws and regulations that are more restrictive than the national regulations. State departments that address environmental quality impose environmental restrictions from which military installations are not exempt.

Several states in a region may cooperate to achieve a common objective. For example, the states within the region surrounding the Chesapeake Bay have agreed to control storm water runoff and pollution in the Bay. Counties often maintain subdivision regulations, while municipalities often dictate a variety of zoning requirements and/or development restrictions on lands adjacent to and within the vicinity of an installation. The Master Planner must be aware of all laws, regulations, ordinances and local factors that affect planning on military property.

Audience (within U.S.)

- **Master Planner**
- **Project Proponents**
- **Garrison Commander & Staff**
- **IMCOM Region**
- **Senior Mission Commander**
- **Government & Regulatory Agencies (Federal, Regional, Local)**

Purpose

Consideration of local issues within the U.S. is important in order to:

- Minimize the impacts of installation operations and development on the community.
- Maintain awareness of, and respect for, future growth patterns and development of the surrounding communities.
- Seek mutually compatible land uses and zoning considerations to maintain operation capability and future viability of the installation.

10.12.3 Planning at Army Garrisons outside the United States

Description

Master Planning at U.S. Army installations and sites located outside the country must address issues, policies, and procedures that do not apply to domestic U.S. planning. Laws and environmental regulations of the host country may impact planning, while certain U.S. regulations may no longer apply. It is important to be aware of these regulatory differences.

Planning overseas also requires an understanding of the local community, particularly culture, environment, and unique policies and procedures that affect real property management and construction. For example, staff employees might include foreign nationals, subject to local labor laws.

Local issues affecting military planning outside the U.S. vary by country. While this section outlines specific regulations affecting Europe, Japan, and Korea, this list should not be considered exhaustive. Only the actual experience of living and working in a host country provides a complete understanding of issues specific to that area or region.

General Policies of Planning outside the United States

Government-to-government agreements are the basis for all relations between U.S. forces and host nations. These agreements – known as protocols, arrangements, detailed operating instructions, procedures, or annexes depending on the source of their authority – prescribe how two sovereign nations will cooperate. These agreements are discussed in the following sections, by country.

Status of Forces Agreement (SOFA) between the United States and a host country impact the living and working conditions of U.S. personnel overseas. The SOFA is usually an integral part of the overall military base's agreement that allows U.S. military forces to operate within the host country. Each SOFA is negotiated separately with the host country. Generally speaking, SOFAs have no standard points; however, some may impact planning, so it is important to understand these rights and responsibilities as an official guest.

The National Environmental Policy Act (NEPA) does not apply to countries outside the United States. Overseas, EO 12114 and DoDD 6050.7 apply and require that the Army conduct environmental reviews equivalent to those required under NEPA.

Final Governing Standards (FGS), specific to a host country, govern most environmental actions and operations overseas. These standards result from a comparison of local laws and those of the U.S. The more protective law or regulation is accepted as the standard for handling environmental issues

Audience (outside U.S.)

- Project Proponents
- Garrison Commander & Staff
- IMCOM Region
- Senior Mission Commander
- Host Nation Government & Regulatory Agencies (Federal, Regional, Local)

Tools / Data Needed (outside U.S.)

- Status of Forces Agreement including any applicable bilateral agreements
- Country-Specific Final Governing Standards
- Integrated Global Presence and Basing Strategy (IGPBS)

References (outside U.S.)

- DoD 4715.5-G Overseas Environmental Baseline Guidance Document
- DoDI 4715.5: Management of Environmental Compliance at Overseas Installations
- DoDD 6050.7: Environmental Effects Abroad of Major DoD Actions
- Executive Order 12114, Environmental Effects Abroad of Major Federal Actions

at military installations and sites. Keep in mind that FGS are under continuous review and are updated as environmental laws change. It is important to keep up with these changes and consider their impacts to planning.

Purpose

Consideration of local issues on installations located outside the U.S. is important in order to:

- Maintain positive relations with host countries as an official guest.
- Maintain awareness of, and respect for, foreign cultures so that installation operations do not negatively impact the surrounding community.
- Maintain operation capability and future viability of the installation.

Regulation

DoDI 4715.5, 22 Apr 1996: Management of Environmental Compliance at Overseas Installations, 4.1: *The Department of Defense shall establish, maintain, and comply with Final Governing Standards (FGS) to protect human health and the environment for each foreign country where the Department of Defense maintains substantial installations. [T]he FGS will reconcile the requirements of applicable international agreements, applicable host-nation environmental standards and the Overseas Environmental Baseline Guidance Document (OEBGD).*

10.12.4 Planning in Europe

10.12.4.1 Planning in Europe Introduction

Unfortunately, it is becoming more difficult to accomplish actions to support the Integrated Global Presence and Basing Strategy (IGPBS), transformation, and protection of U.S. Forces. Acquisition of real estate, stationing actions, and construction projects are often subject to opposition and pressures to be modified. The rise of grass roots political assertiveness is significantly shifting power on aspects of military operations from the host nation's central government to the local level. Against this backdrop, coordination and cooperation with local host nation authorities are very important. Most local liaisons with Europe host nation planning officials are through the Installation Management Command, Europe Region (IMCOM-Europe) Real Estate Field Offices.

Within the European Command, some Anti-Terrorism standards are more stringent than in other locations. The Master Planner in Europe must become familiar with USEUCOM Anti-terrorism Operations Order 03-11 and incorporate these standards during Master Planning.

The Environmental Branch of IMCOM-Europe manages the environmental program in Europe. This branch oversees, develops, and disseminates guidance on environmental program implementation to meet DoD and host nation requirements for U.S. Army installations in Europe. IMCOM-Europe carries out Environmental Executive Agent (EEA) responsibilities for Germany, Belgium, and the Netherlands. These include monitoring, directing, advising, granting/seeking waivers, negotiating with host nation officials, and submitting reports in coordination with theater DoD Service Components. Country-specific responsibilities are discussed in the following sections.

IMCOM-Europe manages the following programs that may impact Master Planning:

- Final Governing Standards (FGS) development and maintenance
- Tracking Host Nation Environmental Enforcement Actions (ENFs)
- Environmental Review Guide (ERG)
- Ozone Depleting Substances (ODS)
- Hazardous Material Management Program (HMMP)
- Compliance with environmental regulations (including air, noise, cultural resources, etc.)
- Remediation
- Conservation/Forestry/Natural Resources
- Environmental Training
- Environmental Management Systems

Tools / Data Needed for Europe

- **North Atlantic Treaty Organization (NATO) SOFA Agreement**
- **Host Nation Environmental Laws & Regulations**
- **Lease Procedures and Agreements**
- **NATURA 2000**

Contacts Needed for Europe

- **Europe Region (IMCOM-EURO) Real Estate Field Office (REFO)**
- **U.S. Army Garrison (USAG) Environmental Office**
- **IMCOM-Europe Environmental Branch**

Leveraging Technology for Europe

- **Environmental Review Guide (ERG)**

References for Europe

- **EC Regulation 2037/2000**
- **AER 405-5**
- **AER 405-9: Acquisition, Administration and Disposal of Real Estate in Italy**
- **USEUCOM, ANTITERRORISM, Operations Order 03-11**

- NATURA 2000 (includes Bird Protection Directives and EU Directive on Flora, Fauna and Habitat)

10.12.4.2 Germany

Host Nation Agreements. Host Nation Agreements with the Federal Republic of Germany are based on the provisions of the North Atlantic Treaty Organization (NATO) Status of Forces Agreement (SOFA), the Supplementary Agreement thereto, and the Protocol of Signature. These stipulate that U.S. Forces in Germany will comply with German laws and regulations.

Technical arrangements and detailed administrative agreements exist between the U.S. Forces and FRG authorities. These define policy and procedures for acquisition and disposal of all types of properties. The arrangements also provide guidelines for construction in Germany.

The ABG-75, (Auftragsbautengrundsaetze/Principles for Construction Contracting) is the most exercised government-to-government agreement and applies to the design and construction of all projects in Germany. All policy matters relating to the ABG-75 Agreement are referred to the IMCOM-Europe Engineer Division, which serves as Agreement administrator for HQUSAREUR.

Real Property Acquisition, Demolition and Disposal. Real property in Germany may be acquired under leasehold, consignment by the host nation, or transfer from another U.S. component or department. Leasing is considered only when the German Government cannot provide real estate on a rent-free basis or when real estate is not available from another U.S. component or department. Army in Europe Regulation (AER) 405-8 provides detailed procedures on the acquisition, management, and disposal of real estate in Germany. Contact with the German Federal Government regarding these issues is through the IMCOM-Europe Real Estate Branch or Field Offices. Coordination between the U.S. Forces and German state level government agencies is the responsibility of U.S. Forces Liaison Officers.

Computer Aided Design & Geographic Information Systems. The Baufachliche Richtlinie Aussenanlagen 1999 (BfR99) directs the use of Host Nation Spatial Data standards for any indirect constructed facilities. Additional conversions of Spatial Data provided by the FRG are necessary to migrate the data to SDSFIE standard format. (See Section 10.8.3, "Geographic Information Systems (GIS)")

Land Utilization Plan

U.S.-controlled areas are normally special federal property and are not subject to local or regional planning. However, any planning on U.S.-controlled property must take into account the future plans of the German community surrounding the base. This information is found in the local and regional Land Utilization Plan (Flächennutzungsplan). This plan contains maps, plans, and drawings that show present and future build-up, public utility corridors, transportation facilities, and areas for industrial, public, and recreational use adjacent to or in the vicinity of the installation.

Tools / Data Needed for Germany

- Final Governing Standards - Germany
- Revised Supplementary Agreement to NATO SOFA, effective 29 Mar 1998
- Protocol of Signature
- Land Utilization Plan (Flächennutzungsplan)
- ABG-75 Agreement
- Baufachliche Richtlinie Aussenanlagen 1999 (BfR99)

Contacts Needed for Germany

- U.S. Forces Liaison Officer (USFLO)
- IMCOM-E Real Estate Field Office (REFO)
- Bundesanstalt für Immobilienaufgaben (BImA)
- German Construction Administration (GCA)

References for Germany

- AER 200-1
- AER 405-8
- USAREUR Regulation 405-11
- USAREUR Regulation 210-60

Land use restrictions are usually shown in the Land Utilization Plan or related documents. Examples include height restrictions, landscape protection zones, water protection areas, NATURA 2000 areas, green or open space zones, historic monuments and preservation zones, and noise zones. Regional land utilization plans often identify regional green zones. Construction is usually not allowed within these zones to preserve wind flow and to reduce air pollution.

U.S. Forces are entitled to review and comment on Land Utilization Plans when they are prepared or changed. Occasionally, the plans of local jurisdictions encroach upon or require U.S.-controlled property. Land trades or disposals must involve IMCOM-Europe. The local commander is to refer such requests to IMCOM-Europe as soon as possible. Procedures for processing local community planning and zoning plans are outlined in USAREUR 405-11.

Coordination with German Agencies during the Construction Planning and Programming Process

It is important to coordinate closely with the German Construction Administration (GCA), along with the U.S. Real Estate Field Office, before submitting project approval documentation for any future facility planning. It is also important to be aware of the rules governing construction work in Germany under the ABG-75 bilateral agreement.

Environmental Issues. In many cases, German and European Union (EU) environmental laws and regulations addressing habitat, tree cutting, drinking water standards, hazardous materials, and noise are more diverse and stringent than those within the U.S. It is important to be aware of the following aspects of German regulation.

NATURA 2000 Network

The goal of this ecological program is to promote the maintenance of biodiversity across the continent. Placement of areas under NATURA 2000 protection is based on scientific criteria, without consideration of current use. Approximately 67% of all U.S.-Army controlled land in Germany is nominated for inclusion in the EU NATURA 2000 network. This places restrictions on land use, particularly those activities that might decrease ecological value. The EU and German federal and state governments have given assurances that present and future military mission requirements may continue unhindered on nominated lands. However, the objectives and principles of habitat protection must always be taken into account when considering future activities on nominated lands.

The Oeffentliche Traegerschaft,(OT) the Bundesanstalt fuer Immobilienaufgaben (BImA), Germany's federal agency for real estate matters, is responsible for implementation of NATURA 2000 management on U.S. military land in full coordination with the U.S. Army. U.S. Forces are required to complete flora, fauna, and habitat (FFH) compatibility surveys prior to any construction planned on NATURA 2000 lands. This may lead to compensation paid for by the project.

Environmental Impact Analysis

DoDD 6050.7 requires that Environmental Reviews be conducted for all projects and actions that can significantly harm the environment of a foreign country. USAREUR Regulation 200-1 and its replacement AER 200-1 provide details on how to conduct Environmental Reviews by the Army in Europe.

The German Environmental Impact Assessment Law (Gesetz ueber die Umweltvertraeglichkeitspruefung (UVP)) requires an environmental impact assessment for certain types of projects listed at enclosure 1 of the law. If U.S. Forces are required to conduct a UVP, the Federal Ministry of Defense can provide exemptions for U.S. projects.

Tree Cutting Approval

The Federal Forestry Service of the BImA manages the forests owned by the Federal Republic of Germany and tree-cutting regulations. It is responsible for all tree cutting, including that on Allied Forces land. Therefore, a tree-lined road cannot simply be widened or a wooded area cleared for a new gymnasium. The effort involved in making these requests is an important consideration when debating whether to site a new facility on cleared land or a wooded area.

Drinking Water Protection Zones

The German government has created drinking water protection zones, usually surrounding a water well field. Specific regulations that control pollution and construction of impervious surfaces in these zones also regulate land use and activities. The local German water authority and planning agency can indicate if any drinking water protection zones exist in a military community. The garrison Directorate of Public Works (DPW) Environmental Division also should have this information. Zones are generally marked on a map as "Trinkwasserschutzgebiet". Information regarding these zones is contained in the Integrated Natural Resources Management Plan (INRMP).

Restricted Areas

Article 52, Supplementary Agreement, NATO SOFA provides for German authorities to establish, at the request of the U.S. Forces, restrictions in the vicinity of U.S. installations to maintain the safety and effectiveness of the U.S. installation and its operations. In general, these restricted areas help

control the possible development of incompatible land uses or activities, ensuring future installation use. These are "restricted areas" to the Germans, but "protection zones" to U.S. operations. It is important to be aware of existing restricted areas and to recognize the need for new ones to protect future U.S. activities and facilities.

Note: Restricted areas are exterior protective or safety zones (Schutzbereiche), and not restricted areas as defined in the physical security program. Restricted (protective) areas are governed by USAREUR Regulation 210-60.

10.12.4.3 Belgium

Host Nation Agreements. Various agreements dating back to 1968 are applicable to construction projects undertaken in Belgium. It is important to become familiar with these agreements.

Real Property Acquisition, Demolition and Disposal. Procedures on the acquisition, demolition, and disposal of real property are outlined in Army in Europe Regulation (AER) 405-4. Belgium is composed of one Federal entity and three regions: Walloon region, Flemish region and Brussels region. New construction or renovation must comply with the requirements of the appropriate region.

Real Property Acquisition

Real property in Belgium may be acquired under leasehold, by special consignment from the host nation government, or by interdepartmental transfer from another U.S. government agency. Of the three, leasing is by far the most common means of acquiring additional real property.

Real Property Demolition

The initial request for the demolition of real property normally originates with the using unit, which passes the request to the garrison through its headquarters. The garrison DPW then prepares a DD Form 337 for approval by the garrison commander for U.S.-owned buildings and improvements or by the BENELUX Real Estate Field Office (REFO) for non-U.S. government buildings and improvements. The latter can only be demolished after the BENELUX REFO obtains approval of the property owner.

Tools / Data Needed for Belgium

- Administrative Arrangement between the Gov. of the U.S. and the Gov. of the Belgium, 6 10 September 1968
- Detailed Procedures to Supplement the U.S.-Belgium Administrative Agreement of 6 and 10 September 1968, dated 6 June 1984
- EUDCD CG letter to MOD, Belgium, dated 20 May 1987, revising the Detailed Procedures
- Agreement on the Special Conditions, 12 May 1967
- Belgium Government (KDA/KPI) letter, dated 10 September 1986, subject: U.S. BE Detailed Operating Procedures, dated 6 June 1984
- Special Financial and Administrative Agreement Related to the Construction of U.S. Depots in Belgium, 5 and 27 May 1981.
- Final Governing Standards – Belgium, ver. 27 Feb 2003 with revisions

Contacts Needed for Belgium

- BENELUX Real Estate Field Office (REFO)
- Walloon Region: General Department of Town and Country Planning, Real Estate and Heritage
- Flemish Region: General Department of Town and County Planning, Real Estate and Heritage
- Brussels Region: Government de la Region de Bruxelles-Capitale

Real Property Disposal

To dispose of real property, the garrison DPW prepares AE Form 405-8A-R, Disposal of Real Estate, in accordance with the provisions of AER 405-4 and forwards it to IMCOM-Europe for approval. The exception is the disposal of family housing leases with ten or less units, which can be approved by the garrison commander. IMCOM-Europe approves requests for release of installations or significant parts only after an official base closure announcement is made by the Secretary of Defense. Upon receipt of an approved disposal request, the BENELUX REFO returns the property to the owner.

References for Belgium

- **EUDP 1180 1 1: Management Guide to Indirect Contracts**
- **AER 405-4: Acquiring, Managing and Disposing of Real Estate in Belgium, the Netherlands, Luxembourg and the United Kingdom**

10.12.4.4 The Netherlands

Host Nation Agreements. Various agreements dating back to 1971 are applicable to construction projects undertaken in The Netherlands. This includes a Line of Communication Agreement reached under the Wartime Host Nation Support process. It is important to become familiar with these agreements.

Real Property Acquisition, Demolition and Disposal. Procedures on the acquisition, demolition, and disposal of real property are outlined in AER 405-4.

Real Property Acquisition

Real property in the Netherlands may be acquired under leasehold, by special consignment from the host nation government, or by interdepartmental transfer from another U.S. government agency. Of the three, leasing is by far the most common means of acquiring additional real property.

Real property required for operations not covered in the Line of Communications Agreement, such as support for the mission requirements of U.S. elements of NATO Headquarters, is normally acquired by leasing. In some cases, however, these needs may be met by means of a special consignment agreement with the Dutch government.

Real property required for operations covered under the Line of Communications Agreement is obtained by means of special procedures through the Dutch government.

Real Property Demolition

The initial request for the demolition of real property normally originates with the using unit, which passes the request to the garrison through its headquarters. The garrison DPW then prepares a DA Form 337 for approval by the garrison commander for U.S. owned buildings and improvements or by the BENELUX Real Estate Field Office (REFO) for non-U.S. government buildings and improvements. The latter can only be demolished after the REFO obtains approval of the property owner.

Real Property Disposal

To dispose of real property, the garrison DPW prepares an AE Form 405-8A-R, Disposal of Real Estate, in accordance with the provisions of AER 405-4 and forwards it to IMCOM-Europe for approval. The exception is the disposal of family housing leases with ten or less units, which can be approved by garrison commander. IMCOM-Europe approves requests for release of installations or significant parts thereof only after an official base closure announcement is made by the Secretary of Defense. Upon receipt of the approved disposal request, the BENELUX REFO returns the property to the owner.

Tools / Data Needed for The Netherlands

- Final Governing Standards - Netherlands
- Line of Communications Agreement, 10 February 1971
- Technical Arrangement for Construction, 8 May 1975
- Draft Detailed Operating Procedures for Design and Construction, 26 June 1987
- Administrative Agreements Pertaining to Pre-financed NATO Common Infrastructure Projects, 24 July 1975
- GEEUD ED letter for Intergovernmental Affairs MOD, the Netherlands, dated 20 June 1983
- EUDDE I letter, dated 20 June 1983, regarding EUDs role in NATO common funded projects
- EUDP 1180 1 1, dated 1 March 1986, Management Guide for Indirect Contracts
- Bestemmingsplan (land use zone plan)

Contacts Needed for The Netherlands

- BENELUX Real Estate Field Office (REFO)

References for The Netherlands

- AER 405-4: Acquiring, Managing and Disposing of Real Estate in Belgium, the Netherlands, Luxembourg and the United Kingdom

Land Use and Zoning. In the Netherlands, each parcel of land is governed by a local regulation known as a Bestemmingsplan or Land Use Zone Plan. Depending on how the installation and surrounding areas are zoned, the Bestemmingsplan can restrict the use of buildings and land or limit the height and density of buildings. It is essential to be aware of any restrictions imposed by the Bestemmingsplan before proceeding with planned construction, demolition, or changes in building use.

10.12.4.5 Italy

Host Nation Agreements. The NATO Status of Forces Agreement and the Memorandum of Understanding, concluded on 2 Feb 1995 between the U.S. DoD and the Italian Ministry of Defense on the use of installations and infrastructure, govern the acquisition, use, and disposal of real estate in Italy.

Real Property Acquisition and Disposal. Real estate requirements in Italy are fulfilled by a record of consignment or direct contract. Real estate owned by the Italian Government is granted rent-free to U.S. Forces under a Record of Consignment (ROC). Leaseholds, easements, or other interests on properties not owned by the Italian Government are acquired directly from the property owner by direct contract. As a general rule, real estate is acquired by direct contract only when it is determined that the Italian Government will not furnish real estate on a rent-free basis, or when real estate is so urgently required that interim leasing becomes necessary. Detailed procedures on the acquisition and disposal of real property are contained in AER 405-9.

Land Use and Zoning. Local land use plans and regulations that affect installations in Italy are usually found in the Urbanistica Section of the local City Hall. It is important to obtain a copy of the Piano Regolatore. This generally contains future land use plans that may adversely affect the garrison, along with height restrictions, historic places and buildings, and other land development regulations. Because no formal process to inform the garrison of changes to the Piano Regolatore exists, it is important to periodically visit the Urbanistica Section to review any changes.

U.S. facilities are required to meet Italian sewerage, storm water, electromagnetic fields, acoustical interference, and air pollution standards. These regulations can be obtained from the Ufficio Ecologia at City Hall. Other provincial, regional, and governmental regulations must also be met.

Construction Projects. The U.S./Italian Infrastructures Bilateral Agreement (BIA) of 1954 and the MOU of 2 Feb 95 (Shell Agreement) regulate the procedures for U.S. funded infrastructure projects in Italy. All projects of this type are "executed on behalf of Italian Government". The siting of all permanent construction must be approved by the Construction Mixed Commission (CMC). This commission includes both Italian and U.S. military personnel and government officials. It leads the implementation of the BIA, subsequent applicable bilateral directives, and host nation laws.

Detailed description of procedures and applicable laws are contained in the "Guidebook for Mixed Commission Approval of U.S. Funded Infrastructure/Communication Projects in Italy" dated 7 Sep 05, developed by NAVFAC Europe. After Mixed Commission review of construction plans, the plans are sent to the regional "Comitato Misto Paritetico

Tools / Data Needed for Italy

- Final Governing Standards - Italy
- Memorandum of Understanding, 2 Feb 1995 between the U.S. DoD and the Italian Ministry of Defense
- Piano Regolatore
- U.S./Italian Infrastructures Bilateral Agreement (BIA) of 1954 and the MOU of 2 Feb 1995 (Shell Agreement)

Contacts Needed for Italy

- ARPAT
- Construction Mixed Commission (CMC)
- Superintendent of the Environment (SBA)
- Ufficio Ecologia at City Hall

References for Italy

- Guidebook for Mixed Commission Approval of U.S. Funded Infrastructure/ Communication Projects in Italy, developed by NAVFAC Europe
- AER 405-9: Acquisition, Administration and Disposal of Real Estate in Italy

(CO.MI.PAR.) and the Italian Defense General Staff (IDGS) for final approval. The CO.MI.PAR is the official local agency (also representing City Hall) that advises if a project is executable or needs a review for compliance.

In addition, if an installation is located within a Regional Natural Park area, a project must also be submitted to the regional Superintendent of the Environment (SBA).

Design and construction management of MCA projects in Italy are accomplished through the U.S. Navy (NAVFAC).

10.12.5 Planning in Japan

Host Nation Agreements. Planning and construction on US Army installations in Japan are governed by two local documents: Japanese Environmental Governing Standards (JEGS) and the Japanese Facilities Improvement Program Procedures.

Real Estate Acquisition, Demolition, and Disposal. Real estate actions in Japan are accomplished through the U.S. Forces, Japan (USFJ). If the action is initiated by the DPW, a Facility Sub-Committee United States (FSUS) Memorandum is prepared and sent to U.S. Forces, Japan through the U.S. Army Japan (USARJ). The memorandum states the action requested and presents the justification for it. U.S. Forces, Japan coordinates and negotiates with the Facility Sub-Committee Japanese Government (FSJG). When an agreement is reached, FSJG issues a memorandum of agreement, which is then sent back to the U.S. Army Garrison, Japan (USAG-J) for implementation.

Local Japanese authorities may also initiate actions. In these cases, the local authority prepares a draft FSJG Agreement and sends it to the FSJG. The FSJG coordinates through the U.S. Forces, Japan, which in turn forwards the draft to the USAG-J for consideration. The garrison adds its stipulations, requirements and concerns. It then prepares a FSUS Memorandum, which is sent back to U.S. Forces, Japan. After negotiations are completed, the Final FSJG Agreement is issued and the garrison and/or local authority may take action.

If the U.S. Army determines to relinquish and return real property under its control, all details are negotiated locally. In accordance with the Status of Forces Agreement and DoDI 4715.8, remediation is only required when the land has "known imminent endangerments to human health and safety."

On Okinawa, land is owned by private individuals. Owners may farm their land, even if it is leased to the U.S., whenever it is not in use. The U.S. Government is able to withdraw the approval of farming. If a requirement for the land develops, the garrison must notify the Ward Chief, who will deny the request if not valid. A six-month notice is then given, providing owners time to harvest crops. This process can be accelerated if the garrison compensates the owner for the market value of the crops. However, the U.S. Government does not have any obligation to compensate farmers for the loss on crop that is caused by the withdrawal. They may also give less than 30 days respite if the situation meets proper conditions. Careful attention must be given to this process, because it can become a serious political issue. The U.S. Forces on Honshu must also deal with farmer landowners in the Hiroshima area. There is more information about the farmer landowner situation in Japan on the USARJ web site.

Construction/Renovation Projects. On Okinawa, building design must meet a special light law requirement.

Tools / Data Needed for Japan

- Status of Forces Agreement – Japan (SOFA)
- Japanese Environmental Governing Standards (JEGS)
- Japanese Facilities Improvement Program Procedures
- Summary Measures Agreement
- Master Labor Contract
- Facility Sub-Committee United States (FSUS) Memorandum
- Facility Sub-Committee Japanese Government Agreement (FSJG Agreement)
- Cultural Resources Management Plan (CRMP)
- Cultural Assets Survey (on Okinawa)

Contacts Needed for Japan

- U.S. Forces Japan (USFJ)
- U.S. Army Japan (USARJ)
- U.S. Army Garrison, Japan (USAG-J)
- Facility Sub-Committee Japanese Government (FSJG)
- IMCOM Pacific Area Region (PARO)
- Regional Defense Bureaus (8)
- Japanese Employee Services Office (JESO)
- Special Action Committee on Okinawa (SACO)
- USARJ web site [http:/ / www.usarj.army.mil]
- Garrison Host Nation Relations Office

All construction and demolition on Okinawa is preceded by a Cultural Assets Survey, which usually adds two years to the planning and construction schedule. The Japanese fiscal year is from 1 April to 31 March. This plays an important role in planning in Japan, as it is six months off the cycle of the U.S. fiscal year of 1 October to 30 September. During the first added year, a Cultural Assets Survey is completed. The second year is a "rest year", as planned construction awaits completion of the Japanese budget cycle. It is important to be aware of this extended requirement for projects on Okinawa.

The people of Okinawa have great regard for their cultural assets. Caves are especially significant on Okinawa, because they were often used for human burials. This concern, along with the Cultural Assets Survey, adds an additional constraint when siting projects on Okinawa.

The garrison commander can negotiate construction projects with the Special Action Committee on Okinawa (SACO).

Environmental Considerations. The Japan Environmental Governing Standards (JEGS) control any actions affecting the environment on U.S. controlled military installations. Within U.S. Forces, Japan, the U.S. Air Force is the lead for preparing the JEGS.

Because of differences between the JEGS and local law, there is frequent confusion during construction projects. The garrison must follow the JEGS. Japanese contractors are required to follow Japanese law. While performing work for Facilities Improvement Program projects, Japanese contractors do not recognize the JEGS. These issues are being addressed, as Japanese laws become more stringent.

Public Relations. At the garrison level, contact with local communities that surround the installation is handled through the Host Nation Relations Office. If the issue is related to operations, it can be handled by the G-5 (J-5 if the issue is at USFJ level). It is encouraged that issues be resolved locally.

A formal procedure for resolution of problems does exist. The local authority can issue a complaint through one of the following Regional Defense Bureaus: Hokkaido,Tohoku, North Kanto, South Kanto, Kinki-Chubu, Chugoku-Shikoku, Kyushu, or Okinawa, which forwards the complaint to the Ministry of Defense (MOD). They, in turn, hand the complaint to USFJ, which goes to the garrison through USARJ. A faster method for resolution involves the DFAB taking the issue directly to the Host Nation Relations Officer at the garrison, who directly contacts the source of the problem.

10.12.6 Planning in Korea

Host Nation Agreements. The Republic of Korea (ROK)-U.S. SOFA is the principal document governing the status and planning of U.S. Forces stationed in Korea. The deputy commander of U.S. Forces Korea is the U.S. representative on the SOFA Committee. In that capacity, the U.S. deputy commander handles all issues relating to the ROK-U.S. SOFA.

On property controlled by U.S. Forces, the U.S. Forces Korea Environmental Governing Standards determine how environmental issues are managed.

The U.S. is part of a coalition force in the ROK. As such, joint agreements must be taken into account in all planning decisions.

Real Estate Acquisition, Demolition and Disposal. Real estate agreements are negotiated between the U.S. Forces Korea (USFK) and the host nation.

Land Use and Zoning. Land use by U.S Forces in Korea falls under one of four criteria: exclusive use, joint use, easements, and temporary use.

- U.S. Forces are granted full control and authority over land deemed "exclusive use." However, agreements for exclusive use often come with political ramifications. It is important to be aware of this when making planning recommendations.
- "Joint use land" is shared between the U.S. Forces and another agency, usually a Korean defense activity. This land use must be negotiated between the parties involved.
- Easements, while not controlled by U.S. Forces, are lands on which they have some specific permission. An example would include utility lines.
- "Temporary use lands," while not controlled by U.S. Forces, are lands on which they are permitted use for a specific short period of time.

Restrictive easements may also be in place on U.S. controlled properties. Many of these properties provide sole access to Korean communities or adjacent Korean Defense installations. These access lines must be kept open for the benefit of the community. Some sites provide utilities to adjacent communities. If the U.S. ever vacates these properties, arrangements must be made to transfer the utility services to the new landholder.

Likewise, some facilities on U.S. controlled land may belong to the ROK. For U.S. convenience, ROK activities in these facilities may be relocated, but the U.S. must provide comparable facilities elsewhere.

Tools / Data Needed for Korea

- **ROK-U.S. SOFA**
- **U.S. Forces Korea Environmental Governing Standards**

Contacts Needed For Korea

- **Facility Area Subcommittee**

Programming. There are two major construction programs funded by the Korean Government. They are the Republic of Korea Funded Construction (ROKFC) and the Combined Defense Improvement Program (CDIP). These programs are similar to MILCON. In addition, there are other minor programs unique to Korea. The Master Planner needs to seek information on these programs and include them in their CIS.

Construction Projects. While the U.S. is free to do construction on land it controls, political issues frequently affect construction. It is always important to be aware of the political ramifications of construction activities.

Weather and soil conditions must be considered during the siting of construction projects or other planning actions. Heavy monsoon rains can easily make a slope unstable or wash out a low spot. It is important to be aware of weather, soil, and slope conditions in this part of the world.

Environmental Issues. Political pressure affects the environmental agreements between the U.S. and Korea, especially in the area of installation closings.

Some property controlled by U.S. Forces has a long history of military activity by many different nationalities. U.S. Forces are continually encountering problems that were created in the distant past. Contaminated soils and unexploded ordnance are frequently discovered. These must be handled properly and in accordance with various regulations.

There are small family burial sites all over Korea and on U.S. controlled lands as well. Descendants must be granted access to their ancestral sites on certain specific occasions. In other instances, burial sites are discovered during construction. These may be moved, but the legal process is lengthy.

If any planning involves a significant cultural issue, only individuals authorized by the Korean government may perform a cultural survey. These individuals may be difficult to locate.

Appendix A. Summary of Changes

Many of the updates in MPTM Edition 4 address changes resulting from the revision of AR210-20 Real Property Mater Planning for Army installations; the revised AR will be published as a chapter within AR 420-1 Army Facilities Management.

Process diagrams depicting the Real Property Master Planning (RPMP) process, Long Range Component (LRC) and Capital Investment Strategy (CIS) have been updated.

The Vision Plan, a new master plan component, was added as Section 3 and includes a Vision Plan process diagram; examples of Vision Plans are included in Appendix B.

The LRC section names were changed to match LRC products; Land Use Maps and Plans are no longer required as Land Use is addressed in regulating plans; consequently the Land Use Matrix, no longer valid, was removed from the Appendix.

The LRC utilities sections were updated to reflect heightened emphasis on energy and water conservation IAW new Army policies on Sustainable Development and Design.

Area Development Plans (ADP) are now developed as part of the LRC, so ADP and LRC sections were consolidated. Examples of Framework Plans, Future Development Plans, Area Development Plans, Illustrative Plans, Regulating Plans and Installation Development Plans are included in Appendix C.

The Installation Design Guide (IDG) section will be fully revised once AR 420-1 is complete; new examples were included in the Appendix D; Area Design Guides are no longer a master plan element and were removed from this section and the Appendix.

The TAB section was modified in accordance with the Army transition to WebRPLANS.

References to Integrated Facility System (IFS) have been removed as this system has been absorbed into General Fund Enterprise Business System (GFEBS); the section addressing GFEBS will be updated with the completion of AR420-1.

References to the Facility Planning System (FPS) and the Army Criteria Tracking System (ACTS) have been removed as these systems have been absorbed into RPLANS.

The Headquarters Executive Information System/Installation Executive Information System (HQEIS/EIS) has been replaced by the Headquarters Installation Information System (HQIIS).

The Short Range Component was removed as a separate RPMP component; much of its content was absorbed into the Capital Investment Strategy (CIS); The Future Development Plan is now located within the LRC; examples within the CIS were updated.

All content from the Real Property Master Plan Digest was removed; this document is now optional and will be revised once the AR420-1 is finalized.

The Sustainability section was updated to incorporate Army policies that address energy use and conservation, water use and conservation, and low impact development; new criteria requiring LEED Silver certification was also included.

The following maps and plans have been standardized by IMCOM and consequently replaced with links to EKO for viewing: Site Maps, Composite Constraints and Opportunities Maps, Real Estate Maps, and Future Development Plans.

Appendix B. Examples: Vision Plan

Vision Plan

United States Army Garrison Vicenza Italy

IMCOM
SOLDIERS · FAMILIES · CIVILIANS

Installation Management Command – Europe Region

Prepared by: Ryan Stanton, Master Planning Division

8 June 2010

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Commanders Endorsement

U.S. Army Europe (USAREUR) has designated the Vicenza Military Community (VMC) as an "Enduring Community," home to the U.S. Army Africa (USARAF), the 173d Airborne Brigade Combat Team (ABCT), U.S. Army Garrison (USAG) Vicenza, and many other tenant organizations and units. Each of these major organizations has transformed or will transform as part of the Army's Modularity program. On 1 October 2005, the 22nd Area Support Group transformed into U.S. Army Garrison Vicenza. On 16 September 2006, the 173d Airborne Brigade completed its transformation into an agile, modular ABCT. On 1 October 2009, SETAF transformed to USARAF, but remains a deployable core of a combined, joint, or Army task force with its new mission focus of supporting the U.S. Africa Command (USAFRICOM). Transformational change of the Army in Italy will require military construction (MILCON) of new facilities in Vicenza, as well as sustainment, restoration and modernization (SRM) of existing facilities in order to accommodate the associated population growth of Soldiers, families, and civilian employees. In order to consolidate the 173d ABCT in Vicenza as part of the Army transformation plan, additional facilities will be built and renovated.

To support this unit transformation, VMC installations will also be transformed with new, right-sized facilities that support operations and training requirements and comply with force protection standards. At the same time, these facilities will be designed to respect the architectural history of the local Italian community while providing modern amenities for Soldiers and Families. These installations will be configured as state-of-the-art, zoned "campus" style bases, complete with recreation areas and landscaped grounds.

The USAG Vicenza Vision Plan captures and communicates the vision, goals and objectives that will drive the planning process, and provide the road map for recapitalizing aged, undersized and temporary building into modern, attractive facilities that support USARAF and the rapid-response units based in Vicenza. By fully implementing the Vision, we will ensure that VMC installations fully support the Department of Defense's strategic posture for warfighting capability, while offering a safe, high quality and environmentally friendly installation for our Soldiers, Families and civilian workforce.

ERIK O. DAIGA
COL, MI
COMMANDING

Real Property Vision

USAG Vicenza will provide sustainable campuses of real property facilities and infrastructure, which are pedestrian oriented, architecturally compatible, environmentally friendly, and safe to support the U.S. Army's strategic mission while fostering excellent quality of life and protecting our natural resources.

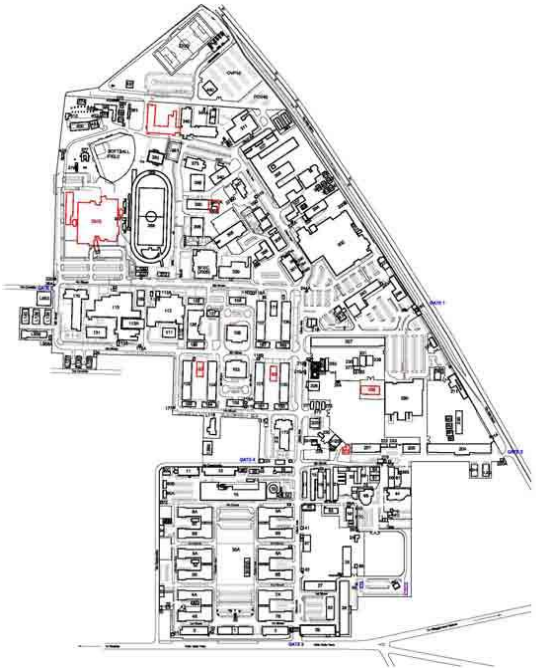

Figure 1: Caserma (Camp) Ederle

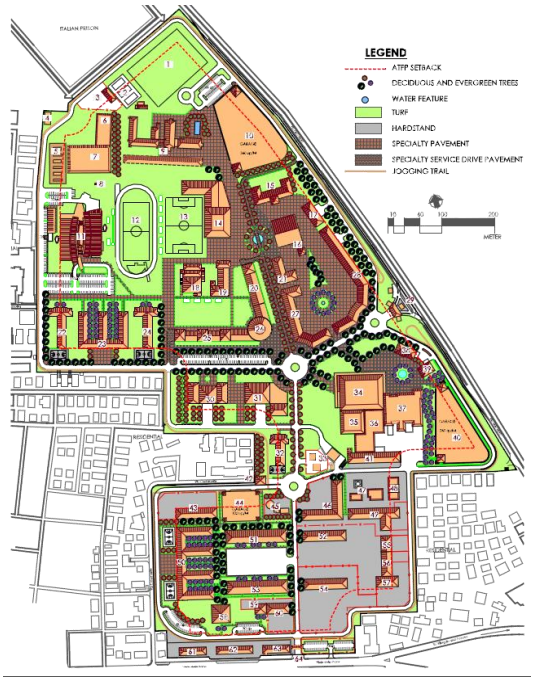

Figure 2: Caserma Ederle Area Development Plan (ADP)

Figure 3: Dal Molin Site Plan (Under Construction)

Goal 1: Establish a Vision

Establish a vision and a blueprint that enables the USAG Vicenza to respond to future Army missions and community goals, while providing and maintaining the capability to train, project, sustain, and support today's force.

Objective 1.1: Update Vicenza 2020 Master Plan to reflect changes to Dal Molin, current Military Construction (MILCON) Future Years Defense Program (FYDP) and transformation of SETAF.

Objective 1.2: Update installation real property master plan to include Villaggio della Pace Housing Area, Longare, Dal Molin, and Capital Investment Strategies.

Goal 2: Establish the Future Direction for Managing Real Property

Establish the future direction for efficiently managing and acquiring or reducing real property at Army installations to support the current mission, transformation, and management processes.

Objective 2.1: Review and update the Capital Improvements Program and MILCON projects to assure infrastructure renewal.

Objective 2.2: Keep all key players informed about the Master Planning process and make Master Plan documents more accessible to the public.

Goal 3: Provide World-Class Quality Facilities

Provide Soldiers, civilians, retirees and their Families as well as other users of Army installations, with world-class quality facilities.

Objective 3.1: Provide facilities and infrastructure that employ state of the art construction technology, can support current and future computer requirements and data links, comply with applicable environmental statutes and regulatory requirements, are efficient to operate, and are adaptable to the Army's evolving needs.

Objective 3.2: Assure facility designs reflect human scale and needs, encourage productivity, and allow cost effective modernization and adaptability for future change.

Goal 4: Complete MILCON for Stationing the 173rd ABCT

Complete the MILCON construction program that stations the 173rd Airborne Brigade Combat Team (ABCT) and necessary support facilities at Dal Molin to support long-range development, and allows the battalions to function as a whole in support of Army modularity.

Objective 4.1: Coordinate with all Partners to insure that the MILCON construction program is designed and constructed to meet the identified requirements and adheres to environmental and Leadership in Energy and Environmental Design (LEED) energy standards.

Objective 4.2: Provide quality work facilities that are modern, efficient, aesthetically pleasing, humanistic in design, safe, and conducive to productivity.

Goal 5: Eliminate or Reduce Leases

Eliminate or reduce off-post leases.

Objective 5.1: Reduce or eliminate leasing. Make permanent, adequate vacant space on the Installation available to agencies currently in leased space.

Objective 5.2: Continually survey, analyze, and assign space and facilities to maximize utilization, identify and dispose of excess leases, and support verified shortages.

Goal 6: Create Synergistic Relationships in Planning

Concentrate similar functions into a well-defined complex to create synergistic relationships for similar functions, provide land use and zoning that maximizes up-to-date facilities and adds new facilities in a planned development pattern, and preserve and enhance open space and recreation.

Objective 6.1: Provide a land use plan that is mission focused and capable of adapting to changing mission requirements and force structure changes.

Objective 6.2: Maintain green space and viewscapes.

Goal 7: Enhance Environmental, Visual, and Landscape Conditions of Caserma Ederle

Enhance environmental, visual, and landscape conditions of Caserma Ederle through architectural themes and design standards established in the Installation Design Guide (IDG), to maintain a symbiotic relationship between the post and the surrounding community.

Objective 7.1: Complete and monitor inventories of cultural (e.g. archeological sites, historic sites, etc.) and natural (e.g. wetlands, endangered species, flora, fauna, etc.) resources and integrate into the planning and decision making process.

Objective 7.2: Establish quality standards by improving and enforcing the Installation Design Guidelines.

Goal 8: Incorporate ATFP Standards in Circulation and Transportation Patterns

Incorporate antiterrorism force protection (ATFP) standards and improved circulation and transportation patterns into master planning, design, and construction to create a safe and functional installation.

Objective 8.1: Provide building designs which enhance installation survivability against aggression in high threat areas.

Objective 8.2: Meet current ATFP requirements to protect infrastructure and address changing threats.

Goal 9: Create a Pedestrian-friendly Site

Create a pedestrian-friendly site that encourages walking patterns as the preferred transportation method.

Objective 9.1: Improve traffic circulation and functional effectiveness by improving the roadway network, and encouraging pedestrian circulation.

Objective 9.2: Develop the Installation's physical environment with outdoor recreational amenities for physical and mental well-being.

Figure 4: Longare

Figure 5: Villaggio della Pace Housing Area

Additional Garrison Objectives

1. Support contingency operations with necessary infrastructure development, maintenance and repair.
2. Provide necessary and timely facility support to accommodate Transformation.
3. Adopt an aggressive facilities management program that promotes retention of only those facilities required to support current or known future missions and replaces/revitalizes only required facilities in failing or failed condition.
4. Employ advanced technologies to extend the useful life of real property assets.
5. Comply and coordinate actions with all federal, state, and local environmental agencies and adhere to laws and regulations.
6. Identify and protect important natural and cultural resources.
7. Provide modern, comfortable unaccompanied personnel and family housing that is adaptable to changing life styles without future major renovations.
8. Protect and manage natural resources in accordance with national policies to benefit the public and enhance installation quality of life.
9. Update the Capital Investment Strategy (CIS) and the Installation Design Guide (IDG).
10. Update IFS, GIS, ISR, and ASIP (Garrison databases of record).

