



MASSDEVELOPMENT

JOINT BASE CAPE COD MASTER COORDINATION PLAN

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Planning and Design

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PREFACE

Related actions have supported the current planning efforts on Joint Base Cape Cod. This continuum of actions has facilitated a focus on one of the most unique and important facilities in the Commonwealth of Massachusetts and New England region.

A Memorandum of Agreement was entered into between the United States Coast Guard, National Guard Bureau and the Commonwealth of Massachusetts establishing the Massachusetts Military Reservation Installation Partnership in December 2006. This agreement created shared management between the United States Coast Guard, the Massachusetts Air National Guard and the Commonwealth of Massachusetts.

- The airfield was transferred by permit to the United States Coast Guard from the Massachusetts Air National Guard
- The Massachusetts Air National Guard continued its established role as operator of the electric, water, sewage, and telecommunications utilities
- The Commonwealth of Massachusetts was made responsible for regional fire and emergency services for local, state and federal users of the MMR

The partnership also provided authority to the commands to enter into Memoranda of Agreement and Interagency Support Agreements; one of which has joined the commands in planning the future of the installation.

On February 27, 2012, then Acting Governor Timothy Murray signed the Executive Order that created a Military Asset and Security Strategy Task Force because of the importance of the military presence to the security and prosperity of the Commonwealth of Massachusetts. The Task Force was created to support the continued presence of all military installations in Massachusetts by protecting the installations from federal budget impacts and to ensure their continued vitality and importance through new missions. The goal of the Task Force is to:

“...analyze our military installations to determine where there are opportunities to fill vacant spaces, upgrade aging infrastructure, become more energy efficient, identify new missions, and build partnerships to bring more jobs and economic development at and around each site.”

MassDevelopment is leading the effort to explore opportunities and efficiencies on military installations across the Commonwealth, and is administering the funding for this plan and related efforts.

Governor Deval Patrick signed an Executive Order on July 17, 2013 that changed the name of the Massachusetts Military Reservation to Joint Base Cape Cod in keeping with the current missions and partnerships. Carrying forward the spirit of the effort as exemplified by these preceding actions is the purpose of this plan.

Carrying forward the spirit of effort embodied in these preceding actions is the propose of this report; to create a Master Land Use Plan with a long range goal of a strong Joint Base Cape Cod.



INTRODUCTION

This report has been prepared to advance the next stages of coordinated planning at the Massachusetts Military Reservation, now known as Joint Base Cape Cod, and to create a coordinated Master Plan that will identify appropriate near-term and long-term actions in conjunction military commands' existing plans for greater efficiency and mission effectiveness, and to meet their federal missions and standards of preparedness.

Joint Base Cape Cod encompasses some 22,000 acres of land on Upper Cape Cod and is organized to support multiple missions. Joint Base Cape Cod serves a wide range military and other public uses and activities. The northern portion of approximately 15,000 acres is used predominantly for training, particularly for Army field training and qualifications, habitat protection, and public water supply. Protection of water quality on the Joint Base Cape Cod is a significant concern for planning, such that the groundwater resources may continue to be used to meet the regional potable water demand. The northern training area in Joint Base Cape Cod serves as a special habitat of regional value for wildlife and flora. The management of this portion is under the jurisdiction and close oversight of the Commonwealth of Massachusetts with several groups of technical advisors, and is supported by the Joint Base Cape Cod's Environmental & Readiness Center.

The subject of this plan is the southern area of approximately 5,000 acres that has been identified as the cantonment area. Figure 1 shows the current boundary between the Camp Edwards Northern Training Area/Upper Cape Water Supply Reserve and the southern cantonment area. The cantonment area contains the Otis Airfield; structures used by the commands to train, operate facilities and maintain the properties; base housing for personnel and families; most of the utility systems and other supporting infrastructure; and the civilian agencies and entities included on the facility such as the Veterans Administration, Massachusetts National Cemetery and the Volpe National Transportation Systems Center, Otis Weather Test Facility.