Figure 6: Dal Molin Site

Figure 7: Ammunition Supply Point (ASP) 7

USAG Vicenza is approximately 190 hectares (469 acres) and comprises seven sites located throughout the eastern portion of Vicenza, Italy. The city of Vicenza is in the Veneto region of Italy. The cities of Venice and Verona, Italy, are about 65 kilometers (km) (40 miles) to the east and west of the cantonment area, respectively. The installation is easily accessible by road but has no significant rail or air facilities. The U.S. Air Force's Aviano Air Base supports all deployments.

Figure 8: Region Map

Dal Molin, Villaggio della Pace Housing Area, Longare, and Ammunition Supply Point (ASP) 7 are U.S. consigned properties that support the Vicenza military community. Villaggio della Pace Housing Area is located about 2 km (1 mile) southeast of Caserma Ederle.

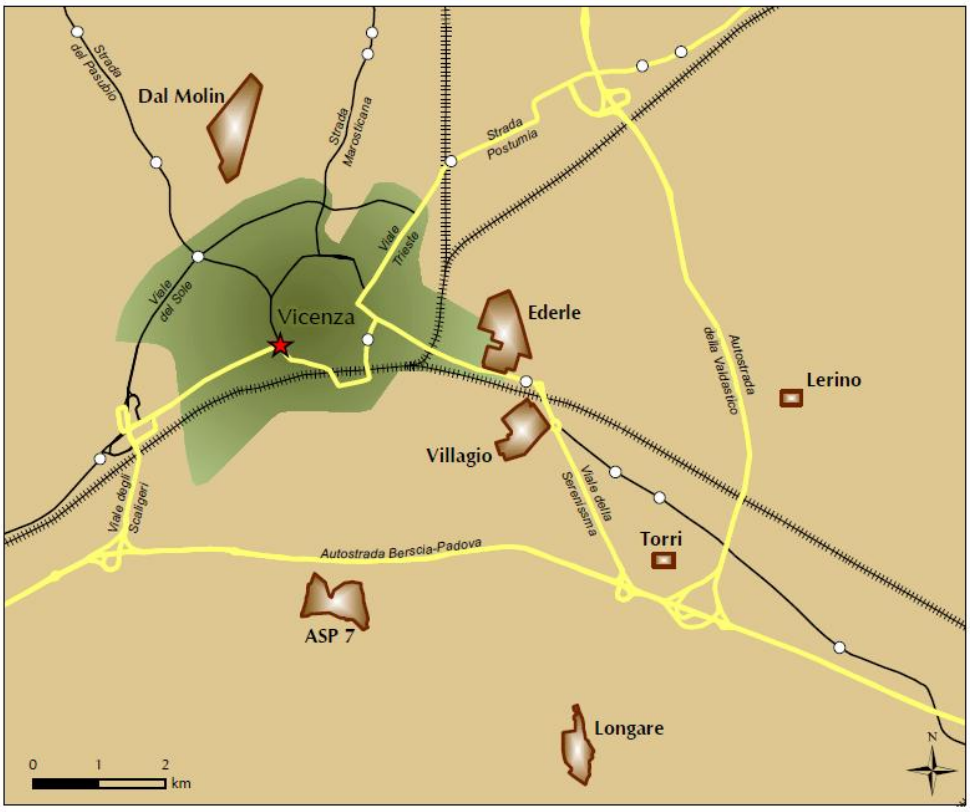

Figure 9: Vicinity Map

Figure 10: Major Carlo Ederle

Caserma Ederle, named for the Italian Major Carlo Ederle, was built by the Italian Army in 1939. In 1951, the U.S. and Italy agreed to establish a line of communication and supply through Italy to support U.S. troops in Austria. As part of the agreement to operate on consigned land, the U.S. constructed the main facilities for the logistical command.

On October 25, 1955, the Southern European Task Force (SETAF) was activated in Verona, Italy. Its original mission was to protect Italy's vulnerable eastern border after the Austria State Treaty established Austria's official neutrality. In 1965, SETAF headquarters was moved to Caserma Ederle in Vicenza to provide a better defensive posture against aggression from Eastern Europe. From this time to the early 1990s, SETAF commanded and controlled the 1st Battalion, 509th Infantry ABCT, three U.S. Army Artillery Groups, and a major depot at Camp Darby with the 8th Area Support Group (ASG). As political reorientations in 1989 and 1990 reduced the threat of war, SETAF received missions for regional tactical operations as command and control headquarters for Army and joint units.

Figure 11: Soldiers of the 509th Infantry in parachute gear circa 1944

In January 1994, an infantry brigade was established at SETAF to provide command and control of SETAF's deployable units. The brigade became the 173rd Airborne Brigade in 2005. Today, Caserma Ederle is home to SETAF HQ, the USAG Vicenza (formerly the 22nd ASG), the 173rd ABCT HQ (formerly the 173rd Airborne Brigade), and additional tactical and community support units. In December 2008, SETAF became U.S. Army Africa (USARAF), the Army component of U.S. Africa Command (AFRICOM).

Dal Molin was originally an Italian military installation, used by the 5th Allied Tactical Air Force and as the command center for the North Atlantic Treaty Organization's (NATO) air operations in the Balkans, between approximately 1993 and 2001. The Combined Air Operations Center (CAOC) and most other Italian units gradually moved to Poggio Renatica, in the town of Ferrara, approximately 100 miles south of Vicenza.

Over the years, the airport provided commercial services to residents and visitors. In 2006, the airfield was offered by the Italian government for consolidation of the 173rd ABCT. To prepare the site for redevelopment, removal of unexploded ordnance dating back to World War II was performed. Brigade and Battalion headquarters, barracks, maintenance facilities, and recreational facilities are under construction on the former airfield. Construction is anticipated to be completed by 2012.

USAG Vicenza is home to a supported population of almost 4,981 Soldiers and Department of Defense (DoD) civilians. Over the next 5 years, new Soldiers, civilians, and family members will arrive at USAG Vicenza. By 2014, the supported population will be close to 6,300, the result of global repositioning and Grow the Army (GTA) unit stationing actions.

Approximately 1,322 new Soldiers and more than 2,010 associated family members will be stationed at USAG Vicenza by fiscal year (FY) 2014. Overall, an increase of approximately 32 percent is projected for the total installation population.

These new residents will affect all aspects of the regional community including the housing market, local school systems, state and local municipal services, and quality of life. The demographic forecasts provide the base assumptions used to create the USAG Strategic Plan.

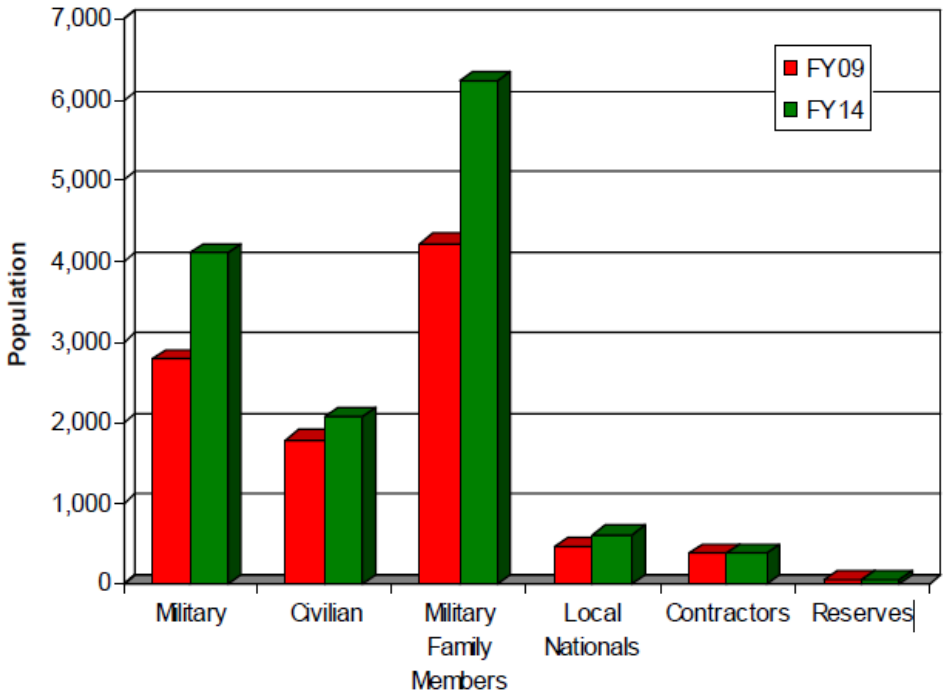

Figure 12: Vicenza Military Population Growth

USAG Vicenza places importance on providing quality base support to the military community, as well as fostering positive relationships with local and host nation authorities. The garrison provides readiness, safety, and quality of life measures for both military and civilian personnel and their families. Services and support include everyday amenities, such as shopping, recreation, quality education, and medical services. In addition, the Vicenza military community provides support,assistance, and counseling services for its Soldiers and their families.

Figure 13: Community Press Conference

Figure 14: Participating in local sporting events

USAG Vicenza strives to be an organization that is civically, culturally, environmentally, and economically responsible to the Italian public. Civic efforts are grounded in the garrison values, which outline the installation's commitment to conduct business in a socially responsible and ethical manner. This involves supporting programs and policies that benefit the community where Soldiers, their families, and civilians live and work, protect the environment, and respect the Italian culture. Examples of programs that incorporate the greater Vicenza community include local hiring efforts, environmental management systems, energy efficiency efforts, and philanthropic and community investment programs.

USAG Vicenza is a major employer in Vicenza, Italy, employing 2,390 local nationals and contributing $1.9 billion annually to the economy.

Figure 15: Sharing the holidays with the community

Mission

Fort Belvoir is the Army's premier installation in the National Capital Region (NCR). It provides a secure, safe operating environment for numerous missions and functions, including:

- Administrative, logistics, and operations support for regional and worldwide military missions
- A creative learning environment for Army and DoD school students
- Military support for a variety of NCR contingency missions
- Regional housing for active duty military families
- Quality of life support for the military community that includes health and recreation
- Environmental and cultural resources stewardship in concert with mission support

Vision

The collective vision of the future Fort Belvoir aspires to create:

- An outstanding place to work, train and live
- A federal urban center that provides the workforce with safe, secure, premium support
- A culture that welcomes change and challenges while simultaneously achieving harmony with surrounding communities and the natural environment
- A continuing legacy of a "Beautiful to See" installation

Guiding Principles

The Master Plan Guiding Principles were developed in consultation with the garrison staff. They provide a planning road map that will shape the future development of Fort Belvoir. These principles are:

- Transform Fort Belvoir: Create a world-class installation
  - Support Fort Belvoir's mission.
  - Become a model within the community, the region and among other military installations.
  - Support and incorporate anti-terrorism/force protection standards to provide a safe and secure environment for installation residents and customers.
  - Improve the quality of life across the Post.
  - Promote diverse and high quality neighborhoods.
  - Develop new facilities and public spaces.

- Achieve a diversity of use and activities: Enrich the program
  - Create new places of work that reinforce the spirit of community and collaboration.
  - Integrate new places for education and training.
  - Continue to support areas for recreation.
  - Encourage the creation of mixed-use activity centers.
  - Provide National Capital Soldiers with quality, cost effective military training capabilities.

- Achieve environmental brilliance: A sustainable approach in everything
  - Create energy efficiency through technology and by maximizing site potential.
  - Explore ability to maximize day-lighting in building design.
  - Optimize the use of recycled building materials.
  - Incorporate new technologies and best practices.
  - Explore alternative modes of transportation.

- Strengthen the natural habitat: Enhance creeks, wetlands and wildlife habitats and ensure all development is in concert with the natural environment
  - Preserve natural systems and their functions.
  - Protect and enhance natural habitats.
  - Recognize and preserve existing biodiversity.
  - Enable connections between the regional and on-post conservation areas.
  - Incorporate 'watershed planning' principles into site planning.

- Build compact neighborhoods: Strengthen the sense of community and place
  - Extend transit lines.
  - Guide projected growth around transit opportunities.
  - Optimize developable land.
  - Preserve large land areas for potential future missions.
  - Preserve open space.
  - Align accessibility and transit initiatives.
  - Recognize that land is a valuable and diminishing resource.
  - Implement land use planning that reinforces redevelopment and strengthens exiting neighborhoods.

- Improve connectivity: Consider strategies that allow people to "park once"
  - Create convenient access to transit.
  - Strengthen circulation connections between North and South Post.
  - Investigate alternative modes of transit.
  - Integrate potential shuttle connections or a "circulator" between Army neighborhoods, parking facilities and regional transit.
  - Encourage the development of pedestrian and bicycle trails that connect residential neighborhoods to each other.

- Emphasize the public realm: Create walkable neighborhoods
  - Create new and exciting places for people.
  - Concentrate uses and activities that enable a walkable community.
  - Provide active and public uses at the ground floor.
  - Ensure accessibility.
  - Repair existing landscapes including streets, parklands, creeks, and streams.
  - Expand the "Town Center" to serve as a central focus for South Post development.

- Respect the history of Fort Belvoir: Continue its legacy for future generations
  - Explore the innovative reuse of older facilities.
  - Continue legacy of the landscape and natural setting.
  - Continue to uphold Fort Belvoir's mission and responsibilities within the region.
  - Provide a clear development strategy for a long-term, sustainable development plan.
  - Recognize Fort Belvoir's advantageous location near our nation's capital.
  - Emphasize design standards that are respectful of the historic nature of Fort Belvoir and the surrounding region.
  - Protect Fort Belvoir's cultural resources.

- Provide Community Benefits: Strengthen existing Army and surrounding neighborhoods
  - Identify roadway investments for continued growth of the region.
  - Explore shared amenities, such as parks and community-based facilities (for example, the hospital and Museum of the U.S. Army).
  - Align possible synergies with surrounding community development initiatives, such as the redevelopment of downtown Springfield and the U.S. Route 1 corridor.
  - Optimize the potential of existing infrastructure and shared benefits from continued investment in regional transportation.

These principles aim at creating a plan that: efficiently uses land, maximizes the use of previously developed areas, minimizes the impact on the environment, and ultimately creates a sustainable world-class installation.

Figure 2 Street Cafes

Figure 3 Shop Fronts

Figure 4 Visible Entries

Planning Vision

"In support of the mission, Soldiers, and Families, we will create a sustainable community of walkable neighborhoods with identifiable town centers connected by great streets."

Planning Goals

Enhance Mission Capabilities
Sustainable Communities
Walkable Neighborhoods
Identifiable Town Center
Great Streets

Planning Objectives

Rangeland Preservation
Close-In-Training
Public Transit
Street Cafes
Regional Character
On-Street Parking
Aligned Entries
Bulb-Outs
Parkways
Planting Strips
Great Views
Efficient Transportation
Affordable Development
Clear Edges
Bike-able/Bike Paths
Linear Parks
Focal Points
Street Grid
Visible Entries
Car Parks
Connected Sidewalks
Hidden Parking
Sidewalk Buildings
Main Street
Five-Minute Walk
Large Park Blocks
Narrow Buildings
Street Trees
Town Square
Mixed-Use Facilities
Multi-Story Buildings
Compact Development
Multi-Way Boulevard
Shop Fronts
Low-Impact Development
Neighborhood Parks

Figure 5 Great Views

Figure 6 Rangeland Preservation

MASTER PLAN VISIONING WORKSHOP

FORT A.P. HILL

VIRGINIA

March 22-23 2010

PBS&J

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Visioning Workshop

BACKGROUND

In March 2010, as part of the Master Planning process, a two day workshop was held at Fort A.P. Hill, VA. It included a Project Kickoff Presentation, a Visioning Charrette and a concluding Outbrief. The workshop participants included installation stakeholders who were knowledgeable about the post and could provide input into its strengths and weaknesses. The objectives of the workshop were to:

Project Kickoff

- Describe the scope of the contract
- Outline the documents to be updated (LRC, CIS & EA)
- Communicate the Master Planning process
- Review the project schedule
- Describe the methods to be used in data gathering and analysis

Visioning Charrette

- Assess the current state in four areas: work facilities, home/family life, general infrastructure, and outdoors
- Describe elements of a desired future state in four areas: work facilities, home/family life, general infrastructure, and outdoors
- Create a Master Plan Vision
- Develop Master Plan Guiding Principles

Outbrief

- Present results of the Visioning Charrette to the Garrison Commander
- Record Garrison Commander comments

Participants

The participants of the 22 – 23 March 2010 Master Plan visioning workshop are listed in the following table:

Name	Organization	Email	Phone	*KO	3/22	3/23	*OB
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Keith Orage	Sustainment Center of Excellence (SCoE)	keith.orage@conus.army.mil	804-734-3175	■	■		
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Hank Hanraken	DPTMS	henry.hanranken@us.army.mil	804-633-8203		■		
Brian Robinson	DPW - Engineering	brian.l.robinson@us.army.mil	804-633-8262		■	■	■
Daniel Glembot	DES - Fire	daniel.c.glembot@us.army.mil	804-633-8117		■		
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Ken Perrotte	PAIO	ken.perrotte@us.army.mil	804-633-8842			■	

**KO - Kick Off (3/22 am)*
**OB - Outbrief (3/23 pm)*

The meeting began with comments by the Garrison Commander, Lt. Col. John Haefner. He commended everyone for taking time out of their busy schedules to attend the session, encouraged everyone to participate and provide input, and indicated that he looked forward to receiving the outbrief at 1400 hours 23 March 2010.

ASSESS CURRENT STATE

Participants were asked to describe the current installation strengths and weaknesses in each of the following four categories:

Work Facilities:

- Space
- Condition
- Expansion
- Location
- Suitability for use
- Amenities

Home/Family Life:

- Family housing
- Shopping
- Schools
- Recreation
- Support (day care, counseling)
- Deployment issues

General Infrastructure:

- Roads-access, traffic, parking
- Utilities condition
- Communication infrastructure
- Connectivity (pedestrian, vehicular, transit, other)

Outdoors:

- Environmental/open space
- Urban design
- Landscaping
- Architectural character
- Overall visual image
- Fitness/Training areas

Work Facilities

Strengths	Weaknesses
Range of facilities providing services are adequate for our needs	Although we are planning for a 3rd fire department, manpower is ahead of facility planning for this
HQ: close proximity, within walking distance	Warehouse space is tight, and we have new tenants coming in
Two fire departments—one is centrally located and we are already planning a 3rd one on the South side	The Administrative facilities at Wilcox and Longstreet
Front and outside of HQ/106 Area was recently renovated—we have modern equipment and three gyms	Longstreet needs a new gym and new Administrative facilities
We have relatively new buildings—very few WWII buildings are left	No AC—only in barracks at Longstreet
Our barracks are OK	We are short on Administrative space
We are letting Asymmetric Warfare Group (AWG) expand in T.A. 22 Bravo	Hwy 301 splits the installation into two areas; 15 – 20-minute drive around time
Condition of facilities at Camp Anderson	Conflict of space use
	Some Department of Public Works have limited office space...they need a new building
	Expansion is a bit of an issue—the terrain is too steep and we have quite a few wetlands
	We store U.S. Army materials for the Boy Scouts—impacts warehouse storage space
	Only two open entrances to the Post: One is open 24 hrs/day, one is open 5.5 hrs/day
	DS maintenance shop is in bad shape
	AWG expansion may be positive for them, but negative for the installation (especially if they build all their own facilities—medical, maintenance shop, barracks, warehouse, provide own security, etc.)
	Two largest directorates are 7 miles apart
	We lost barrack space to build three gyms
	Instead of having large, central warehousing, we have warehouses in old buildings not built to serve as warehouses
	Police station was not designed to be a police station
	Current space in/for fire stations is less than desirable
	Mail room was not built to serve as a mail room—it therefore fails security and anti-terrorism checks

Home/Family Life

Strengths	Weaknesses
Family housing is in good shape, was built in 1992	As we expand, we will need a new dining facility
Last year, we improved/expanded many of the housing units	Many housing units are too small
The number of housing units is just about right	Mix of bedrooms is wrong
Lodges and Beaver Dam Conference Center are fairly new, we have a lot of outdoor fishing and hunting	Need to work on some of the bike trails
Caroline County does send a school bus to the family housing area	Dining facilities are inadequate in number
Have improved trails so children can get to some of the recreation (swimming pool)	Two battalions have to work in same food preparation space
Racquetball court is new and well used No legal, chaplain, Employee Assistance, CPAC—have to go to Fort Belvoir for these	No open facility like a club for dining
	No shopping here—we acknowledge we need a bigger facility, but will not build it because we do not feel it would make money
	No schools on Post
	No TDY lodging nearby or on Post
	Nearby and surrounding community schools are not very good—better schools are 25 to 30 miles away
	Swimming pool is too small—is not big enough for lap swimming
	We do not have a “one stop” welcome center
	Playground facility by family housing is “not fun” for children
	We do not have enough permanent barracks
	Child Development Center/Youth Services are needed
	YMCA is available, but it is not close by
	We do not have any facilities that would meet Childcare facility requirements
	No legal, chaplain, Employee Assistance, CPAC—have to go to Fort Belvoir for these
	No medical facility on the installation for families
	No medical facility for civilian workforce for medical requirements, vision, etc
	No bowling, no PX open 7 days a week—the current small shopping facility is open only 5 days a week
	Physical fitness programs are HQ-oriented, not at other parts of the Post
	No rough-terrain bike trails

General Infrastructure

Strengths	Weaknesses
Utilities are positive. . . are a "work in progress"	Only two open entrances to the Post: One is open 24 hrs/day, one is open 5.5 hrs/day
Entrance does not back up in the mornings, the traffic flows relatively well	Communication—just copper wiring in some facilities, needs to be updated
Equipment can be moved by river	River landing site needs to be upgraded
We are getting two major fiber loops—communication	Water/sewer does not adequately support ranges and training areas; only one pump station at Travis Lake area; nothing to Pender or Cooke
Virginia (or someone) will be building a rail spur that will include a rail head for equipment	Not enough fiber in the facilities
Electricity is reliable	Minimal support outside Post for restaurant, lodging, or shopping
The wash rack is adequate for our vehicle fleet	Transporting soldiers by bus from Fort Lee creates a risk factor (37 – 40 times per year)
Numerous fuel pumps/points throughout the Post	If the new rail spur does not come up on Post, we have limited transportation vehicles to move things on Post
Have a recycling program that is working	Too much electricity is above-ground
	No public transportation from Post to surrounding communities (but there may not be a need for it)
	Some bridges need to be repaired and others need to be upgraded for heavier weight class vehicles
	Some remote areas do not have running water or electricity
	Cooke spray irrigation system has limited capacity and needs to be upgraded
	Inadequate transportation from the train depot to parts within the Post
	We do not recycle enough plastic and glass
	While Verizon cell coverage is OK, other cell carrier cell phone coverage is unreliable or nonexistent
	Rte 2: not many places to pass
	Sustainable transportation mode for surrounding community
	No shuttle service within the Post
	No place for 18-wheelers to check in when they come onto the Post
	The geometry of the road network is old—not wide enough, not paved, no shoulders, need to reduce 90 degree turns
	No perimeter road on the South or North sides of the Post
	No fully-contained perimeter fencing (this is a force protection issue)

Outdoors

Strengths	Weaknesses
Partnerships with local wildlife refuge	We do not have inside perimeter road on Southern ranges
Keep winning environmental awards	Some of our running trails/tracks need to be upgraded
Conservation program	Some ranges are exposed to nearby roads—need additional screening
Compatible use buffer program	No bike trail along Rte 2
We take steps to ensure we do not adversely impact the environment	Do not have a Strategic Outdoor Recreation Plan
Our buildings are functional; they meet the need(s) they were built for	No space for bridge training (water portion)
Community is authorized (and do come in) to hunt and fish because we are a recognized wildlife area	No 10-mile cross country running trail
We have state of the art training facilities that have recently been built or upgraded	Need to expand L.I.D. projects, especially Wilcox
New trails for fitness and training	Have encroachment issues and complaints about noise
Beaver Dam runnning/walking trail is rubberized	Many of our older buildings do not follow the Installation Design Guide
Currently building a state of the art Asymmetric Battle Lab with good landscaping—designed for form and function	The RV Park needs to be expanded, moved, and upgraded.
Have several Low Impact Development (L.I.D.) Projects	We do not have enough landscaping
Have a wildlife biologist with 17 years of experience who is really watching for disease	Not enough personnel or equipment to take care of landscaping in some training areas
Will have two new cabins and service center out at Travis Lake	Do not have the most up to date GIS information when lines are moved from above ground to underground
Our Maneuver Corridor is fairly new and was designed around species and historic areas	
Do not have a huge landscaping requirement	
We have the ability to manage any unit coming in and accommodate whatever they need to meet their training objective or goal	
We have a facility sustainability plan	
We are now trying to make all buildings in one area look compatible with the visual theme for that area	
We attempt to partner with conservation groups who contract for buffer zones	
We have an installation design guide	
Have a Range Complex Master Plan	

DESCRIBE ELEMENTS OF A DESIRED FUTURE STATE

Once the strengths and weaknesses of the current state were captured, participants were asked to describe elements of a desired future state. These elements were meant to capitalize on the strengths and mitigate the weaknesses. The goal of this step was to have the participants describe, ideally, facilities or features of FAPH looking ahead 20 years. The resulting list of elements of a desired future state are as follows:

Work Facilities

- We have a Conference Center (with lodging, restaurant, etc)
- We are consolidated, regarding our work spaces
- Services we offer (medical, for example) are closely accessible to the front gate
- The retiree population considers us as a key resource
- We have a climate controlled storage facility
- The DES building is in place
- Zoning of administrative buildings in one area; buildings that were designed for administrative functions
- We have a structured, planned community (force protection ensured)
- We are right-sized to meet the service needs of our folks—we match space and services and are flexible
- Better flow between the South and North side of the Post
- We have an overpass to facilitate travel within/around the Post
- Parking is adequate
- Tele-work facilities for other federal employees who reside in this area
- Growth has been focused around our primary arteries within the Post
- Warehouses are centrally located
- Upgraded support facilities for training ranges
- No encroachment onto Range Areas

Home/Family Life

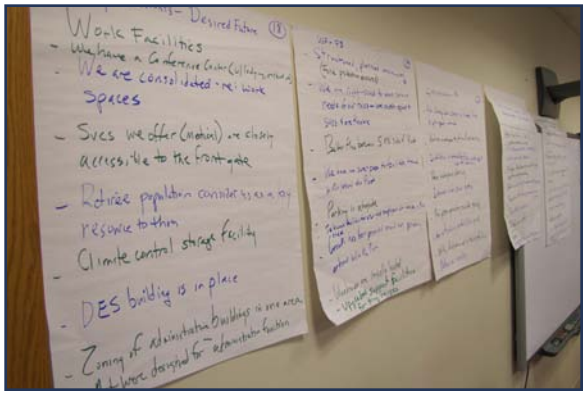
- Youth and teen centers are available
- On-site Day Care Center is available to military and civilian personnel
- HR functions (Army community services, legal practices, soldier support functions and services) are available
- Partner with local college to present education program(s)
- Properly sized family housing to meet the mission requirement
- Religious facilities are available
- Fast food court and gas station exist
- If needed to meet DoD mission, we have DoD school system on the Post
- The school district has a system/curriculum that meets the needs of the employees
- PX is available that is appropriate for the community
- Bowling alley, theatre, and aquatic facility is available
- There is transportation to/from private school centers

General Infrastructure

- Our computer server is here—we have high-speed Internet
- We have adequate number of Post servers
- Installation is accessible from the outside and within the installation
- Have underground electricity
- Integrated water and sewer system
- Are green—generating renewable energy
- Have a fixed wing airfield (that is paved)
- Utility infrastructure extends out to training facilities
- Natural gas is available
- Roads have been improved and are not adversely impacted by the weather
- Clear and secure installation boundaries with control firebreaks

Outdoors

- Travis Lake has become a recreational area open to the DoD community
- Rod and Gun Club and archery range are available on the Post
- Landscaping is visually appealing and low maintenance
- Full service recreational facility is open
- Self-sufficient energy production
- Green—little pavement, unless needed or required
- State of the art physical training area (indoor running, etc.)
- Firing ranges pick up their own brass
- We pick up recyclable materials in an efficient manner
- Pre-established, self-sustaining fire breaks are located next to the ranges
- Areas are designed and built to mitigate blast noise
- We mitigate noise in general



Liberty Church

Heth / Mica School House

Travis Lake

Wilcox Camp

DEVELOPMENT STRATEGY

After the desired future state was outlined, the group formed a development strategy for Fort A.P. Hill. Participants were first asked to identify areas they felt should not be developed. These "Sacred Areas" are considered historically, culturally, and/or environmentally significant and should be preserved. Participants then identified Developable Areas. These areas may no longer be appropriate for their intended use and may present development opportunities.

Sacred Areas:

- Liberty Church
- Heth/Mica School House
- Travis Lake Historic District
  - Lodge
  - Barn
  - Boathouse
- ASP (Ammunition Supply Point)—due to it being financially impractical to do so
- Cultural and environmental sensitive areas
- Impact areas

Developable Areas:

- Archer Camps
- EP4 Compound for virtual and constructive trainings
- Anderson
- A.P. Hill Drive down to the new reserve center
- 4th Street Gate area/Greenland
- Travis Lake–only for recreational use
- Laser Vision Range
- Wilcox, Longstreet, and Cook Camp for ORTC (Operational Readiness Training Complex) purposes
- Fortune Road Industrial Area

CREATING A VISION FOR THE MASTER PLAN

With the elements for a desired future state described, and in preparation for creating the vision statement, the group identified themes common to all of the categories:

- Consolidation of similar uses and facilities
- Sufficient facilities and services for soldiers, retirees, and civilian personnel
- 21st century utilities
- Resilience programs and services for soldiers and civilians
- Be a good neighbor to surrounding community
- Sustainability
- Accessibility (to the Post/within the Post)
- Self supporting

Participants then worked together to create the vision statement for the Fort A.P. Hill Master Plan:

> *The Fort A.P. Hill Master Plan will provide a dynamic framework to support current and future warfighter training. The Plan will focus on a unified installation to develop a sustainable, safe, and secure environment partnered with the community, and improve the quality of life for all.*

DEVELOPING GUIDING PRINCIPLES

Guiding Principles ensure that decisions made during the Master Plan process are aligned and consistent with the Master Plan Vision. The Guiding Principles will be converted into Master Plan Principles to provide concrete guidance to the Planners.

Participants initially reviewed the list of key themes they had previously developed and, following additional discussion, generated a list of Guiding Principles.

Participants were then divided into two groups and asked to provide details/ examples to aid in the interpretation and application of the Guiding Principles. The results of this effort are outlined below:

Provide modern ranges and facilities to support war fighter training:

- Plan and construct ranges that support modern weapon systems and tactics
- Improve and construct war fighter living and administrative facilities to support unit capabilities for year-round use
- Construct adequately sized and equipped transient maintenance facilities
- Optimize co-use facilities
- Promote range efficiency by maximizing dual-use or overlaid ranges
- Improve range support facilities

Partner with the community to promote mutually compatible development:

- Restart Joint Land Use Study (JLUS)
- Reevaluate Army Compatible Use Buffer (ACUB) priorities and zones
- Include community in site approval
- Evaluate shared infrastructure opportunities, such as water and sewer

Employ sound environmental practices that maximize training objectives:

- Maximize sustainable design on ranges
- Maximize sustainable design on facilities
- Maximize sustainable design on infrastructure
- Incorporate provisions of the Range Complex Master Plan
- Consolidate warehouses to improve efficiency and energy use
- Consolidate administrative facilities to improve efficiency and energy use
- Maximize recycling

Provide the infrastructure to ensure a safe and secure training and living environment:

- Complete South Range Perimeter Road
- Complete on-post rail head
- Move electrical underground
- Install perimeter fences and other security measures
- Reevaluate installation vehicle and pedestrian circulation
- Evaluate security monitoring for vulnerable or strategically important areas

Develop facilities that promote professional development, personal health and welfare, and sustain and attract a quality workforce:

- Soldier/Army/Civilian/Army community family support services in a campus environment
- Child development center, youth services, youth centers
- Medical facility for soldiers, civilians, and families
- Administrative office space to support that specific function

Provide accessibility within and onto the installation maintaining security and efficiency:

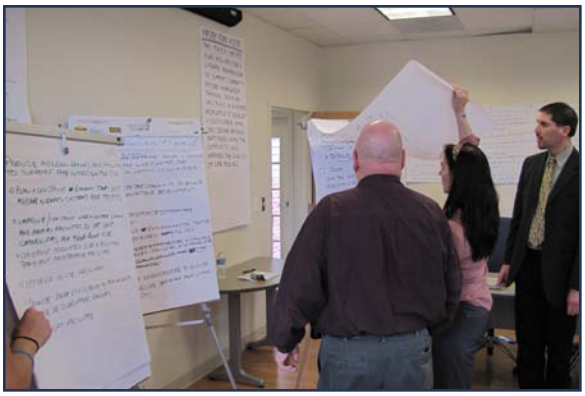
- Include a force protection boundary and the Post patrolled from the inside
- The right buildings in the right place for the right people
- Consolidated HR center better accessible to the gate
- Rail system onto the installation
- Site and zone public facilities closer to the main gate
  - HQ near public; EOC (inside out plan)
  - Minimize training areas—enhance force protection
- Improve road network to include signage
- Site and zone mission support facilities in a consolidated area
  - A neighbor atmosphere
- Connect North and South Post
- Consolidate logistics and public work functions

Optimize mission/economic growth without encroaching on training:

- Tele-work center
- Conference center with lodging and dining
- Develop a zoning plan that attracts mutual development near gate
  - Not ad hoc
  - Office complex/park with a nice waterfall
- Higher density development

Improve the quality of life for the supported population (Stakeholders, Army, Guard, DoD Civilians, etc.):

- PX, Commissary, AER, gas station, fast food restaurant, Post dining facilities, medical facility
- Rod and Gun Club, running trails, bike trails
- Travis Lake Recreational Area (RV campground)
- Modernized barracks and family housing and dining facilities
- Child Development Center / Youth Service Center
- Retiree Service Center
- Club/bar



OUTBRIEF TO THE GARRISON COMMANDER

To conclude the workshop, Lt. Col. Haefner was briefed on the Master Plan Visioning Charrette. Billy Fortner, the installation Master Planner, lead the brief and was assisted by accompanying participants of the workshop. The process and results of the two day workshop were presented to the Commander as follows:

- The Current State
- Elements of a Desired Future
- The Master Plan Vision
- The Master Plan Guiding Principles

Lt. Col. Haefner expressed satisfaction with the visioning process and results and thanked everyone for their involvement and input. He shared several comments:

- It is important to take into consideration how things are interconnected
- It is important that we remain flexible so we are able to continue responding to flexible and dynamic needs.

Appendix C. Examples: Long Range Component

Installation Future Development Plan

Fort Sill, OK

23 September 2010

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TEAM SILL PRIDE

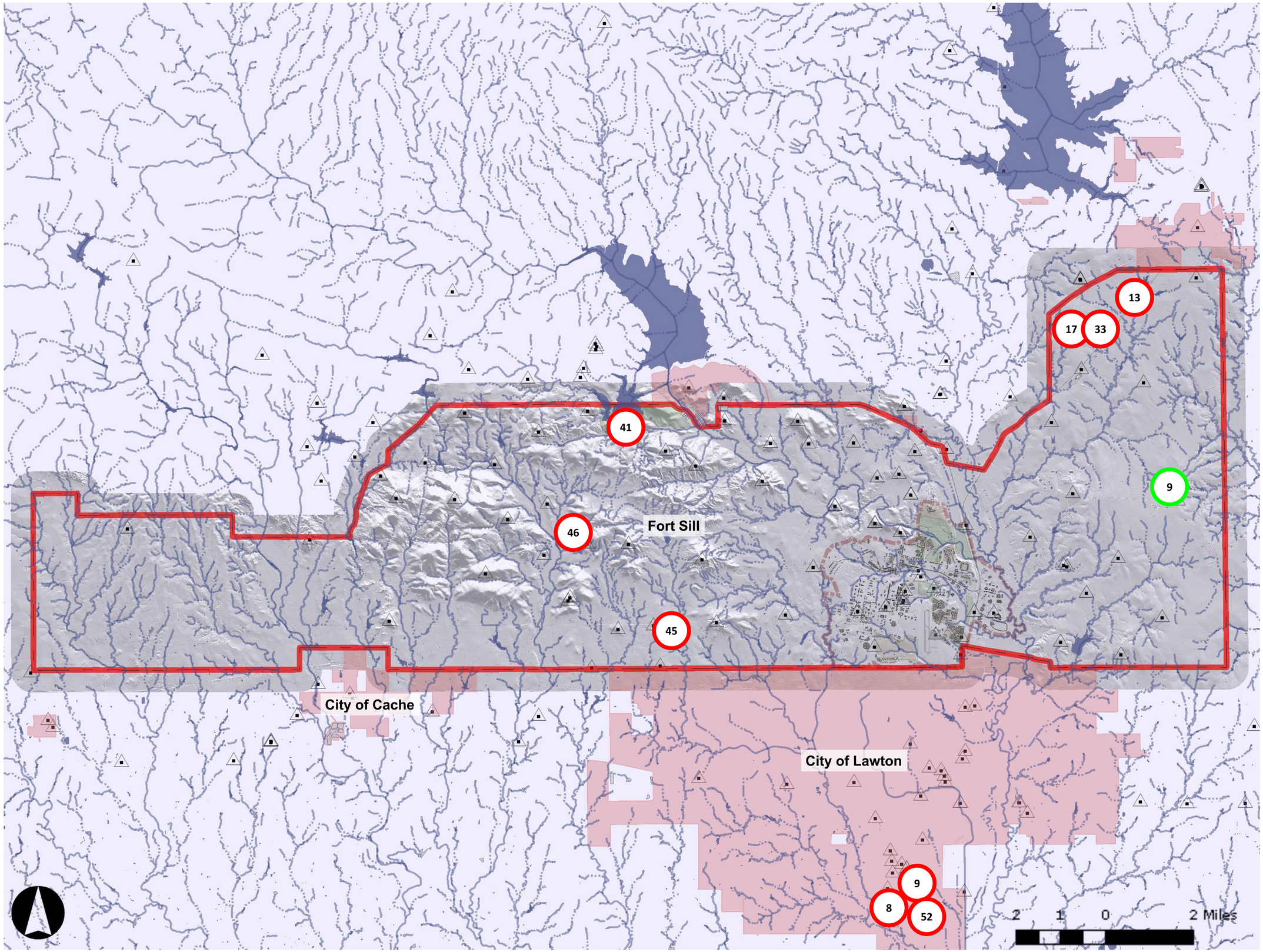
1 **FYDP FY 11-16 Projects**

1 **FY17 and Outyears Projects**

Future Development Plan Fort Sill

FYDP PRIORITY	PROJECT NUMBER	PROJECT TITLE	SITED
1	65209	CENTRAL ISSUE FACILITY (CIF)	YES
2	66575	ARTIFACT STORAGE, ADA SCHOOL	YES
3	1235	MULTI-PURPOSE FITNESS CENTER	YES
4	20697	CHAPEL COMPLEX	YES
5	64753	FIRES BRIGADES TEMF COMPLEX	YES
6	64815	BATTLE COMMAND TRAINING CAPABILITY CENTER	YES
7	74690	THAAD INSTRUCTION COMPLEX	YES
8	58537	RECEPTION COMPLEX (Phase 1)	YES
9	07037	MODIFIED RECORD FIRE RANGE	YES
10	48125	NCO ACADEMY COMPLEX	YES
11	75953	AIT BARRACKS COMPLEX, PHASE 2	YES
1	75661	RECEPTION COMPLEX, PHASE 2	YES
2	76562	RECEPTION COMPLEX, PHASE 3	YES
3	71058	POST ACCESS CONTROL POINT - SHERIDAN RD GATE	YES
4	20693	EDUCATION CENTER	YES
5	71059	POST ACCESS CONTROL POINT - FT SILL BLVD GATE	YES
6	66743	JLENS INSTITUTIONAL TRAINING FACILITY	YES
7	56596	FIRE STATION WHQ, NORTH POST	TBD
8	61398	AIRCRAFT PARKING APRON	YES
9	65165	ARRIVAL/DEPARTURE AIR CONTROL GROUP (A/DACG) FACILITY	YES
10	75946	POST ACCESS CONTROL POINT - KEY GATE (East & West)	YES
11	75164	FIRES BRIGADES COMPLEX (Phase 2 of 2)	YES
12	78439	TROOP ISSUE SUPPORT ACTIVITY (TISA) STORAGE FACILITY	YES
13	68333	COMBINED ARMS COLLECTIVE TRAINING FACILITY (CACTF)	YES
14	59580	PHYSICAL FITNESS FACILITY	YES
15	71060	POST ACCESS CONTROL POINT - 52nd St GATE	YES
16	72222	POST ACCESS CONTROL POINT - APACHE GATE	YES
17	78457	UNMANNED AERIAL SURVEILLANCE (UAS) TRAINING FACILITY WITH AIRSTRIP	YES
18	65402	UNIT CHAPEL	TBD
19	78458	MEADS TRAINING FACILITY	TBD
20	61846	RAIL DEPLOYMENT FACILITY	YES
21	71056	INDIRECT FIRE PROTECTION CAPABILITY (IFPC) TRAINING FACILITY (FORMERLY C-RAM)	TBD
22	53589	AMMO SUPPLY POINT	YES
23	65297	REMOTE SWITCHING UNIT (RSU)	TBD
24	73258	SUB-STATION CONNECTION	YES
25	45046	FIRE DEPARTMENT TRAINING FACILITY	TBD
26	61400	ALERT HOLDING AREA EXPANSION	TBD
27	55332	BAND TRAINING FACILITY	TBD
28	59577	VEHICLE MAINTENANCE SHOP - ATC	TBD
29	45020	VEHICLE MAINTENANCE SHOP (15th TRANS)	YES
30	61399	RAILCAR STORAGE	YES
31	55550	DPW MAINTENANCE FACILITY	TBD
32	75943	FURNISHINGS MANAGEMENT OFFICE (FMO) WAREHOUSE	YES
33	78461	FRISCO RIDGE FLIGHT LANDING STRIP (FLS) IMPROVEMENT	YES
34	59579	PHYSICAL FITNESS FACILITY	YES
35	49622	CHILD DEVELOPMENT CENTER (6-10yrs SAS)	TBD
36	66114	TMP ADMIN BUILDING	TBD
37	75942	MOBILE KITCHEN TRAILER (MKT) CLEANING FACILITY, MKT	TBD
38	64996	POL STATION	YES
39	78438	CONSOLIDATED SIMULATOR TRAINING FACILITY	TBD
40	65300	FITNESS FACILITY	TBD
41	57977	POST ACCESS CONTROL POINT - LETRA GATE	YES
42	75948	RECYCLING CENTER	TBD
43	48158	PURCHASE ADDITIONAL TRAINING AND MANUEVER LAND	TBD
44	71420	UEPH BARRACKS	TBD
45	62397	INFANTRY PLATOON BATTLE COURSE (IPBC)	YES
46	78437	MULTI-PURPOSE RANGE COMPLEX (MPRC) - MOUNTED FIRES	YES
47	56535	PROVOST MARSHAL/MP SATION W/MOTOR POOL	TBD
48	62750	COMMUNICATIONS CENTER	TBD
49	75947	ENVIRONMENTAL QUALITY DIVISION ADMINISTRATIVE FACILITY	TBD
50	73179	HP/AAF RUNWAY EXTENSION	YES
51	65739	AMMUNITION UPLOAD PAD (HOTPAD)	YES
52	65740	RUNWAY/TAXIWAY EXTENSION	YES

Projects not yet sited are not indicated on the map.



23September 2010

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TEAM SILL PRIDE

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6	66743	JLENS INSTITUTIONAL TRAINING FACILITY	YES
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8	61398	AIRCRAFT PARKING APRON	YES
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11	75164	FIRES BRIGADES COMPLEX (Phase 2 of 2)	YES
12	78439	TROOP ISSUE SUPPORT ACTIVITY (TISA) STORAGE FACILITY	YES
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22	53589	AMMO SUPPLY POINT	YES
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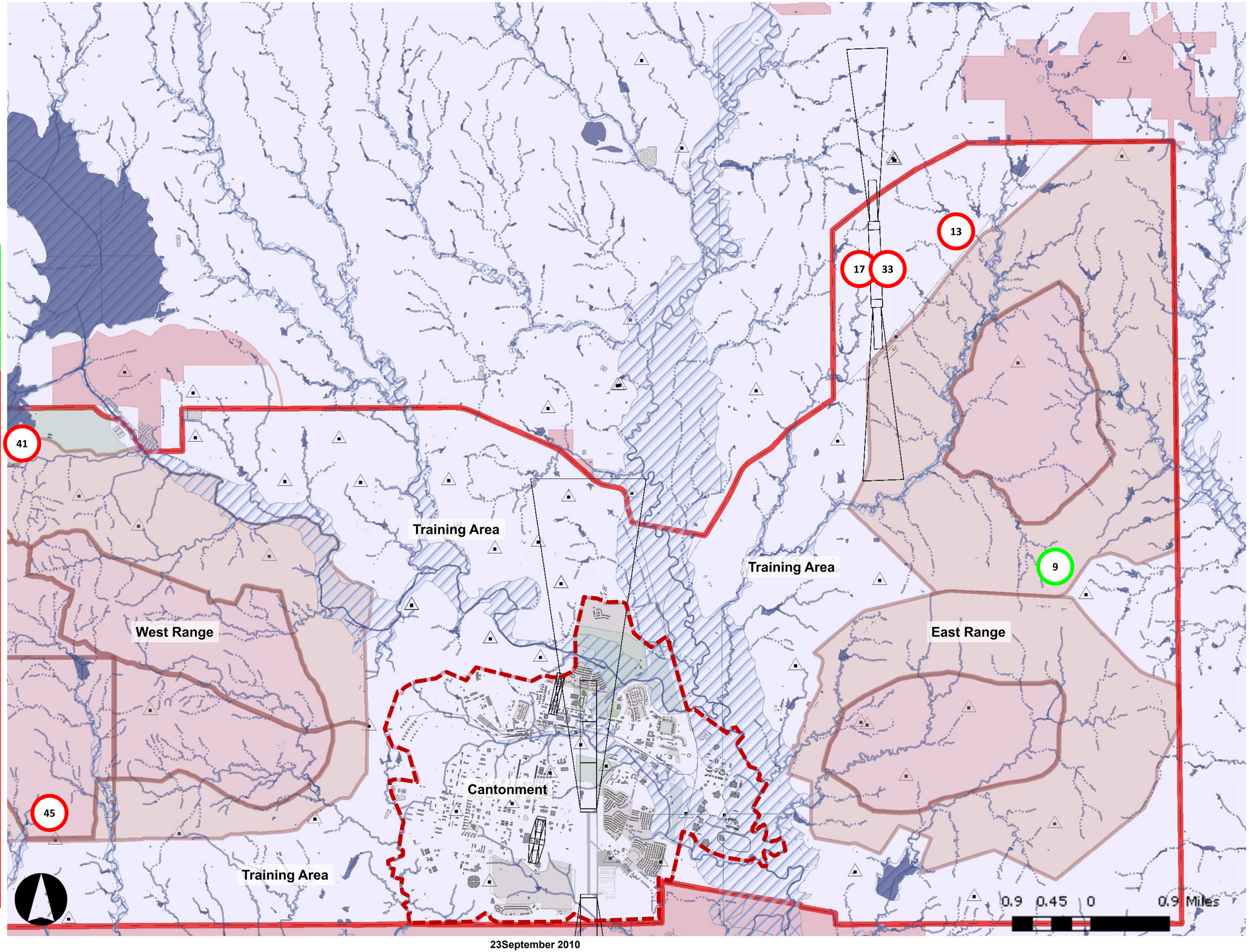

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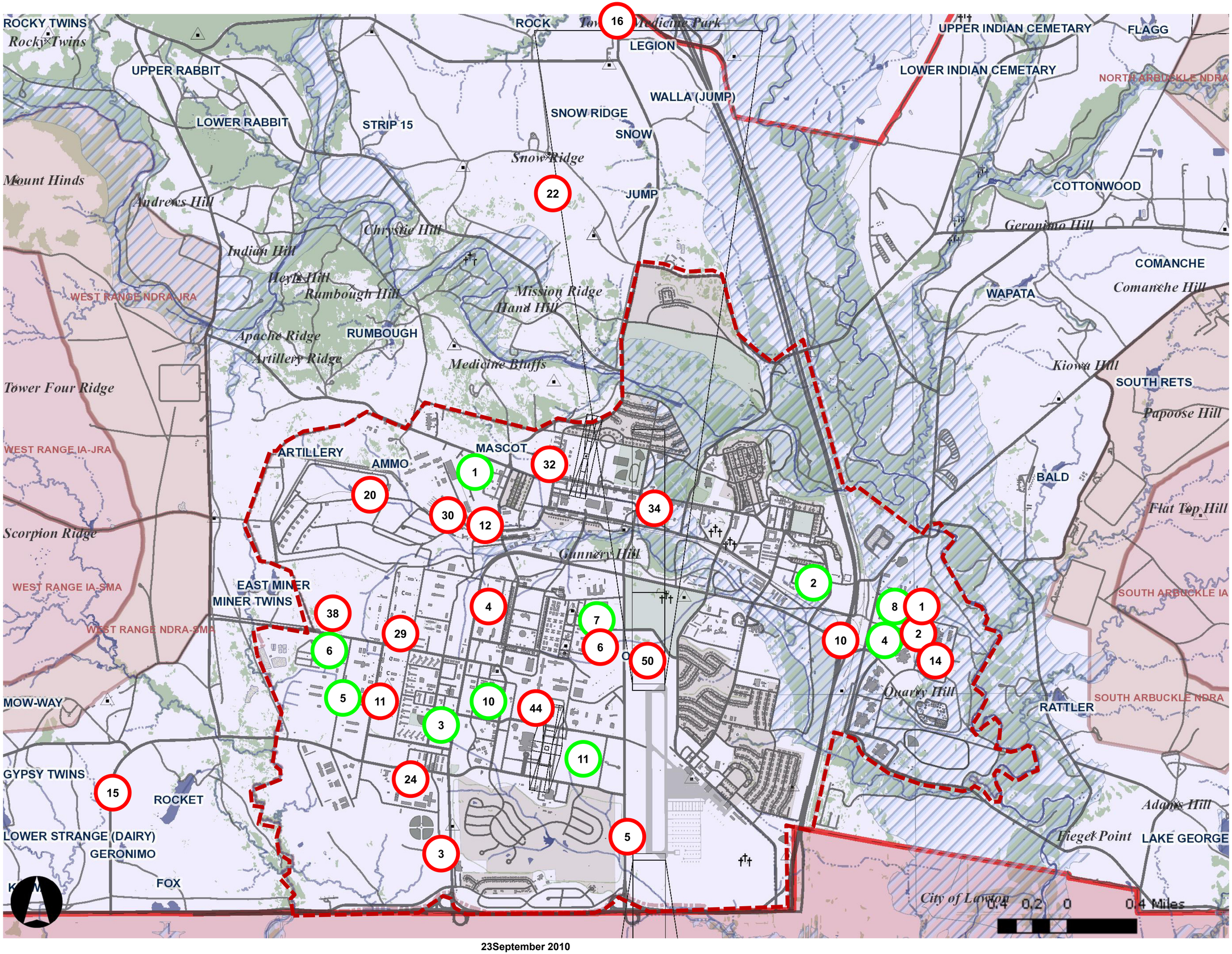
31	55550	DPW MAINTENANCE FACILITY	TBD
32	75943	FURNISHINGS MANAGEMENT OFFICE (FMO) WAREHOUSE	YES
33	78461	FRISCO RIDGE FLIGHT LANDING STRIP (FLS) IMPROVEMENT	YES
34	59579	PHYSICAL FITNESS FACILITY	YES
35	49622	CHILD DEVELOPMENT CENTER (6-10yrs SAS)	TBD
36	66114	TMP ADMIN BUILDING	TBD
37	75942	MOBILE KITCHEN TRAILER (MKT) CLEANING FACILITY, MKT	TBD
38	64996	POL STATION	YES
39	78438	CONSOLIDATED SIMULATOR TRAINING FACILITY	TBD
40	65300	FITNESS FACILITY	TBD
41	57977	POST ACCESS CONTROL POINT - LETRA GATE	YES
42	75948	RECYCLING CENTER	TBD
43	48158	PURCHASE ADDITIONAL TRAINING AND MANUEVER LAND	TBD
44	71420	UEPH BARRACKS	TBD
45	62397	INFANTRY PLATOON BATTLE COURSE (IPBC)	YES
46	78437	MULTI-PURPOSE RANGE COMPLEX (MPRC) - MOUNTED FIRES	YES
47	56535	PROVOST MARSHAL/MP SATION W/MOTOR POOL	TBD
48	62750	COMMUNICATIONS CENTER	TBD
49	75947	ENVIRONMENTAL QUALITY DIVISION ADMINISTRATIVE FACILITY	TBD
50	73179	HPAAF RUNWAY EXTENSION	YES
51	65739	AMMUNITION UPLOAD PAD (HOTPAD)	YES
52	65740	RUNWAY/TAXIWAY EXTENSION	YES

Projects not yet sited are not indicated on the map.



23September 2010

Fort Lewis Master Plan

Illustrative Plan

Legend:

- Duplex, Triplex, or Five-plex
- Single Family Homes
- Rowhouses, Townhomes, and Flats
- Mixed Use Retail
- Installation Support
- Existing Buildings
- Growth Facilities

Phase One

1 **Exchange Expansion**
2 **MCSS**
3 **Mixed-Use Retail**
4 **Class Six**
5 **PW Shops**
6 **PW Motor Pool**
7 **CDC Expansion**
8 **CDC**
FY07, PN 62067
9 **Regional Correction Facility**
FY09, PN 61147
10 **Dining**
11 **New Gate**
12 **Splash Park/Playground**
13 **Ballfields**

Phase Two

14 **Commissary (Apartments BEQ/BOQ above)**
15 **Community Growth Area**
16 **Elementary School**
17 **Mixed-Use Retail**
18 **Town Center North Housing**
162 Rowhouses
59 Townhomes above flats
35 Ground level flats
19 **Greenwood Housing**
132 Rowhouses
127 Bungalows

Phase Three

20 **Restaurant in Historic Building**
21 **Welcome Center**
22 **Reflection Park**
23 **Memorial Park**
24 **Headquarters - I-Corps**
FY12, PN 70420

Phase Four

25 **Furniture Store**
26 **Bank**
27 **Firestone**
28 **Health Club**
29 **Dining**
30 **Cinema**
31 **Mixed-Use Retail**
32 **Fitness Center**
33 **Town Center South Housing**
200 Rowhouses

Phase Five

34 **Chapel**
35 **CDC**
36 **Park and Ride**
37 **Growth Facilities**
38 **Mixed-Use Retail**
39 **Auto Craft Shop**
40 **AAFES Shoppette**
41 **DES Headquarters / DOIM Facility**
42 **Olmsted Housing**
44 Rowhouses
61 Bungalows
43 **Davis Hill Housing**
371 units (duplex or triplex)
Plan developed by the Urban Design Associates
44 **Clarkdale Housing**
522 units (duplex, triplex, or five-plex)
Plan developed by the Urban Design Associates

Parking Required:	5,956 spaces
Parking: Provided	7,675 spaces
Car Parks:	3,866 spaces
Street Parking:	3,809 spaces

500’ 500’ 500’

Historic Downtown ADP

The Urban Collaborative, LLC

Fort Lewis Master Plan
Regulating Plan

Legend:

- Administrative Buildings
- Mixed-use Buildings
- Commercial Buildings
- Special Use Buildings
- Industrial Buildings
- Car Parks (required)
- Parks
- Trails and Open Space
- Bungalows/Townhomes
- Rowhouses

- Required Building Line (RBL)
- Building Setback Line
- Parking Setback Line

General Notes:

1. For design details of buildings refer to the Building Envelope Standards.
2. For design details of parking areas refer to the Parking Standard.
3. For design details of streets refer to the Transportation Plan and Street Sections.
4. All Build-to-Lines are based on 2007 AT/FP standoff criteria. Future buildings must conform to applicable standards at the time of construction but building setbacks will not exceed the required standoff distance from streets or parking.
5. Plan is for conceptual purposes. All dimensions shall be field verified and confirmed with Fort Lewis Public Works.

500' 500' 500'

Downtown ADP

The Urban Collaborative, LLC

Fort Lewis Master Plan
Transportation Plan

Legend:

Hierarchy of Streets (Highest (Primary) to Lowest (secondary))

- Multiway Boulevard- 2 Access Lanes
- Multiway Boulevard- 1 Access Lane
- Boulevard
- Avenue
- Parkway
- District Street
- Main Street
- Neighborhood Street
- Park Street
- Alley

Note:
1. Refer to the street standards for design details for street types shown on this plan.

500' 500' 500'

Downtown ADP

The Urban Collaborative, LLC

Fort Lewis Master Plan
Illustrative Plan

Legend:

- Troop Housing
- Installation Support
- Existing Buildings
- Growth Facilities

Phase One

1 **SOAR Barracks**
FY 08, PN 59555
200 spaces

2 **Company Operations Facilty**
PN 57437
Three company facility
Expansion capable to four companies

3 **Fitness Center Expansion**
FY 13, PN 49482

Phase Two

4 **3-2 Brigade Headquarters**
Scope Recovery

5 **Batallion Headquarters**
Scope Recovery

6 **Company Operations Facilty**
FY 11, PN 55198
Four company facility

7 **Interim Ballfields (not shown)**

8 **3-2 Barracks**
FY 11, PN 55198
192 spaces

Phase Three

9 **Batallion Headquarters**
Scope Recovery

10 **Company Operations Facilty**
Scope Recovery
Five company facility

11 **Company Operations Facilty**
Scope Recovery
Four company facility

12 **3-2 Barracks**
192 spaces

13 **Soldier Services Facility**

14 **Dining Facility**

Note: **Stryker Avenue will be upgraded to a Multiway Boulevard in this phase**

Phase Four

15 **Company Operations Facilty**
Four company facility

16 **Company Operations Facilty**
Four company facility

17 **Company Operations Facilty**
Six company facility

18 **AAFES Facility**

19 **3-2 Barracks**
144 spaces

20 **3-2 Barracks**
192 spaces

21 **Replacement Ballfields**

22 **0.9 mile PT Trail**

23 **Relocated Washrack**

24 **Growth 3-2 Motor Pool**

25 **Relocated Gate**

26 **Growth Company Operations Facility**
Four Company Facility

27 **Growth Maintenance Facility**

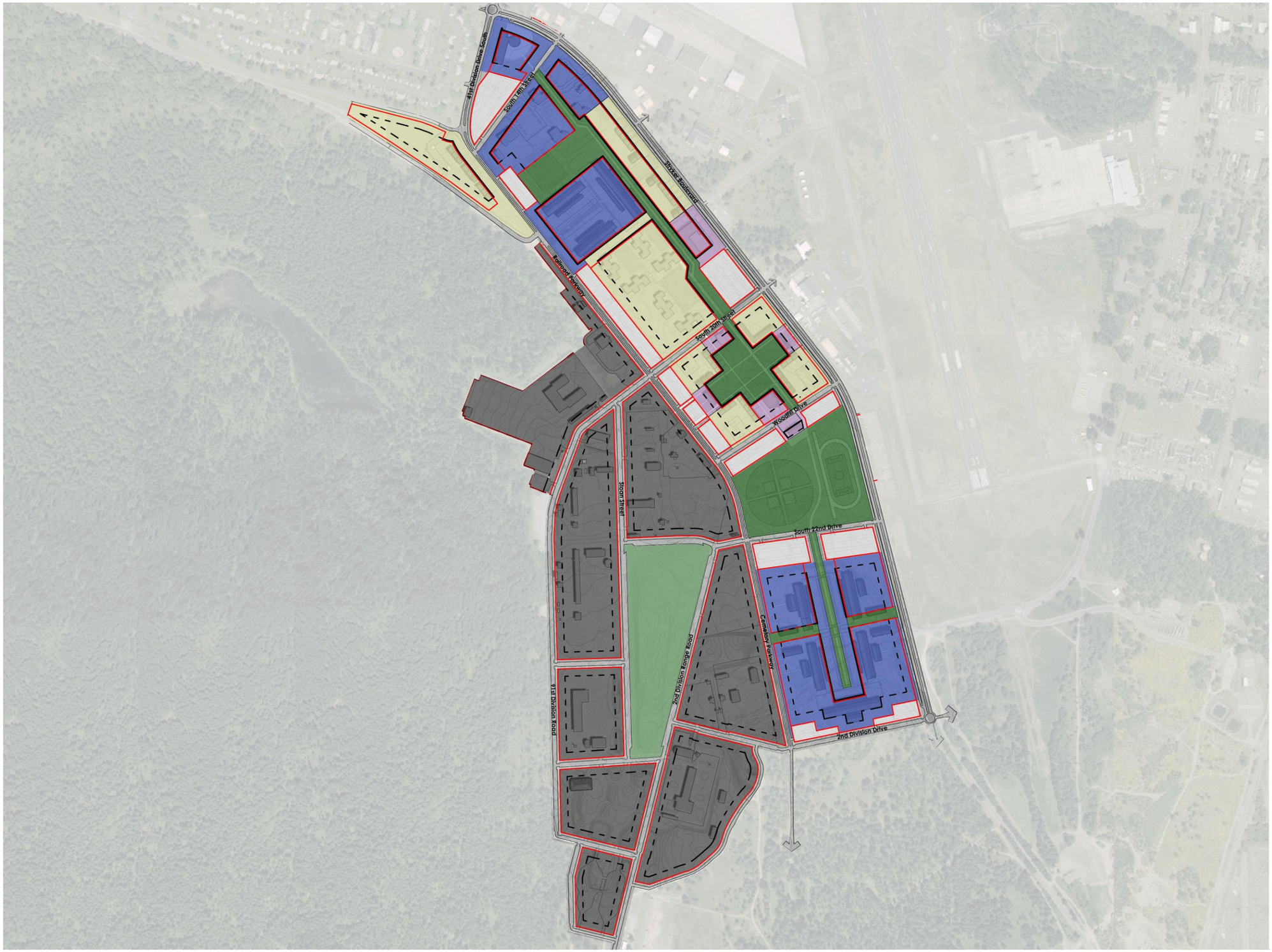
Note: **Minor Streets will be upgraded with on-street parking, sidewalks, and street trees in this phase**

Parking Required:	**4,200 spaces**
Parking Provided	**4,472 spaces**
Car Park:	2,281 spaces
Angled Street Parking:	300 spaces
On Street Parking:	1,891 spaces

400' 400' 400'

3rd Brigade ADP

The Urban Collaborative, LLC



Fort Lewis Master Plan
Regulating Plan

Legend:

- Administrative Buildings
- Commercial Buildings
- Industrial Buildings
- Car Parks (required)
- Parks
- Trails and Open Space
- Barracks

- Required Building Line (RBL)
- Building Setback Line
- Parking Setback Line

General Notes:

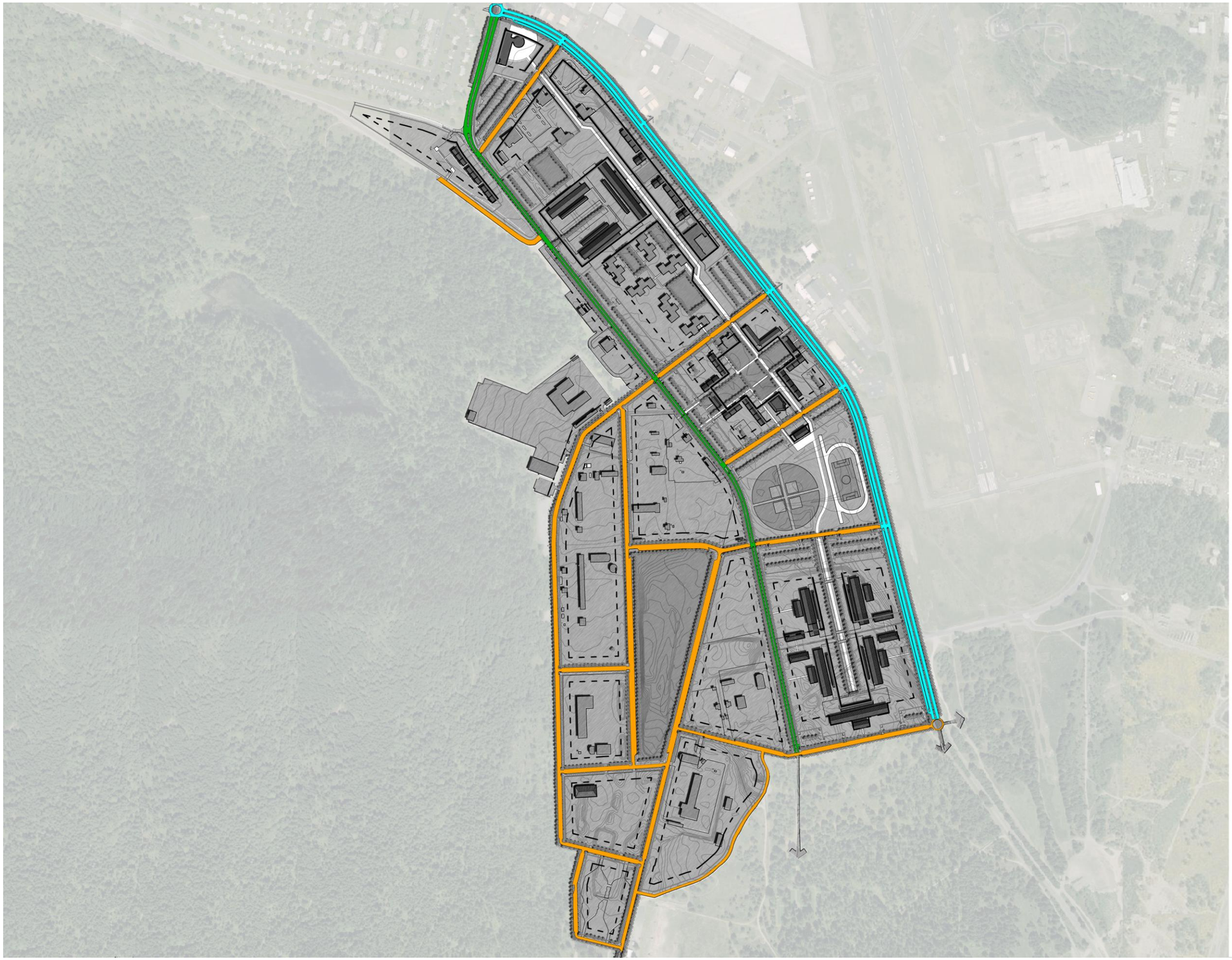
1. For design details of buildings refer to the Building Envelope Standards.
2. For design details of parking areas refer to the Parking Standard.
3. For design details of streets refer to the Transportation Plan and Street Sections.
4. All Build-to-Lines are based on 2007 AT/FP standoff criteria. Future buildings must conform to applicable standards at the time of construction but building setbacks will not exceed the required standoff distance from streets or parking.
5. Plan is for conceptual purposes. All dimensions shall be field verified and confirmed with Fort Lewis Public Works.

400’ 400’ 400’

3rd Brigade ADP

The Urban Collaborative, LLC

Fort Lewis Master Plan
Transportation Plan



Legend

Hierarchy of Streets: Highest (Primary) → Lowest (Secondary)

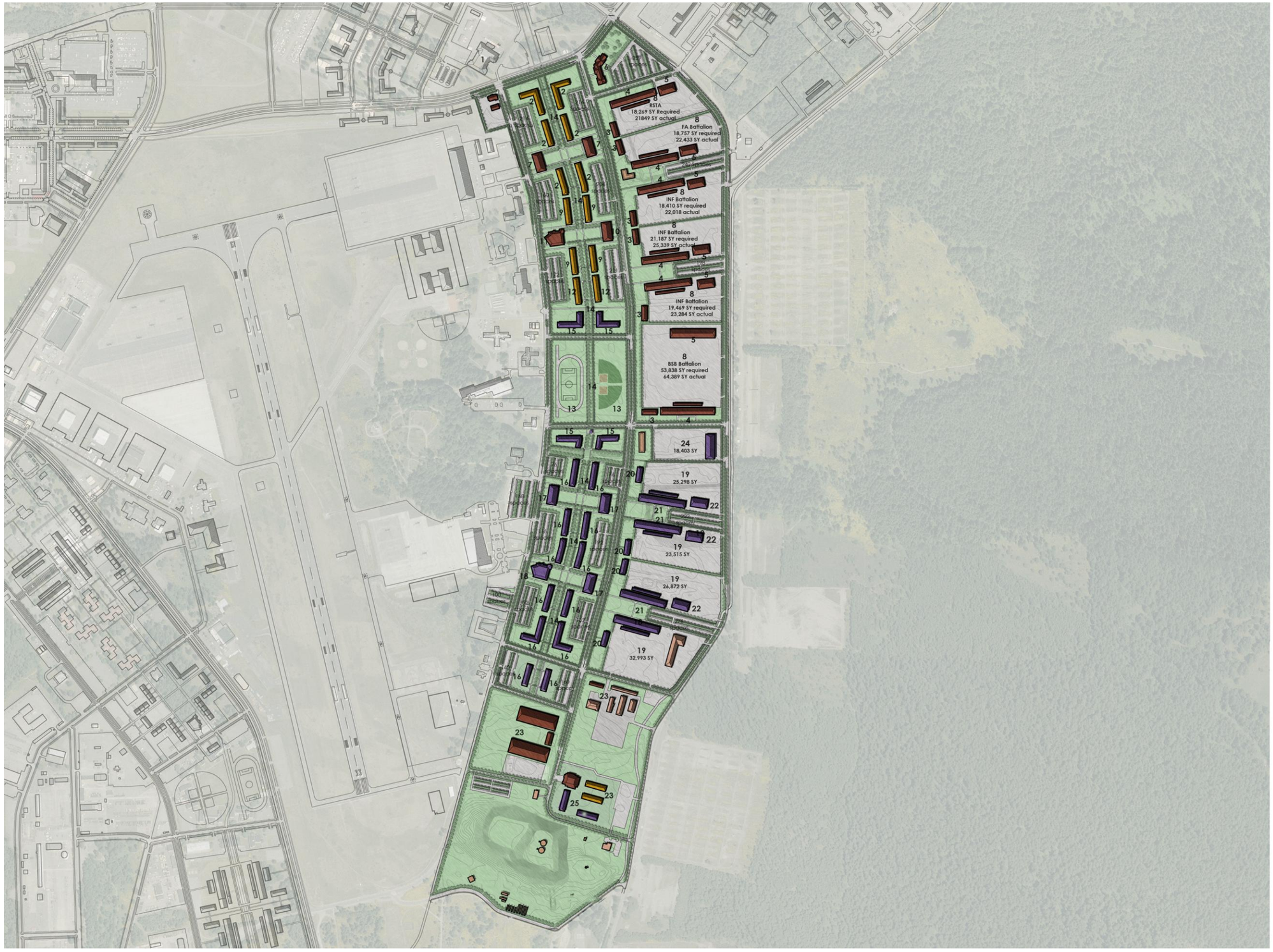
- Multiway Boulevard-1 Access Lane
- Parkway
- District Street

Note:
1. Refer to the street standards for design criteria for street types shown on this plan.

400' 400' 400'

3rd Brigade ADP

The Urban Collaborative, LLC



Fort Lewis Master Plan

Illustrative Plan

Legend:

- Troop Housing
- Installation Support
- Existing Buildings
- Growth Facilities

Phase One
Relocate 201st MI, 51st SIGNAL, and 62d MED to Jackson
Relocate 17th FA, and I-94 to North Fort

Phase Two
Relocate NCO Academy, 4-2 Maintenance, 42d MP and 201st MI Maintenance to vacated 17th FA Barracks and maintenance area, and Jackson Avenue maintenance area

Phase Three

1 **National Guard Facility**
FY 09, PN530012

2 **4-2 Barracks**
4-2 BCT Complex
1500 Spaces total, First 6 of 10 total
Three story buildings

3 **Company Administration Module**
4-2 BCT Complex

4 **Company Readiness Module**
4-2 BCT Complex

5 **Tactical Equipment Maintenance Facility**
4-2 BCT Complex

6 **4-2 Brigade Headquarters**
4-2 BCT Complex
2 story buildings

7 **4-2 Battalion Headquarters**
4-2 BCT Complex
Two Battalions per building, Two story buildings

8 **4-2 Motor Pool**
4-2 BCT Complex

Phase Four

9 **4-2 Barracks**
4-2 BCT Complex
1500 Spaces total, Second 4 of 10 total
Three story buildings

10 **4-2 Battalion Headquarters**
4-2 BCT Complex
Two Battalions per building, Two story buildings

11 **Dining Facility**
4-2 BCT Complex

12 **4-6 Barracks**
FY12-14 PN 63639/67092 - 4-6 ACS Complex
267 Spaces total, Three story buildings

Phase Five
Relocate 42d MP and NCO Academy to new sites
Relocated 23d Chemical to North Fort

13 **Recreational Fields**

14 **Close-in-training greenbelt**

15 **Growth Administration Building or Community Service**

Phase Six

16 **Growth Barracks**
2,010 Spaces total

17 **Growth Battalion Headquarters**

18 **Growth Dining Facility**

19 **Growth Motor Pool**

20 **Growth Company Adminstration Module**

21 **Growth Company Readiness Module**

22 **Growth Tactical Equipment Maintenance Facility**

23 **2/75th Rangers**
(plan not by the Urban Collaborative, LLC)

24 **I-Corps Motor Pool**

25 **2/75th Rangers Barracks**
(growth - 210 Spaces total)

Parking Required:	5,845 spaces
Parking Provided:	6,625 spaces
Car Parks:	4,872 spaces
Street Parking:	1,753 spaces

500' 500' 500'

East Division ADP

The Urban Collaborative, LLC

Fort Lewis Master Plan
Regulating Plan

Legend:

- Administrative Buildings
- Commercial Buildings
- Non-Regulated Area
- Industrial Buildings
- Car Parks (required)
- Parks
- Trails and Open Space
- Barracks

- Required Building Line (RBL)
- Building Setback Line
- Parking Setback Line

General Notes:

1. For design details of buildings refer to the Building Envelope Standards.
2. For design details of parking areas refer to the Parking Standard.
3. For design details of streets refer to the Transportation Plan and Street Sections.
4. All Build-to-Lines are based on 2007 AT/FP standoff criteria. Future buildings must conform to applicable standards at the time of construction but building setbacks will not exceed the required standoff distance from streets or parking.
5. Plan is for conceptual purposes. All dimensions shall be field verified and confirmed with Fort Lewis Public Works.

500' 500' 500'

East Division ADP

The Urban Collaborative, LLC

Fort Lewis Master Plan
Transportation Plan

Legend

Hierarchy of Streets: Highest (Primary) → Lowest (Secondary)

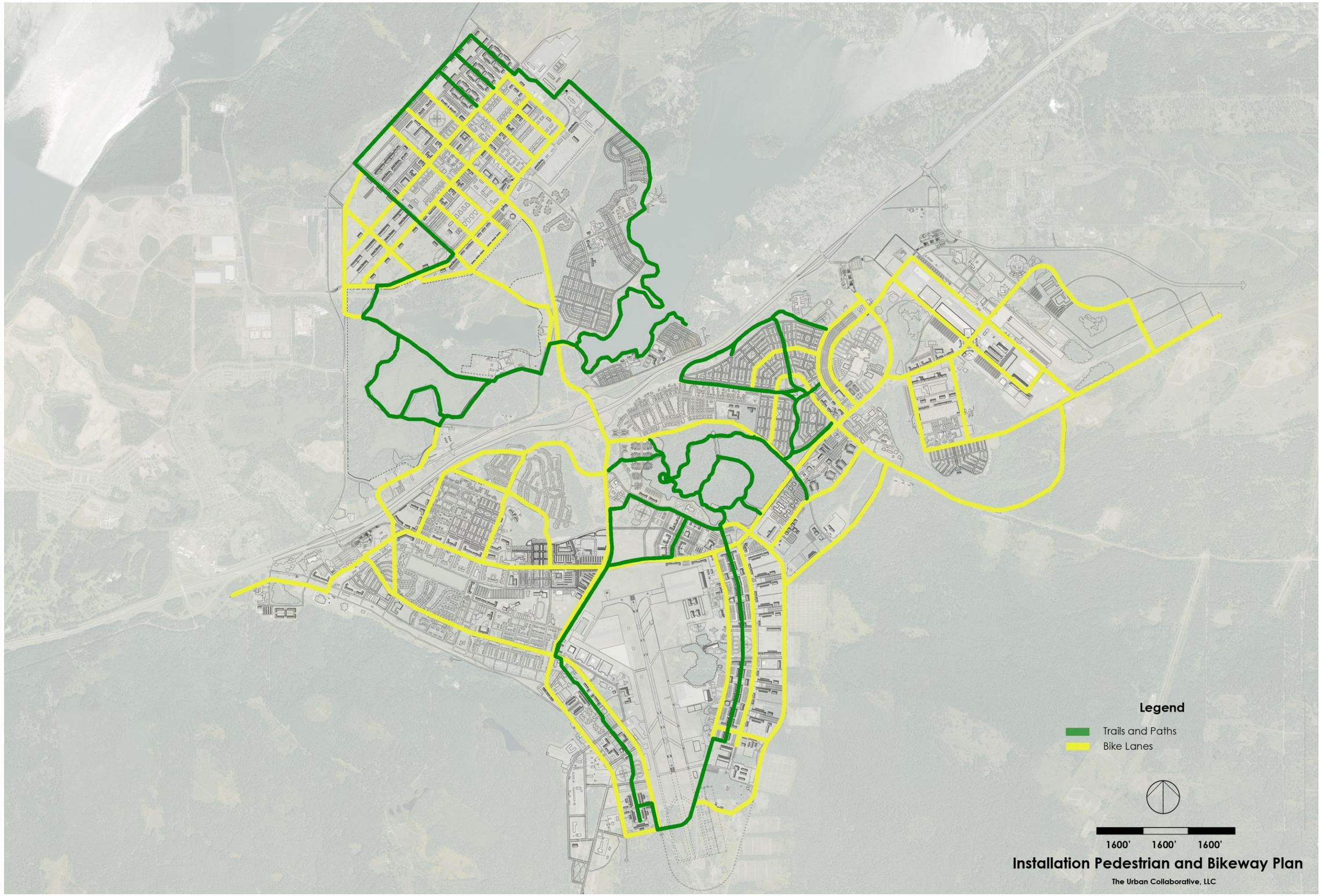
- Multiway Boulevard-1 Access Lane
- Parkway
- District Street

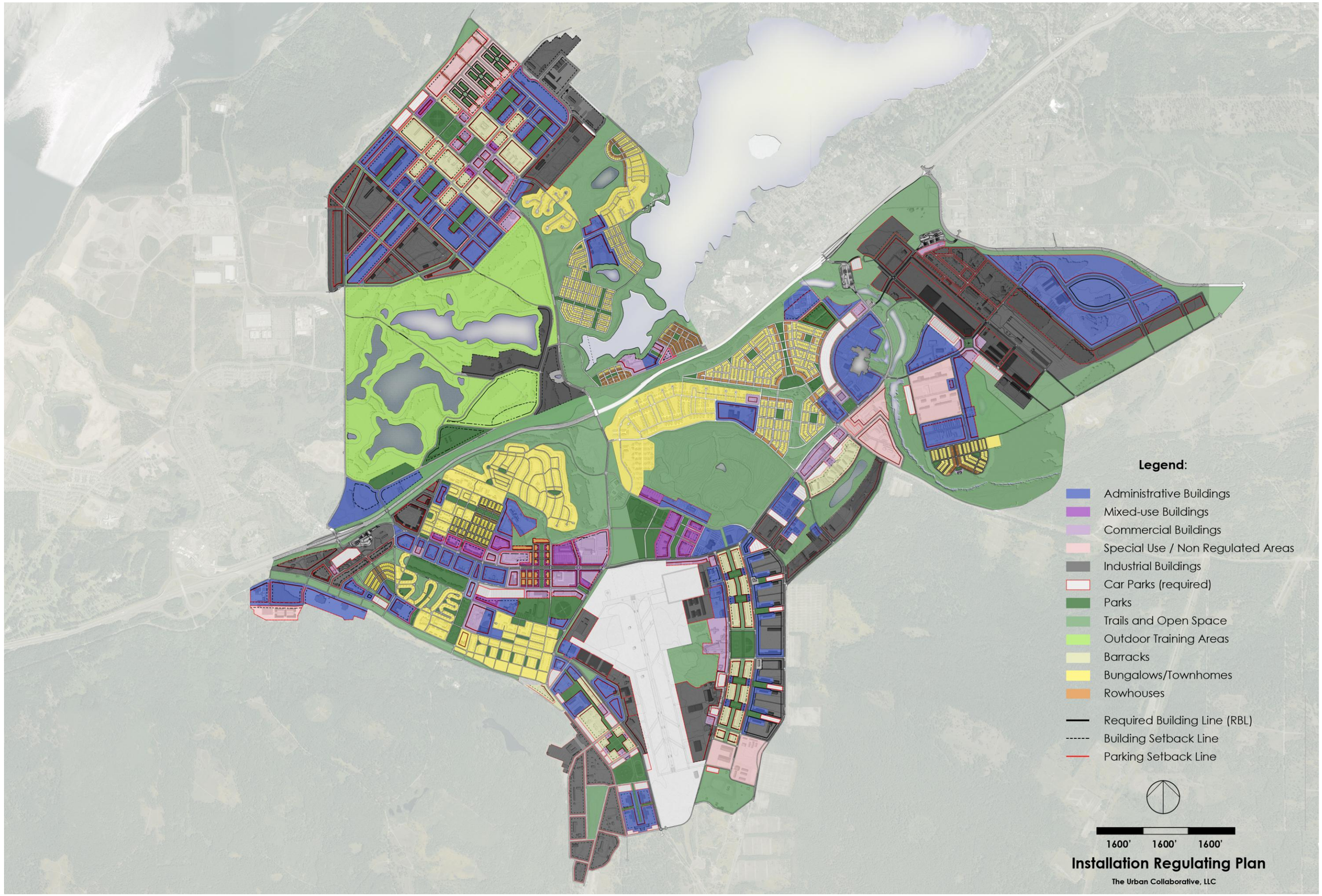
Note:
1. Refer to street standards for design details of street types shown in plan.

500' 500' 500'

East Division ADP

The Urban Collaborative, LLC


Legend
Trails and Paths
Bike Lanes
1600'
1600'
1600'
Installation Pedestrian and Bikeway Plan
The Urban Collaborative, LLC


Legend:
Administrative Buildings
Mixed-use Buildings
Commercial Buildings
Special Use / Non Regulated Areas
Industrial Buildings
Car Parks (required)
Parks
Trails and Open Space
Outdoor Training Areas
Barracks
Bungalows/Townhomes
Rowhouses
Required Building Line (RBL)
Building Setback Line
Parking Setback Line
1600'
1600'
1600'
Installation Regulating Plan
The Urban Collaborative, LLC

Legend

- Single Family Homes
- Duplex, Triplex, or Five-plex
- Rowhouses, Townhomes, and Flats
- Mixed Use Retail
- Troop Support
- Existing Buildings
- Growth Facilities

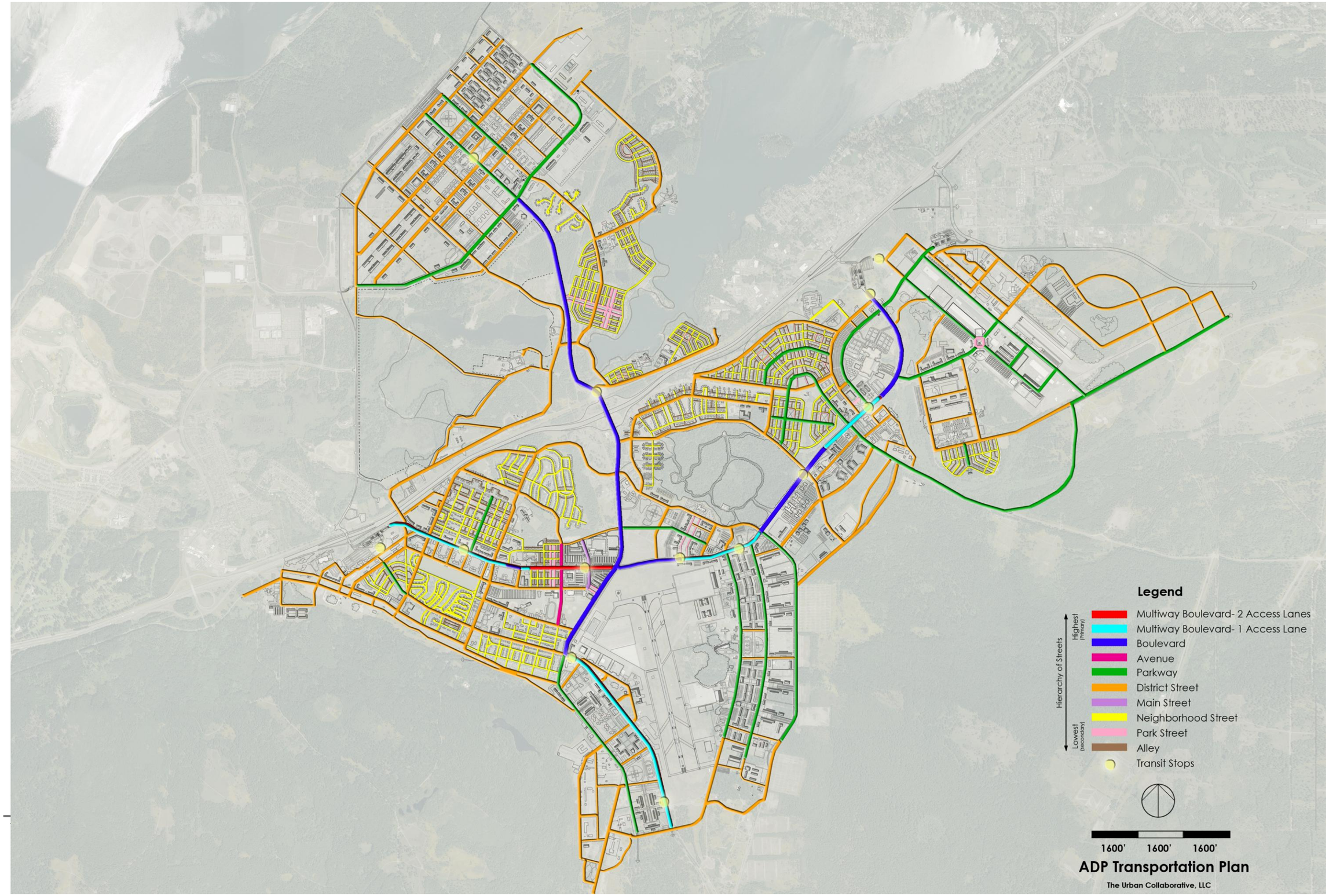
1600' 1600' 1600'

Installation Illustrative Plan

The Urban Collaborative, LLC

Installation Parks and Open Space Plan

The Urban Collaborative, LLC


Legend
Multiway Boulevard- 2 Access Lanes
Multiway Boulevard- 1 Access Lane
Boulevard
Avenue
Parkway
District Street
Main Street
Neighborhood Street
Park Street
Alley
Transit Stops
Hierarchy of Streets
Highest (Primary)
Lowest (Secondary)
1600'
1600'
1600'
ADP Transportation Plan
The Urban Collaborative, LLC

Road Hierarchy Standards

The roadway network of the installation should functionally and visually reflect a logical hierarchy of traffic circulation. This network should separate traffic by function and volume, ranging from local to through traffic. Each segment should visually convey its role and function within the overall network. The basic network is classified in terms of roadway type, character, and appearance of the road.

Figure 9.05 classifies the hierarchy of the roads on Fort Belvoir. Table 9.01 describes the relationship between the themes and roadway regulations. This section provides details about the following road types:

- Highway
- Scenic Parkway
- Primary Road
- Boulevard Loop
- Secondary Road
- Avenues
- Grid Roads
- Tertiary Roads
- Cul-de-Sacs
- Service Roads / Alleys
- Transit Corridor

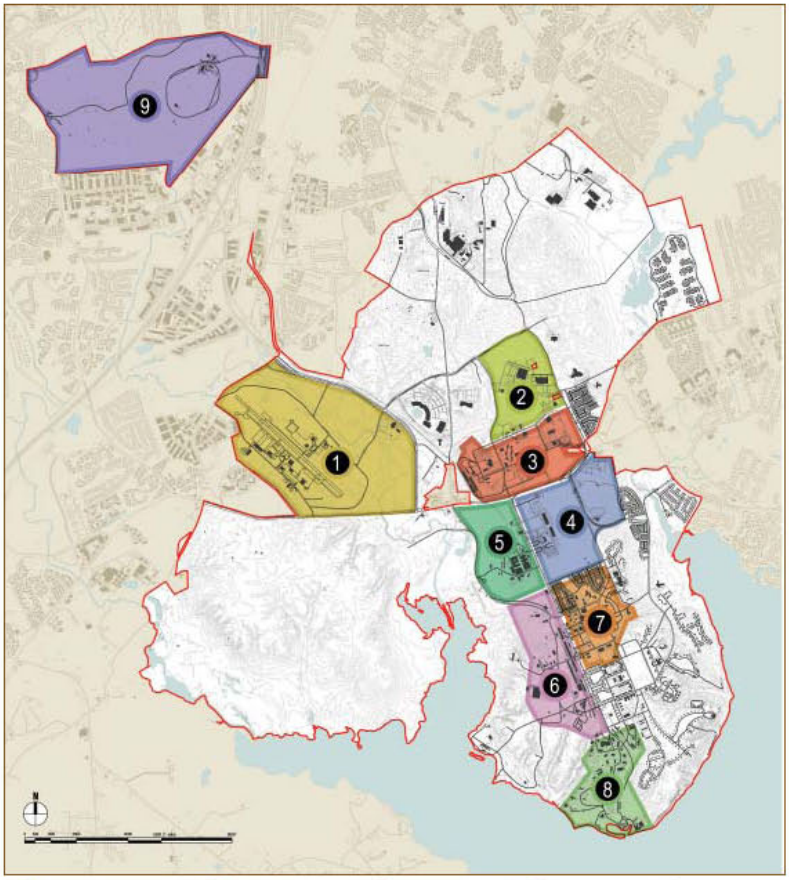
It should be noted that road design will integrate other circulation elements such as parking, walkways, and bikeways. Together, these elements combine to form a complete circulation infrastructure. Please refer to design guidelines for these elements described later in this section.