The main commands and their missions at Joint Base Cape Cod are:

TABLE 1 MAIN COMMANDS

COMMAND	BASE FACILITY	MISSION
Massachusetts Army National Guard	Camp Edwards	Soldier Training
Massachusetts Air National Guard	Otis Air National Guard Base	Intelligence Systems
253rd Combat Communications Group	Otis Air National Guard Base	Communications
6th Space Warning Squadron	Cape Cod Air Force Station, Pave PAWS	Early Warning
U.S. Coast Guard	Air Station Cape Cod	Search and Rescue, Homeland Security



Summary of the Master Planning Approach

The approach taken for this planning effort was agreed to by the commands and includes a series of steps leading to a proposed scheme of joint use. This process was facilitated by the planning processes that have been taken recently by the three commands to plan for their long-term mission needs. These are the Site Consolidation Plan Update of the Army National Guard, the Land Utilization report of the Air National Guard, and the Final Regional Master Plan of the Coast Guard.

Steps taken in approaching the planning subject are:

TABLE 2 MASTER PLAN STEPS

STEP	ACTIONS
Memorandum of Understanding	Completion of MOU between U.S. Coast Guard District HQ, National Guard Commands (MA Army National Guard, MA Air National Guard, and EOPSS), Air Force 6th Space Warning Squadron, and MassDevelopment.
Analyzed Real Property and Master Plans	Collection and review of: Building Programs Consolidation Plans Future Mission Plans Related Planning Projects
Combined Property and Mission Plans	Combination of the distinct draft master plans submitted by the separate commands into one vision
Set Goals	Determined common and branch-centric goals for the Joint Base Cape Cod for improved efficiencies and facility management
Created Coordinated Master Land Use Plan	Prepared a Master Land Use Plan and cross-walked with environmental and infrastructure capacities
Prepared Future Concept with Alternative Solutions for Partnership Programs	Prepared a land use strategy that integrates the commands' plans in a cost-effective way and in accordance with the goals for reducing non-mission related management and more efficient infrastructure management

Needs for specific coordinated planning at the Joint Base Cape Cod have been expressed by multiple entities: the Commonwealth of Massachusetts, the surrounding communities of Bourne, Falmouth, Mashpee and Sandwich, and the commands. These needs are expressed in the goals of this Master Plan, which are to establish:

- An overall, combined military and civilian building and land use plan reaffirmed by previous planning efforts
- How the Joint Base Cape Cod military commands could be supported to more effectively and efficiently act in their missions through cooperation and sharing of facilities
- How the Joint Base Cape Cod could be planned to improve operational and infrastructure efficiencies
- How existing, supporting uses could be improved and integrated into the facility plans in ways that reduce the financial burden on the military commands

- What types of non-military uses could be located within the Joint Base Cape Cod that would be compatible with and support the continuation of the military presence;
- Proposals for potential shared facility projects that implement the improvements for efficiency and cross-supporting infrastructure
- A plan that controls development and operations to coordinate property management, control total management costs, and increase certainty when making land use decisions

The planning effort resulted in recommended potential near- and long-term futures for Joint Base Cape Cod that continue the current missions, allow for potential future missions, and accommodate support functions necessary for missions, while also reducing liabilities and costs for the commands. As a Master Plan, this document will provide guidance to the commands for the use of the cantonment area properties and provide for ongoing coordination among all other users. The Master Plan accommodates for evolution as knowledge increases, technology improves, and socio-economic environments change. The implementation recommendations include establishment of federal programs specified in the following section to allow completion of actions meeting the goals of the Master Plan.

Key Recommendations

The near-term future of Joint Base Cape Cod is a jointly shared and operated military base under a land use master plan that sets out land distribution, uses, and functions for all future land use actions including investments in building renewal, reuse, and new construction. Land use functions apply in the same manner for all tenants and are divided between mission, mission support, base housing and other uses.

The second, related longer term future relies on the continued operation of the military base combined with a strategy of providing attractive options for privatization and outside investment in sections of the base that are subject-to-change and can provide value to the commands. The privatization programs are proposed for the purpose of reducing financial demands and management responsibilities for the commands, improving living and working conditions on the base, and providing a potential source of income to support the missions.

The criteria recommended for privatization programs, suggested in part in the Air Station Cape Cod Final Regional Master Plan are the following:

- Must be compatible with military training and operations
- Must be compatible with environmental sustainability plans
- Should contribute to reduced operating costs for existing tenants
- Must not compete with or displace potential tax base of surrounding communities
- Must be compatible with surrounding residential neighborhoods.

One of the two privatization program initiatives proposed for Joint Base Cape Cod is transfer of base housing stock to a private management entity. Housing privatization is a program for the federal branches of the Air Force and Army to improve housing conditions while keeping similar housing costs. The installation's family housing area is sufficiently separated

and coherent as a designated area such that housing privatization is considered feasible under several alternative schemes.