Figure 9.05: Roadway Hierarchy Regulating Plan

	Urban Core Theme	Residential Community Theme	Open Space Theme	Community Support Theme	Campus Theme
Highway	■				■
Scenic Parkway		■	■	■	■
Primary Road					■
Boulevard Loop	■	■	■	■	■
Secondary Road		■	■		■
Avenue	■			■	
Grid Road	■			■	
Tertiary Road		■	■	■	■

Table 9.01: Themes and Roadway Regulations Relationships

Figure 5.12 - Area Development Plan (ADP) Locations



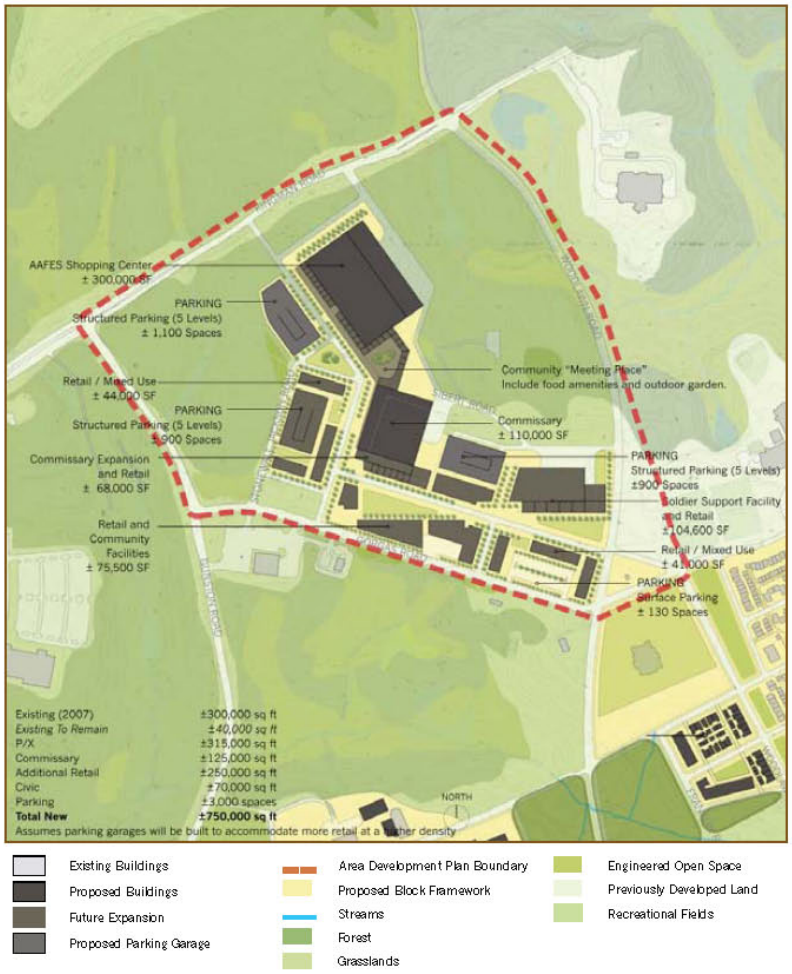
Area Development Plans

By definition, Area Development Plans (ADPs) address the site planning of a specific area of an installation – unified by function, identity, location, or architectural style. Figure 5.12 depicts the boundaries of the ADPs that were developed in conjunction with the current master plan. These ADPs build on the overall development framework presented in the 2008 Master Plan (Figure 5.3). The ADPs illustrate both short-term and long-term physical changes, with the latter depicted in phases.

It is the goal of all ADPs to ensure that Fort Belvoir is organized into dense, compact, and clearly defined neighborhoods – each with its own specific character and feel. For example, the Town Center should be developed as a mix of complementary uses with opportunities for a variety of transportation modes – such as walking, biking, driving, or riding public transit. This creation of a walkable Post further promotes the feeling of community and a sense of wellness for all those who live, work, and play on Fort Belvoir.

The following pages present a summary of the most recent ADPs for Fort Belvoir.

Figure 5.14 - Proposed Development Plan for the Community Support as Presented in ADP



- P/X 315,000 SQ FT
- CIVIC 70,000 SQ FT
- COMMISSARY 125,000 SQ FT
- TOTAL NEW 750,000 SQ FT
- OTHER RETAIL 250,000 SQ FT

The graphic presented above may vary slightly from the images presented in the final ADP reports. The graphic above has been revised to depict specific project details that developed after the ADP reports were published.

Community Support ADP

Like many installations, the Community Support Area of Fort Belvoir is a place where families, soldiers, civilians, and retirees gather to enjoy the amenities of the area, such as the P/X and Commissary. This area and the Town Center are at the heart of non-training activities at the Post, and vital to the morale and welfare of all who live and work at Fort Belvoir.

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
- Favor compact development to enable future higher density uses
- Emphasize a sense of place and pedestrian character of the regional shopping center

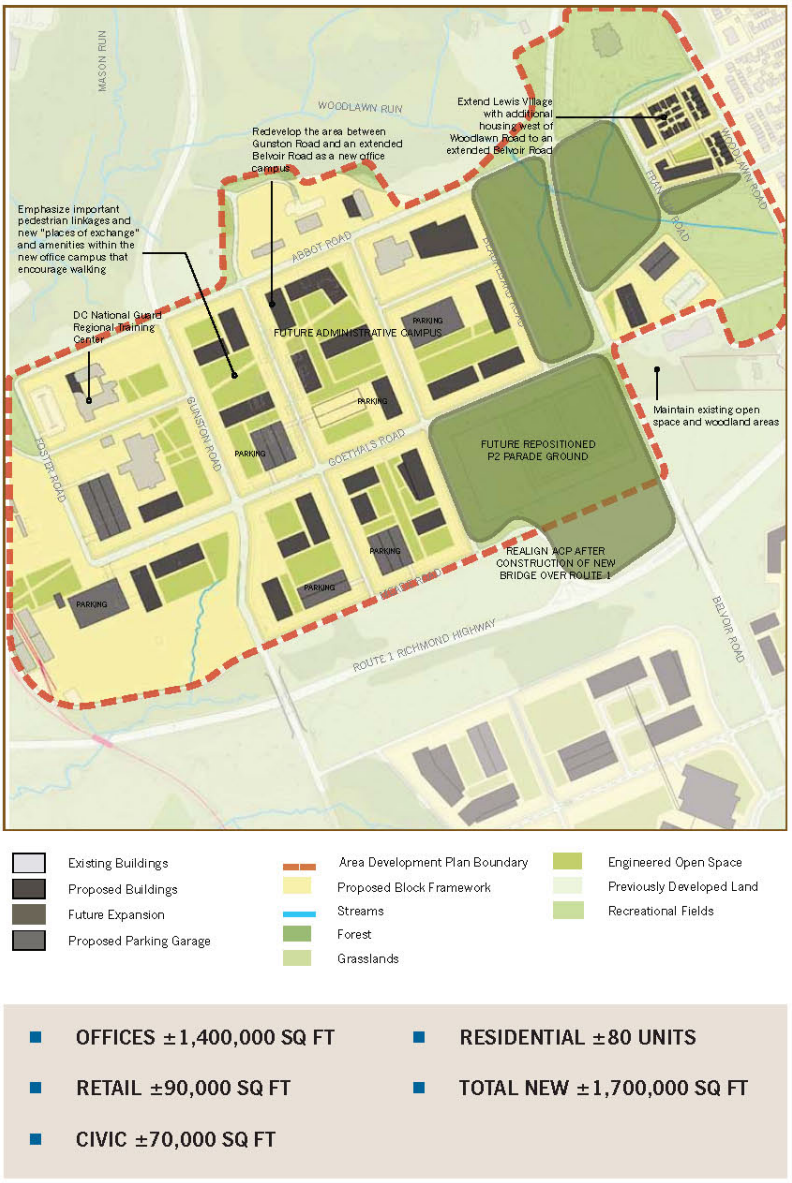
Concept image from Community Support ADP

Lower North Post ADP

Vision for the future redevelopment of the Lower North Post is to transform it from an area of recreational facilities, barracks, soldier support facilities, and open area to an office/administrative environment. This redevelopment will happen in phases, as the need for new office development arises and as barracks are rebuilt in another location on the installation. The intent is to provide administrative areas that meet security requirements for potential future tenants. Administrative facilities will include office space and parking structures, as well as some housing and retail to support workers. Some demolition/relocation of buildings will occur in the near term, as well as later as full redevelopment of the area is achieved. The redevelopment will include construction of a variety of uses, including retail, housing, offices, and structured parking.

Concept image from Lower North Post ADP

Figure 5.15 - Proposed Development Plan for the Lower North Post as Presented in ADP



- OFFICES ±1,400,000 SQ FT
- RESIDENTIAL ±80 UNITS
- RETAIL ±90,000 SQ FT
- TOTAL NEW ±1,700,000 SQ FT
- CIVIC ±70,000 SQ FT

The graphic presented above may vary slightly from the images presented in the final ADP reports. The graphic above has been revised to depict specific project details that developed after the ADP reports were published.

Figure 5.16 - Proposed Development Plan for the Hospital Area as Presented in ADP

- **HOSPITAL ±1,000,000 SQ FT**
- **HOTEL ±140,000 SQ FT**
- **OFFICES ±1,400,000 SQ FT**
- **RESIDENTIAL ±60 UNITS**
- **EDUCATION ±320,000 SQ FT**
- **TOTAL NEW ±3,000,000 SQ FT**

The graphic presented above may vary slightly from the images presented in the final ADP reports. The graphic above has been revised to depict specific project details that developed after the ADP reports were published.

Hospital Area ADP

There are currently four inpatient facilities in the National Capital Region (NCR) - Bethesda National Naval Medical Center, Walter Reed Army Medical Center, Malcolm Grow Medical Center, and DeWitt Army Community Hospital. These four hospitals will merge into two – the Walter Reed National Military Medical Center (WRNMMC) and the Fort Belvoir Community Hospital, in an attempt to streamline medical care and make the system more efficient.

In addition to the goal of designing a world class hospital to serve both the Belvoir community and the armed forces as a whole, the hospital needs to be a dense, diverse, interconnected, and open campus that is an integral part of the Post. The plan proposes to:

- Redevelop the site west of Belvoir Road as a new health campus
- Create a north-south "patient care link" that clearly integrates offices, outpatient services, inpatient services, and parking
- Identify future phases for expansion of ambulatory services without disrupting the campus or circulation patterns
- Redevelop the area east of Gunston Road as a new office campus
- Develop the area south of the hospital as the Warrior in Transition Campus

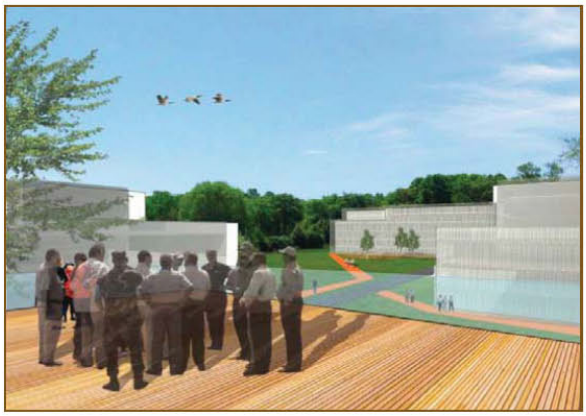
Gray's Hill site could possibly be available for appropriate adjacent hospital uses.

Concept image from hospital design document

Troop Village ADP

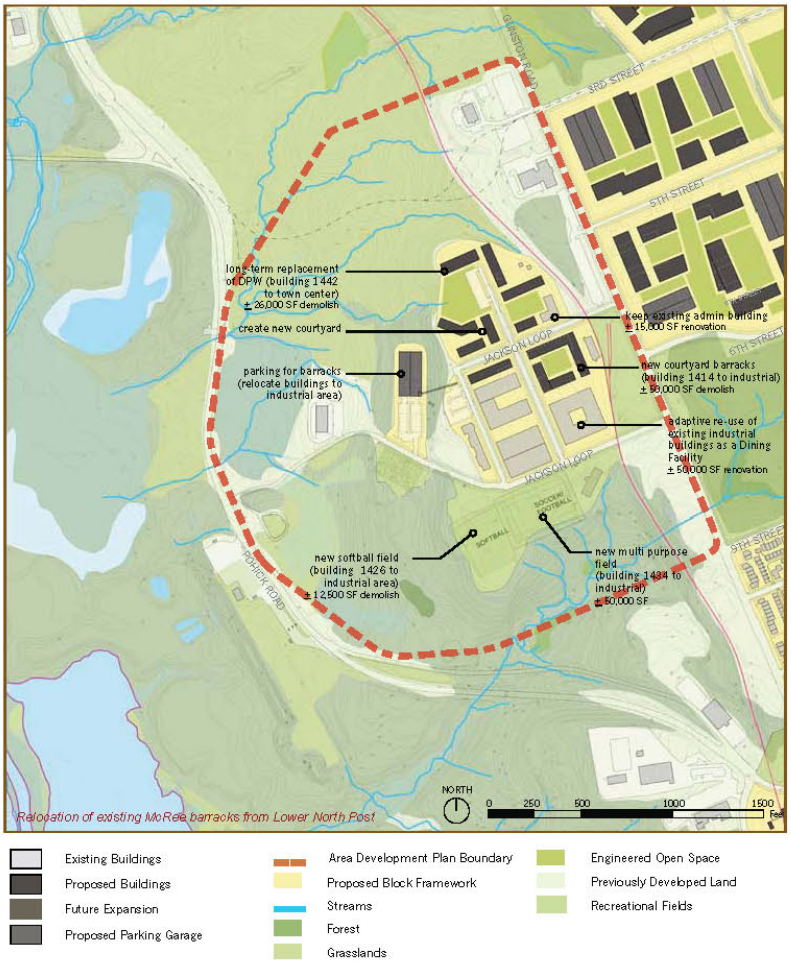
The development of a new Troop Housing area on Fort Belvoir will accomplish several goals that benefit both the troops and the installation as a whole. Relocating the troops from the Lower North Post area will place them in proximity to the Town Center and main activities on Post. This move also creates an entirely new housing village with larger, more modern accommodations. The plan proposes to:

- Establish a new troop housing area that emphasizes a sense of community
- Rebuild the area north of Jackson Loop Road with new barracks that open to the natural landscape to the west
- Explore opportunities to adaptively reuse some of the older warehouse and industrial buildings (for functions such as indoor training, recreation, or other amenities that would otherwise require new construction)
- Develop necessary athletic/outdoor recreation areas along the southern edge in coordination with the Recreation Plan (Figure 5.26).



Concept image from Troop Village ADP

Figure 5.17 - Proposed Development Plan for the Troop Village as Presented in ADP



The graphic presented above may vary slightly from the images presented in the final ADP reports. The graphic above has been revised to depict specific project details that developed after the ADP reports were published.

Figure 5.18 - Proposed Development Plan for the Industrial Area as presented in ADP

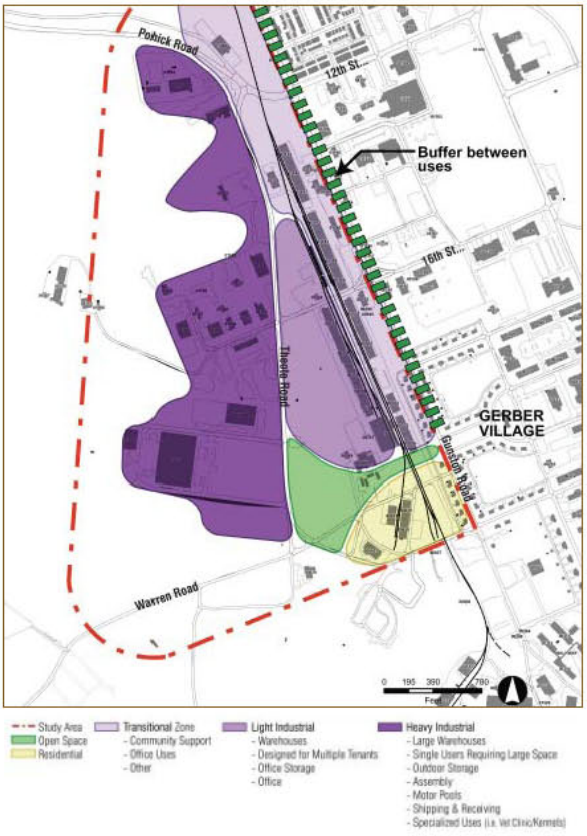
The graphic presented above may vary slightly from the images presented in the final ADP reports. The graphic above has been revised to depict specific project details that developed after the ADP reports were published.

Industrial Area ADP

The vision of the industrial area is to create:

- A transitional zone of community support and office uses along the west side of Gunston Road to serve as a buffer between the industrial area and the non-industrial activities located to the east of Gunston Road
- A transition from light to heavy industrial uses, by locating the heavy industrial uses along the western edge of the site
- Open and landscaped areas and buffers around the industrial areas
- Direct access to industrial facilities from Pohick Road

Figure 5.19 - Proposed Functional Areas for the Industrial Area



Town Center ADP

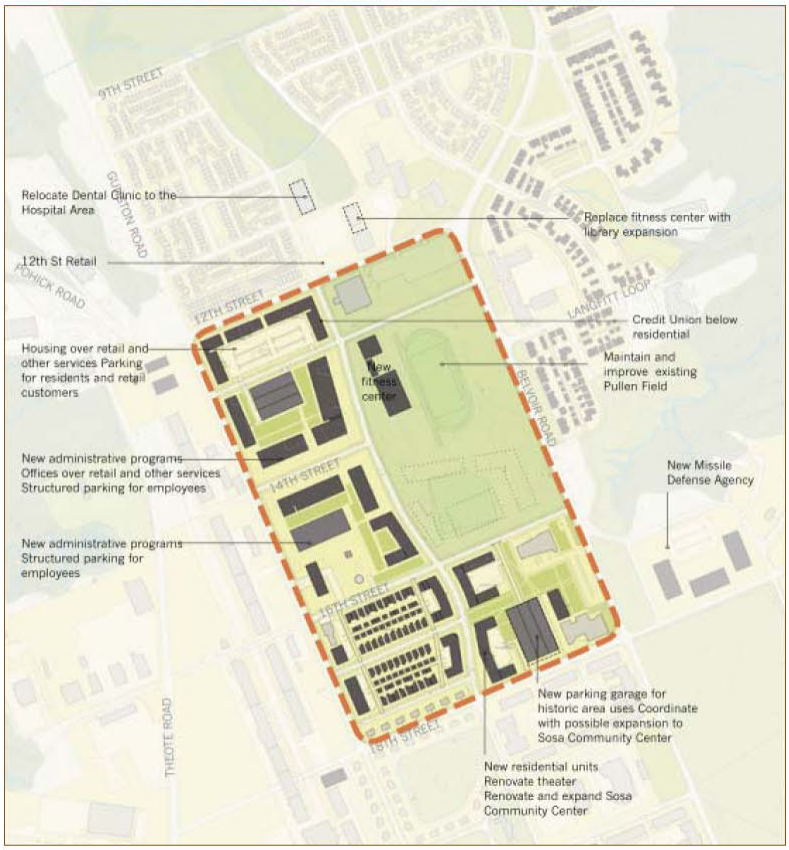
The vision of the Town Center is to create:

- An outstanding place to live, work, and play
- A culture that exists in harmony with surrounding communities and the natural environment
- A continuing legacy of a "Beautiful to See" installation
- A mixed-use center with offices, amenities, retail, and housing
- Housing along the 12th Street and 16th Street corridors
- A new office center with retail and amenities at key intersections
- Parking in the middle of the blocks and away from major pedestrian areas

Concept image from Town Center ADP

Concept image for Missile Defense Agency (MDA) development located just east of the Town Center Development Plan

Figure 5.20 - Proposed Development Plan for the Town Center as presented in ADP



- **OFFICES ±560,000 SQ FT**
- **RESIDENTIAL ±270 UNITS**
- **RETAIL ±200,000 SQ FT**
- **TOTAL NEW ±1,700,000 SQ FT**
- **CIVIC ±280,000 SQ FT**

The graphic presented above may vary slightly from the images presented in the final ADP reports. The graphic above has been revised to depict specific project details that developed after the ADP reports were published.

Figure 5.21 - Proposed Development Plan for the FBNA as presented in ADP

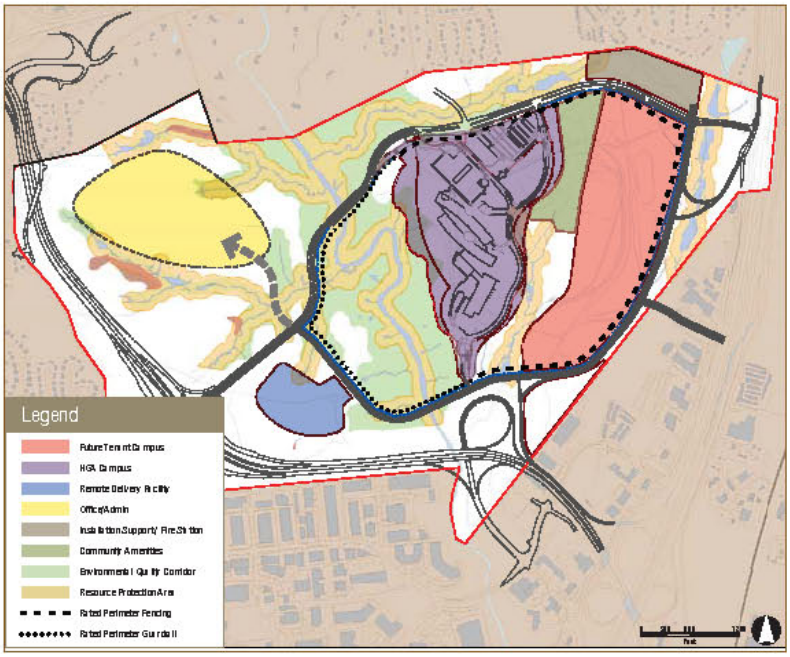


Figure 5.22 - Actual Development Plan for NGA on FBNA

Concept image from NGA design document

The graphic presented above may vary slightly from the images presented in the final ADP reports. The graphic above has been revised to depict specific project details that developed after the ADP reports were published.

FBNA ADP

Planning principles for the FBNA area development include:

- Buildings should reinforce the common campus edges. This includes the central open space. Buildings should also be in conversation with one another. Along the common campus areas, an attention to the compatibility of uses and building typology is critical.
- 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 coordinate with the larger transportation strategy.
- Reinforce a comprehensive strategy for security and AT/FP requirements that is integrated with building siting, access, and the overall development concept.
- Initiate collective approaches for storm water 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.

300 Area ADP

The 300 Area is a cleared area, surrounded by forest and Resource Protection Areas (RPAs). Although space here is severely constrained, there are a few open, flat areas that could be used for new buildings and/or parking structures. Its main road (Kingman) must be realigned to provide a more direct main road. Another safety improvement option to the road network would be the closing of Beach Road to automobile traffic, as this roadway is heavily traveled by pedestrians.

Figure 5.23 - Proposed Open Areas and Clustered Developments as presented in ADP

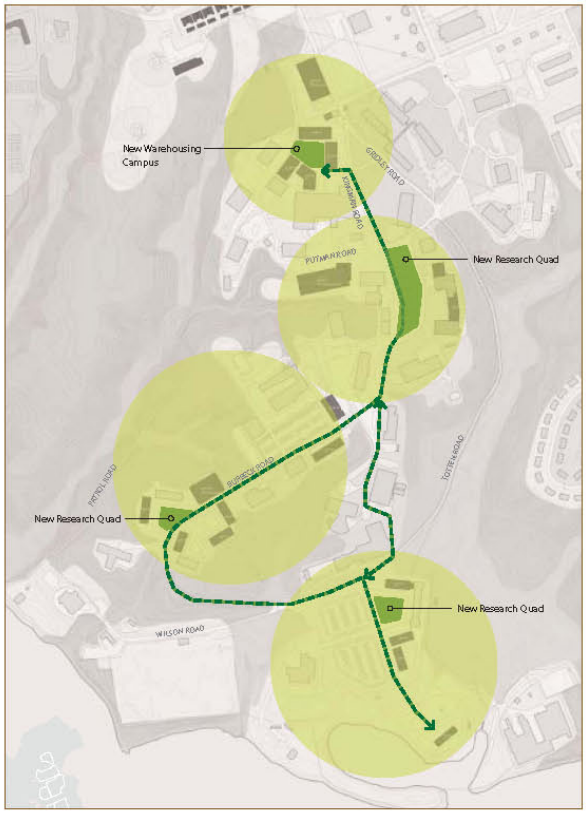
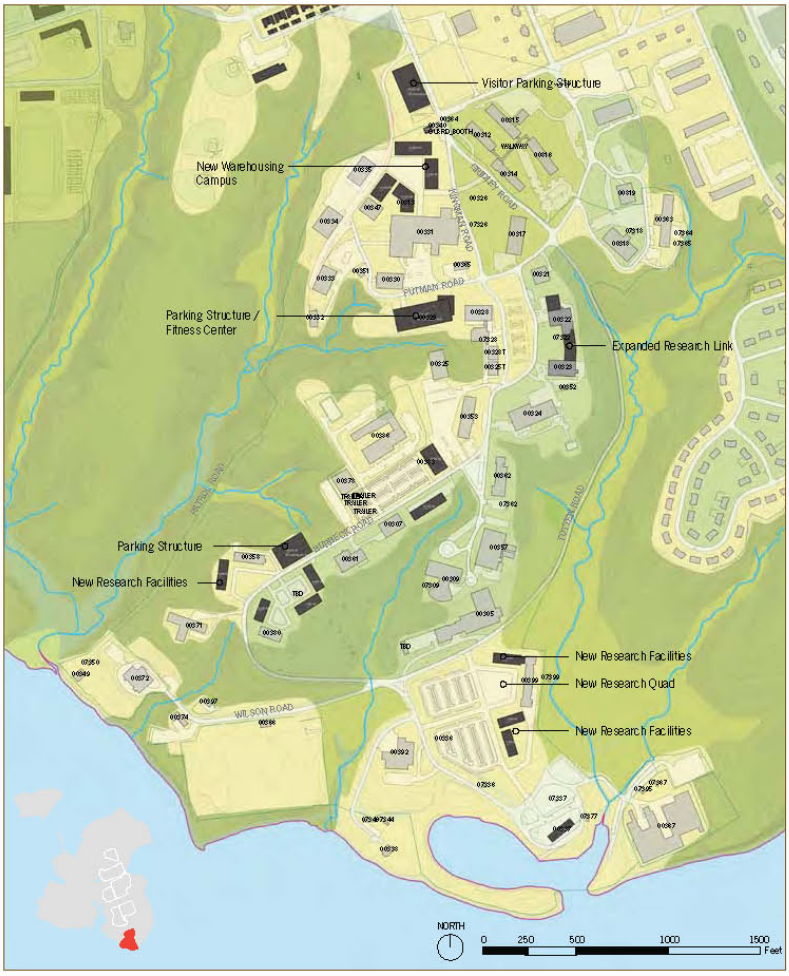


Figure 5.24 - Proposed Development Plan for 300 Area as presented in ADP



The graphic presented above may vary slightly from the images presented in the final ADP reports. The graphic above has been revised to depict specific project details that developed after the ADP reports were published.

Appendix D. Examples: Installation Design Guide

INSTALLATION DESIGN GUIDE: TABLE OF CONTENTS

SECTION 4 LANDSCAPE DESIGN STANDARDS

4.1 Introduction

4.2 Landscape Objectives

4.3 Landscape Design Guidelines

4.4 Plant Material schedule

4.5 Site Furnishings **OPTIONAL**

(Note: must assure compatibility with Milcon Transformation)

4.6 Lighting **OPTIONAL**

(Note: must assure compatibility with that Milcon Transformation)

4.7 Utilities (Above ground v. underground) **OPTIONAL**

SECTION 5 SITE PLANNING DESIGN STANDARDS-OPTIONAL –

May be included if not addressed in Illustrative and Regulating plans

5.1 Introduction **OPTIONAL**

5.2 Site Planning Objectives **OPTIONAL**

5.3 Site Planning Considerations **OPTIONAL**

5.4 Site Planning Design Criteria **OPTIONAL**

5.5 Site Selection **OPTIONAL**

5.6 Concept Development **OPTIONAL**

5.7 Natural Conditions **OPTIONAL**

5.8 Manmade Site Conditions **OPTIONAL**

APPENDIX A STANDARDS and REFERENCES–Optional

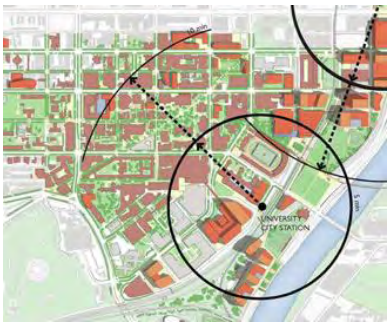
Refer to references for the following:

Force Protection and Design Standards - UFC

Historic Preservation Guidelines - Integrated Cultural Resources Management Plan (ICRMP)

Signs –TM 5-807-10

Entrance Gates–ACP Guides & ICRMP for historic areas

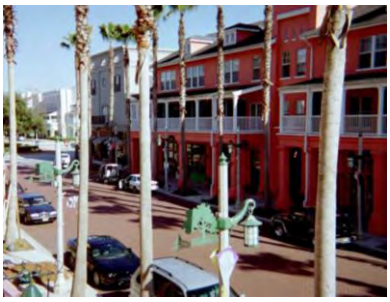


Building Envelope Standards

The Regulating Plan identifies the Building Envelope Standards (BES) for all building sites within the study area. The BES set the basic parameters governing building construction.

All setbacks are per current anti-terrorism, force protection standards and are subject to change as the standards change.

Parking requirements are also from latest Army planning criteria.



Guiding Principles

Narrow Buildings
To facilitate natural lighting and ventilation, the majority of buildings shall not exceed 50' in width.

Multi-Story
To reduce land use and to shape the outdoor space, the majority of buildings shall be more than one story.

Mixed-Use
To create an active built environment, the majority of buildings shall not be limited to one function.

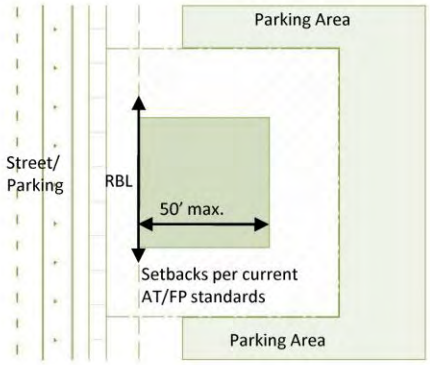
Compact Development
To preserve range and training lands, buildings shall be grouped together around a town center with multi-story mixed-use structures.

Sidewalk Buildings
To create an inviting walking environment, setbacks shall be minimized. Setbacks are maximized at the current anti-terrorism force protection requirements.

Shop Fronts
To develop sidewalks with life and activity, retail shall be required on key streets, with minimum setbacks and maximum glazing.

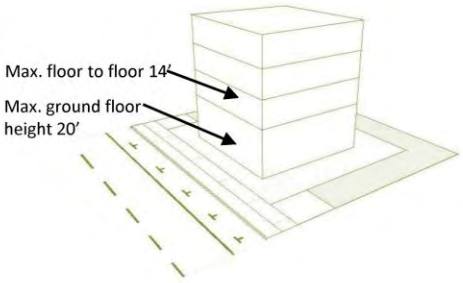
Building Standard | *Barracks*

Ground Floor: Residential or Commercial
Upper Floors: Residential
Example Uses: Housing of single Soldiers and visiting quarters. Small apartment-style living. Services like dining facilities and coffee shops permitted on the first floor.



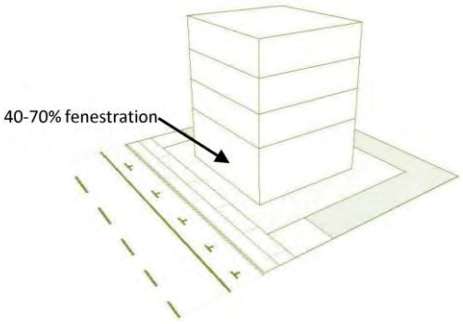
Placement

- **Site**
  - Setback from roadways and other buildings at all locations must be the minimum distance per latest AT/FP Standards
- **Orientation**
  - Main entries to a building must occur along the RBL.
- **Location**
  - 70% of the building facade must be built within 2m of the *RBL*, where designated.
- **Parking**
  - Parking shall be set back 50' from RBL, or 21' from the street curb where no RBL exists.
  - Parking: max. 70% of occupancy of building
  - If access to the area is controlled or fenced, government vehicle parking is not subject to any parking setback requirements
  - Trees shall be planted such that 70% of the parking area will be shaded in 15 years



Shape

- **Height**
  - Maximum floor to floor story height is 14'
  - Maximum story height of ground floor is 20'
  - Ground floor shall be a minimum of 18" above finished grade
  - Each building shall be at least one floor and no greater than five floors
- **Width**
  - Maximum width shall not exceed 50'.
- **Length**
  - Double loaded corridors shall not exceed 200' in length.
  - Building shall be divided into bays not exceeding 50' in width. These bays can be articulated by plane changes (+/- 6" min.), material changes, and window rhythm
- **Roof Form**
  - Roof forms shall be consistent with area architecture
  - Pitched roofs up to a 4:12 slope are allowable
  - Low slope roofs are not permitted

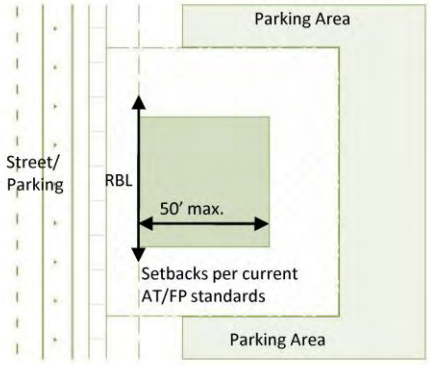


Details

- **Façade Composition**
  - Blank lengths of wall exceeding 15 lf are prohibited on all *RBL*'s
  - Fenestration shall comprise 40%-70% of façade area on all floors
- **Material**
  - Materials shall be consistent with the area material scheme. Refer to the installation architectural plan
- **Color**
  - Colors shall be consistent with area color scheme. Refer to the installation architectural plan
- **Windows**
  - All windows shall be operable with exceptions of clerestory, storefront, and curtainwall systems.
  - South facing windows shall be shaded from summer sun (overhangs and recessed windows - min. 3', allowed)
  - Designer shall incorporate sustainability strategies to include light shelves, clerestory windows, and maximum glazing areas
- **Attachments**
  - Balconies, bay windows, arcades can encroach 2' beyond RBL.

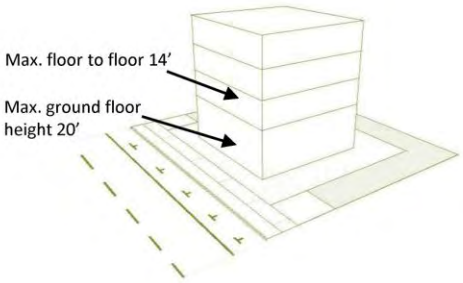
Building Standard | *Administrative*

Ground Floor: Administrative or Commercial
Upper Floors: Administrative
Example Uses: Office Buildings, Training Buildings, Headquarters Buildings



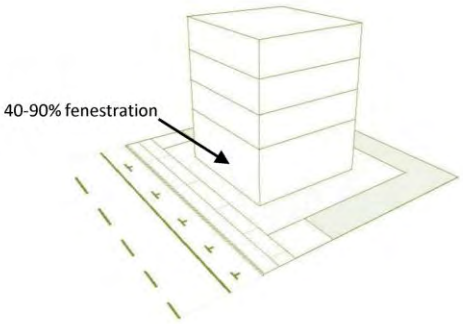
Placement

- **Site**
  - Setback from roadways and other buildings at all locations must be the minimum distance per latest AT/FP Standards
- **Orientation**
  - Main entries to a building must occur along the RBL.
- **Location**
  - 70% of the building facade must be built within 2m of the *RBL*, where designated.
- **Parking**
  - Parking shall be set back 50' from RBL, or 21' from the street curb where no RBL exists.
  - Parking: max. 3 spaces per 1,000 sf floor space
  - If access to the area is controlled or fenced, government vehicle parking is not subject to any parking setback requirements
  - Trees shall be planted such that 70% of the parking area will be shaded in 15 years



Shape

- **Height**
  - Maximum floor to floor story height is 14'
  - Maximum story height of ground floor is 20'
  - Ground floor shall be a minimum of 18" above finished grade
  - Each building shall be at least one floor and no greater than five floors
- **Width**
  - Maximum width shall not exceed 50'.
- **Length**
  - Double loaded corridors shall not exceed 200' in length.
  - Building shall be divided into bays not exceeding 50' in width. These bays can be articulated by plane changes (+/- 6" min.), material changes, and window rhythm
- **Roof Form**
  - Roof forms shall be consistent with area architecture
  - Pitched roofs up to a 4:12 slope are allowable
  - Low slope roofs are not permitted

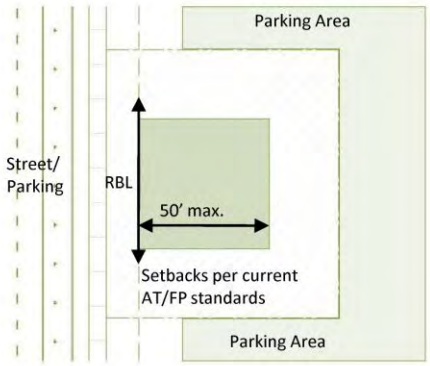


Details

- **Façade Composition**
  - Blank lengths of wall exceeding 15 lf are prohibited on all *RBL*'s
  - Fenestration shall comprise 40%-90% of façade area
- **Material**
  - Materials shall be consistent with the area material scheme. Refer to the installation architectural plan
- **Color**
  - Colors shall be consistent with area color scheme. Refer to the installation architectural plan
- **Windows**
  - All windows shall be operable, with the exception of clerestory, storefront, and curtain wall systems.
  - South facing windows shall be shaded from summer sun (overhangs and recessed windows - min. 3', allowed)
  - Designer shall incorporate sustainability strategies to include light shelves, clerestory windows, and maximum glazing areas
- **Attachments**
  - Balconies, bay windows, arcades can encroach 2' beyond RBL.

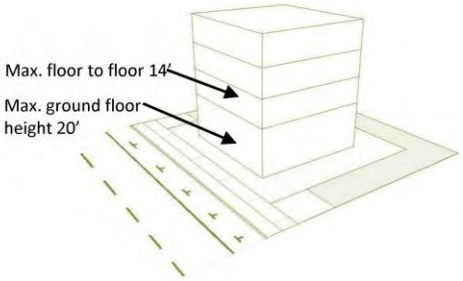
Building Standard | *Mixed-Use*

Ground Floor: Commercial required. Parking permitted in rear 50% of footprint.
Upper Floors: Commercial or residential
Exampleg Uses : Live/work buildings. Maximum of 12 residential units per structure.



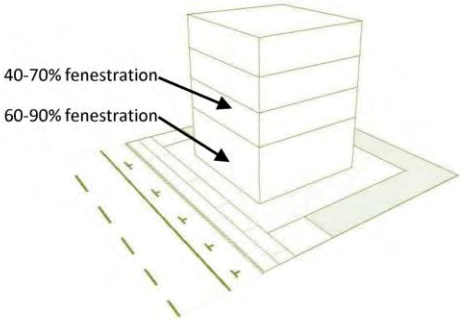
Placement

- **Site**
  - Setback from roadways and other buildings at all locations must be the minimum distance per latest AT/FP Standards
  - Where no *RBL or Primary Building Area* is designated a building may occupy any portion of the site within the building boundary
- **Orientation**
  - Main entries to a building must occur where *Primary Entry Locations* are designated.
- **Location**
  - 70% of the building facade must be built within 2m of the *RBL*, where designated.
  - 70% of all buildings must be built within the *Primary Building Area.*
- **Parking**
  - Parking shall be set back 50' from RBL, or 21' from the street curb where no RBL exists.
  - Residential Parking: min. 1 covered and 1 uncovered space per dwelling unit
  - Commercial Parking: max. 3 spaces per 1,000 sf floor space
  - Trees shall be planted such that 70% of the parking area will be shaded in 15 years



Shape

- **Height**
  - Maximum floor to floor story height is 14'
  - Maximum story height of ground floor is 20'
  - Refer to the Regulating Plan for specific minimum and maximum building heights
  - Ground floor shall be a minimum of 18" above finished grade
- **Width**
  - Maximum width shall not exceed 50'.
- **Length**
  - Building shall be divided into bays not exceeding 50' in width. These bays can be articulated by plane changes (+/- 6" min.), material changes, and window rhythm
- **Roof Form**
  - Roof forms shall be consistent with area architecture
  - Pitched roofs up to a 4:12 slope are allowable
  - Low slope roofs are not permitted

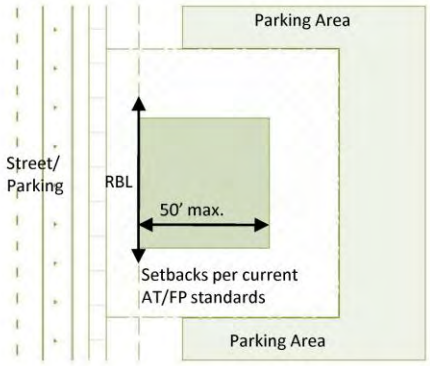


Details

- **Façade Composition**
  - Blank lengths of wall exceeding 15 lf are prohibited on all *RBL*'s
  - Fenestration shall comprise 60%-90% of façade area on 1st floor, 40-70% on upper floors
- **Material**
  - Materials shall be consistent with the area material scheme. Refer to the installation architectural plan
- **Color**
  - Colors shall be consistent with area color scheme. Refer to the installation architectural plan
- **Windows**
  - All windows shall be operable, with the exception of clerestory, storefront, and curtain wall systems.
  - South facing windows shall be shaded from summer sun (overhangs and recessed windows - min. 3', allowed)
  - Designer shall incorporate sustainability strategies to include light shelves, clerestory windows, and maximum glazing areas
- **Attachments**
  - Balconies, bay windows, arcades can encroach 2' beyond RBL.

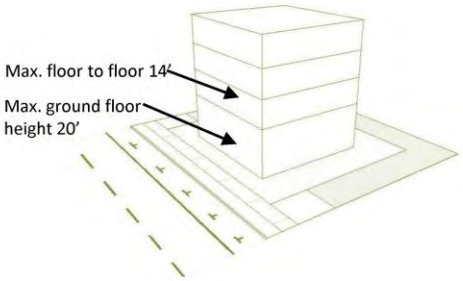
Building Standard | *Commercial*

Ground Floor: Commercial
Upper Floors: Commercial, residential (no more than 12 units per structure), or administrative.
Building Uses: Buildings where exchange of services or goods for money occur



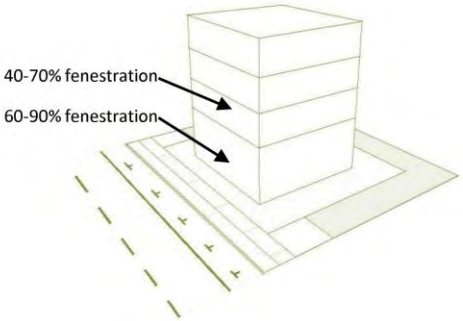
Placement

- **Site**
  - Setback from roadways and other buildings at all locations must be the minimum distance per latest AT/FP Standards
  - Where no *RBL* is designated a building may occupy any portion of the site within the building boundary
- **Location**
  - 70% of the building facade must be built within 2m of the *RBL*, where designated.
  - 70% of all buildings must be built within the *Primary Building Area.*
- **Parking**
  - Parking shall be set back 50' from RBL, or 21' from the street curb where no RBL exists.
  - Parking: max. 3 spaces per 1,000 sf floor space
  - If access to the area is controlled or fenced, government vehicle parking is not subject to any parking setback requirements
  - Trees shall be planted such that 70% of the parking area will be shaded in 15 years



Shape

- **Height**
  - Maximum floor to floor story height is 14'
  - Maximum story height of ground floor is 20'
  - Refer to the Regulating Plan for specific minimum and maximum building heights
  - Ground floor shall be a minimum of 18" above finished grade
- **Width**
  - Maximum width shall not exceed 50'.
  - Big-box commercial buildings may exceed the 50' width on the ground floor.
- **Length**
  - Double loaded corridors shall not exceed 200' in length.
  - Building shall be divided into bays not exceeding 50' in width. These bays can be articulated by plane changes (+/- 6" min.), material changes, and window rhythm
- **Roof Form**
  - Roof forms shall be consistent with area architecture
  - Pitched roofs up to a 4:12 slope are allowable
  - Low slope roofs are not permitted



Details

- **Façade Composition**
  - Blank lengths of wall exceeding 15 lf are prohibited on all *RBL*'s
  - Fenestration shall comprise 60%-90% of façade area on 1st floor, 40-70% on upper floors
- **Material**
  - Materials shall be consistent with the area material scheme. Refer to the installation architectural plan
- **Color**
  - Colors shall be consistent with area color scheme. Refer to the installation architectural plan
- **Windows**
  - All windows shall be operable, with the exception of clerestory, storefront, and curtain wall systems.
  - South facing windows shall be shaded from summer sun (overhangs and recessed windows - min. 3', allowed)
  - Designer shall incorporate sustainability strategies to include light shelves, clerestory windows, and maximum glazing areas
- **Attachments**
  - Balconies, bay windows, arcades can encroach 2' beyond RBL.

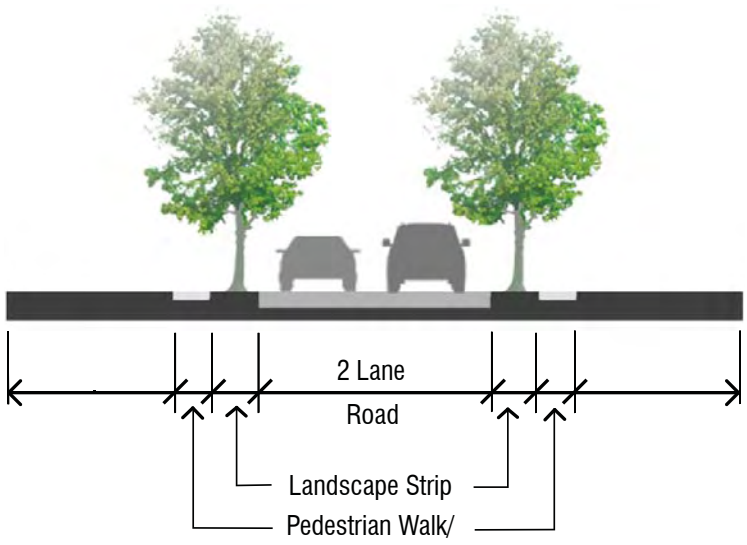


Figure 9.09: Secondary Road section and plan (RD-5)

Example of a secondary road on Fort Belvoir (21st Street, Fort Belvoir)

Secondary Roads

Secondary roadways serve as connectors between primary and tertiary roads, and typically connect primary roads to adjacent land use zones. Secondary roads accommodate moderate to slow traffic speeds, with one moving lane in each direction (Figure 9.09). On-street parking should be prohibited, and left-turn lanes should be provided at primary road intersections. These roads are identified on Figure 9.05, Road Hierarchy Regulating Plan. The design includes:

- Continuous through-traffic alignment between primary roads, which is either straight or curvilinear (based upon design speed topography and land pattern)
- Direct access to abutting property
- A maximum of two moving traffic lanes in each direction, which is either undivided or a boulevard with planted median
- On-street parking that is generally prohibited
- Sidewalk separated from the road by a planting strip
- Street signage, lighting, and planting that reinforce the moderate-to-slow speed traffic movement and character of the surrounding land
- Curbs, gutters, and sidewalks provided in all cantonment areas and other residential areas with densities greater than two dwelling units per acre
- Bikeways permitted: See Bikeway section of this IDG document.

CRITERIA	SPECIFICATIONS
Purpose	Access
Right-of-Way	188 feet maximum
Pavement Width	24 feet
Movement	Slow
Design Speed	15 - 25 mph
Traffic Lanes	2 lanes
On-Street Parking	Prohibited
Center Turn Lane	Permitted
Landscape Median	Prohibited
Off-Street Parking Frontage	Permitted
Walkway Type	Primary or Secondary
Bikeway	Class II or Class III
Planter Type	Continuous Planter
Curb Type	Curb and Gutter
Landscape Type	Regular

Avenues (Specialized Secondary)

Avenues are secondary roads that serve as “Main Streets” for the Post, where a substantial amount of public activity is planned. They are located in the Street Grid network, and provide east-west connectivity through the Urban Core. (See Figure 9.10.) Avenues include: Gorgas Road, Abbot Road, Goethals Road, 3rd Street, 9th Street, 12th Street, 10th Street, and 21st Street. The design includes:

- Straight alignments that traverse the urban core and are relatively short
- Two lanes typically divided by a median for landscaping or turning
- Access to facilities and parking
- At-grade intersections, with traffic control signals only provided at intersections with larger roads
- Bikeways permitted: See Bikeway section of this IDG document.

CRITERIA	SPECIFICATIONS
Purpose	Access
Right-of-Way	214 feet maximum
Pavement Width	50 feet maximum
Movement	Slow
Design Speed	15 - 25 mph
Traffic Lanes	2 lanes
On-Street Parking	Permitted
Center Turn Lane	Permitted
Landscape Median	Permitted
Off-Street Parking Frontage	Permitted
Walkway Type	Primary or Secondary
Bikeway Type	Class II or Class III
Planter Type	Continuous Planter
Curb Type	Curb and Gutter
Landscape Type	Regular

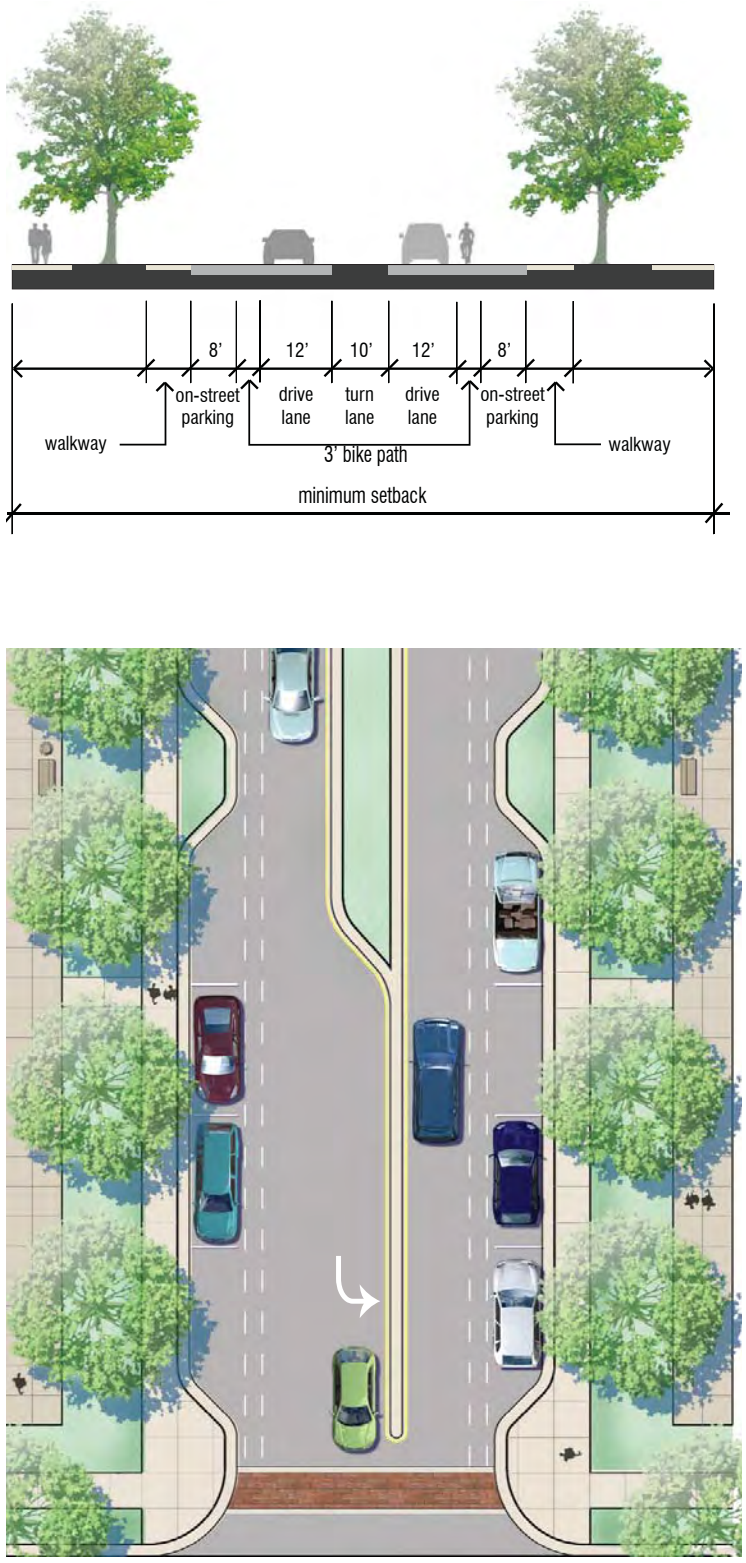


Figure 9.10: Avenue section and plan

12th Street, Fort Belvoir

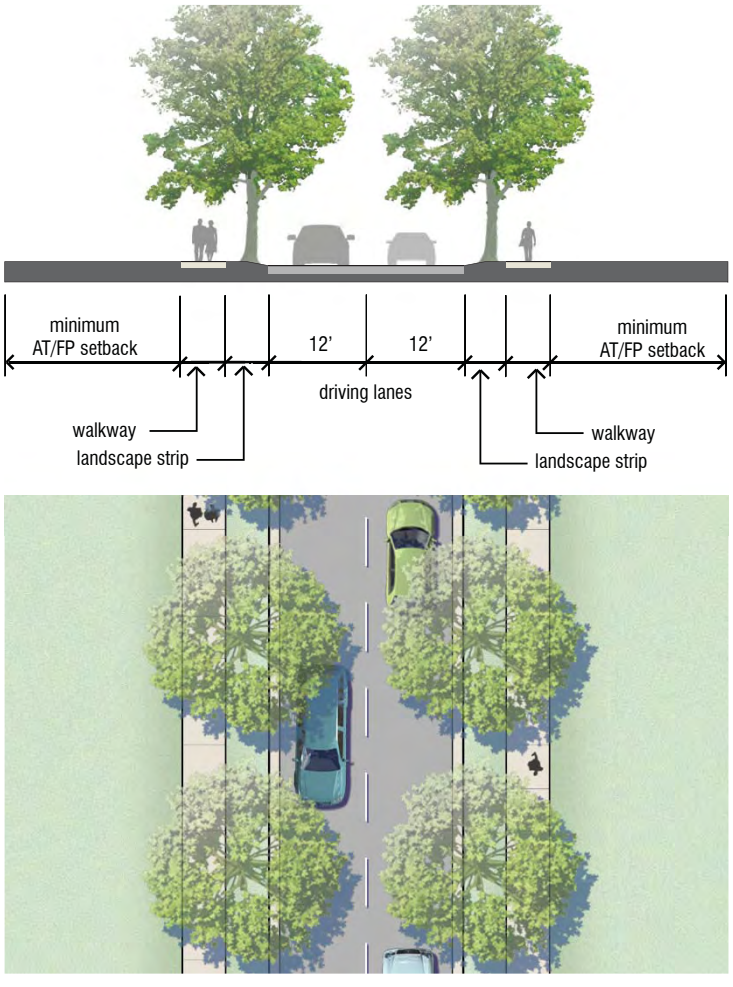


Figure 9.11: Grid Road section and plan without on-street parking

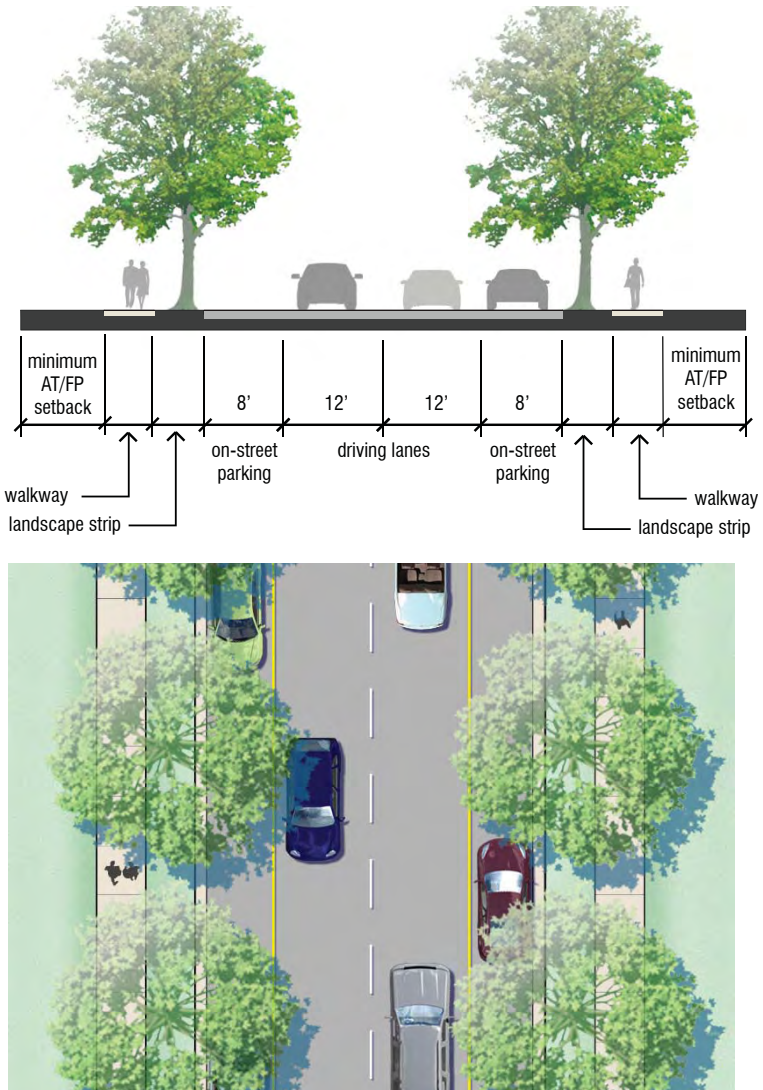


Figure 9.12: Grid Road section and plan with on-street parking

Grid Roads (Specialized Secondary)

Grid roads are mostly located in the interior of the Urban Core. These roads are short, straight, and provide direct access to facilities. They provide one lane in each direction, and are designed to handle low volumes of traffic at low speeds. On-street parking is an option, if additional surface parking is needed (Figures 9.11 and 9.12). The design includes:

- Formal in character and oriented to the street grid (These roads are typically heavily developed, with designed landscapes of regularly spaced trees, sidewalks, and occasionally site furnishings.)
- Typically located between Gunston and Belvoir Roads, and include: 6th, 1st, 18th, 19th, 20th, Middleton Road, 5th, Black Road, Goethals Road, and Abbot Road
- Bikeways permitted: See Bikeway section of this IDG document.

CRITERIA	SPECIFICATIONS
Purpose	Access
Right-of-Way	204 feet maximum
Pavement Width	24 - 40 feet
Movement	Slow
Design Speed	10 - 20 mph
Traffic Lanes	2 lanes
On-Street Parking	Permitted
Center Turn Lane	Prohibited
Landscape Median	Prohibited
Off-Street Parking Frontage	Permitted
Walkway Type	Primary or Secondary
Bikeway Type	Class II or Class III
Planter Type	Continuous Planter
Curb Type	Curb and Gutter
Landscape Type	Regular

Tertiary Roads

Tertiary roadways provide access to individual facilities, parking, and service areas. They are designed to handle low speed, low volumes of traffic, with one lane in each direction (Figure 9.13). Tertiary roadways make use of "T" intersections and cul-de-sacs to reduce through traffic, promote safety, and limit noise impacts from truck traffic. Tertiary roads on Fort Belvoir are identified on Figure 9.05, Roadway Hierarchy Regulating Plan. The design includes:

- Alignments that discourage through-traffic
- Alignments that are relatively short, straight, or curvilinear, to reinforce surrounding topography, land use, and slow speed traffic
- Generally, a maximum of two moving traffic lanes, one in each direction
- On-street parking that is permitted in residential areas or other areas (on an infrequent overflow basis), and achieved by the addition of a parallel parking lane or bay
- Curbs, gutters, and sidewalks provided in all cantonment areas and other residential areas (with densities greater than two dwelling units per acre)
- Sidewalks limited to one side, depending upon need
- Street signage, lighting, and planting in character with slow speed nature of traffic and the land use area within which the road is located
- Bikeways permitted: See Bikeway section of this IDG document.

CRITERIA	SPECIFICATIONS
Purpose	Access
Right-of-Way	188 feet maximum
Pavement Width	24 feet
Movement	Slow
Design Speed	10 - 20 mph
Traffic Lanes	2 lanes
On-Street Parking	Permitted
Center Turn Lane	Prohibited
Landscape Median	Prohibited
Off-Street Parking Frontage	Permitted
Walkway Type	Primary or Secondary
Bikeway Type	Class III
Planter Type	Continuous Planter or Swale
Curb Type	Curb and Gutter
Landscape Type	Regular or Clustered

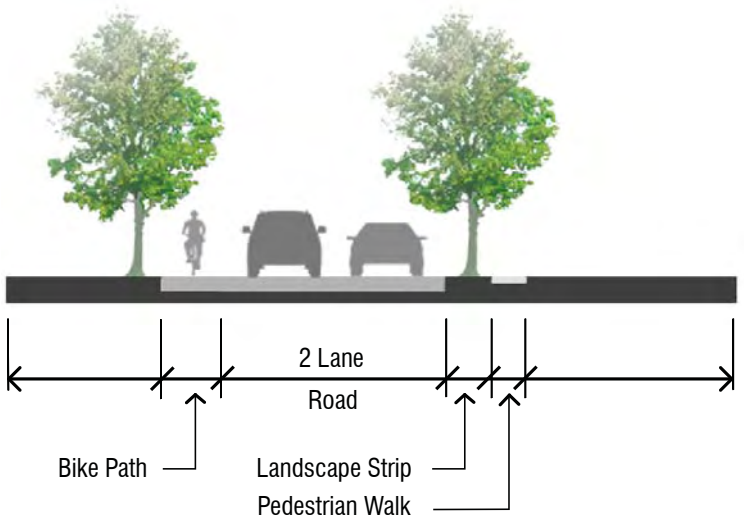
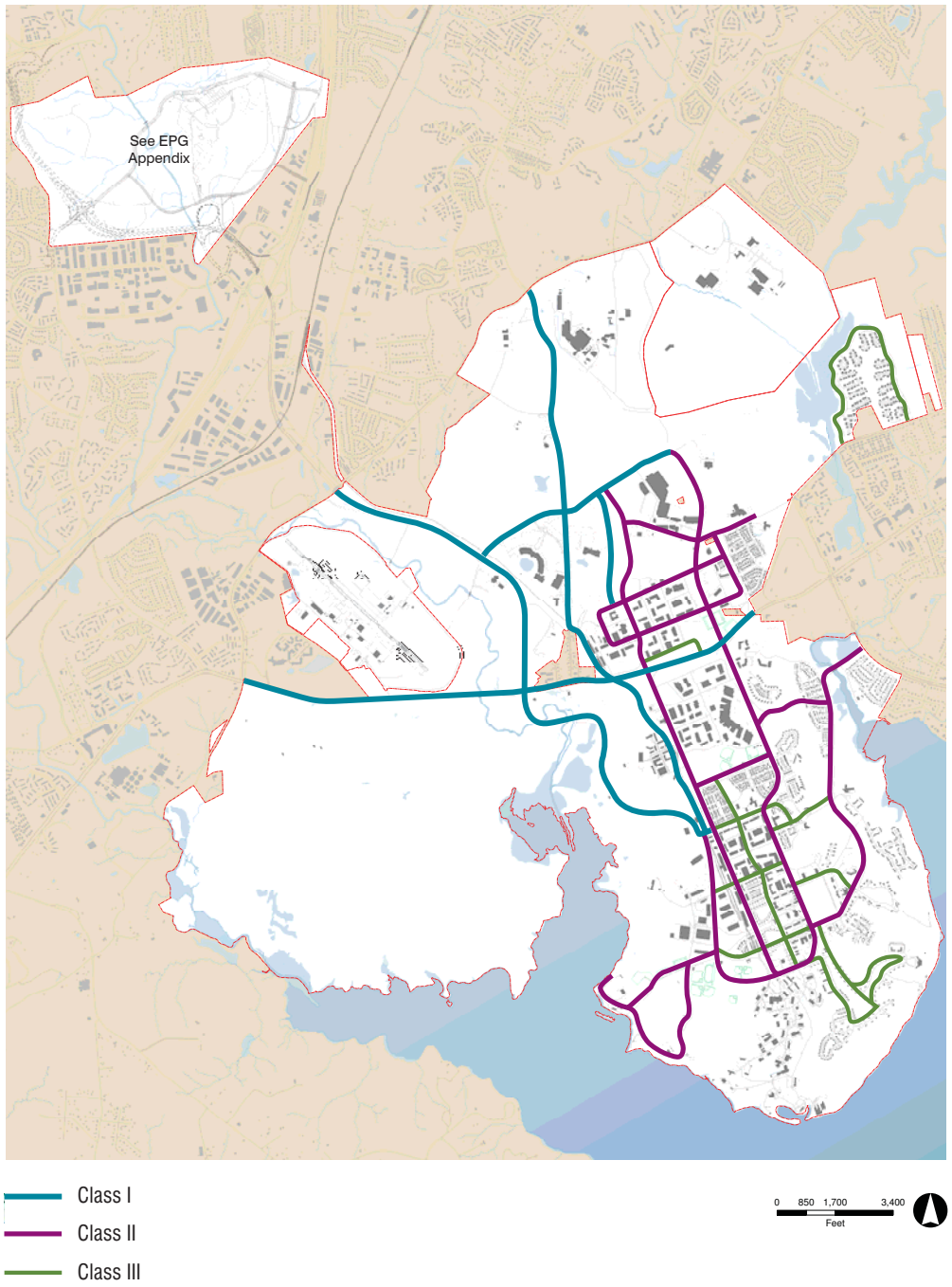


Figure 9.13: Tertiary Road section and plan

Residential street (18th Street, Fort Belvoir)

Figure 9.33: Bikeway Circulation



Bikeways

The use of bicycles as alternatives to the automobile has become more acceptable to installation personnel. This trend is encouraged as a method of reducing the automobile vehicle trips within the installation, thereby reducing the need for greater carrying capacity. Also, cycling is a popular recreation activity that is enhanced by the availability of a safe and well-planned system of bike trails.

A bikeway system should provide direct routes between primary traffic and destinations within the installation (Figure 9.33). This network should be continuous and minimize conflicts between bikes, pedestrians, and vehicles. Bikeways should be planned and designed according to the classifications that define the level of separation they maintain from roadways and walkways.

- Wherever possible, provide a designated right-of-way for bike traffic, separate from vehicular and pedestrian routes.
- Locate bikeway crossings away from vehicular intersections, and marked on the street pavement.
- When separate bicycle right-of-ways are not feasible, designate bikeway lanes with paint on the right-hand side of roadways.
- Bikeways should never share undesignated space with roadways except at crossings.

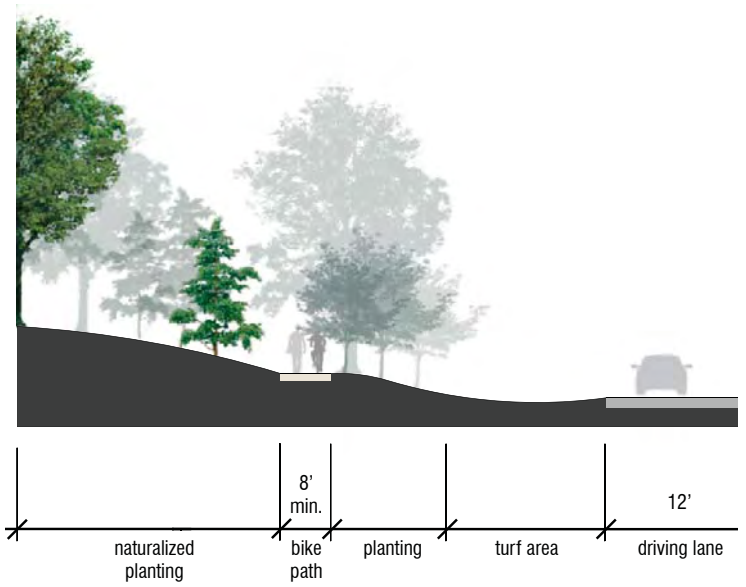
Bikeways are designed according to the following classifications:

- Class I: Intended for the exclusive use of bicycles.
- Class II: Shares the right-of-way with a roadway or walkway.
- Class III: Shares the right-of-way with a roadway or walkway.

Class I Bikeway

A Class I Bikeway is intended for the exclusive use of bicycles. While it may parallel a roadway, it is physically separated by distance or a vertical barrier (Figure 9.34). Class I Bikeway considerations include:

- A Class I Bikeway provides the safest and most efficient means of bicycle travel, and is the preferred option for bikeway development.
- Crossing of a Class I Bikeway by pedestrians, train, or automobile should be minimized.
- If a Class I Bikeway does not closely parallel a roadway, it should be designed to provide appropriate bikeway gradient and curvature.
- Class I Bikeways require the greatest amount of space and advance planning to reserve land and assure appropriate routing.
- Railroad crossings should be well marked, with proper operating signals and clear sighting down the tracks. Road crossing transitions should be smooth and well drained.



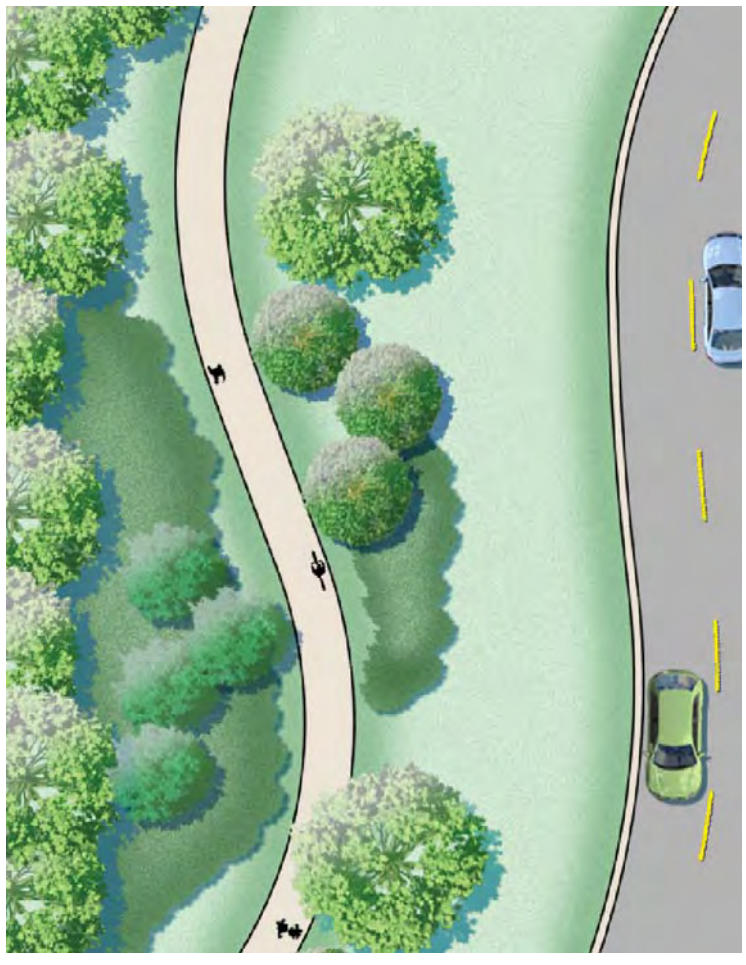


Figure 9.34: Class I bikeway section and plan

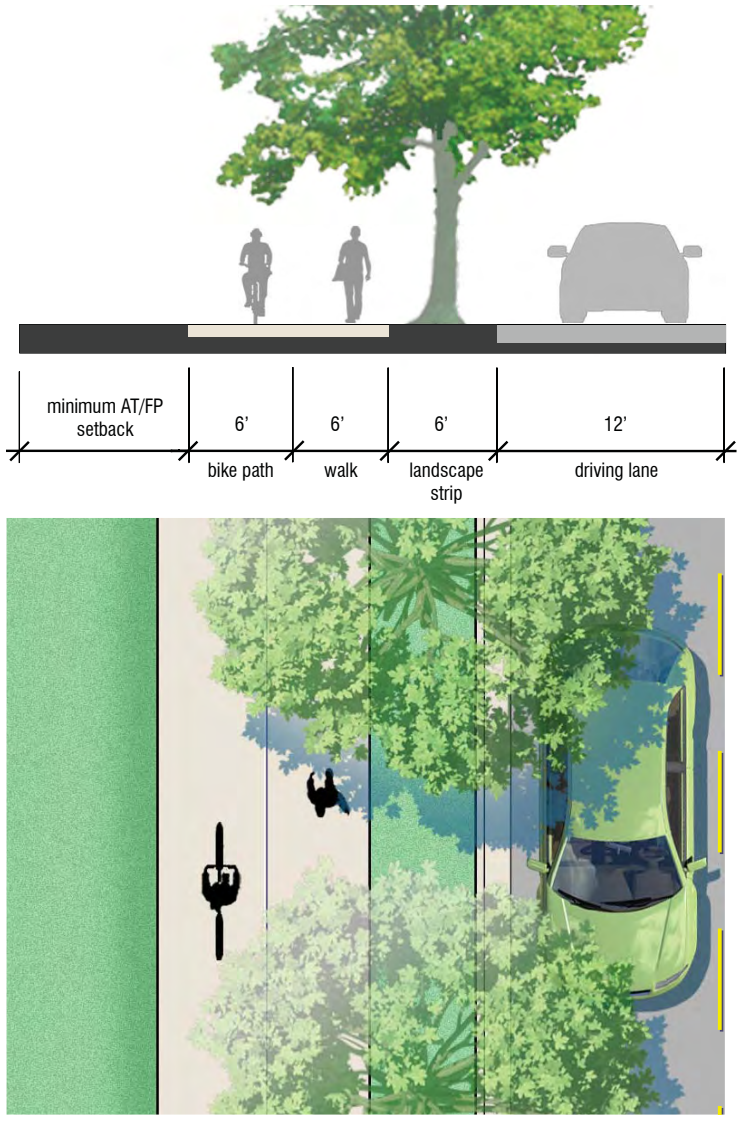


Figure 9.35: Option 1 for Class II bikeway

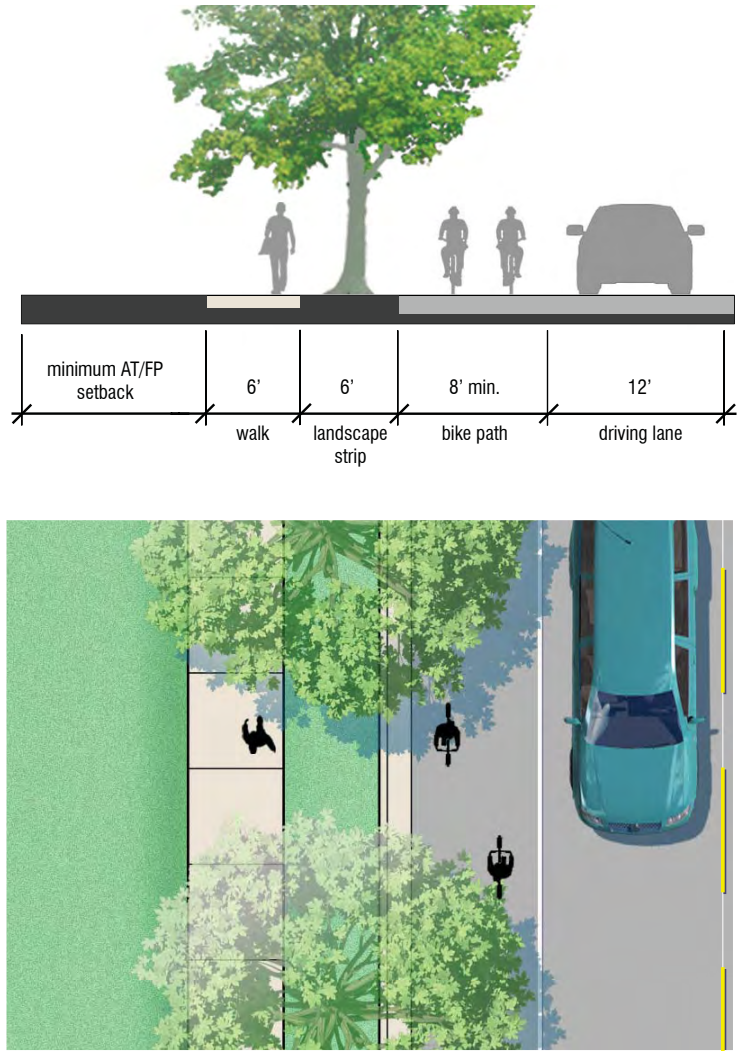


Figure 9.36: Option 2 for Class II bikeway

Class II Bikeway

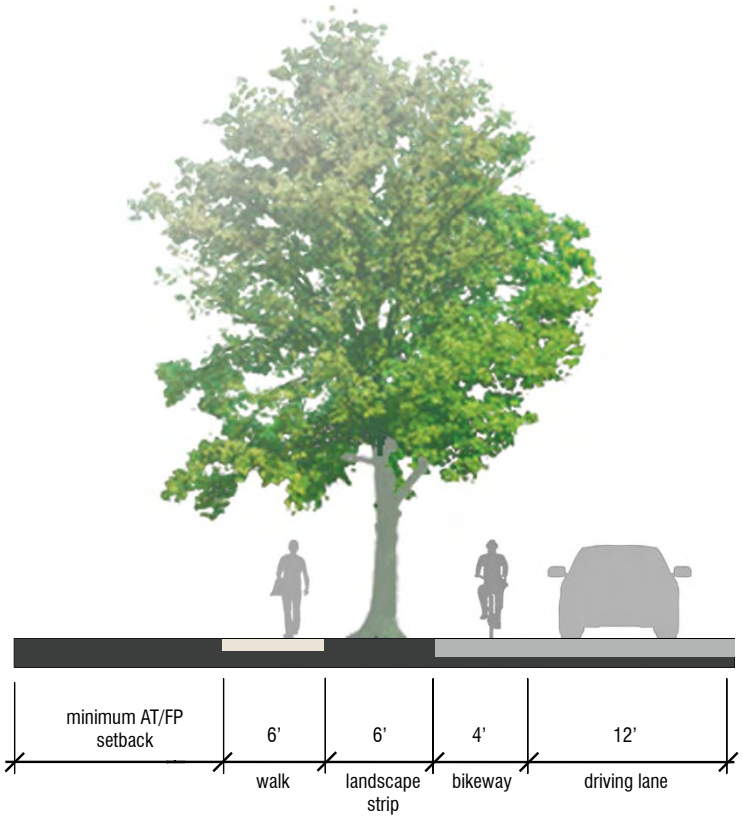
A Class II Bikeway shares the right-of-way with a roadway or walkway. It is indicated by a bikeway pictograph on the pavement and a continuous strip on the pavement, or separated by a continuous or intermittent curb or other low barrier (Figures 9.35 and 9.36). Class II Bikeway considerations include:

- Because some separation is provided for bicycle travel, a Class II Bikeway provides some level of safety for the bicyclist and pedestrian.
- While crossing by pedestrians or automobiles is discouraged, they are not as controllable as they are on a Class I Bikeway, because the Class II Bikeway is adjacent to the walkway or roadway.
- Because Class II Bikeways are tied to the adjacent roadway or walkway, route selection is important to maintain appropriate bikeway gradient and curvature.
- Class II Bikeways generally require less space than Class I Bikeways, because they follow the alignment of and share the right-of-way with a roadway or walkway.

Class III Bikeway

A Class III Bikeway shares the right-of-way with a roadway or walkway (Figure 9.37). It is not indicated by a continuous strip on the pavement or separated by any type of barrier, but it is identified as a bikeway with signs. Class III Bikeway considerations include:

- Because no separation is provided, there is a higher potential for safety conflicts between automobiles and bicycles and between bicycles and pedestrians.
- Class III Bikeways provide continuity within the bikeway network and designate preferred shared routes to minimize potential conflicts. To maintain safety for bicyclists and pedestrians, Class III Bikeways should be developed, if possible, only where automobile and pedestrian traffic is moderate to light.
- Because Class III Bikeways share the roadway or walkway, route selection is important to maintain appropriate bikeway gradients and curvature.
- Class III Bikeways require the least space because they share the pavement with a roadway or walkway.



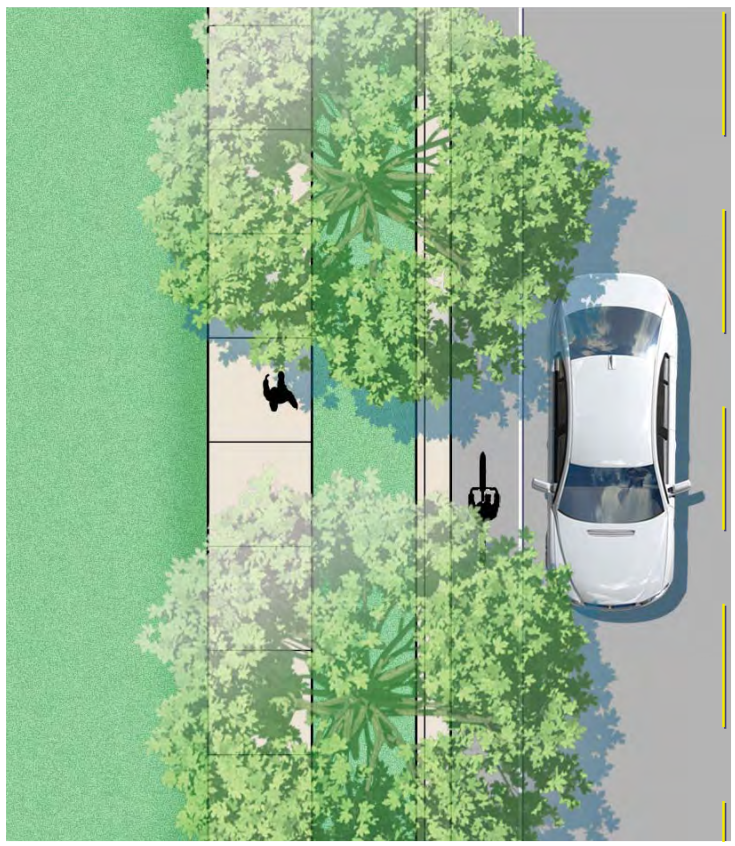


Figure 9.37: Class III bikeway section and plan

Site furnishings along bikeways encourage the use of the bicycle trail systems.

Bike racks provide safe storage for bicycles in high activity or recreation areas.

Landscaped bikeways encourage the use of the bicycle trail systems by making the trails aesthetically pleasing and providing shade.

Bikeway Furnishings

Encourage use of the bicycle system by making trails visually attractive and providing pedestrian amenities in appropriate locations. Provide site furnishings such as benches, tables, waste receptacles, drinking fountains, and signage along paths. Location of these amenities should be in response to travel distance and traffic volume.

Bicycle Storage

Provide bicycle storage racks in areas that can be visually supervised and in proximity to building entrances, high activity areas, major workplaces, and recreational facilities, while avoiding conflicts with pedestrian circulation. Bicycle storage areas should be covered, especially at barracks, and easily accessible to building entrances.

Landscaping

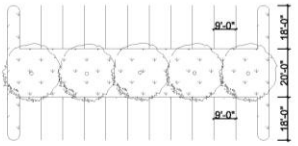
Use a combination of canopy and ornamental trees along bicycle paths for shade, route definition, and visual interest. Provide evergreen buffers to screen harsh winds and undesirable views.

Crosswalks

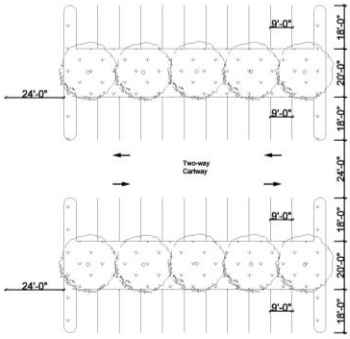
- Provide crosswalks at all intersections of roads and walkways/ bikeways. When laying out the crosswalk, consider the following:
- Extend walk's paving across the road in heavily used areas. Raised crosswalks eliminate the need for curb ramps in sidewalks.
- Provide a clear line of sight for motorists and pedestrians. Do not plant in sight lines. Walkways should meet the road at 90 degree angles (Fig 9.26).
- Adequate lighting should be provided.
- Provide barrier-free access at all intersections or use raised crosswalks.

Street Standard | *Parking Park*

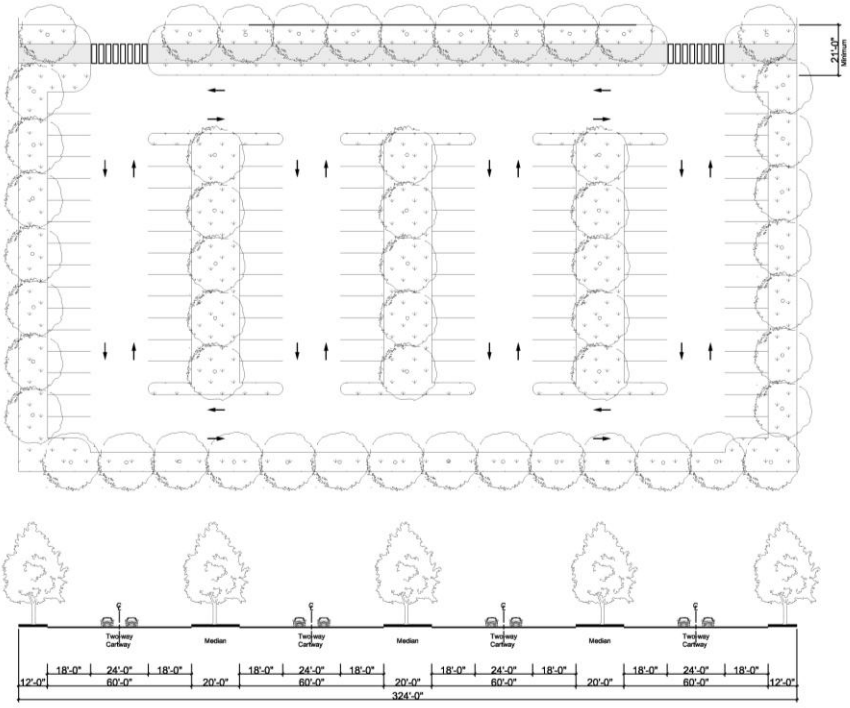
TYPICAL PARKING BAY



PARKING BAY ADJACENCIES
(repeat as necessary)



TYPICAL CAR PARK



NOTE:
1. Medians shall be landscaped with trees 20' to 30' on-center.
2. Medians shall be a minimum of 20' in width and extend the entire length of the parking aisle.
3. Medians shall act as swales with a depression of 18".
4. Cartways shall be 24' wide maximum.
5. Parkway area shall be set back a minimum 21' from road edge.
6. Parking spaces shall be 9' wide and 18' deep.
7. Any variation to parking design must be approved by Fort Lewis Public Works.