For base housing privatization, recommended priorities are to:

- Privatize all family housing
- Eliminate the commands' backlog for demolition, construction and renovation
- Eliminate housing expenses for tenants beyond the Basic Allowance for Housing
- Create a smooth transition to accommodate existing housing tenants
- Ensure continued high quality services for residents
- Meet community needs for quality of life; well-located, safe, high quality finishes, energy efficient, well-managed, and affordable for military families for long term use (50 years)
- Require best practices for asset management and property development found in the housing industry

Another privatization program is to provide land as a unique regional opportunity for private contractors and commercial uses that cannot find other opportunities in the region or are closely aligned with the military and missions of the commands at Joint Base Cape Cod. There is a federal program option, Enhanced Use Lease, which allows the private contractor or commercial user of the installation property to contribute financially to the operation of the installation. In addition to rent for the facility, new user(s) could be expected to connect to and pay for use of installation utilities including water supply, electricity, solid waste disposal, and wastewater treatment. The benefits of such an arrangement are more efficient use of installation property and generation of local jobs.

For privatization focused on commerce and jobs, including Enhanced Use Lease opportunities, the priorities are to:

- Attract industrial and commercial uses that do not compete directly with regional business and economic development
- Allow for expansions of regional businesses with supplemental and supporting uses, including those that might otherwise be incompatible with neighborhoods off-base
- Allow uses that pay for all services and infrastructure costs, and where possible, provide rents for use of the property

Lastly, public partnerships could be employed to match municipal and regional resources with management needs of the installation, in line with the other regional public-military partnerships that have previously been completed for public water supply and solid waste management.

Implementation of the recommendations contained within this Master Plan is important to the future operation of Joint Base Cape Cod, to the health of the environment, and to support public confidence in the future of the land. Overall requirements for successful implementation of the alternatives are outlined within this document, although specific methods of management and implementation will be defined as part of a separate process.

The following sections review existing conditions, previous master planning efforts, and proposed near-term and long-term future of Joint Base Cape Cod.

History of the Installation

As background on the beginnings of Joint Base Cape Cod, an abbreviated history of the military operations within the property is summarized below.

CAMP EDWARDS

In 1933 the Adjutant General of the Commonwealth of Massachusetts appointed a board of officers that made a recommendation for creation of Camp Edwards. By 1935 a vote of the State Legislature allowed the acquisition of the properties composing the installation. Additional training land was provided from the Shawme State Forest, acquired in 1922, with the annexation of that portion of the Shawme Forest from Wood Road to the present northern boundary as part of the northern training area. The Commonwealth leased the land of Camp Edwards to the Federal government in 1941. The Department of Defense transferred control of Camp Edwards to the MA Army National Guard in 1975, and the MA Army National Guard currently holds the lease for the land.

OTIS AIRFIELD

The Army Air Corps, Navy, Air Force, MA Air National Guard, MA Army National Guard, and Coast Guard have all operated out of Otis. While the air field existed in the early construction of Camp Edwards, concrete runways were first constructed in 1942, and improved in 1943 and 1946 when the runway was extended to 8,000 feet in length. Between 1951 and about 1956, new hangars and other buildings on the south side of the airfield were built as part of the Air Defense Command. The Department of Defense transferred control of Otis Airfield to the Otis Air National Guard Base in 1973.

AIR STATION CAPE COD

In 1968, Otis Air Force Base became the home of the Coast Guard's Air Station Cape Cod, accomplished with the consolidation of Air Station Salem and Air Detachment Quonset Point. The 2005 Base Realignment and Closure Act actions eventually caused the transfer of all major responsibilities for management of the air field to Air Station Cape Cod. The formal transfer was completed in 2008 and stands currently. Air Station Cape Cod is now reported as the third largest physical plant in the Coast Guard.

MASSACHUSETTS NATIONAL CEMETERY

An important entity in Joint Base Cape Cod is the Veterans Administration National Cemetery of Bourne, Mass. The Department of Defense lease for the land was terminated and the land transferred in fee to the VA's National Cemetery System in 1976. The National Cemetery was dedicated in 1980.



FEDERAL LEASES, STATE LICENSES

The land owned by the Commonwealth of Massachusetts has been generally leased to the United States government and licensed back to agencies of the National Guard. The U.S. Coast Guard is one of the federal agencies with a lease from the State. A parcel south of the National Cemetery has also been leased directly to the U.S. Air Force. The Memorandum of Agreement from 2006 between the United States Coast Guard, National Guard Bureau and the Commonwealth of Massachusetts establishing the Massachusetts Military Reservation Installation Partnership clarifies and continues the role of the installation as a joint military base.