Street Standards: Design Guidelines

Turning Radii Between Road Types (feet)

Hierarchy of Streets: Highest (Primary) → Lowest (Secondary)

	Tank Trail	Multiway Boulevard - 2 Access Lanes	Multiway Boulevard - 1 Access Lanes	Boulevard	Avenue	Parkway	District Street	Main Street	Neighborhood Street	Park Street	Alley	Parking Curb Cut (Truck)	Parking Curb Cut (Non-Truck)
Tank Trail	50	50	50	50	50	50	50					50	10
Multiway Boulevard - 2 Access Lanes	50	40	40	40	30	20	20	15	15	10	10	40	10
Multiway Boulevard - 1 Access Lanes	50	40	40	40	30	20	20	15	15	10	10	40	10
Boulevard	50	40	40	40	30	20	20	15	15	10	10	40	10
Avenue	50	30	30	30	30	20	20	15	15	10	10	40	10
Parkway	50	20	20	20	20	20	20	15	15	10	10	40	10
District Street	50	20	20	20	20	20	20	15	15	10	10	40	10
Main Street		15	15	15	15	15	15	15	15	10	10		10
Neighborhood Street		15	15	15	15	15	15	15	15	10	10		10
Park Street		10	10	10	10	10	10	10	10	10	10		10
Alley		10	10	10	10	10	10	10	10	10	10		10
Truck Access/Parking Curb Cut	50	40	40	40	40	40	40					40	10
POV Parking Curb Cut	10	10	10	10	10	10	10	10	10	10	10	10	

Travel Lanes Width	Design Speed
10 feet	25 mph or below
11 feet	26 - 35 mph and truck routes
12 feet	Above 35 mph
14 feet	Tank Trails

Parallel Parking Lane Width	Design Speed
7 feet	25 mph or below
8 feet	Above 25 mph to 35 mph
9 feet	Above 35 mph

30° Angle Parking Lane Width	Design Speed
17.3 feet	25 mph or below

Appendix E. Site Selection Checklist

Table E.1 Site Selection Checklist

DATE	
LOCATION	
CONTACT INFORMATION	
Interviewee:	
Position:	
Organization:	
Phone/Fax Number:	
Email:	
FACILITY	
Assigned Organization/Activity	
Facility Construction Date:	
Facility Size (GSF/NSF)	
Vehicle Circulation	
Vehicle Parking	
Overall General Condition	
Maintenance Record	
INFRASTRUCTURE	
Telephone	
Gas (Natural)	
Sewer	
Storm Water	
Water (Potable)	
Electricity	
FIRE PROTECTION	
Distance (Station/Plug)	
Accessibility (Fire Trucks)	
LAND USE / COMMUNITY	
Surrounding Land Uses	
Encroachments	
Community Support	
Current Land Use Deficiencies/ Constraints	
Land Use Compatibility	
Land Use Change Request Needed	
AT/CIP Stand-Off Distance and Designated AT/CIP Category	

ENVIRONMENTAL	
Hazardous Waste Storage/Disposal	
Oil - Water Separator(s)	
Fuel Containment	
Noise Compatibility	
Air Quality	
Natural/Cultural Compatibility	
Soil and Water Resource Compatibility	
GENERAL DESCRIPTION (Area)	
Size	
Slope	
Landscaping	
Aesthetics	
Adjacent Roadways (size/type)	
Pedestrian Accessibility	
Vehicle Accessibility	
Opportunity for Future Expansion	

Appendix F. Example RPPB Charters

F.1 Real Property Planning Board Charter

CHARTER FOR THE FORT BELVOIR REAL PROPERTY PLANNING BOARD

1. **Establishment:** This charter establishes the provisions for the Real Property Planning Board (RPPB) for Fort Belvoir, Virginia (FBVA). The charter is established in accordance with Army Regulation 210-20, Real Property Master Planning for Army Installations, dated 16 May 2005. The Garrison Commander (GC), in consultation with the IMCOM Northeast Regional Director, will establish, convene, and maintain records of the RPPB in accordance with AR 25-400-2. The RPPB will assist the GC in managing and developing FBVA facilities and real estate. The RPPB will assist in the realignment of FBVA as a part of Base Realignment and Closure 2005.

   1.a. The committee will be known as the Fort Belvoir, Virginia Real Property Planning Board (RPPB).

   1.b. The RPPB will be established effective upon signature of the memorandum transmitting the charter to the Board members.

   1.c. The FBVA RPPB is comprised of two (2) sub-boards – a Working Group (WG) and Executive Board.

      i. The WG consists of staff action officers of the various garrison staff elements The WG investigates, researches and reports on issues within it purview, develops position papers and makes recommendations for consideration of the Executive Board. In the event of a dissenting opinion, it will be made an addendum to the position paper/recommendation. The WG will meet at least semi annually.

      ii. The Executive Board consists of the garrison staff directors and the Commanders/Directors of and each major unit or independent activity including the tenant Army Reserve and National Guard activities. The Executive Board may direct the WG to investigate, research and report on issues of interest to the Executive Board or a member thereof. The Quarterly General Officer/Senior Executive Service/Command Sergeant Major (GO/SES/CSM) meeting will serve as the forum for the meeting of the RPPB Executive Board. The Executive Board considers issues presented by the WG and makes recommendations to the GC. In the event of a dissenting opinion, it will be made an addendum to the recommendations to the GC.

2. **Function** - The RPPB functions as the installation "city planning council to" ensure orderly development and management of installation real property in support of missions management processes, and achieving community objectives. The RPPB will –

   a. Guide development and maintenance of all components of the Real Property Master Plan (RPMP):

      1. Long Range Component
      2. Capital Investment Strategies, regardless of funding source
      3. Short Range Component
      4. Installation Design Guide
      5. Real Property Digest

   b. Coordinate installation Real Property Master Planning with:

      1. Adjacent and nearby installations or jurisdictional planning areas.
      2. Other activities and land use of the DOD and federal agencies.
      3. Local agencies and planning commissions of neighboring cities, counties, and states for mutual development concerns and encroachment and environmental issues.
      4. Non-governmental groups and associations, businesses and concerned individuals.

   c. Assist in ensuring the RPMP:

      1. Addresses all real property requirements for all activities on FBVA.
      2. Reflects changes in missions and the military community's current or future development plans, with full consideration of, and respect for, regional and local communities.
      3. Projects growth or reduction in units and activities as reflected in the Army Stationing and Installation Plan (ASIP).
      4. Approves facility architectural and design themes, as set forth in the Installation Design Guides; monitors compliance, and adjudicates conflicts and variances from the established standards.
      5. Develops plans and programs that are in harmony with, protect, enhance to protect and enhance the environment, fully observant sustainable design and development policies and principles.

6. Ensures maximum use of existing facilities; oversees the assignment and reassignment of space within existing facilities; monitors land use; and adjudicates conflicts in facilities, land use and/or assignments.
7. Formulates and justifies construction and major repair programs in accordance with the annual program guidance.
8. Oversees actions to realign, cleanup, and impose land use controls.
9. Resolves real property master plan disputes between competing organizations.

3. **Authority**

a. AR 15-1, Committee Management.

b. AR 420-1, Master Planning for Army Installations. (Attachment 1)

c. AR 200-1, Environmental Protection and Enhancement.

d. AR 200-2, Environmental Effects of Army Actions.

e. AR 200-3, Natural Resources—Land, Forest and Wildlife Management.

f. AR 210-5, Planning Procedures for Construction Projects in the National Capital Region.

g. AR 405-10, Acquisition of Real Property and Interests Therein.

h. AR 405-45, Inventory of Army Military Real Property.

i. AR 405-70, Utilization of Real Estate.

j. AR 405-90, Disposal of Real Estate.

k. AR 415-15, Military Construction, Army (MCA) Program Development.

l. AR 420-10, Management of Installation Directorates of Engineering and Housing.

4. **Administrative Support and Staff Arrangements**

a. The Director of Public Works will serve as the Executive Secretary of the Executive and Working Board.

b. The Installation Master Planner will serve as the Secretary, Staff Director and Recorder of the WG and Executive Board.

c. Administrative and technical support will be provided by the Installation Master Planner as a normal part of his/her duties in developing/maintaining the installation master plan.

5. **Composition**

a. The composition of the Working Board is at Attachment 2.

b. The composition of the Executive Board is at Attachment 3.

c. The quorum for conducting business of either Board will be 51% of the members listed.

d. A majority vote of those members present is required to carry a motion.

e. Minutes of any meeting will be distributed within 20 working days of the meeting. In the event of a dissenting opinion, the minutes may be delayed to assimilate the dissenting opinion.

6. **Correspondence** - The official files of the Board will be maintained by the Installation Master Planner. Correspondence pertaining to the RPMP will be directed to the Director of Public Works, ATTN: IMNE-BEL-ELI (Master Planner), 9430 Jackson Loop, Fort Belvoir, Virginia 22060-5130. The Master Planner will undertake required actions for the RPPB and prepare an appropriate response.

F.2 Committee Charter

1. NAME OF COMMITTEE: Real Property Planning Board (RPPB)
2. DATE OF ESTABLISHMENT: March, 1994
3. DATE OF REVISION: January 28, 2003
4. DATE TO BE TERMINATED: N/A
5. CATEGORY AND TYPE OF COMMITTEE: Intra Component/ Command Committee
6. MISSION OF PURPOSE: To assist the commander to manage and develop the installation or area facilities and real estate in a develop manner to satisfy all assigned and future know missions.
7. DIRECTION AND CONTROL:
   a. Commander, Fort Myer Military Community (FMMC)
   b. Voting Quorum will be a majority of voting members
8. AUTHORITY:
   a. AR 15-1, Board Commissions, and Committees, Committee Management
   b. MDW Supplement to AR 15-1, Boards Commissions, and Committee, Committed Management
   c. AR 420-1, Master Planning for Army Installations
   d. Master Planning Instructions (MPI), 9 Jul 93
9. ADMINISTRATIVE SUPPORT AND STAFF ARRANGEMENT: The Director for Public Works or his designee will act as executive secretary.
10. COMPOSITION: The committee consists of 36 members of whom 19 are voting members, and 17 are non-voting.

- Chairman:
  - Commander, FMMC
- Executive Secretary:
  - Director of Public Works
- Voting Members:
  - President, National Defense University
  - President, Inter-American Defense College
  - Commanding General, Military of Washington
  - Commander, 3rd U.S. Infantry
  - Commander, The U.S. Army Band
  - Commander, Headquarter Command, USA

- Staff Medical Advisor-Rader
- Deputy Garrison Commander
- Command Sergeant Major
- Director, Plans, Training, Mobilization & Security
- Director, Morale Welfare & Recreation
- Director, Resource Management
- Director, Emergency Services
- Director, Defense Commissary Agency
- General Manager, Army Air Force Exchange Service
- Director of Logistics
- Director Planning & Analysis Integration

- Non-Voting Members:
  - Director of Contracting
  - Director of Information Management
  - Deputy Director of Engineering, DPW
  - Deputy of Logistics, DPW
  - U.S. Army Corps of Engineers, Baltimore (USACE) District
  - Chief, Civilian Personnel Advisory Center
  - Chief, Engineering Plans and Services Division, DPW
  - Chief, Fire Prevention and Protection Division, DES
  - Chief, Housing Management Division, DPW
  - Chief, Environmental Division, DPW
  - Chief, BM Division, DPW
  - Chief, O&M Division, DPW
  - Inspector General
  - Installation Safety Officer
  - Chaplain
  - Staff Judge Advocate
  - Installation Master Planner, DPW
  - Installation Police Chief

11. COMMITTEE LEVEL AND OTHER DATA: Independent Committee
12. COMMITTEE ACTIVITIES: The committee meets semi-annual each Fiscal Year with presentation of the Real Property Master Plan (RPMP) for prioritization.

13. OBJECTIVES AND SCOPE:

    a. Review the available resources, requirements and availability of funds for SRM projects and approve programs for implementation. The projects to be considered includes "K" Work (maintenance and repair) excluding $50,000 and "L" Work (new construction) exceeding $25,000.

    b. Review short-range and long- range planning in accordance with approved master plan.

    c. Provide guidance to update master plan to meet current and future needs.

14. FUNCTIONS:

    a. GENERAL The executive secretary will provide all staff support and administrative assistance, prepare agenda and take minutes and distribute to all members of the committee. The members will:

        i. Monitor development of the Real Property Master Plan (RPMP) and make recommendations to the installation commander for approval.

        ii. Ensure that the RPMP addresses all real property requirements for all activities on the installation and within the support area.

        iii. Ensure that the RPMP reflect change in installation mission.

        iv. Ensure that the RPMP plans for growth or reductions in units and activities as reflected in Army Stationing and Installation Plan (ASIP).

        v. Ensure installation architectural and design themes are in accordance with the Installation Design Guide (IDG) & Army Installation Design Standards.

        vi. Review submitted annual work plan (AWP) and long-range plan projects for both major repair programs and minor construction and make recommendations for approval.

        vii. Make recommendations to the installation commander concerning the funding requirements for maintaining RPMP documents.

        viii. Advise the Garrison Commander on priorities for project funding.

        ix. Consider the environmental effects of all decision relating to RPMP.

x. Consider impact on new construction or alterations in historic district to meet requirements of NCPC, CFA, SHPO, ACHP and local communities in the vicinity. The executive secretary will provide all staff support and administrative , prepare agenda and take minutes and distribute to all members of the committee.

xi. Make recommendations related to real property, space utilization issues, and energy programs.

xii. Consider projects related to Army Community of Excellence.

b. SPECIFIC

i. Advisory Committee (Appendix A)

ii. Barracks Planning Cell (Appendix B)

15. FREQUENCY OF MEETINGS: The Formal Board shall meet semi-annually in the months of November and May each Fiscal Year. Two Informal Boards are convened to support each formal meeting. All members are encouraged to attend.

1. NAME OF COMMITTEE: Real Property Planning Board (RPPB) Advisory Committee
2. DATE OF ESTABLISHMENT: July, 1996 (Revised Jan. 03)
3. DATE TO BE TERMINATED: N/A
4. CATEGORY AND TYPE OF COMMITTEE: Intra Component Advisory Committee.
5. MISSION: To assist the FMMC RPPB in the assessment, validation and prioritization of the OMA projects.
6. DIRECTION AND CONTROL:

a. The following re-engineering criteria will be used to validate a requirement:

i. Is this what we do?

ii. Why do we do what we do?

iii. Why do we do it that way?

iv. What is the value added?

v. Is it feasible or logical to continue to perform the function we now have?

b. DPW is to provide Committee Coordination.

c. DRM is to provide funding guidance.

d. Committee functions as a corporate body representing the interest of the FMMC.

e. Voting quorum will be two third (2/3) of committee membership.

7. AUTHORITY:

a. 210-20, Master Planning for Army Installations

b. Planning Instruction, 9 Jul 1993.

c. Community Commander Directive, December, 1995.

8. ADMINISTRATIVE SUPPORT AND STAFF ARRANGEMENT: Chief, Engineer Plans & Services Division, Director of Public Works or his designed representative will act as coordinator to provide DA Forms 4283, project description, technical data and cost estimates and arrange site visits. The Facility Planning Branch will serve as a facilitator for the committee, serving as secretary, recorder and preparing minutes for meetings.

9. COMPOSITION:

a. A team or group of the following representation shall constitute Advisory Committee:

i. DPW, Master Planning Division Coordinator

ii. DPW, Chief, Operations and Maintenance Division

iii. MWR Representative

iv. National Defense University (NDU)

v. Third Infantry Representative

vi. BOSS, Single Soldier Representative

vii. A Resident Representative

b. RPPB voting members will not serve on the committee.

c. The name of a permanent member and alternate for this committee will be provided to the coordinator, MP Division.

10. COMMITTEE LEVEL AND OTHER DATA: Advisory Committee

11. COMMITTEE ACTIVITIES:

a. Review proposed projects.

b. Objectively evaluate need and proposed fix.

c. Visit and view project site(s).

d. Prioritized projects.

e. Provide recommendation(s) to DPW and to RPPB.

f. Defend recommendations to RPPB.

12. OBJECTIVES AND SCOPE:

a. Set project evaluation and scoring criteria.

b. Evaluate project with existing condition. Determine impact if not repaired or fixed soon and impact on mission accomplishment in proposed program.

c. Develop a checklist to assess scoring points.

d. Evaluate the project requirements versus goals/objectives of the mission and availability of funds.

e. Advise the working board of findings and prioritization of projects.

f. Review the available resources, requirements and availability of funds for OMA projects.

g. Review short and long range planning in accordance with approved Master Plan to evaluate current and future project needs.

13. FREQUENCY OF MEETINGS: The committee shall meet semiannually prior to the formal RPPB meetings. The project evaluation will cover a two-week period during which site visits and prioritization will occur.

BARRACKS COMPLEX PLANNING CELL

1. PURPOSE: To establish a planning component within the Real Property Planning Board to consider, study, review, and define all aspects to the development of the proposed 400 area barracks complex at Fort Myer, VA.
2. Cell Composition
   a. RPPB Members
      - 3rd Infantry
      - Headquarters Command
      - Military District of Washington
      - FMMC Command Sergeant Major
      - Directorate of Public Works and Logistics
      - FMMC Safety Officer
      - MWR
   b. Others
      - Department of the Army (ASCIM) Representative

Appendix G. Charrette Report

Planning Charrette Report

Logistics Center of Excellence

Fort Lee, VA

January 2006

CONTENTS

EXECUTIVE SUMMARY

In response to the recommendations provided by the U.S. Army Training and Doctrine Command (TRADOC) to the 2005 Defense Base Closure and Realignment Commission the establishment of the Combat Support Service Center of Excellence (CSS COE) at Fort Lee, VA will be created by:

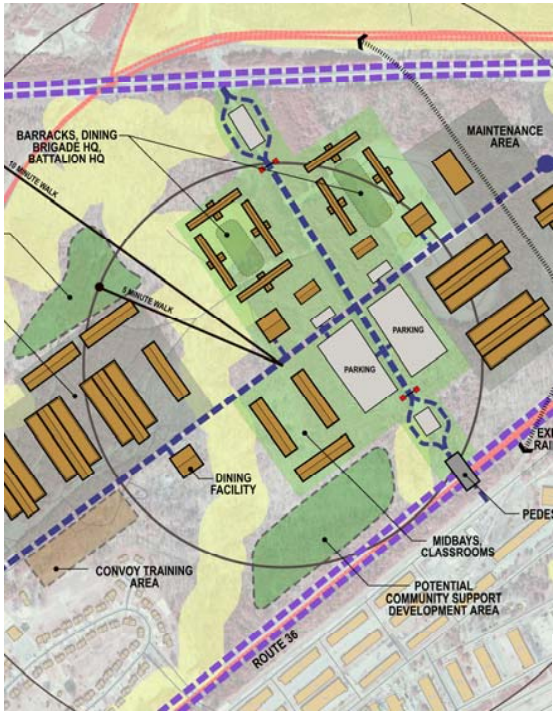
- relocating the Transportation Center and School from Fort Eustis, VA;
- relocating the Ordnance Center and School from Aberdeen Proving Ground, MD;
- relocating the Missile and Munitions Center from Redstone Arsenal, AL;
- consolidating these with the Quartermaster Center and School, the Army Logistic Management College, and Combined Arms Support Command.

These actions will require that facilities be provided at Fort Lee in order to accommodate the arriving activities of the new Combat Service Support Center.

In order to accomplish this mission, a planning charrette was arranged and executed. Prior to the planning charrette, research, data collection, requirements analysis, interviews, and site visits were conducted. Components to the planning charrette included a final Requirements Analysis, conceptual site plans, a Department of Defense (DD) Form 1391, and a Description of Proposed Action and Alternatives (DOPAA).

The planning charrette included participants from Fort Lee, Fort Eustis, Redstone Arsenal, Aberdeen Proving Ground, Northeast Region Installation Management Agency and TRADOC.

The charrette process generated a sustainable solution, for both the new CSS COE combined mission and the environment. The solution is executable and adheres to basic master planning principles and the Army's master planning and programming processes. It allows the maintenance of the ongoing missions of all affected activities with minimal disruptions and optimizes cost-effectiveness.



BACKGROUND

Annually, over 51,300 students attend the following schools that comprise the CSS COE: Joint Center of Excellence for Culinary Training, USAF Transportation Management School, US Army Transportation School, Non-Commissioned Officers (NCO) Academy/Logistics University, US Army Ordnance Mechanical Maintenance School, and the US Army Ordnance Munitions and Electronics Maintenance School.

As part of BRAC 2005, the above listed schools are relocating to Fort Lee to become part of the Combat Service Support Center of Excellence (CSS COE). Fort Lee does not have adequate facilities to support this new mission. There are no facilities at Fort Lee that could be converted nor are there facilities in the local area or other military communities that could satisfy the requirement.

The advancement in training platforms requires instructional facilities with modern electrical and communication infrastructure to support the enhanced, telecommunications based platforms used to train soldiers.

The major deficiencies created by the relocation of the CSS COE to Fort Lee include instructional space, applied instruction classrooms, a simulation center, auditoriums, instructor offices, libraries, conference rooms, storage, administrative space, dining rooms, permanent party enlisted barracks, AIT student barracks, and vehicle maintenance facilities. According to RPLANS, Fort Lee currently has a FY05 deficit of 1,014 AIT housing spaces, a 16,000 SF deficit in general instructional space, and a 92,682 SF deficit in administrative space without the addition of the CSS COE.

Fort Lee had an existing plan for how the various components of the CSS COE could be sited on the installation. This plan, developed for BRAC, showed that Fort Lee could accommodate the incoming requirements on readily available land. This plan served as a basis for the charrette planning team. This plan is provided in Appendix A. The charrette planning team was given the following instructions which were not included in the initial BRAC site plan: include the discretionary moves and create a more consolidated plan.

PLANNING CHARRETTE PROCESS

As part of the Army process of preparing a DD 1391 for Major Construction Army (MCA) projects, a Planning Charrette is required. The planning team began organizing a series of interviews and meetings during the weeks prior to the Planning Charrette. During this time, the planning team visited all of the installations/schools that comprise the CSS COE. These site visits provided the team an opportunity to tour the existing school facilities and generate draft facility requirements to be refined during the charrette. Additionally, the pre-charrette data gathering performed at Fort Lee helped the team understand the nature of the installation, building land availability. The planning charrette was held 7-10 November 2005. A summary of the schedule is shown to the right.

This first day of the charrette provided an opportunity for CASCOM/ TRADOC and Fort Lee to convey their vision for the CSS COE development. And for the planning team to layout the schedule for the charrette, present the draft requirements analysis and discuss expectations and concerns of the charrette participants. Presentations used during the meeting are provided in Appendix B.

On day two of the charrette, the group broke into two groups: Facility Planning and Site Planning. Each group examined the growth impacts that are anticipated to Fort Lee.

Facility Planning: During the morning of day two, this group examined facility requirements and developed bubble diagrams illustrating functional relationships. The primary concept of the functional relationships diagram is that areas student use to train, eat and sleep in must be located together. The functional diagram developed during the charrette is shown on the following page. In the afternoon, individual schools were scheduled to do a thorough review and fine turn their facility requirements.

Site Issues: This group developed a list of guiding principles (shown on the following page) and a preliminary site analysis by reviewing base mapping including: wetlands, archeological sites, contaminated areas, and unconsolidated land fill areas. The afternoon of day two consisted of presentations/discussions about infrastructure and environmental issues including: Fort Lee Master Plan, Low Impact Development (LID), Emergency/ATFP/Fire, IT/Communications, Utilities, and Transportation.

Charrette Schedule

Monday, November 7

Kick-Off Meeting (all hands attend)
- Introductions – all hands
- CASCOM/TRADOC Vision
- Fort Lee Vision

Schedule and Scope

Presentation of Requirements

Tuesday, November 8

Development of Functional Relationships

Discussion of Site Issues

Wednesday, November 9

Development of "Unconstrained Site Plan"
This is a model of how the school should be arranged if it were built on a site without constraints.

Site Adapted Plan
This is a model of the school layout considering constraints to development and existing assets available.

Thursday, November 10

Draft DD1391
This will be developing throughout the week parallel to the other efforts.

Presentation of Charrette Findings

Summary/Next Steps

Friday, November 18

Command Presentation

Functional Diagram

Guiding Principles for Development

- Effective soldier training
- Efficient soldier training
- Consolidate/Co-locate where possible
- Plan for future expansion
- Construction feasibility
- Sustainable development
- Architectural compatibility
- Security
- Affordable development
- Support recruitment/retention (QOL)

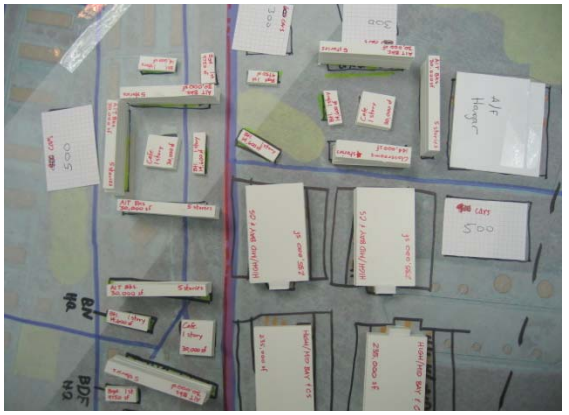
Unconstrained Site Plan: Day three began with the development of unconstrained site plans. The group broke into smaller working teams. Each team worked around a table with a base map and foam blocks that represented the facility requirements that needed to be included in the site plan. This first site planning exercise examined facility placement that was not restricted by site constraints. This process sets up an ideal site plan that the following exercises will use as metric. Without site constraints, each group was able to generate plans that represented the ideal functional relationships. Each team presented their plans to the group. Other objectives observed in developing the plan included:

- 10 minute walking distance
- 3 mile running route
- Recreational pedestrian oriented "green zone"
- Locate POV parking away form barracks
- Examine options of re-routing Route 36

Constrained Site Plan: On the afternoon of day three, the group remained in their smaller working teams and developed constrained site plans. These plans placed structures with respect to constraints (such as: existing structures and environmental constraints). This process refined the site plans into more feasible developments, while trying to keep as much of the ideal unconstrained plan intact. Each team presented their plans to the group.

The consultant team took all of the plans developed during this day and created three refined development options presented on the following day (the last day of the charrette). The three options plans ranged from easy to implement and minimally meets the guiding principles to hard to implement and fully meeting all the guiding principles. This presentation is included in Appendix C. During the discussion following this presentation, Fort Lee offered another option using an additional piece of the base property north of their existing range. This created a fourth option that was included in the final outbrief to the Commander on 18 November 2005. This presentation is provided in Appendix D. These four final options were:

- COA 1 – Emphasizes use of buildable land within the existing cantonment area
- COA 2 – Emphasizes use of undeveloped land north of 36
- COA 3 – Emphasizes consolidation with existing Quartermaster School while minimizing displacement of existing facilities
- COA 4 – Emphasizes maximum consolidation



REQUIREMENTS ANALYSIS

The final Requirements Analysis (RA) identified the spatial needs for the Combat Service Support Center of Excellence (CSS COE) created by the BRAC directed consolidation of CASCOM, ALMC, the Quartermaster Center and School and the NCO Academy already located at Fort Lee plus the Ordnance Mechanical Maintenance School (OMMS) from Aberdeen Proving Ground, MD, the Ordnance Munitions and Electronic Maintenance School (OMEMS) from Redstone Arsenal, AL, elements of the Transportation School and Center from Fort Eustis, VA, and the Air Force Transportation Management School from Lackland AFB, TX. The requirements for the discretionary relocation of the Ordnance Electronic Maintenance Training Department from Fort Gordon and the 63B MOS AIT from Fort Jackson, SC are included in the overall requirements analysis. The requirements for the consolidation of the Air Force and Navy into the Culinary Arts Center of Excellence were not included in this analysis. The table below lists the requirements used to generate the development options during the charrette. The details of the requirements analysis are included in Appendix E.

SCHOOL	ORG	INST	ST SPT	TOTAL
EUSTIS	124,154	132,337	68,880	325,371
APG	205,625	1,167,494	460,980	1,834,099
JACKSON	71,153	454,229	368,790	894,172
REDSTONE	79,507	490,472	158,256	728,235
GORDON	30,325	205,474	151,536	387,335
INSTALLATION	0	0	869,132	869,132
SUBTOTAL	510,764	2,450,006	2,077,574	5,038,344
FORT LEE	375,361	1,059,588	1,560,345	2,995,294
TOTAL	886,125	3,509,594	3,637,919	8,033,638

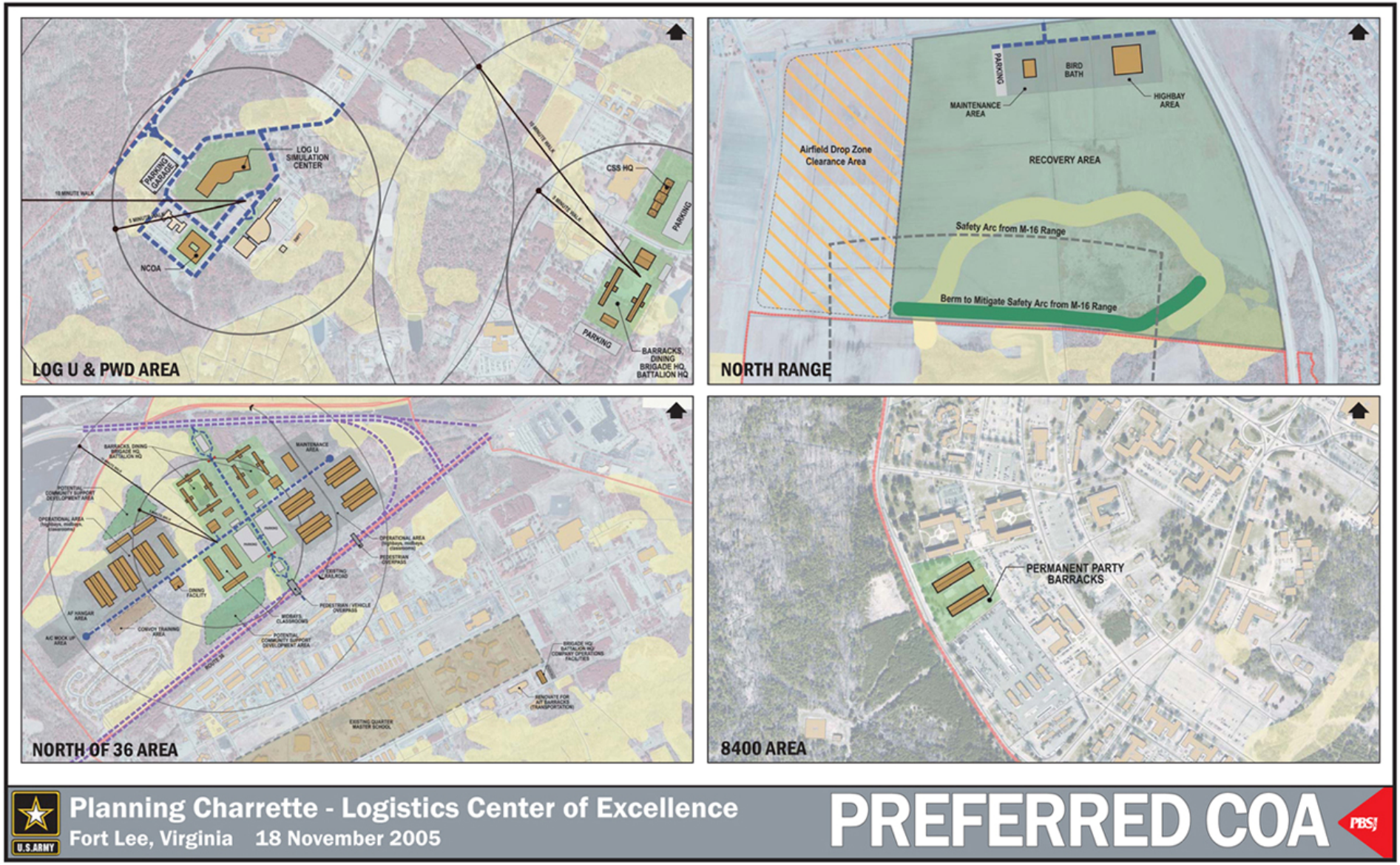
CHARRETTE APPROVED PLAN

On 18 November 2005, the consultant team presented four options, to the Fort Lee Commander. This presentation is provided in Appendix D. These four final options were:

- COA 1 – Emphasizes use of buildable land within the existing cantonment area
- COA 2 – Emphasizes use of undeveloped land north of 36
- COA 3 – Emphasizes consolidation with existing Quartermaster School while minimizing displacement of existing facilities
- COA 4 – Emphasizes maximum consolidation

After seeing the presentation, the Commander requested that the planning team try to develop an option that places all of the barracks onto main post of Fort Lee, without displacing or demolishing any existing structures. Following the briefing, the planning team worked on this concept and presented options several hours later. The Commander then analyzed all of the options again and selected COA 2 with some requested modifications. An official memo listing the modifications is included in Appendix F.

The final plan including the Commander's modifications is shown on the following pages. The Department of Defense (DD) Form 1391 and a Description of Proposed Action and Alternatives (DOPAA) for this option are included as Appendix G and H, respectively.


LOG U & PWD AREA
LOG U SIMULATION CENTER
PARKING GARAGE
NCOA
CSS HQ
PARKING
BARRACKS, DINING BRIGADE HQ, BATTALION HQ
NORTH RANGE
PARKING
BIRD BATH
MAINTENANCE AREA
HIGHBAY AREA
Airfield Drop Zone Clearance Area
RECOVERY AREA
Safety Arc from M-16 Range
Berm to Mitigate Safety Arc from M-16 Range
NORTH OF 36 AREA
8400 AREA
PERMANENT PARTY BARRACKS
U.S.ARMY
Planning Charrette - Logistics Center of Excellence
Fort Lee, Virginia 18 November 2005
PREFERRED COA
PBSJ

Appendix H. PAX System Modules

Description

The primary automated system supporting MILCON programming is the Programming, Administration and Execution System (PAX). PAX provides the U.S. Army with an Information Technology (IT) web-based, browser-accessible portal environment with automated tools to allow engineers throughout the world to develop, estimate, justify, submit, review, approve and track the Army's annual construction program budget submissions. PAX supports the DD Form 1391 Processor, the Construction Appropriations Programming, Control and Execution System (CAPCES), the Economic Analysis Program (ECONPACK), the PC-COST program, the DIRECTIVE Network (DIRNET) system, the Congressional View System, and the Accounting Control System (ACS). These applications allow engineers to track construction projects for the Army. This tracking capability includes design, construction, and fiscal information from project submission through construction completion and fiscal closeout.

The PAX system is available via the Internet at https://pax.mech.disa.mil.

Purpose

PAX supports the Army, HQDA, OACSIM, USACE, other DoD agencies, and installations during the planning, programming, budgeting, and execution of MILCON programs in support of U.S. Army missions and the U.S. Army Corps of Engineers mission.

PAX IT applications are stand-alone systems, however, they exchange data across applications. PAX also supports HQDA with automated MILCON information for critical Army systems, directly and indirectly following data interface agreements.

PAX System Applications

The PAX system has a series of systems that support activities associated with the management of the PAX system itself. PAX consists of many automated applications. These are stand-alone systems but are integrated for the final goal of supporting the Army's construction needs. These applications stand alone but are interrelated toward the final goal of project development and programming. Each application is individually managed by its proponent.

1. **PAX Management.** PAX system management applications are the means by which the PAX managers can provide controls necessary for the PAX platform to be managed.

a. **ACS.** The Accounting and Control System (ACS) controls user access to applications and generates bills for the non-Army users. The ACS provides security and protection of files. It provides the PAX managers with a variety of control options to protect the system during periods of both peace and conflict. It also provides the detailed information necessary to generate the user's bills.

b. **Utilities.** The Utilities option is accessible from the PAX menu screen. Within Utilities, users may change their PAX password or Project Code, edit their user profile, or view various newsletters.

2. **DD Form 1391 PROCESSOR.** The DD Form 1391 Processor System assists HQDA, Regions, MACOMs, MSCs, and installations in the development, submittal, review, editing, prioritizing, and approval of DD Forms 1391 (Military Construction Project Data). Projects are developed at Army installations, prioritized and submitted electronically in the processor to the appropriate Region. Projects are reviewed, edited, prioritized, and resubmitted electronically to arrive at the Process Manager level. USACE elements participate in the development/ review process and use the DD Form 1391 documents with the design directive for definition of projects to be designed. DD Forms 1391 are the principal statutory instruments for the authorization and appropriation of Military Construction.

The President's budget to Congress for Military Construction is composed of these documents consolidated in the Army's Military Construction (MILCON) budget book or "Green Book." Once enacted into public law, they are the governing documents for construction control. All phases of the DD Form 1391 development process utilize computer-aided assistance.

The DD Form 1391 Processor is available via the internet at https://pax.mech.disa.mil.

a. **PC-COST.** PC-Cost is a software package that provides tools for installations and USACE cost engineers to prepare and submit budget estimates for construction projects. PC-Cost allows estimators to create an estimate from an existing cost estimate, download a DD Form 1391 or ENG Form 3086 estimate for modification, or create a new estimate from a template. Once work is completed, the estimator may upload the estimate into either an ENG3086 form (for Districts) or a DD 1391 (for the installations) in the DD Form 1391 Processor System. PC-Cost may be used by USACE cost engineers to develop parametric estimates (for inclusion in

the ENG 3086 form) by importing estimates from the Micro Computer Aided Cost Engineering System (MCACES), a module of the Tri-Service Automated Cost Engineering System (TRACES).

b. **ISCE.** The Information Systems Cost Estimator (ISCE) is a personal computer package created to assist users in developing the Information Systems Cost Estimates associated with all Military Construction projects. ISCE includes the capability to upload/ download files between PCs and the DD Form 1391 Processor System. This interface capability enables users to develop Information Systems Cost Estimates using the ISCE package, and upload the data to a specific DD 1391 in the DD Form 1391 Processor. It provides a detailed automated cost generating and pricing system, including standard information systems requirements for many common types of buildings as well as manual entry and edit capabilities.

c. **ECONPACK.** The Economic Analysis Package (ECONPACK) is a comprehensive program incorporating economic analysis calculations, documentation, and reporting capabilities. ECONPACK is structured so that it can be used by non-economists to prepare complete, properly documented economic analyses in support of DOD funding requests. Economic analyses generated via ECONPACK may be uploaded into Tab D of the DD 1391 to support MILCON projects.

d. **DD Form 1390 Module.** One of the features of the DD Form 1391 Processor System is the automated assistance in preparation, review, and printing of DD Forms 1390 in accordance with AR 415-15, Army Military Construction Program Development and Execution. The DD Form 1390 is used by the Department of Defense to submit to Congress a consolidation of the Military Construction Program in relation to personnel strengths, real property, real property improvements, and the installation mission and functions. Preparation and/or modification of DD 1390s is made with minimal effort since much of the supporting data is automatically extracted from other automated systems. The DD 1390 Module extracts information from the DD Form 1391 Processor System, the Construction Appropriations Programming Control and Execution System (CAPCES), and the Army Stationing and Installations Plan (ASIP). The DD Forms 1390 are then incorporated into the Budget Book submissions to OSD and Congress.

e. **Budget Book Program.** The Budget Book process is a unique program using information from the DD Form 1391 Processor, CAPCES, ASIP, and Real Property Inventory. It is used to print budget books for Region's reviews, OSD, and Congressional budget submissions for MCA, AFH, BRAC, DMFO, DFAS, and NAF programs. The system computes, formats, indexes, and numbers pages for budget submissions to the Congress and OSD for military construction programs annually, as well as budget books for HQDA and Regions for several preliminary reviews. The system follows Congressional requirements regarding format and content for the President's budget submission, incorporating various changes each year to accommodate revisions required by Congress in annual committee reports and legislation.

CAPCES

The Construction Appropriations Programming Control and Execution System (CAPCES) provides the Army with an integrated suite of web based, browser accessed tools and databases to formulate, develop, report, modify, maintain, archive, and store military construction (MILCON) project information in support of budget activities. CAPCES emphasis is on project planning, programming, and budget execution, in order to develop and produce specific MILCON President's Budget Books (Justification DATA to the U.S. Congress), and to successfully defend those budgets for Congressional authorization and appropriation.

CAPCES is the only automated source of project information for various construction programs during the planning, programming and budgeting phases of the PPBES process. CAPCES is an original source of program, planning and budget MILCON data on the MCA, AFH and MMCA programs; and partial program and planning data for BCA, NAF, BUP, PIK, ECIP (Army), DBOF (Army) and DERF (Army) programs. CAPCES also uses other existing sources for data, most notably, 1391 data from the DD Form 1391 Processor System and Directive data from the DIRNET module. CAPCES provides data feeds to several systems including the Army PROBE system, ACSIM's EIS/GIS, and RPLANS systems, and the USACE DIRNET system. CAPCES allows users to manage and track MILCON programs at work progress, project level detail, from project inception through the full life cycle of each project. CAPCES, through the PAX portal, provides a web browser interface via NIPRNET and the internet.

CAPCES also provides program managers with easy to use, commercial-off-the-shelf (COTS) web based self-service and ad-hoc reporting tools, in an open environment, for real-time, accurate program/project information in support of individual's functional tasks. CAPCES emphasis is on project planning, programming and budget execution, in order to develop and

produce specific MILCON budget displays during the PRB, POM, BES and President's Budget, as well as continual tracking and management of budget programs in order to successfully defend those budgets for Congressional authorization and appropriation.

DIRNET

The Directive Network System (DIRNET) provides the Corps of Engineers with an integrated suite of web based, browser accessed tools to create, process, route, disseminate, report, maintain and store design and construction project work directives. DIRNET is an original source of design and construction work directive data for the MCA, AFH, BCA, NAF, BUP, PIK, ECIP (Army), DBOF (Army) and DERF (Army), Tri-Care Medical (DoDMed), and "Support for Others" programs. As a major module of CAPCES, DIRNET has a direct data interface with CAPCES.

DIRNET has two classifications of users, Sender and Receiver. DIRNET provides numerous supportive processes for Senders, such as copy, edit, view, review, release, history, and individualized standard paragraphs.

Congressional View

The Congressional View System (CV) provides Congressional staffers, and HQDA analysts and managers with web-based, browser accessible copies of DD Forms 1391 generated during the Congressional Add process for the MCA, AFH, MCARNG, MCAR programs, as well as the President's Budget Green Books for MCA and AFH. CV uses a secure server on the PAX portal environment, with User ID and password control. CV is a repository of the DD 1391 PDF files for easy and quick access to Congressional Add and President's Budget DD 1391.

Getting Started

To get started on the PAX System, obtain a PAX System ID. To establish an account and arrange to have access to the application(s) on PAX, contact the Programs Branch at USACE at (202) 761-8908 or DSN 763-8908. When requesting a PAX System User ID/Password, please be sure to specify the desired PAX application(s) (e.g.,Form 1391 Processor, CAPCES, etc.).

Appendix I. DD Form 1391

1. COMPONENT	FY 2002 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
ARMY		18 JUL 2001 22 OCT 1998

3. INSTALLATION AND LOCATION	4. PROJECT TITLE
Fort Jackson South Carolina	BCT COMPLEX I

5. PROGRAM ELEMENT	6. CATEGORY CODE	7. PROJECT NUMBER	8. PROJECT COST ($000)
	721 81	51935	62,000

9. COST ESTIMATES

ITEM	U/M	QUANTITY	UNIT COST	COST ($000)
PRIMARY FACILITY				45,143
Barracks/Company Ops	SF	310,000	98.30	(30,473)
BN HQS/Classrooms	SF	22,725	112.50	(2,557)
Dining Facility	SF	35,735	181.20	(6,475)
Run Track/PT/Trng	EA	1	101,566	(102)
EMCS Connections	LS	--	--	(862)
Total from Continuation page(s)				(4,674)
SUPPORTING FACILITIES				8,635
Electric Service	LS	--	--	(1,250)
Water, Sewer, Gas	LS	--	--	(1,686)
Steam And/Or Chilled Water Distribution	LS	--	--	(1,339)
Paving, Walks, Curbs And Gutters	LS	--	--	(1,244)
Storm Drainage	LS	--	--	(435)
Site Imp(2,141) Demo()	LS	--	--	(2,141)
Information Systems	LS	--	--	(249)
Antiterrorism Measures	LS	--	--	(291)
ESTIMATED CONTRACT COST				53,778
CONTINGENCY PERCENT (5.00%)				2,689
SUBTOTAL				56,467
SUPERVISION, INSPECTION & OVERHEAD (5.70%)				3,219
DESIGN/BUILD - DESIGN COST (4.0006%)				2,259
TOTAL REQUEST				61,945
TOTAL REQUEST (ROUNDED)				62,000
INSTALLED EQT-OTHER APPROPRIATIONS				(433)

10. Description of Proposed Construction

Construct a standard-design battalion-size, Basic Combat Trainee (BCT) complex for 1,200 soldiers-in-training consisting of open-bay billeting space, five company headquarters, classroom space, a battalion headquarters, and a BCT standard dining facility. Also construct a new Central Energy Plant. The Anti-Terrorism/Force Protection (AT/FP) measures include exterior security lighting, heavy landscaping, bollards, laminated glass windows, structural enhancements, and standard setback distances from parking areas, roads, and facilities. Access for handicapped will be provided. Comprehensive interior furnishings and equipment design services are requested for administration and operations areas. Supporting facilities include utilities; electric service; street lighting; fire protection and alarm systems; sanitary and storm sewer systems; heating, ventilation and air conditioning (HVAC) distribution lines; access roads and parking; paving, walks, curbs and gutters; fencing; loading docks; signage; a running track/outdoor instruction/physical training area; troop assembly and staging areas; information systems; and site improvements. Heating and air conditioning (750 tons) will be provided by connection to new Central Energy Plant.

1. COMPONENT	FY 2002 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
ARMY		18 JUL 2001 22 OCT 1998

3. INSTALLATION AND LOCATION

Fort Jackson
South Carolina

4. PROJECT TITLE	5. PROJECT NUMBER
BCT COMPLEX I	51935

9. COST ESTIMATES (CONTINUED)

Item	U/M	Qty	Unit Cost	Cost ($000)
PRIMARY FACILITY (CONTINUED)				4,674
Antiterrorism Force Protection	LS	--	--	(982)
IDS Install	LS	--	--	(14)
Central Energy Plant	SF	15,995	155.28	(2,484)
Building Information Systems	LS	--	--	(1,194)

11. REQ: 12,830 PN ADQT: 7,200 PN SUBSTD: 5,630 PN

PROJECT:

Construct a battalion-size, BCT barracks complex for 1,200 trainees, a standard BCT dining facility sized to support 800-1300 soldiers, and a Central Energy Plant. (Current Mission)

REQUIREMENT:

This project is required to provide a Basic Combat Training (BCT) barracks to support 1,200 trainees and a cadre of 130 personnel. The provision of BCT is the primary mission of Fort Jackson. This project is required to provide the permanent, modern facilities to support the projected growth in training loads and is designed to provide administrative and cadre support, dining facilities, billeting, and training areas for the 21st century BCT battalion.