Conclusions

The historic information leads to the conclusions that:

- The facility has been largely created based on military missions.
- The investments made to support the missions have created a facility with multiple potential military uses and have also created a unique and valuable facility.
- The long term option for use of the properties could be modified for new missions with simple actions, so long as any new, non-mission-related uses do not prevent the flexibility for new mission-related uses.

CURRENT CONDITIONS

The cantonment area is a relatively flat, developed area with roads, utilities, buildings and housing for military purposes on about 5,200 acres and a total of about 6,500 acres that also includes related uses such as cemetery and groundwater remediation. Figure 1 shows the current boundary between the Camp Edwards Northern Training Area/Upper Cape Water Supply Reserve and the southern cantonment area. Table 1 provides some detail on the areas and designations within the southern cantonment area.

The management focus and purpose for the separate designations are to provide a high level of protection in the northern area for water supply and habitat protection, while providing an allowance for development of military facilities in the cantonment area.

By federal law, military regulation, and under the current lease and license arrangements, there is no significant lessening of environmental regulation in the southern cantonment area. There are several physiographic reasons for this:

- Wildlife habitat areas are found throughout the cantonment area, such as grasslands bird habitat and box turtle movement areas
- Water supply wellhead protection areas cross over large areas of the cantonment area
- Forested land and inland wetlands exist within the cantonment area
- Environmental remediation efforts include projects in the cantonment area

On top of these natural conditions are the physical, built conditions which are also regulated including:

- Utility systems: roads and paved areas of different conditions and types, wastewater collection and treatment facilities, water extraction and distribution facilities, stormwater handling facilities, fuel storage and transfer facilities, and waste disposal operations and facilities, including those for solid and hazardous waste
- Buildings with codes for their systems for maintaining the sheltered human environment

The only significant difference between the Camp Edwards Northern Training Area/Upper Cape Water Supply Reserve and the southern cantonment area is that the built environment of the cantonment area has developed with a greater intensity of use.

In general, the cantonment area is used as an airfield, cemetery, housing, military training and administration. The cantonment areas have been set aside as military properties for national and regional security and so must conform to the most recent federal standards for design and development of any new facility. Table 3 lists some of the components of the cantonment area.

TABLE 3 CANTONMENT AREA LAND USES

USE	ACRES
Airfield/Airfield Operations (including State and Federal land, US Coast Guard Air Station Cape Cod)	1,792
Airfield Clear Zones (unusable space for most purposes)	143
Air National Guard Mission Facilities	292
Installation Landfill (closed)	155
Air National Guard Infrastructure Areas (includes wastewater treatment, solid waste transfer, water supply, IRP facility, and several civilian activities) 3%	154
US Coast Guard Housing and MWR (includes golf course)	936
Army National Guard Maintenance Facility / UTES	236
Army National Guard Training Support Facilities	445
Army National Guard Aviation Facility / 2800 Area	16
Veterans Administration National Cemetery	749
Bourne School System (closed)	35
Crane Wildlife Management Area (Mass. DF&W)	134
Non-airfield grassland management zone / other agencies	570
Other State land	840

Joint Base Cape Cod: Current Tenants

Current tenants and commands at the Joint Base Cape Cod have been listed by the Environmental & Readiness Center as follows:

The Environmental & Readiness Center: The Environmental & Readiness Center manages programs to maintain and improve training lands, protect natural and cultural resources, plan and design installation improvements, and manage and minimize hazardous materials and hazardous waste generated at Camp Edwards, to guarantee the best training for soldiers, and ensure the highest level of protection for the environment at Camp Edwards. The center is responsible for balancing the needs of current training with environmental protection of the Massachusetts Army National Guard training lands at the base. The center also conducts community outreach activities to inform, involve and educate community members from the towns surrounding Joint Base Cape Cod. The center coordinates with all organizations on base and is a central point of contact for Joint Base Cape Cod environmental program information.

Army National Guard Training Site Camp Edwards: Camp Edwards, encompassing 15,000 acres of Joint Base Cape Cod, is the primary military training facility for National Guard and Army Reserve soldiers throughout New England. Camp Edwards' primary mission is to prepare soldiers for combat missions overseas as well as missions to serve and protect the homeland stateside. Training facilities at the base include a Tactical Training Base, used to simulate an overseas Forward Operating Base, urban operations training facilities, small arms ranges, convoy training, and state-of-the-art simulators. The facilities are available for use by

civilian first responders. Camp Edwards is home to a National Guard aviation battalion with a utility helicopter and air traffic control companies, three engineer units, and the Regional Training Institute.

The 102nd Intelligence Wing: The 102nd Intelligence Wing operates out of Otis Air National Guard Base in the southern portion of Joint Base Cape Cod. The intelligence wing provides world-wide precision intelligence and command and control along with trained and experienced Airmen for expeditionary combat support and homeland security. The intelligence wing also maintains and operates base-wide services such as the drinking water supply, the wastewater treatment plant, roads, electrical power, and operates environmental programs ensuring that current intelligence wing operations are conducted in accordance with all state, federal and Department of Defense environmental requirements.

Air Station Cape Cod: Air Station Cape Cod (ASCC), with three helicopters and four jets, is the only Coast Guard Aviation facility in the Northeast. As such, ASCC is responsible for the waters from New Jersey to the Canadian border. Additionally, the Coast Guard manages all airfield operations for the joint use, exclusive military Cape Cod Coast Guard Air Station. Centrally located on Joint Base Cape Cod, ASCC maintains the ability to launch a helicopter and/or jet within 30 minutes of a call, 365 days-a-year, 24 hours-a-day, and in nearly any weather condition. Coast Guard members at ASCC perform a variety of missions including search and rescue, homeland security, fisheries law enforcement, aids to navigation, marine safety, and marine environmental protection. Over three hundred active duty and civilian personnel work at ASCC and many Coast Guard families reside in housing on Joint Base Cape Cod.

Cape Cod Air Force Station 6th Space Warning Squadron's PAVE PAWS Radar: Cape Cod Air Force Station is the only land-based radar site providing missile warning for the eastern coast of the United States and southern Canada against intercontinental and sea-launched ballistic missiles. The active duty U.S. and Canadian military, and BAE Systems contractors at the Air Force Station, also conduct space surveillance, with approximately 2,600 satellite tracks totaling about 9,100 observations daily. This critical tracking information is electronically transmitted to the Joint Space Operations Center—Space Situational Awareness Operations Cell at Vandenberg Air Force Base, CA, where it's used to maintain a space catalog including more than 18,000 currently orbiting objects, serving an essential role of collision avoidance.

The 253rd Combat Communications Group: The 253rd Combat Communications Group commands, organizes, equips, trains and staffs assigned and attached forces to ensure mission readiness in support of wartime requirements for combatant commanders. The group provides timely, ready, reliable forces and mission-ready communications equipment as required.

Air Force Civil Engineering Center (AFCEC) Installation Restoration Program: The Installation Restoration Program, managed by AFCEC, is responsible for the investigation and cleanup of contamination from past military practices at Joint Base Cape Cod. The program has managed the cleanup of 79 source areas and 14 groundwater plumes. AFCEC is currently treating 12 million gallons of groundwater per day.

Massachusetts Army National Guard Groundwater Study Program: The Groundwater Study Program is addressing groundwater contamination and its sources on and emanating from Camp Edwards on the northern 15,000 acres of Joint Base Cape Cod. The program has cleaned more than 120,000 tons of soil from source areas and treated more than 4.5 billion gallons of groundwater. Groundwater treatment systems are now treating 2.5 million gallons of groundwater per day and reducing those plumes with the highest levels of contamination. The program continues to move forward with plans to address other areas of contamination as necessary.

Environmental Management Commission: The Environmental Management Commission and its staff, with the assistance of two advisory councils, monitors military and other activities in the Upper Cape Water Supply Reserve (the northern 15,000 acres of Joint Base Cape Cod). The purpose of the commission is to ensure the permanent protection of the drinking water supply and wildlife habitat on the reserve. The Commission is part of the state's Executive Office of Energy and Environmental Affairs.

Massachusetts National Cemetery: The Massachusetts National Cemetery is administered by the U.S. Department of Veterans Affairs and is the only National Veterans' Cemetery in New England. It occupies 749 acres on Joint Base Cape Cod.

U.S. Department of Agriculture: The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS) safeguards the nation's agricultural and natural resources from invasions of foreign pest organisms. This APHIS facility, Otis Pest Survey Detection and Exclusion Laboratory, provides operational support for national efforts to exclude and detect introductions of exotic pests. The laboratory also provides support for the control of pests, such as the emerald ash borer, Sirex wood wasp, Asian longhorned beetle, Asian gypsy moth, and offshore port monitoring programs.