CURRENT SITUATION:

There is a severe shortage of adequate BCT facilities at Fort Jackson. Male and female soldiers are currently housed in crowded, deteriorating, 1960s era, one-company, rolling-pin style barracks which were not constructed to current space standards or to be able to accommodate Gender Integrated Training. These facilities are considered as only marginally satisfactory and are an expensive and continuing problem to maintenance and repair. They also do not meet current construction and energy conservation standards. BCT is presently being conducted in separate billeting, dining, instructional, operations, training, and supply facilities. The excess distances between these buildings causes numerous control problems for supporting cadre personnel. These one-company barracks are filled to maximum capacity with extra strains felt during peak summer surge periods. Barracks designed for a capacity of 220 personnel are regularly filled with up to 300 trainees. Inefficient and substandard heating, ventilation, and air conditioning (HVAC) systems in these facilities causes increased incidences of upper respiratory infections for personnel. These barracks' lack of adequate air-conditioning causes many sleepless nights for trainees and supporting cadre during the summer months due to the extreme heat and humidity. Latrine usage must be divided between male and female soldiers

CURRENT SITUATION: (CONTINUED)
causing long lines to toilets, sinks, showers, and changing rooms. These deficient facilities force trainers to schedule additional personal hygiene periods between physical training activities which ultimately leads to a reduction in valuable training time. Areas for clothes washing and laundry disposition are also woefully inadequate. The accelerated training loads have forced Fort Jackson to utilize trailers to accommodate the annual summer surge.

IMPACT IF NOT PROVIDED:
If this project is not provided, this will result in a severe shortage of adequate BCT troop housing at Fort Jackson. The Army has also recently increased the course length for BCT by one week for a total of nine weeks of training time. This has intensified the acute pressure already placed on overcrowded facilities. Basic trainees will be forced to continue utilizing substandard, obsolete, and decaying facilities dispersed throughout a large area poorly suited for basic training. Failure to provide this project will also result in higher attrition rates and a general loss in efficiency, effectiveness, functional and operational ability, morale, quality of training, and quality of life for soldiers.

ADDITIONAL:
This project has been coordinated with the installation physical security plan, and all physical security measures are included. All required anti-terrorism/force protection measures are included. An economic analysis has been prepared and utilized in evaluating this project. This project is the most cost effective method to satisfy the requirement. Sustainable principles will be integrated into the design, development, and construction of the project in accordance with Executive Order 13123 and other applicable laws and Executive Orders. A parametric cost estimate was used to develop this budget estimate. JOINT USE CERTIFICATION: The Deputy Assistant Secretary of the Army (Installations and Housing) certifies that this project has been considered for joint use potential. Mission requirements, operational considerations, and location are incompatible with use by other components. Upon completion of this multi-phased project, the remaining Basic Combat Training housing deficit is 4,430 personnel at this installation. A parametric cost estimate based upon project engineering design was used to develop this budget estimate.

1. COMPONENT	FY 2002 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
ARMY		18 JUL 2001 22 OCT 1998

3. INSTALLATION AND LOCATION

Fort Jackson
South Carolina

4. PROJECT TITLE	5. PROJECT NUMBER
BCT COMPLEX I	51935

/S/ RAYMOND D. BARRETT, JR.
Major General, USA
Commanding

ESTIMATED CONSTRUCTION START:	APR 2002	INDEX: 2148
ESTIMATED MIDPOINT OF CONSTRUCTION:	DEC 2002	INDEX: 2177
ESTIMATED CONSTRUCTION COMPLETION:	SEP 2003	INDEX: 2205

DATE 22 OCT 1998 FY 2002 PROGRAM
PROJECT NUMBER: 51935
PROJECT TITLE: BCT COMPLEX I
INSTALLATION: Fort Jackson
LOCATION: South Carolina

PLANNING AND DESIGN DATA (ESTIMATE)

1. STATUS
   A. DESIGN START DATE..... JAN 2001
   B. PERCENT COMPLETE AS OF 15 SEP 2000 (DSGN YR) 0.00
   C. PERCENT COMPLETE AS OF 01 JAN 2001 (BDGT YR) 0.00
   D. PERCENT COMPLETE AS OF 01 OCT 2001 (PROG YR) 15.00
   E. CONCEPT COMPLETE DATE..... SEP 2002
   F. DESIGN COMPLETE DATE..... DEC 2002
   G. TYPE OF DESIGN CONTRACT: Design-build

2. BASIS
   A. STANDARD OR DEFINITIVE DESIGN (YES/NO) Y
   B. WHERE DESIGN WAS MOST RECENTLY USED:
      Fort Leonard Wood
   C. PERCENTAGE OF DESIGN UTILIZING STANDARD DESIGN 0.00

3. COST (TOTAL $000)
   A. PRODUCTION OF PLANS AND SPECS..... 572
   B. ALL OTHER DESIGN COST..... 364
   C. TOTAL DESIGN COST (C) = (A)+(B) OR (D)+(E).. 936
   D. CONTRACT..... 598
   E. IN HOUSE..... 338

4. CONSTRUCTION CONTRACT AWARD..... JUL 2002

5. CONSTRUCTION START DATE (PLANNED)..... DEC 2002

6. CONSTRUCTION COMPLETION DATE..... DEC 2004

USACE CERTIFICATION:

The US Army Corps of Engineers has reviewed the signed DD1391 and certifies that it is in compliance with Army standards, criteria, and cost estimating requirements. The following issues should be resolved before budget submission to prevent project delay or loss: This project includes the construction of a new Central Energy Plant (CEP #4). Project Number 31354 includes the scope and cost for the same CEP #4. CEP #4 should be programmed into only one of the two projects. Eliminate scope and cost of CEP #4 from this project if PN 31354 is programmed prior to PN 51935.

DATE 22 OCT 1998 FY 2002 PROGRAM
PROJECT NUMBER: 51935
PROJECT TITLE: BCT COMPLEX I
INSTALLATION: Fort Jackson
LOCATION: South Carolina

PLANNING AND DESIGN DATA (ESTIMATE)

USACE CERTIFICATION: (Contd..)

Certified by: MG PHILLIP R. ANDERSON

South Atlantic Division
12 Mar 2001

This certification based on FY 2004.

ENERGY/LIFE CYCLE STATEMENT

An energy study and life cycle cost analysis will be documented during the final design.

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LOCATION: South Carolina

QUANTITATIVE DATA

TYPE OF DESIGN: This facility does not include unusual construction features that require extra design effort.

DRAWING NUMBER: DEF 721-81-01

UNIT OF MEASURE: PN

A.	TOTAL REQUIREMENT	12,830	
B.	EXISTING SUBSTANDARD	5,630	
C.	EXISTING ADEQUATE	7,200	
D.	FUNDED, NOT INVENTORY	0	
E.	ADEQUATE ASSETS	7,200	
////////////////////////////////////		AUTHORIZED	FUNDED
F.	UNFUNDED PRIOR AUTHORIZATION	0	////////////////////
G.	INCLUDED IN FY PROGRAM	0	
H.	DEFICIENCY (A-E-F-G)	5,630	5,630

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LOCATION: South Carolina

GENERAL JUSTIFICATION DATA

GENERAL

The new BCT complex is sited on a 15-acre tract bordered by Hampton Parkway, Dixie Road, Jenkins Road, and Field Street directly adjacent to two existing, battalion-size BCT complexes. The new CEP #4 is sited on a 5-acre tract located near the intersections of Kemper Street and Kershaw Road. This project's site is directly adjacent to six existing, battalion-size, Basic Combat Training (BCT) complexes and is situated within a "Training" land-use zone as defined and established on the Fort Jackson Real Property Master Plan.

The Army requirement for trainees (BCT only) in FY 03 is 98,615 in FY 02 it will be 98,880 and in FY 01 it will be 95,648. This requires TRADOC to operate 107 companies on a full time basis with surge capability for 119 companies. The current TRADOC capacity is 98 companies in permanent barracks which will increase to 102 companies in FY 01 leaving a shortfall of 5 barracks to house the Army's requirement for 107 companies. There are no additional barracks within TRADOC to accommodate this increase in capacity and also continue training OSUT and AIT at the required levels. Additionally, it is the intent of the Chief of Staff of the Army (CSA) and the CG at TRADOC to offer Gender Integrated Training (GIT) at only Fort Jackson and Fort Leonard Wood. Presently, GIT is accomplished at 3 TRADOC installations; Fort Jackson, SC; Fort Leonard Wood, MO; and 15 companies at Fort Sill, OK. The additional structure needed to bring TRADOC's capacity up to 107 companies and bring GIT under just two sites can only be achieved by new construction. This project supports that initiative. The ODCSSOPS supports construction to increase the capacity to provide adequate facilities to house the Army's training requirement to include summer surge. Fort Jackson presently trains 40 GIT companies. Thirty of these companies are in existing "Starship" barracks and ten companies are in 1960's vintage "Rolling Pin" barracks. Additionally, in 2001, Fort Jackson will need to increase its requirement to 49 companies for BCT. There is no capacity to accept the Army's additional GIT requirement. Constructing for an increased capability provides for both the requirements for the Army to train 107 companies and the capacity to train in a GIT environment at two separate sites. The construction of barracks at Fort Jackson also provides the capacity for surge requirements in adequate facilities and also allows the Army to begin to phase BCT out of inadequate trainee barracks. The provision of Basic Combat Training (BCT) is the primary mission of Fort Jackson. This project is required to provide a permanent, standard, basic trainee barracks complex in support of increased Basic Combat Training (BCT) loads resulting from recent Congressional and Department of Defense realignment actions. This project will also fulfill the requirement to support Gender Integrated Training at Fort Jackson. Other battalion-size, basic trainee barracks complexes are presently located adjacent to the

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GENERAL JUSTIFICATION DATA (CONTD).

GENERAL (CONTD)..

proposed project site. This project will provide areas for billeting, dining, training, and administrative support. Consolidation of an entire BCT battalion into a permanent complex of facilities has great merit as considerable training will be saved. The enhanced living conditions in these contemporary barracks are also strong selling points at recruiting and reenlistment times. The soldiers deserve excellent facilities and a high quality of living and working environment in order to accomplish their missions.

TRAFFIC ANALYSIS (TEXT)

The present road system is adequate to accommodate any changes in traffic patterns projected to occur due to this project with no modifications being necessary.

ANALYSIS OF DEFICIENCIES

The new requirement for Gender Integrated Training (GIT) along with an increase in basic training loads will result in a shortfall of permanent, basic Basic Combat Training (BCT) billeting spaces at Fort Jackson. This project is required to fill this deficit. The existing "rolling-pin" style barracks currently being utilized for basic initial entry combat training were constructed over 35 years ago. These buildings are not adequate for meeting current space allocation requirements for trainees and supporting cadre and they were not designed for Gender Integrated Training. These facilities are failing both structurally and mechanically and are not economically feasible to repair. These problems and their subsequent impacts on training will worsen with the projected increases to training loads forecast. If this project is not provided, basic trainees will continue to be forced to utilize obsolete, decaying, and substandard structures widely dispersed throughout a large area poorly suited for basic training. Construction of a battalion-size barracks complex will provide enhanced company structure allowing for a more even distribution of male and female soldiers while easing overcrowding problems in the present barracks. Failure to provide this project will result in losses in efficiency & effectiveness, increased maintenance costs, losses in functional and operational abilities, deterioration of morale, detriments in personnel recruitment & retention goals, and a general degeneration of the quality-of-life for soldiers.

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GENERAL JUSTIFICATION DATA (CONTD).

CRITERIA FOR PROPOSED CONSTRUCTION (CONTD)..

This project will be designed and constructed in accordance with applicable specifications, guidance, and criteria referenced in the latest publication of the following documents:

A. 1999 edition Tulsa District Corps of Engineers, Standard Design for "Trainee Barracks Complex"

B. Definitive Design Drawing #DEF 721-81-01, "Trainee Barracks" will be utilized throughout the design of this project.

C. Fort Jackson Installation Design Guide (IDG).

D. All other applicable Department of Defense, Department of the Army, Corps of Engineer, TRADOC, Fort Jackson, and State of South Carolina construction guidelines, regulations, publications, and criteria.

E. U.S. Army TM 5-803-5, "Parking Space Allocations"

F. ER 1110-345-122, "Interior Design."

G. Federal Standard 795, "Uniform Federal Accessibility Standards

H. NFPA 70, "National Electrical Code"

I. AR 525-13, "Anti-terrorism Force Protection: Security of Personnel, Information, and Critical Resources"

J. DoD "Interim AT/FP Construction Standards"

K. DoD Manual 4270.1-M, "Construction Criteria"

L. DA TM 5-853-1, Security Engineering Project Development”

M. USACE TI 800-01, "Design Criteria"

N. USACE TM 5-853, (Volumes 1-4), "Security Engineering"

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INSTALLATION: Fort Jackson
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GENERAL JUSTIFICATION DATA (CONTD).

CRITERIA FOR PROPOSED CONSTRUCTION (CONTD)..

VEHICLE PARKING

Organizational Vehicle Spaces ---------->	22
POV Parking Spaces ---------->	140
NOTE: 9 of these spaces will be allocated for handicapped access.	
TOTAL PARKING SPACES >>>>>>>>>>>>>>>>>>>>	162

TOTAL PARKING SPACES x 42 SY = TOTAL SY --> 6,804
Communication will be established and maintained between the U.S. Army Corps of Engineers, the Fort Jackson Directorate of Logistics & Engineering, the Architect & Engineer (AE), and the project proponent throughout the entire design, implementation, and construction process. The facilities and infrastructure to be constructed as a result of this project will result in complete, sound, and usable facility meeting all functional requirements.

RELATED PROJECTS

See stand-alone DD Form 1391 Number 55099 "CEP 4" for more details on cost and project description for the new Central Energy Plant (CEP) #4 that will be constructed as part of this project.

Installation Engineer: Franklin D. Cooper Jr.
Phone Number: 803-751-5641

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MACOM CERTIFICATION

"All planning and coordination with appropriate agencies has been accomplished and project documentation is available. The project is valid, requirements and scope are in accordance with HQDA guidance and siting is in accordance with the MACOM approved Installation Real Property Master Plan. No major problems exist that should defer the project from programming. The project documentation has been reviewed by USACE and found adequate to begin design."

CERTIFIED BY: COL ROBERT H. REARDON, JR
HQ TRADOC, Engineer
HQ TRADOC
12 Mar 2001

This certification based on FY 2004.

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ECONOMIC ANALYSIS DATA

ECONOMIC JUSTIFICATION SUMMARY

PROJECT OBJECTIVE : Provide 368,460 SF of billeting, dining, administration, & training facilities for intitial-entry BCT soldiers at Fort Jackson, S.C

ALTERNATIVES CONSIDERED FOR THIS ANALYSIS:

The following alternatives were considered for this Economic Analysis:

> ALTERNATIVE 2 <
RENOVATE EXISTING AND CONSTRUCT NEW FACILITIES

Renovate 275,319 SF of existing rolling-pin barracks to use for trainee billeting, mess halls, battalion headquarters, and company operations facilities and construct 93,141 SF of new facilities to meet the shortfall.

> ALTERNATIVE 1 <
NEW CONSTRUCTION

Construct a new, standard-design, 368,460 SF Basic Combat Training (BCT) complex that will accomodate 1,200 basic trainees. Complex consists of billeting, mess hall, administration, operations, and training facilities.

> STATUS QUO <

As this project's requirement has been brought about by an increase in the existing BCT mission, doing nothing is not a viable option as existing facility capacities and conditions are already inadequate.

> LEASE OFF-POST <

This is not considered a viable option as there are currently no adequate facilities off-post that can meet existing Army construction and space criteria.

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INSTALLATION: Fort Jackson
LOCATION: South Carolina

> USE OF OTHER GOVERNMENT FACILITIES <

There are no other Government facilities within the local commuting area that can meet this mission's requirements and criteria.

ECONOMIC INDICATORS: ($ in thousands)

	ALTERNATIVE NAME	NPV
1	NEW CONSTRUCTION	$74,291
2	RENOVATION	$79,402

NON-MONETARY COSTS AND BENEFITS:

The construction of a modern, new BCT complex in an area specifically designated for this type of function and operation is the most effective and efficient use of both monetary and human resources and is in the best interest of the U.S. Army. The existing facilities being utilized are located in areas not designed for BCT training and are surrounded by non-compatible functions, facilities, and personnel. A considerable amount of valuable time is spent in superferlous troop movements from facility to facility and to distant training areas. The unsightly and deteriorated physical condition of these facilities is a major factor in lowered morale, job performance, and training capability. It also draws scarce monetary resources to maintain them in a minimal operating condition. Any renovations made to these existing facilities will not change the fact that they still over 35 years old. This makes well them more than halfway through their estimated physical life of 50 years and more than 10 years past their economic life. Comparing this to construction of new facilities which will have at least 50-60 years of life and usage remaining, the investment of valuable and dwindling public resources into the renovation of deteriorated, decrepid structures is not sensible economical, or prudent.

RESULTS AND RECOMMENDATIONS:

Based on the results of this analysis, Alternative 1 "NEW CONSTRUCTION" was determined to be the best, most effective, and cost efficient means to satisfy this Economic Analysis' Primary Objective and is hereby recommended for funding.

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PROJECT TITLE: BCT COMPLEX I
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LOCATION: South Carolina

ACTION OFFICER: Tom Peel, DSN 734-7261
ORGANIZATION : DLE, Fort Jackson SC

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INSTALLATION: Fort Jackson
LOCATION: South Carolina

ECONOMIC ANALYSIS

DATE GENERATED: 18 Jul 2001
TIME GENERATED: 13:39:13
VERSION: PAX 7.0

51935
ECONOMIC ANALYSIS

EXECUTIVE SUMMARY REPORT

PROJECT TITLE : BASIC COMBAT TRAINEE (BCT) COMPLEX I
DISCOUNT RATE : 5.30%
PERIOD OF ANALYSIS: 27 Years
START YEAR : 2002
BASE YEAR : 2003
REPORT OUTPUT : Current Dollars

PROJECT OBJECTIVE : Provide 368,460 SF of billeting, dining, administration, & training facilities for intitial-entry BCT soldiers at Fort Jackson, S.C

ALTERNATIVES CONSIDERED FOR THIS ANALYSIS:

The following alternatives were considered for this Economic Analysis:

> ALTERNATIVE 2 <
RENOVATE EXISTING AND CONSTRUCT NEW FACILITIES

Renovate 275,319 SF of existing rolling-pin barracks to use for trainee billeting, mess halls, battalion headquarters, and company operations facilities and construct 93,141 SF of new facilities to meet the shortfall.

> ALTERNATIVE 1 <
NEW CONSTRUCTION

Construct a new, standard-design, 368,460 SF Basic

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Combat Training (BCT) complex that will accomodate 1,200 basic trainees. Complex consists of billeting, mess hall, administration, operations, and training facilities.

> STATUS QUO <

As this project's requirement has been brought about by an increase in the existing BCT mission, doing nothing is not a viable option as existing facility capacities and conditions are already inadequate.

> LEASE OFF-POST <

This is not considered a viable option as there are currently no adequate facilities off-post that can meet existing Army construction and space criteria.

> USE OF OTHER GOVERNMENT FACILITIES <

There are no other Government facilities within the local commuting area that can meet this mission's requirements and criteria.

ASSUMPTIONS OF THE ANALYSIS:

All costs were discounted using a "Middle-of-Year" discounting convention. The Office of Management and Budget's (OMB) Circular A-94 was used for a 30-year "Nominal Discount Rate (Current Dollar Analysis)" with no inflation factors being applied to any of the costs as inflation is already accounted for within the discount rate. An 18-month construction period was assumed for both Alternatives with a Construction Start Date of Apr 2002, a Midpoint of Construction Date of Dec 2002, and a Construction Completion Date of Sep 2003.

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ECONOMIC INDICATORS: ($ in thousands)

ALTERNATIVE NAME	NPV
1 NEW CONSTRUCTION	$74,291
2 RENOVATION	$79,402

NON-MONETARY COSTS AND BENEFITS:

The construction of a modern, new BCT complex in an area specifically designated for this type of function and operation is the most effective and efficient use of both monetary and human resources and is in the best interest of the U.S. Army. The existing facilities being utilized are located in areas not designed for BCT training and are surrounded by non-compatible functions, facilities, and personnel. A considerable amount of valuable time is spent in superferlous troop movements from facility to facility and to distant training areas. The unsightly and deteriorated physical condition of these facilities is a major factor in lowered morale, job performance, and training capability. It also draws scarce monetary resources to maintain them in a minimal operating condition. Any renovations made to these existing facilities will not change the fact that they still over 35 years old. This makes well them more than halfway through their estimated physical life of 50 years and more than 10 years past their economic life. Comparing this to construction of new facilities which will have at least 50-60 years of life and usage remaining, the investment of valuable and dwindling public resources into the renovation of deteriorated, decrepid structures is not sensible economical, or prudent.

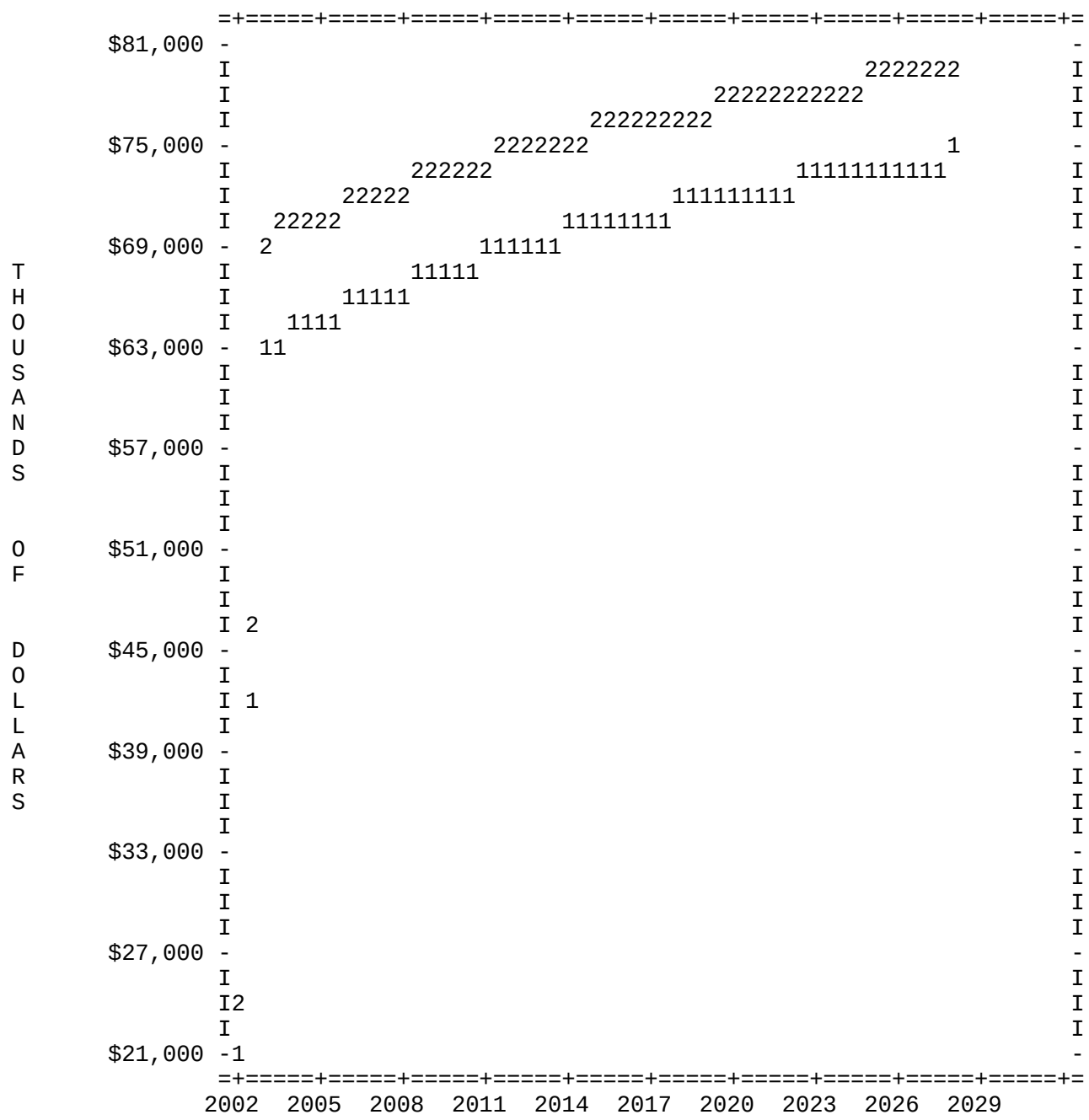
RESULTS AND RECOMMENDATIONS:

Based on the results of this analysis, Alternative 1 "NEW CONSTRUCTION" was determined to be the best, most effective, and cost efficient means to satisfy this Economic Analysis' Primary Objective and is hereby recommended for funding.

ACTION OFFICER: Tom Peel, DSN 734-7261
ORGANIZATION : DLE, Fort Jackson SC

ECONOMIC ANALYSIS GRAPH 1

CUMULATIVE NET PRESENT VALUE



LEGEND	DESCRIPTION
2	RENOVATION
1	NEW CONSTRUCTION

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LIFE CYCLE COST REPORT

1 NEW CONSTRUCTION ($ in thousands)

YEAR	Renovate Exist and Contruct New (1)	Maintenance (Renovated) (2)	Maintenance (New) (3)	Utilities (Renovated) (4)	Utilities (New) (5)
2002	$20,000	$0	$0	$0	$0
2003	$42,000	$0	$0	$0	$0
2004	$0	$286	$109	$302	$124
2005	$0	$286	$109	$302	$124
2006	$0	$286	$109	$302	$124
2007	$0	$286	$109	$302	$124
2008	$0	$286	$109	$302	$124
2009	$0	$286	$109	$302	$124
2010	$0	$286	$109	$302	$124
2011	$0	$286	$109	$302	$124
2012	$0	$286	$109	$302	$124
2013	$0	$286	$109	$302	$124
2014	$0	$286	$109	$302	$124
2015	$0	$286	$109	$302	$124
2016	$0	$286	$109	$302	$124
2017	$0	$286	$109	$302	$124
2018	$0	$286	$109	$302	$124
2019	$0	$286	$109	$302	$124
2020	$0	$286	$109	$302	$124
2021	$0	$286	$109	$302	$124
2022	$0	$286	$109	$302	$124
2023	$0	$286	$109	$302	$124
2024	$0	$286	$109	$302	$124
2025	$0	$286	$109	$302	$124
2026	$0	$286	$109	$302	$124
2027	$0	$286	$109	$302	$124
2028	$0	$286	$109	$302	$124
%NPV	84.88	5.27	2.01	5.56	2.28
	$63,060	$3,912	$1,491	$4,131	$1,696
DISCOUNTING CONVENTION	B-O-Y	B-O-Y	B-O-Y	B-O-Y	B-O-Y
INFLATION INDEX	No Inflation	No Inflation	No Inflation	No Inflation	No Inflation

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LIFE CYCLE COST REPORT

1 NEW CONSTRUCTION ($ in thousands)

YEAR	TOTAL ANNUAL OUTLAYS	BEGINNING OF YEAR DISCOUNT FACTORS	PRESENT VALUE	CUMULATIVE NET PRESENT VALUE
2002	$20,000	1.053	$21,060	$21,060
2003	$42,000	1.000	$42,000	$63,060
2004	$821	0.950	$780	$63,840
2005	$821	0.902	$740	$64,580
2006	$821	0.856	$703	$65,283
2007	$821	0.813	$668	$65,951
2008	$821	0.772	$634	$66,585
2009	$821	0.734	$602	$67,187
2010	$821	0.697	$572	$67,759
2011	$821	0.662	$543	$68,303
2012	$821	0.628	$516	$68,818
2013	$821	0.597	$490	$69,308
2014	$821	0.567	$465	$69,773
2015	$821	0.538	$442	$70,215
2016	$821	0.511	$420	$70,635
2017	$821	0.485	$398	$71,033
2018	$821	0.461	$378	$71,411
2019	$821	0.438	$359	$71,771
2020	$821	0.416	$341	$72,112
2021	$821	0.395	$324	$72,436
2022	$821	0.375	$308	$72,744
2023	$821	0.356	$292	$73,036
2024	$821	0.338	$278	$73,314
2025	$821	0.321	$264	$73,577
2026	$821	0.305	$250	$73,828
2027	$821	0.290	$238	$74,065
2028	$821	0.275	$226	$74,291

5.30% DISCOUNT RATE, 27 YEARS

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LIFE CYCLE COST REPORT

2 RENOVATION ($ in thousands)

YEAR	Initial Construction Cost (1)	Maintenance (2)	Utilities (3)	TOTAL ANNUAL OUTLAYS	MIDDLE OF YEAR DISCOUNT FACTORS
2002	$23,000	$0	$0	$23,000	1.026
2003	$47,000	$0	$0	$47,000	0.975
2004	$0	$348	$402	$750	0.925
2005	$0	$348	$402	$750	0.879
2006	$0	$348	$402	$750	0.835
2007	$0	$348	$402	$750	0.793
2008	$0	$348	$402	$750	0.753
2009	$0	$348	$402	$750	0.715
2010	$0	$348	$402	$750	0.679
2011	$0	$348	$402	$750	0.645
2012	$0	$348	$402	$750	0.612
2013	$0	$348	$402	$750	0.581
2014	$0	$348	$402	$750	0.552
2015	$0	$348	$402	$750	0.524
2016	$0	$348	$402	$750	0.498
2017	$0	$348	$402	$750	0.473
2018	$0	$348	$402	$750	0.449
2019	$0	$348	$402	$750	0.427
2020	$0	$348	$402	$750	0.405
2021	$0	$348	$402	$750	0.385
2022	$0	$348	$402	$750	0.365
2023	$0	$348	$402	$750	0.347
2024	$0	$348	$402	$750	0.329
2025	$0	$348	$402	$750	0.313
2026	$0	$348	$402	$750	0.297
2027	$0	$348	$402	$750	0.282
2028	$0	$348	$402	$750	0.268
%NPV	87.41	5.84	6.75		
	$69,404	$4,639	$5,359		
DISCOUNTING CONVENTION	M-O-Y	M-O-Y	M-O-Y		
INFLATION INDEX	No Inflation	No Inflation	No Inflation		

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LIFE CYCLE COST REPORT

2 RENOVATION ($ in thousands)

YEAR	PRESENT VALUE	CUMULATIVE NET PRESENT VALUE
2002	$23,602	$23,602
2003	$45,802	$69,404
2004	$694	$70,098
2005	$659	$70,757
2006	$626	$71,383
2007	$594	$71,977
2008	$565	$72,542
2009	$536	$73,078
2010	$509	$73,587
2011	$484	$74,071
2012	$459	$74,530
2013	$436	$74,966
2014	$414	$75,380
2015	$393	$75,773
2016	$373	$76,147
2017	$355	$76,501
2018	$337	$76,838
2019	$320	$77,158
2020	$304	$77,462
2021	$288	$77,750
2022	$274	$78,024
2023	$260	$78,285
2024	$247	$78,532
2025	$235	$78,766
2026	$223	$78,989
2027	$212	$79,201
2028	$201	$79,402

5.30% DISCOUNT RATE, 27 YEARS

DATE 22 OCT 1998 FY 2002 PROGRAM
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LIFE CYCLE COST REPORT

SOURCE AND DERIVATION OF COSTS AND BENEFITS:

Construction costs were based on the "Definitive Standard Design" for a TRAINEE BARRACKS COMPLEX as developed by the U.S. Army Corps of Engineers, Tulsa District.

General scope and primary unit costs were derived from DD Form 1391 Number 47051, "BC TRAINEE COMPLEX;" Fort Leonard Wood MO.

Other costs were derived from the DD Form 1391 processor cost assistance generator, RPLANS, and the "Red Book."

Maintenance Costs:

$0.97/SF New
$1.07/SF Renovated

Utility Costs:

$1.10/SF New
$1.16/SF Renovated

Renovation costs for existing facilities were considered to be approximately 60% of the costs for new construction based on historical data.

Maintenance costs are based on RPLANS generated cost factors. This includes costs for regular life-cycle replacement of all major facility components and infrastructure elements such as roofs and HVAC systems.

Utilities costs are based on the "Red Book" and local historical data.

Differences in "New" versus "Renovated" maintenance & utility costs are due to the inefficiencies of old and/or renovated facilities versus new construction.

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FURNISHINGS AND EQUIPMENT

FURNISHINGS AND EQUIPMENT

LINE	DESCRIPTION	TOTAL COST	PROC APPR FY	PROC APPR
1)	Kitchen Equipment	391	2004	OMA
2)	Dining Furn	913	2004	OMA
3)	Office Furn	295	2004	OMA
4)	Class Furn	905	2004	OMA
5)	Bks Furn	1,005	2004	OMA
6)	Surveillance Cameras	101	2004	OMA
7)	Control Panel	41	2004	OMA

LINE		EST. DELIVERY DATE	PROC STATUS	EST. INSTL COST	INSTL FY	INSTL APPR
1)	(CONT'D)	06/2005		40	2005	OMA
2)	(CONT'D)	06/2005		92	2005	OMA
3)	(CONT'D)	06/2005		30	2005	OMA
4)	(CONT'D)	06/2005		91	2005	OMA
5)	(CONT'D)	06/2005		101	2005	OMA
6)	(CONT'D)	06/2005		51	2005	MCA
7)	(CONT'D)	06/2005		20	2005	MCA

INFORMATION SYSTEMS FURNISHINGS AND EQUIPMENT

LINE	DESCRIPTION	TOTAL COST	PROC APPR FY	PROC APPR
1)	Info Sys - ISC	59	0000	OPA
2)	Info Sys - PROP	374	0000	OPA

LINE		EST. DELIVERY DATE	PROC STATUS	EST. INSTL COST	INSTL FY	INSTL APPR
1)	(CONT'D)			0	0000	
2)	(CONT'D)			0	0000	

FURNISHINGS AND EQUIPMENT

INFORMATION SYSTEMS FURNISHINGS AND EQUIPMENT (CONTD..)

TOTALS BY APPROPRIATION TYPE:

TOTAL OMA/OMN/3400/OM DHP:	3,651
INSTALLED EQUIPMENT - OTHER APPROPRIATIONS:	433
TOTAL RELATED FURNITURE & EQUIPMENT AMOUNT:	4,084

FURNISHINGS AND EQUIPMENT DISCUSSION

Furnishings and equipment identified in paragraph 13A have been adequately identified, programmed, and budgeted for. A comprehensive listing will be provided by the project proponent to the Savannah District Corps of Engineers prior to the parametric estimate design start date.

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INFORMATION SYSTEMS COST ESTIMATE (ISCE):

INSTALLATION - Fort Jackson YEAR - 2002 FNO - 51935

PROGRAM TYPE - MCA PROJECT NO. - 51935

USACE DISTRICT - Savannah District MACOM - TRADOC

PROJECT TITLE - BCT COMPLEX I

PRIMARY PROPONENT FUND TYPE - OPA CONTGY FACTOR - 5.00

CAF FACTOR - 14.00

SECTION I. PRIMARY FACILITY, INSIDE THE 5 FOOT LINE -
INSTALLED EQUIPMENT (SEE AR 415-15, APPENDIX L)

	DESCRIPTION	UM	QUANTITY	UNIT PRICE	TOTAL COST	F T
1)	CABLE TRAY (6" WIDE)	LF	131	15.82	2072	C
2)	CABLE TRAY (9" WIDE)	LF	1336	17.07	22806	C
3)	CABLE TRAY (24" WIDE)	LF	89	22.78	2027	C
4)	EMT(1) 3/4" W/ HARDWARE	LF	33660	3.50	117810	C
5)	EMT(2) 1" W/ HARDWARE	LF	46988	4.20	197350	C
6)	EMT(9) 4" W/ HARDWARE	LF	1235	19.41	23971	C
7)	BACKBOARD 4' X 4' X 3/4"	EA	1	31.74	32	C
8)	BACKBOARD 4' X 8' X 3/4"	EA	40	51.94	2078	C
				TOTAL	368146	

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INFORMATION SYSTEMS COST ESTIMATE (ISCE): (CONTD).

SECTION II. PRIMARY FACILITY, INSIDE THE 5 FOOT LINE - EQUIPMENT IN PLACE (SEE AR 415-15, APPENDIX L)

	DESCRIPTION	UM	QUANTITY	UNIT PRICE	TOTAL COST	F T
1)	PHONE: 2500 TYPE	EA	131	59.10	7742	I
2)	PHONE: MULTILINE	EA	11	384.57	4230	I
3)	PHONE: WEATHER-PROOF	EA	8	703.29	5626	I
4)	FO ST PATCH PNL 12 MM W/CPLRS	EA	39	268.09	10456	C
5)	FO ST PATCH PNL 48 SM W/CPLRS	EA	2	825.03	1650	C
6)	FO ST PATCH PNL 48 MM W/CPLRS	EA	2	825.03	1650	C
7)	FO ST PATCH PNL 12 SM W/CPLRS	EA	33	268.09	8847	C
8)	FO ST PATCH PNL 24 SM W/CPLRS	EA	15	432.50	6488	C
9)	FO ST PATCH PNL 96 SM PORTS	EA	5	1866.92	9335	P
10)	MDF CONN 100 PR W/ 60 FT STUB	EA	37	1257.99	46546	C
11)	MDF STD DBL-SIDED 8' VERT	EA	34	366.95	12476	C
12)	MDF JUMPER WIRE WRAP	EA	394	2.72	1072	C
13)	OUTLET: SINGLE RJ45 W/CBL	EA	673	109.07	73404	C
14)	OUTLET: DUAL RJ45 W/CBL	EA	1009	198.41	200196	C
15)	OUTLET: DUAL RJ45 2-ST W/CBL	EA	35	758.12	26534	C
16)	OUTLET: SGL CATV, F-TYPE	EA	25	76.40	1910	C
17)	OUTLET: SGL CCTV,F-TYPE W/CBL	EA	50	128.97	6449	C
18)	PATCH PNL, RJ45 CAT 5, 96 PORT	EA	40	547.61	21904	C
19)	PATCH CORD: RJ45 CAT 5, 15 FT	EA	832	7.74	6440	C
20)	EQUIP RACK & HWD	EA	134	392.37	52578	C
21)	BLOCK: 110 TYPE, 100PR RACK MT	EA	36	103.06	3710	C
22)	RISER: 100 PR ISP	LF	2820	2.48	6994	C
23)	PATCH CORD: ST,DUPL,MM,5 FT	LF	35	138.98	4864	C
24)	PATCH CORD: ST,DUPL,SM,5 FT	LF	666	167.11	111295	C
25)	FO CBL DC DIELEC SM 12 STR	LF	2820	6.03	17005	C
26)	PROTECTED TERMINAL: 25 PR	EA	18	518.38	9331	C
27)	PROTECTED TERMINAL: 100 PR	EA	162	1199.21	194272	C
28)	NETWORK MANAGER STATION	EA	5	20052.44	100262	P
29)	HUB: 112 FE/ETH & 2 ATM UPLINK	EA	5	34006.22	170031	P
30)	HUB: 40 FE/ETH & 2 ATM UPLINK	EA	1	19298.47	19298	P
31)	HUB: 24 FE/ETH & 2 ATM UPLINKS	EA	2	7608.27	15217	P
32)	5.00% Contgy Factor	LS	0	.00	880	I
33)	5.00% Contgy Factor	LS	0	.00	15707	P

INFORMATION SYSTEMS COST ESTIMATE (ISCE): (CONTD).

	DESCRIPTION	UM	QUANTITY	UNIT PRICE	TOTAL COST	F T
34)	14.00% CAF	LS	0	.00	2464	I
35)	14.00% CAF	LS	0	.00	43980	P
				TOTAL	1220843	

PRIMARY FACILITY NOTES:
Approximately 100 personnel will ultimately require telephone service in this facility; immediate requirement for telephone service is for 100 personnel. LAN system is required as follows: 10Base-T with CAT5. A standard outlet density of one outlet per 80 square feet is required in this facility. 100 new telephone sets are required. Unknown amount if any of special feature telephone sets are required. CATV/CCTV requirements. The RSC at Building 10-000 (SSI) requires expansion to accommodate this new BCT complex. If this has not been accomplished through the Modernization Program by the time this project is funded, then approximately 200 K will need to be added to this project's cost.

SECTION III. SUPPORTING FACILITIES, OUTSIDE THE 5 FOOT LINE - INSTALLED EQUIPMENT (SEE AR 415-15, APPENDIX L)

	DESCRIPTION	UM	QUANTITY	UNIT PRICE	TOTAL COST	F T
1)	MANHOLE PRECAST 6'X12'X7'	EA	16	6179.27	98868	C
2)	UNDERGRND DUCT 2 WAY	LF	5970	4.72	28178	C
3)	UNDERGRND DUCT 2 WAY CONC ENC	LF	1500	9.16	13740	C
4)	INNERDUCT 4-1"	LF	8000	3.55	28400	C
5)	TRENCH BACKHOE 24"X 36"	LF	1575	6.28	9891	C
6)	TRENCH HAND DIG 6"X 48"	LF	375	5.02	1883	C
7)	CUT & RESURFACE ASP 4"	SF	400	6.82	2728	C
8)	CUT & RESURFACE CONC 4"	SF	275	8.37	2302	C
9)	CONC CORE DRILL 4" DIAMETER	EA	3	125.83	377	C

INFORMATION SYSTEMS COST ESTIMATE (ISCE): (CONTD).

TOTAL 186367

SECTION IV. SUPPORTING FACILITIES, OUTSIDE THE 5 FOOT LINE - EQUIPMENT IN PLACE (SEE AR 415-15, APPENDIX L)

	DESCRIPTION	UM	QUANTITY	UNIT PRICE	TOTAL COST	F T
1)	CARD: VOICE, 1 PORT	EA	186	161.52	30043	I
2)	CARD: VOICE, MULTILINE BUSINES	EA	11	161.52	1777	I
3)	CABLE UNDERGRND: 25 PR, 24 A	LF	600	.97	582	C
4)	CABLE UNDERGRND: 25 PR, 24 A	LF	600	.97	582	C
5)	CABLE UNDERGRND: 25 PR, 24 A	LF	600	.97	582	C
6)	CABLE UNDERGRND: 25 PR, 24 A	LF	600	.97	582	C
7)	CABLE UNDERGRND: 25 PR, 24 A	LF	600	.97	582	C
8)	CABLE UNDERGRND: 25 PR, 24 A	LF	600	.97	582	C
9)	CABLE UNDERGRND: 25 PR, 24 A	LF	600	.97	582	C
10)	CABLE UNDERGRND: 25 PR, 24 AWG	LF	1350	.97	1310	C
11)	CABLE UNDERGRND: 25 PR, 24 A	LF	600	.97	582	C
12)	FOC-SM, UNDERGRND: 12 STRANDS	LF	600	2.25	1350	C
13)	FOC-SM, UNDERGRND: 12 STRANDS	LF	600	2.25	1350	C
14)	FOC-SM, UNDERGRND: 12 STRANDS	LF	600	2.25	1350	C
15)	FOC-SM, UNDERGRND: 12 STRANDS	LF	600	2.25	1350	C
16)	FOC-SM, UNDERGRND: 12 STRANDS	LF	600	2.25	1350	C
17)	FOC-SM, UNDERGRND: 12 STRANDS	LF	600	2.25	1350	C
18)	FOC-SM, UNDERGRND: 12 STRANDS	LF	2550	2.25	5738	C
19)	FOC-SM, UNDERGRND: 12 STRANDS	LF	600	2.25	1350	C
20)	FOC-SM, UNDERGRND: 12 STRANDS	LF	600	2.25	1350	C
21)	FOC-SM, UNDERGRND: 24 STRANDS	LF	5400	3.75	20250	C
22)	CABLE UNDERGRND: 300 PR, 24 A	LF	5400	3.67	19818	C
23)	5.00% Contgy Factor	LS	0	.00	1591	I
24)	14.00% CAF	LS	0	.00	4455	I

TOTAL 100438

SUPPORTING FACILITIES NOTES:
Telephone cable service is located in the area known as Tank Hill on Hampton Parkway. These locations are pedestal type with cable available due to the

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demolition of out of date structures. New copper cables will be required in some areas pulled from existing facilties.

INFORMATION SYSTEMS COST SUMMARY:

	CONF	ISC	PROP	TOTAL
PRIMARY FACILITY	1194217	20942	373830	1588989
SUPPORTING FACILITIES	248939	37866	0	286805
TOTAL	1443156	58808	373830	1875794

REMARKS:
This project is associated with MCA Project Number 48169 (BCT Complex II).

LISA M. SHEEDY
DIRECTOR
DOIM

INFORMATION SYSTEMS CERTIFICATION:

"This project has been reviewed by USAISEC to determine the adequacy of its Information Systems Cost Estimate." This project is certified "adequate as submitted".

CERTIFIED BY: /S/ GEORGE F. GAFFNEY
TELECOMM SPEC GS12
USAISEC-FDEO
03/16/2001

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ANTITERRORISM PROTECTION REQUIREMENTS DATA WITH SIGNATURES

ANTITERRORISM PROTECTION MEASURES

This project has been coordinated with the installation antiterrorism protection plan. Risk and threat analyses have been performed in accordance with DA PAM 190-51 and TM 5-853-1, respectively. Protective measures required by regulation and additional protective measures, above the minimum required by the current Department of Defense Minimum Antiterrorism Standards for Buildings, are needed to mitigate the threat. These requirements are included in the description of construction and cost estimate.

SUMMARY OF RISK AND THREAT ANALYSES AND DESCRIPTION OF ANY PROTECTIVE MEASURES THAT ARE REQUIRED.

RISK AND THREAT ANALYSIS
---

1. SCOPE. This project entails construction of new training, operations, billeting, dining facilities, and supporting infrastructure e.g. parking areas access roads, and utility lines.

2. GENERAL. A physical security Risk and Threat Analysis (RTA) of this project was conducted IAW Annex D (Physical Security) and Appendix 1 to Annex O (FP Assessment Tool). TM 5-853-1 "Security Engineering" was used to conduct this threat analysis. A copy of the complete RTA is on file in the Fort Jackson LEA, Physical Security / Force Protection Branch. POC is Mr. Raymond Robinson, phone 803-751-6019.

3. SECURITY ENGINEERING PROJECT ANALYSIS (SEPA):

a. Date of Analysis: 28 April 2000.

b. SEPA Review Subcommittee Members:

NAME, TITLE, AND ORGANIZATION

John Coynor, Installation Force Protection Officer, DPTM
Raymond Robinson, Physical Security Inspector, LEA
Frank Cooper, Chief Engineering Services Division, DLE

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ANTITERRORISM PROTECTION REQUIREMENTS DATA WITH SIGNATURES

SUMMARY OF RISK AND THREAT ANALYSES AND DESCRIPTION OF ANY PROTECTIVE (CONTD)
MEASURES THAT ARE REQUIRED.

Roy Dwelley, Architect, DLE
Tom Peel, Planning Specialist, DLE

4. THREAT CONDITION. The likelihood of attack by terrorist/extremist groups in this area has been determined to be LOW (Level I). Detailed threat information concerning terrorist groups has been classified "Secret." The "most
dangerous threat" identified in the Fort Jackson Installation Threat Assessmen (ITA)
is that of a vehicular bomb being utilized by a terrorist organization.

~~~~~~
Design Basis Threat (DBT) and Level of Protection (LOP):
~~~~~~

TACTIC	DBT	LOP
Stationary Vehicle	L	H
Exterior Attack	M	H
Standoff Weapons Attack	L	H
Ballistics Attack	L	H
Forced Entry	L	VH
Covert Entry	H	VH
Insider Compromise	H	VH
Mail Bomb	Y	H
Supply Bomb	Y	H

Operational Measures Planned to Mitigate Identified Threats: None required.

5. AGGRESSORS. Aggressors most likely to attack this facility include CONUS an OCONUS paramilitary terrorists and saboteurs. The tactics, weapons and associated tools most likely to be used by potential aggressors include the following:

a. Moving or Stationary Vehicle Attack. Aggressors will attack facilities to injure or kill personnel or destroy or damage assets within them using a movin or stationary vehicle laden with explosives. Facility analysis indicates that this type of attack may be used against personnel and/or any exposed equipment and/or explosives.

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SUMMARY OF RISK AND THREAT ANALYSES AND DESCRIPTION OF ANY PROTECTIVE MEASURES THAT ARE REQUIRED. (CONTD)

b. Exterior Attack. Improvised incendiary or explosive devices, hand grenades, satchel charges, or lightweight weapons. Facility analysis indicates this type of attack may be used against personnel.

c. Ballistics Attack handgun, shotgun, or rifle). Analysis indicates that this type of attack might be used directly against personnel or may be used by aggressors during attacks of supporting assets e.g. power supply, communications networks, etc.

d. Standoff Weapons Attack (anti-tank weapons). Analysis indicates potential use of antitank weapons against personnel-intensive areas.

e. Forced Entry. Aggressor enters facility using small arms and explosives. Potential weapons include handguns, shotguns, rifles and machine-guns.

f. Covert Entry. The aggressor may use false credentials to gain entry and then use weapons and explosives to carry out an attack.

g. Insider Compromise. The aggressor may use valid credentials to gain entry into facilities and then use weapons and explosives to carry out an attack.

h. Mail / Supplies Bombs. Improvised incendiary or explosive device concealed in mail or supplies used against personnel.

i. Airborne / Waterborne Contamination such as chemical or biological contamination of facility air or water. This tactic might be employed against personnel inside the facility.

6. FINDINGS AND RECOMMENDATIONS. Based on the installation being open to public access, previous and potential threat information, and the type of personnel which will occupy the new facilities, Anti-Terrorism and Force Protection (AT/FP) measures should be included into this project's design. The most serious and likely threat against these facilities is that of a vehicular bomb with a maximum 50 pound TNT charge or equivalent Level I explosive device. A line-by-line review of design strategies for mitigation of threat using construction standards recommended by TM 5-853-1 and their effects on costs was conducted by the SEPA

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ANTITERRORISM PROTECTION REQUIREMENTS DATA WITH SIGNATURES

SUMMARY OF RISK AND THREAT ANALYSES AND DESCRIPTION OF ANY PROTECTIVE MEASURES THAT ARE REQUIRED. (CONTD)

subcommittee. Some standards were considered too costly, outweighing any possible benefits, so were therefore not included into this RTA.

Recommended AT/FP construction features:

- Locate facilities as far away from the site perimeter as possible.

- Locate facilities away from key vantage points.

- Provide barriers to block or impede site lines e.g. obscuration screens, trees, large shrubbery, and/or other heavy landscaping placed along site zone perimeters.

- Separate new facilities from adjacent existing facilities using required stand-off distances.

- Plan for a minimum facility standoff distances of 100' from all roads, parking areas, and vehicle unloading areas. In areas where this standoff distance cannot be obtained, utilize blast berms, heavy landscaping, bollards, concrete shrubbery planters, and/or similar protective items.

- Install control barriers at site zone perimeters where possible.

- Provide vehicle and personnel entry control points with active vehicle barriers and/or gates at site zone perimeters.

- Eliminate possible hiding places near facilities.

- Provide interior courtyards at facilities where possible.

- Provide pitched roofs of non-flammable construction on all facilities. Harden roofs to resist identified threat severity level ballistics.

- Provide for natural lighting inside facilities where possible. Avoid skylights.

- Design wall construction that will be resistant to identified threat severity level ballistics.

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ANTITERRORISM PROTECTION REQUIREMENTS DATA WITH SIGNATURES

SUMMARY OF RISK AND THREAT ANALYSES AND DESCRIPTION OF ANY PROTECTIVE (CONTD)
MEASURES THAT ARE REQUIRED.

- Minimize the size and number of doors and windows inside the facilities.

- Provide blast and bullet resistant doors and assemblies throughout the facilities to abate identified threat severity level ballistics.

- Provide stock hollow steel or steel-clad doors with steel framing in foyers and all exterior wall ingress/egress points of the facilities.

- Provide narrow, recessed windows with at least 3/4 inch thick, polycarbonate blast-resistant, 7 millimeter, fragment retention film and double-glazing sufficient to impede shrapnel and other debris fragment penetration while providing protection against flying glass shards in the event of a bomb blast on all exterior windows. Install windows at a sufficient height so that their centers are located no lower than 6' above the finished floor level.

- Conceal and secure all exterior utility and maintenance access ports.

- Provide exterior protective lighting around all facilities and parking areas

- Provide for electronic entry control at all exterior ingress/egress points of the facilities.

- Provide motion and/or heat sensors for all doors and operable windows that lead into secure, controlled, or compartmented areas (e.g. arms rooms).

- Provided motion and/or heat sensors in all controlled or compartmented area (insider compromise tactic only).

- Locate mail rooms on the perimeter of the facilities with no windows.

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ANTITERRORISM PROTECTION REQUIREMENTS DATA WITH SIGNATURES

REQUIRED SIGNATURES:

PROVOST MARSHAL

/S/ RICHARD J. HANKINS
GS-12
Provost Marshal
28 APR 2000

DIRECTOR OF PUBLIC WORKS

/S/ DOUGLAS E. BURCHETT
GS-14
Director of Log. & Eng.
28 APR 2000

FORCE PROTECTION OFFICER

/S/ JOHN COYNOR
GS-12
Force Protection Officer
28 APR 2000

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DISPOSAL/DEMOLITION SUPPORT DATA

DISPOSAL/DEMOLITION FACILITY LIST

	ARLOC	INSTALLATION	FAC NO	DESIGN USE CATCODE	TC	TOTAL QTY	UM	DSF	In the FP?	DISP FY
1)	45404	Fort Jackson	1895	14183	P	81,619	SF	R		
2)	45404	Fort Jackson	2225	14183	P	1,209	SF	R		
3)	45404	Fort Jackson	2245	14183	P	1,209	SF	R		
4)	45404	Fort Jackson	2310	14183	P	6,152	SF	R		
5)	45404	Fort Jackson	2320	14183	P	6,152	SF	R		
6)	45404	Fort Jackson	2360	14183	P	6,153	SF	R		
7)	45404	Fort Jackson	2370	14183	P	6,152	SF	R		
8)	45404	Fort Jackson	3285	14183	P	1,220	SF	R		
9)	45404	Fort Jackson	4330	14183	P	6,152	SF	R		
10)	45404	Fort Jackson	4420	14183	P	4,800	SF	R		
11)	45404	Fort Jackson	5422	14183	P	4,800	SF	R		
12)	45404	Fort Jackson	5482	14183	P	4,800	SF	R		
13)	45404	Fort Jackson	5500	14183	P	4,800	SF	R		
14)	45404	Fort Jackson	11000	14183	P	4,800	SF	R		
15)	45404	Fort Jackson	12000	14183	P	4,800	SF	R		
16)	45404	Fort Jackson	1872	14185	P	625	SF	R		
17)	45404	Fort Jackson	1877	14185	P	947	SF	R		
18)	45404	Fort Jackson	1880	14185	P	947	SF	R		
19)	45404	Fort Jackson	1889	14185	P	947	SF	R		
20)	45404	Fort Jackson	1892	14185	P	947	SF	R		
21)	45404	Fort Jackson	1897	14185	P	947	SF	R		
22)	45404	Fort Jackson	2205	14185	P	1,220	SF	R		
23)	45404	Fort Jackson	2215	14185	P	1,220	SF	R		
24)	45404	Fort Jackson	2235	14185	P	1,220	SF	R		
25)	45404	Fort Jackson	2250	14185	P	1,991	SF	R		
26)	45404	Fort Jackson	2253	14185	P	1,220	SF	R		
27)	45404	Fort Jackson	2255	14185	P	1,220	SF	R		
28)	45404	Fort Jackson	2265	14185	P	1,220	SF	R		
29)	45404	Fort Jackson	2275	14185	P	1,220	SF	R		
30)	45404	Fort Jackson	2285	14185	P	1,220	SF	R		
31)	45404	Fort Jackson	2435	14185	P	41,161	SF	R		
32)	45404	Fort Jackson	3205	14185	P	1,220	SF	R		
33)	45404	Fort Jackson	3230	14185	P	11,942	SF	R		
34)	45404	Fort Jackson	3260	14185	P	11,942	SF	R		
35)	45404	Fort Jackson	3295	14185	P	1,220	SF	R		
36)	45404	Fort Jackson	4200	14185	P	12,132	SF	R		

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ENVIRONMENTAL ANALYSIS

ENVIRONMENTAL DOCUMENTATION

A Construction Site Selection Survey (CSSS) was conducted on the proposed site of this project. This CSSS included a site surface inspection and review of applicable documentation.

World War II vintage facilities formerly located on the site have been demolished. Except for former Buildings 10-402 (Motor Repair Shop) and 10-504 (Indoor Firing Range), all of the buildings were barracks, mess halls, or administrative buildings.

Not including the former locations of buildings 10-402 and 10-504, per Section 15-11 of DA PAM 200-1, this site is considered a Category 1 site consisting of a traditionally non-hazardous location where there is no reason to suspect contamination. The former locations of buildings 10-402 and 10-504 are considered Category 2 sites consisting of a perceived clean location which due to former industrial or other activities within or near the site or due to the uncertain nature of the site's historical usage have the potential for contamination.

CONCURRENCES:

/s/ W. KEN BURGHARDT
Chief, Environmental Svcs. & Protection Div.
Directorate of Logistics & Engineering
Fort Jackson, SC
Phone: 803-751-5011/4231
Date: 13 May 1999

/s/ DOUGLAS E. BURCHETT
Director of Logistics & Engineering
Fort Jackson, SC
Phone: 803-751-7640/7719
Date: 13 May 1999

SUMMARY OF ENVIRONMENTAL CONSEQUENCES

This project has been reviewed and is not anticipated to significantly affect the environment. The proposed project

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ENVIRONMENTAL ANALYSIS

SUMMARY OF ENVIRONMENTAL CONSEQUENCES (Contd..)

site is a Category I. No contamination was found and there is no reason to believe contamination will be encountered during construction. There are no adverse environmental effects foreseen from this project's proposed energy requirements and sources. This project will adhere to the National Environmental Policy Act of 1969 (NEPA) and South Carolina air and water pollution control laws.

ENVIRONMENTAL STANDARD TEXT

The Record of Environmental Consideration (REC) is included. It has been determined that the action: Is adequately covered in the existing EA entitled FORT JACKSON MASTER PLAN EA, dated 03/01/2000.

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PROTECTION OF HISTORIC PROPERTIES

HISTORIC AND ARCHEOLOGICAL SITES (STANDARD TEXT)

Review procedures have been implemented for this project in accordance with 36 CFR 800. The review has established that there will be no effect.

DETAILED STATEMENT OF REVIEW FINDINGS

Certification of Section 18:

/s/ W. KEN BURGHARDT
Chief, Environmental Services & Protection Div.
Directorate of Logistics & Engineering
Fort Jackson, SC
Phone: 803-751-5011/4231
Date: 13 May 1999

/s/ DOUGLAS E. BURCHETT
Director
Directorate of Logistics & Engineering
Fort Jackson, SC
Phone: 803-751-7719/3803
Date: 13 May 1999

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INSTALLATION: Fort Jackson
LOCATION: South Carolina

EVALUATION OF FLOOD HAZARDS AND ENCROACHMENT ON WETLANDS

EVALUATION OF FLOOD HAZARDS AND ENCROACHMENT

This project is not sited in a flood plain (100 year flood), nor does it encroach on wetlands.

CONCURRENCES:

/s/ W. KEN BURGHARDT
Chief, Environmental Services & Protection Division
Directorate of Logistics & Engineering
Fort Jackson, SC
Phone: 803-751-5011/4231
Date: 13 May 1999

/s/ DOUGLAS E. BURCHETT
Director of Logistics & Engineering
Fort Jackson, SC
Phone: 803-751-7640/7719
Date: 13 May 1999

EVALUATION OF FLOOD HAZARDS (STANDARD TEXT)

This project is not sited in a floodplain or wetlands.

DATE 22 OCT 1998 FY 2002 PROGRAM
PROJECT NUMBER: 51935
PROJECT TITLE: BCT COMPLEX I
INSTALLATION: Fort Jackson
LOCATION: South Carolina

ACCESSIBILITY STANDARDS

ACCESSIBILITY STANDARDS (STANDARD TEXT)

This project will be designed for accessibility and usability by individuals with disabilities The estimated count of civilian employees and civilian users is 7.

ACCESSIBILITY STANDARDS

Provisions for the handicapped including parking and facility access will be incorporated into the design and construction of this project. This includes administration areas, lobbies, restrooms, classrooms, conference rooms, and dining areas. Other areas will be utilized by able-bodied military personnel only and will not require handicapped accessibility.

DATE 22 OCT 1998 FY 2002 PROGRAM
PROJECT NUMBER: 51935
PROJECT TITLE: BCT COMPLEX I
INSTALLATION: Fort Jackson
LOCATION: South Carolina

COMMERCIAL ACTIVITIES

CA ANALYSIS CONCLUSIONS

Construction of this property is not considered a Commercial Activity as described by OMB Circular A-76 guidelines. Operation and maintenance, once constructed, may be considered for Commercial Activities support in accordance with the guidelines of OMB Circular A - 76.

EXECUTIVE SUMMARY OF THE CA ANALYSIS

The construction of this project is not a Commercial Activity as described in OMB Circular A-76. Operation and Maintenance will be reviewed according to the guidelines in OMB Circular A-76.

DATE 22 OCT 1998 FY 2002 PROGRAM
PROJECT NUMBER: 51935
PROJECT TITLE: BCT COMPLEX I
INSTALLATION: Fort Jackson
LOCATION: South Carolina

ENERGY AND UTILITY REQUIREMENTS

USER DISCRETIONARY BLOCK

No directly related utility projects are programmed. Existing utility systems are under study by Fort Jackson Energy Branch.

Acronyms

A

AAFES
Army and Air Force Exchange Service

AAS
Analysis of Alternatives Study

AC
Active Component

ACA
Army Contracting Agency

ACSIM
Assistant Chief of Staff for Installation Management

ACTEDS
Army Civilian Training, Education and Development System

ACTS
Army Criteria Tracking System

ACUB
Army Compatible Use Buffer

ADF
Average Daily Flow

ADG
Area Development Guide

ADP
Area Development Plan

ADT
Average Daily Traffic

AEC
Army Environmental Center

AER
Army in Europe Regulation

AFDP
Alternative Future Development Plans

AFH
Army Family Housing

AFHC
Army Family Housing Construction

AFHO
Army Family Housing Operations

AICUZ
Air-Installation Compatible Use Zone

AIMS
Advertising and Integrated Marketing Solutions

AKO
Army Knowledge Online

AMC
Army Material Command

AMRP
Army Master Range Plan

AOC
Army Operations Center

APA
American Planning Association

APIC
Army Performance Improvement Criteria

APPGM
Army Planning Programming Guidance Memorandum

AR
Army Regulation

AR
Army Reserve

ARID
Army Range Inventory Database

ARLOC
Army Location Code

ARNG
Army National Guard

ARRM
Army Range Requirements Module

ASHRAE
The American Society of Heating, Refrigerating and Air-Conditioning Engineers

ASIP
Army Stationing and Installation Plan

AT
Antiterrorism

ATRRS
Army Training Requirements and Resources

B

BASOPS
Base Operations

BDE
Brigade

BENELEUX
Belgium, the Netherlands, and Luxembourg

BES
Budget Estimate Submission

BHRZ
Building Height Restriction Zone

BN
Battalion

BImA
Bundesanstalt fuer Immobilienaufgaben

BRAC
Base Realignment and Closure Commission

C

CA
Expansion Capability Assessment

CAPCES
Construction Appropriation Programming Control and Execution System

CAR
Chief, Army Reserve

CBRNE
Chemical, Biological, Radiological/Nuclear, and Explosive

CEISC
Corps of Engineers Installation Support Center

CEQ
Council on Environmental Quality

CFC
Chlorofluorocarbon

CFR
Code of Federal Regulations

CIO
Corporate Information Office

CIP
Critical Infrastructure Protection

CIS
Capital Investment Strategy

CLS
Common Levels of Support

COCO
Contractor-Owned, Contractor-Operated

COE
Corps of Engineers

COG
Council of Governments

CONUS
Continental United States

CRRC
Construction Requirements Review Committee

CX
Categorical Exclusions

CZA
Coastal Zone Management, State

D

DA
Department of the Army

DARCOM
Development and Readiness Command

DD
Department of Defense

DDESB
Department of Defense Explosive Safety Board

DEERS
Defense Eligibility Enrollment System

DEM
Digital Elevation Model

DES
Directorate of Emergency Services

DMFO
Defense Medical Facilities Office

DoD
Department of Defense

DoDD
Department of Defense Directive

DoDI
Department of Defense Instruction

DOIM
Directorate of Information Management

DOL
Directorate of Logistics

DOPAA
Description of Proposed Action and Alternatives

DPT
Directorate of Plans and Training

DPTMS
Directorate of Plans, Training, Mobilization, & Security

DPW
Directorate of Public Works

DSWA
Defense Special Weapons Agency

E

EA
Environmental Assessment

ECA
Existing Conditions Assessment

EEA
Environmental Executive Agent

EFR
Essential Facility Requirements

EGIS
Enterprise Geographic Information System

EIS
Environmental Impact Statement

EKO
Engineering Knowledge Online

EO
Executive Order

EPA
Environmental Protection Agency

ERG
Environmental Review Guide

EU
European Union

F

FA
Family (Housing Unit, Dwelling)

FAA
Federal Aviation Administration

FABS
Financial and Business Solution

FAR
Federal Acquisition Regulation

FCG
Facility Category Group

FDM
Frequency-Determining Module

FDP
Future Development Plan

FEMA
Federal Emergency Management Agency

FFH
Flora, Fauna, and Habitat

FFS
Focused Facilities Strategy

FGDC
Federal Geographic Data Committee

FGS
Final Governing Standards

FM
Field Manual

FNSI
Finding of No Significant Impact

FORSCOM
U.S. Army Forces Command

FPD
Federal Planning Division

FPS
Facilities Planning System

FSC
Forest Stewardship Council

FUDS
Formerly Used Defense Sites

FUS
Facility Utilization Study

FY
Fiscal Year

FYDP
Future Years Defense Plan; Future Years Defense Program

FYP
Future Years Program

G

G-3
Deputy Assistant Chief of Staff Operations

GC
Garrison Commander

GCA
German Construction Administration

GCSM
Garrison Command Sergeant Major

GFOQ
General Flag Officers' Quarters

GIS
Geographic Information System

GIS-R
(The Army's) Geographic Information System Repository

GOCO
Government Owned, Contractor Operated

GPA
General Purpose Administration

GPS
Global Positioning System

GSA
General Services Administration

GSF
Gross Square Feet

GY
Guidance Year

H

HABS
Historic American Building Survey

HAER
Historic American Engineering Record

HMMP
Hazardous Material Management Program

HQDA
Headquarters, Department of the Army

HQDA-PRB
Headquarters, Department of the Army, Project Review Board

HQIIS
Headquarters Executive Information System

HQIMA
Headquarters Installation Management Agency

HQ IMCOM
Installation Management Command Headquarters

HQISR
Headquarters Installation Status Report

HQRPLANS
Headquarters Real Property Planning and Analysis System

HQUSAREUR
Headquarters United States Army Europe

I

IAQ
Indoor Air Quality

IAR
Installation Allowances Report

ICRMP
Integrated Cultural Resources Management Plan

ICUZ
Installation Compatible Use Zone

IDG
Installation Design Guide

IDIQ
Indefinite Delivery Indefinite Quantity

IDS
Installation Design Standards

IFS
Integrated Facilities System

IGI&S
(The Army's) Installation Geographic Information & Services

IGPBS
Integrated Global Presence and Basing Strategy

IMA
Installation Management Agency

IMCOM
Installation Management Command

IMCOM-EURO
Installation Management Command - Europe

INRMP
Integrated Natural Resource Management Plan

INSNO
Installation Number

IPT
Integrated Product Team

ISA
Inter-service Support Agreement

ISP
Installation Strategic Plan

ISR
Installation Status Report

IT
Information Technology

ITAM
Integrated Training Area Management

J

JAG
Judge Advocate General

JLUS
Joint Land Use Study

L

LEED
Leadership in Energy and Environmental Design

LEED®-EB
Leadership in Energy and Environmental Design, Existing Buildings

LEED®-H
Leadership in Energy and Environmental Design, Homes

LEED®-ND
Leadership in Energy and Environmental Design, Neighborhood Development

LEED®-NC
Leadership in Energy and Environmental Design, New Construction

LF-TIS
Live-Fire Training Investment Strategy

LIN
Line Item Number

LMD
Lease Management Database

LOGWORLD
Logistics Worldwide

LRC
Long Range Component

LRDP
Long Range Development Plan

LSA
Logistics Support Activity

LUC
Land Use Control

M

MACOM
Major Army Command

MC
Mobilization Component

MCA
Military Construction, Army

MCAR
Military Construction, Army Reserve

MCARNG
Military Construction, Army National Guard

MED CIS
Medical Capital Investment Strategy

MED MILCON
Medical Military Construction

MEDCOM
Medical Command

MEPS
Military Entrance Processing Station

MILCON
Military Construction

MIL-STD
Military Standard

MLAP
Military Land Acquisition Proposal

MOS
Military Occupational Specialty

MPI
Master Planning Instructions

MPTM
Master Plan Technical Manual

MSA
Metropolitan Statistical Area

MTOE
Modified Table of Organization and Equipment

MWR
Morale, Welfare & Recreation

N

NAF
Non-Appropriated Fund

NATO
North Atlantic Treaty Organization

NAVAIDS
Navigational Aids

NAVFAC
Naval Facilities Engineering Command

NEPA
National Environmental Policy Act

NGO
Non-Governmental Organization

NIJ
National Institute of Justice

NMFS
National Marine Fisheries Service

NPDES
National Pollutant Discharge Elimination System

NRHP
National Register of Historic Places

NSSDA
National Standard for Spatial Data Accuracy

NTC
Network Technology Command

O

O&M
Operations and Maintenance

OCONUS
Outside the Continental United States

ODS
Ozone Depleting Substances

OMA
Operations and Maintenance, Army

OPA
Other Procurement, Army

OSD
Office of the Secretary of Defense; Over, Short and Damaged Report

OT
Oeffentliche Traegerschaft

OTSG
Office of the Surgeon General, Army

OEBGD
Overseas Environmental Baseline Guidance Document

P

P&E
Personnel and Equipment

PAIO
Plans, Analysis and Integration Office

PAM
Priorities and Allocations Manual

PAX
Programming, Administration and Execution (System)

PBBE
Planning, Programming, Budgeting and Execution System

PBG
Program Budget Guidance

PDM
Program Decision Memorandum

PEO
Program Evaluation Office

PES
Professional Engineering Services

PIP
Priority Improvement Projects

PN
Persons

POC
Point of Contact

POM
Program Objective Memorandum

POV
Privately Owned Vehicle

PP
Permanent Party

PPS
Project Priority System

PRIDE
Planning Resource for Infrastructure Development and Evaluation

PROSPECT
Proponent-Sponsored Engineer Corps Training

PW
Public Works

PWD
Procurement Work Directive

R

R&A
Review and Analysis

RC
Reserve Component

RCI
Residential Communities Initiative

RCMP
Range Complex Master Plan

RCRA
Resource Conservation & Recovery Act (of 1976)

RDL
Reimer Digital Library

RDP
Range Development Plan

RDT&E
Research, Development, Test and Evaluation

REC
Record of Consideration

REFO
Real Estate Field Office

RFMSS
Range Facility Management Support System

RMA
Range and Maneuver Area

ROC
Record of Consignment

ROD
Record of Decision

ROW
right-of-way

RPAO
Real Property Accountable Officer

RPI
Real Property Inventory

RPLANS
Real Property Planning and Analysis System

RPMP
Real Property Master Plan

RPMPD
Real Property Master Plan Digest

RPMPT
Real Property Master Planning Team

RPPB
Real Property Planning Board

RRPB
Range Requirements Prioritization Board

RTLP
Range and Training Land Program

S

SAMAS
Structure and Manpower Allocation System

SBC
Services/Service Based Costing

SDDC TEA
Military Surface Deployment and Distribution Command, Transportation Engineering Agency

SDSFIE
Spatial Data Standard for Facilities, Infrastructure and Environment

SDZ
Surface Danger Zone

SF
Square Feet

SHPO
State Historic Preservation Office

SMC
Senior Mission Commander

SOFA
Status of Forces Agreement

SOW
Statement of Work

SP
Space

SPiRiT
Sustainable Project Rating Tool

SQL
Standard Query Language

SRC
Short Range Component; Standard Requirements Code

SRM
Sustainment, Restoration and Modernization

SRP
Sustainable Range Program

STACO
Station Code

STAMIS
Standard Army Management Information System

SWOT
Strengths, Weaknesses, Opportunities and Threats

SY
Square Yards

T

TAADS
The Army Authorization Documents System

TAB
Tabulation of Existing and Required Facilities

TADLP
The Army Distance Learning Program

TAP
The Army Plan

TDA
Table of Distribution and Allowances

TM
Technical Manual

TOC
Table of Contents

TOE
Table of Organization and Equipment (unit)

TRADOC
Training and Doctrine Command

U

UFC
Unified Facilities Criteria

UIC
Unit Identification Code

UM
Unit of Measure

UMMCA
Unspecified Minor Military Construction, Army

UNDES
Unit Description

UPH
Unaccompanied Personnel Housing

UVP
Umweltvertraeglichkeitspruefung

USACE
U.S. Army Corps of Engineers

USAREUR
United States Army Europe

USAG
U.S. Army Garrison

USARJ
U.S. Army, Japan

USFJ
U.S. Forces Japan

USFLO
U.S. Forces Liaison Officer

USFWS
U.S. Fish and Wildlife Service

UXO
Unexploded Ordnance

W

WBDG
Whole Building Design Guide

WMD
Weapons of Mass Destruction

Glossary

A

Area Development Guide (ADG)
This is a tool used to establish the "look" of a facility or multiple facilities before the building is designed. The ADG is essentially a picture of the new facility that has been selected and approved by the Real Property Planning Board. When planning a complex of buildings, the ADG can be developed to ensure building designs are consistent and integrated throughout a project area and to ensure compliance with the IDG.

Area Development Plan (ADP)
This is an enlarged portion of site development plans that shows the proposed detailed development of complexes, utility services for a section of the installation, a complex firing range, or a single important building with its associated support elements. This plan may be short-range but could show proposed long-range (10 to 15 years) physical changes. It generally includes roadways, pedestrian paths, parking, utility alignments, and other elements. The Area Development Plan supports an RPMP by addressing and resolving localized comprehensive planning issues. For a proposed facility, an Area Development Plan describes the existing site conditions, facilities servicing the site, function of the facilities and future development, land uses, and transportation routes.

Army Compatible Use Buffer (ACUB)
A formal agreement between the Army and eligible entities for acquisition of land or interest in land and/or water rights from willing sellers. This agreement may provide for limiting encroachment on the installation through acquisition of development rights, cooperative agreements, conservation easements, and other means in accordance with applicable laws. Development and implementation of an ACUB may not constitute an acquisition of real property. Conveyances, as authorized by Section 2812, may supplement ACUBs or be executed individually. This agreement:

- Permits the Secretary of Defense or the Secretary of a Military Department to enter into an agreement with an eligible entity (state, political subdivisions, or private sector conservation organization) to address the use of development of real property near a military installation for specific purposes; and to accept on behalf of the United States any property or interest acquired pursuant to such agreements.
- Provides for the acquisition by eligible entity of all rights, title, interest relating to any real property; and sharing of acquisition costs by the United States.
- Requires the eligible entity, only upon the request of the secretary of the military department concerned, to transfer to the United States the minimum property or interests necessary to avoid encroachment from the use or management of the property.
- Allows funds appropriated for operations and maintenance or research, development, testing and evaluation to be used for such agreements for purchase from willing sellers.

Army Installation Design Standards (IDS)
Army standards for site planning, buildings, vehicular and pedestrian circulation, landscaping, site elements (such as signage, utilities), force protection, and sustainable design and development for enhancing the installation environment and design. They provide detailed guidance for preparation of the IDG.

Army Reserve Regional Readiness Command
Commands subordinate to the Chief, Army Reserve (CAR) that manage and administer AR matters within specific geographic regions of the United States.

Automated Range Development Plan (ARDP)
A plan that automates the integration of the RDP, which is the garrison's prioritized list of range and training land requirements under the HQDA, Deputy Chief of Staff, G–3/5/7 Range and Training Land Program, with other garrison requirements that impact the training mission (for example, natural and cultural resource management requirements, pest management plans, hazardous waste plan, endangered species management plan, land use requirements, etc.) and graphically displays them on the garrison's ARDP Operational Overlay. The integration of garrison requirements with the doctrinal training requirement provides the garrison staff with a robust decision making capability, which supports sustainable ranges and development of encroachment mitigation measures. The ARDP also has an encroachment assessment component that should be used to help identify current and potential encroachment challenges.

B

Base Operations (BASOPS) costs
Costs that include environmental compliance and conservation, pollution prevention, real property maintenance, base communications, and other activities vital to accomplishment of the base operations/support mission and to maintain adequate quality of life for our soldiers and their families. These include those support elements and services identified as indirect overhead by DA. Examples of BASOPS requirements include morale, welfare and recreation services; base services support; real estate acquisition and maintenance; facility support services; sustainment (maintenance and repair); minor construction; and environmental compliance. BASOPS requirements do not include operational mission support for tactical units such as training or tactical equipment maintenance, and do not support an exchange of war fighting information.

C

Construction
(1) The erection, installation, or assembly of a new facility. (2) The acquisition, expansion, extension, alteration, conversion, or replacement of an existing facility. (3) The relocation of a facility from one installation to another. (4) Installed equipment made a part of the facility, related site preparation, excavation, filling, landscaping, or other land improvements.

E

Enterprise GIS
A GIS that supports all or most functional areas within an organization, regardless of size and/or organizational complexity, that manages and processes large volumes of shared information that supports multiple business operations. It can be accessed and used seamlessly by many users who can be geographically and organizationally dispersed. All users access the same consistent information through local area networks, wide area networks, or the Internet. It often combines geographic data with other data types into a continuous set of information upon which the organization can make better decisions. The users range from the professional GIS power user who needs sophisticated software tools for complex geoprocessing to desktop GIS users who work with commercial

off-the-shelf software applications, along with casual users who only need to view and query maps from an Internet browser. The foundation of EGIS is data standards. The architecture of an enterprise GIS should support industry standards in regard to data, communications, application development, and integration tools in order to leverage an organization's investment in data, information technology, and expertise.

F

Facility
Any interest in land, structure, or complex of structures together with any supporting road and utility improvements necessary to support the functions of an Army activity or mission. A facility includes the occupiable space it contains. Land, training areas, training and testing ranges are considered facilities. The class of facility is identified by a 5-digit facility category code (see DA PAM 415–28). Facility may also be called a real property facility.

Form-Based Code
A method of regulating development to achieve a specific urban form. Form-based codes create a predictable public realm primarily by controlling physical form, with a lesser focus on land use. Form-based codes address the relationship between building facades and the public realm, the form and mass of buildings in relation to one another, and the scale and types of streets and blocks. The regulations and standards in Form-based codes, presented in both diagrams and words, are keyed to a regulating plan that designates the appropriate form and scale (and therefore, character) of development rather than only distinctions in land-use types. Form-based codes commonly include the following elements:

- Regulating Plan. A plan or map designating the locations where different building form standards apply, based on clear community intentions regarding the physical character of the area.
- Public Space Standards that address elements within the public realm (e.g., sidewalks, travel lanes, on-street parking, street trees, street furniture, etc.).
- Building Form Standards. that address configuration, features, and functions of buildings that define and shape the public realm.
- Administration. A clearly defined application and project review process.
- Definitions. A glossary to ensure the precise use of technical terms.

Form-based codes may also include:

- Architectural Standards controlling external architectural materials and quality;
- Landscaping Standards. controlling landscape design and plant materials on private property as they impact public spaces (e.g. parking lot screening and shading, maintaining sight lines, insuring unobstructed pedestrian movements, etc.).

- Signage Standards controlling allowable signage sizes, materials, illumination, and placement.
- Environmental Resource Standards controlling issues such as storm water drainage and infiltration, development on slopes, tree protection, solar access, etc.
- Annotation. Text and illustrations explaining the intentions of specific code provisions.

Functional Adequacy
Functional Adequacy is recorded in IFS with the Functional Capability Code. Functional Adequacy is a measure of the extent to which an existing building meets the functional features of the AR 415-28 Category Code use that it has been assigned in the RPI. Facility Functional Adequacy IS EXCLUSIVE of physical condition (Quality as recorded in the Installation Status Report (ISR)) and overall Functional Category Group (FCG) quantities as recorded in the Real Property Planning and Analysis System (RPLANS).

G

Garrison Commander
The individual responsible for the daily operations of the garrison and installation property, and providing for the health, safety, and welfare of the people living and working there. This commander directs comprehensive planning activities necessary to achieve and maintain excellent infrastructure and services.

Geographic Information System (GIS)
A collection of computer hardware, software, and geographic data for capturing, storing, manipulating, analyzing, and displaying all forms of geographically referenced information.

I

Illustrative Plan
Identifies the vision for the future showing the desired location of existing and infill buildings and designating public open spaces.

Installation
For the purposes of this regulation, refer to the definition for installation in DA Memorandum DAIM-ZA, 2 December 2005. An installation is defined as an aggregation of contiguous or near contiguous real property holdings commanded by a centrally-selected commander. Installations represent management organizations. An installation may be made of one or more sites. For the purposes of this regulation, installation will also include Army Reserve Regional Readiness Commands.

Installation Design Guide (IDG)
An RPMP document prepared by a garrison that provides specific guidance on an installation's architectural character, and exterior and interior design parameters. All installation improvements, renovation projects, and new construction will comply with the IDG. The IDG will be prepared in accordance with the Army Installation Design Standards posted on the ACSIM Web site, using the model format provided.

Installation Management Command (IMCOM)
A field-operating agency of the Office, Assistant Chief of Staff for Installation Management. It provides equitable, effective and efficient management of Army installations worldwide to support mission readiness and execution; enable the well-being of soldiers, civilians and family members; improve infrastructure; and preserve the environment. It is divided into seven Regions for operational purposes.

Installation Management Command Region (IMCOM Region)
An operational subset of the IMCOM that executes IMCOM plans, policies, and guidance.

Installation Support Services
Those services provided by the garrison that support the garrison commander, assigned mission units, and tenant agencies in the conduct of their functions.

L

Land Use Controls (LUC)
LUCs are any type of physical, legal, or administrative mechanism that restricts the use of, or limits access to, real property to prevent or reduce risks to human health, safety and the environment. Physical mechanisms encompass a variety of engineered remedies to contain or reduce contamination and physical barriers intended to limit access to property, such as fences or signs. Legal mechanisms include restrictive covenants, equitable servitudes, and deed notices. Administrative mechanisms include notices, construction permitting, or land use management systems that may be used to ensure compliance with use restrictions. LUCs are used to mitigate either risks associated with exposure to contamination during or residual to cleanup, instead of eliminating those risks by removing or treating the contaminated media to 'unrestricted use' levels. LUCs may be imposed either during or subsequent to an environmental response conducted under the Comprehensive Environmental Response, Compensation, and Liabilities Act (CERCLA) or corrective action under the Resource Conservation and Recovery Act. The term CERCLA applies to both surplus real property planned for transfer out of Federal control and for active installations. LUCs are established through the coordinated efforts of the installation Master Planner, Environmental Officer, installation staff Judge Advocate, and Director of Plans and Training, and approved by the garrison commander and the IMCOM Region Directorate. Land Use Plans will be annotated to reflect the LUCs and new land use if changed. During Real Property Master Planning of an Army installation, the real property Master Planner must consider limitations on potential uses of land associated with environmental contamination and cleanup. RPMP documentation will track LUCs imposed on installation land until it leaves federal ownership.

Leadership in Energy and Environmental Design, Neighborhood
Development (LEED®-ND)
The LEED for Neighborhood Development Rating System integrates the principles of smart growth, urbanism, and green building into the first national standard for neighborhood design. LEED criteria are designed to support that a development's location and design meet accepted high standards for environmentally responsible, sustainable, development. LEED for Neighborhood Development is a collaboration between the U.S. Green Building Council, the Congress for the New Urbanism, and the Natural Resources Defense Council.

M

Major Army Command (MACOM)
The command level immediately subordinate to that of the Chief of Staff, U.S. Army. There are a number of MACOMS in the Army. Each MACOM has command of units, organizations, and activities that share a common mission or function. For the purpose of this regulation, the CAR functions as a MACOM commander with regards to the Real Property Master Planning.

Master Planning Area (outside continental United States, except Alaska
and Hawaii)
U.S. Army installations and real property holdings within a specific geographic area that are grouped together and designated as a Master Planning area for development of a single military community or installation.

Military Construction, Army (MCA)
A program for the acquisition of major construction projects and land during peacetime and under mobilization conditions. MCA requests requiring congressional line item authorization and funding. Project preparation and documentation is controlled by AR 415–15.

Mission Commander
A commander responsible for the operational mission directed by Headquarters, Department of the Army.

Mixed Use Development
The practice of allowing more than one type of use in a building or complex of buildings. This can mean some combination of residential, commercial, industrial, office, institutional, or other use.

P

Privatization
Divesting Army utility plants, utility services, family housing, and possibly other BASOPS activities to public/private entities, allowing the Army to concentrate on the functions most critical to core Army missions. Privatization may or may not involve the leasing, permitting, or transfer of ownership of Army real property.

Program Objective Memorandum (POM)
The primary means for the Army leadership to allocate resources to support Army roles and missions. It translates planning decisions, Office, Secretary of Defense programming guidance, and congressional guidance into a detail allocation of forces, manpower, and funds. It presents the Army's proposal for a balanced allocation of its resources among centrally managed programs for manpower; operations; research, development and acquisition; and stationing and construction within specified constraints. OSD reviews the POM and modifies it to reflect program decisions. The approved program provides the basis for Army budget estimates.

R

Real Property Inventory (RPI)
A detailed inventory of each reportable item of real property. It serves as the basic source of information for the category, status, cost, area, capacity, condition, use, construction material, and capital improvements for each item of real property as defined by AR 415–28. The RPI is maintained at installation level and in the aggregate at HQDA.

Real Property Master Plan (RPMP)
The garrison commander's plan for the management and development of the installation's real property resources. It analyzes and integrates the plans prepared by the DPW and other garrison staff, mission commanders and other tenant activities, higher headquarters, and those of neighboring communities to provide for orderly development, or in some cases, realignment and closure, of real property resources.

Real Property Planning and Analysis System (RPLANS)
The primary means for the Army leadership to allocate resources to support Army roles and missions. It translates planning decisions, Office, Secretary of Defense programming guidance, and congressional guidance into a detail allocation of forces, manpower, and funds. It presents the Army's proposal for a balanced allocation of its resources among centrally managed programs for manpower; operations; research, development and acquisition; and stationing and construction within specified constraints. OSD reviews the POM and modifies it to reflect program decisions. The approved program provides the basis for Army budget estimates.

Regulating Plan
A map or series of maps that designates the key locations or zones where building form standards apply. It is based on clear community intentions regarding the physical character of the area.

S

Senior Commander
The installation commander responsible for executive level oversight of installation support services. The senior mission commander will be a general officer appointed on orders by HQDA.

Site
As defined in DA ACSIM Memorandum DAIM-ZA, 2 December 2005; A site is a physically defined location that can be supported by a legal boundary survey which closes a polygon. It can be owned, leased or otherwise possessed or used. A site may exist in one of three forms: land only; facility or facilities only; or land and all the facilities on it. A site is the sum of all real property at a specific location.

Sustainment
The maintenance and repair portion of sustainment, restoration and modernization. Maintenance and repair of real property includes maintenance and repair of buildings, structures, grounds, utilities systems, etc. within delegated authorization limits to keep them in good working order. It includes regularly scheduled maintenance as well as anticipated major repairs or replacement of components that occur periodically over the expected service life of the facility. It may also include minor construction activities (erection, installation, or assembly of a new facility, addition, expansion, or alteration of existing facilities within delegated authorization limits).

Sustainable Design and Development
Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Because many Real Property Master Planning decisions have long-term impacts, sustainability must be included. The interrelationship between environments, resources consumed, waste products, and use of facilities and land must be carefully designed and developed to preclude permanent damage to the future environment. It is a "cradle to cradle" process that assures future generations the same or better quality of life that we currently experience.

T

Tabulation of Existing and Required Facilities (TAB)
A tabular report of facility assets, requirements, excesses, and shortfalls. The TAB may be produced at the level of either individual facility category codes or facility activity codes (see AR 415–28 for a description of facility activity codes). RPLANS, which includes entries that reflect actual and specific user/mission real property facility requirements, will be used to produce the TAB. RPLANS-generated TABS are recognized by HQDA as part of the justification of construction programs.

V

Vision
The garrison commander's statement on how the installation will develop and improve over the next 20 years to adapt to the modernizing world, the changing Army, and our changing society. It expresses the desired relationship between the installation and the surrounding communities and the desired interaction of installation functions, activities and land uses. It also expresses how the garrison commander will satisfy future mission needs while maintaining excellent stewardship of the environment. Army installations are people as well as land and infrastructure Therefore, the vision should express how quality of life remains a paramount issue in the operation, management and development of the installation.

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