Other Users of Joint Base Cape Cod: Other users include the United States Coast Guard Auxiliary; Coast Guard Northeast Regional Fisheries Training Center; Coast Guard Port Security Unit 301; Coast Guard Electronic Support Detachment Cape Cod; Coast Guard Atlantic Area Armory; Federal Aviation Administration, North Atlantic Region; Senior Environmental Corps; U.S. Geological Survey; Civil Air Patrol; Bourne School System (after school program); Coast Guard Communications Station, Boston; and the Otis Rod & Gun Club.

The current allocation of tenancy within the cantonment area is shown in Table 4.

TABLE 4 CURRENT LAND TENANCY/RESPONSIBILITY

USER	ACRES
US Coast Guard	3019
US Air National Guard	1178
US Army National Guard	1012
VA National Cemetery	729
Other State Land	570
Total	6507
Total for the Commands	5209

Previous Land Use, Development and Infrastructure Planning

The planning process considered previous plans to carry forward into physical and financial planning steps to create the comprehensive and coordinated plan of development and management recommended in this plan. This section reviews previous planning that helped inform the current recommendations.

COMMUNITY WORKING GROUP MASTER PLAN

A planning basis for this document is the Cape Cod Commission's *Master Plan Final Report* for the MMR that was adopted by the Community Working Group in 1998. The Community Working Group (CWG) was established by the Secretary of Environmental Affairs in her Certificate of May, 1997, as a Citizen's Advisory Committee under MEPA regulations, to provide for community input and review of the Draft Master Plan/Area-wide Environmental Impact Report. The Certificate was prepared as an agreement between the Secretary and the Adjutant General of the Massachusetts National Guard. The Secretary of Environmental Affairs issued a grant to the Cape Cod Commission to undertake master planning efforts to help further a regional context to the planning effort as part of community input. The Community Working Group's proposed Master Plan of land use in the cantonment area is shown in Figure 2.

FINAL MASTER PLAN / AREAWIDE ENVIRONMENTAL IMPACT REPORT AND SECTION 61 FINDINGS (1999/2002)

From January through August, 1999 the Massachusetts National Guard prepared a Preliminary Draft and Draft Master Plan/AEIR, including meetings and reviews with the Community Working Group. The result was a plan that distinguished activities, land use and management separately in the cantonment area and in the northern training area. A recommendation was the institution of three program and action elements:

- Environmental Management required that the property be managed under Environmental Performance Standards and the geographic restrictions of the Environmental Restrictions Map

- Monitoring and oversight was to be supervised by different agencies and levels of the government, which review activities and ensure compliance
- Lastly, the plan proposed Infrastructure Management as an element needed to complete the transfer of the infrastructure from the military. Utility managers would become only users of the utility systems.

A Final Master Plan / Areawide Environmental Impact Report, including Environmental Performance Standards, was completed in 1999. The Environmental Performance Standards were in several parts and included recommended standards for the cantonment area. Those Cantonment Area Environmental Performance Standards are included in the supplemental material.

In 2002, a finding was made pursuant to Section 61 of the Massachusetts Environmental Policy Act (MEPA), M.G.L. chapter 30, sections 61 – 62H, and Section 11.12(5) of the MEPA Regulations, 301 CMR 11.00. In that finding, the Massachusetts National Guard found that all feasible measures have been taken to avoid damage to the environment or, to the extent this damage to the environment cannot be avoided, to minimize and mitigate that damage to the maximum extent practicable. Documentation to support those findings, the Draft and Final Master Plan and Area-wide Environmental Impact Reports and Informational Supplement, had been prepared, widely distributed, and reviewed by the general public and presented within interactive public forums. Public and other agency comments have been received and considered in making those findings. For the projects proposed in the documentation, including projects in the cantonment area, mitigation measures are the following:

- Construction management techniques to reduce impacts during construction
- Off-site disposal of solid waste
- Stormwater management to treat and control runoff from the new facilities
- Reduction in impervious surfaces at other locations to reduce total facility runoff
- Removal of older facilities or their upgrading under current design standards
- Use of current building codes for design of any structure
- Use of already disturbed areas for the new construction
- Energy- and maintenance-saving architectural designs
- Operational and management standards to ensure activities at the new facilities do not result in environmental degradation
- Consideration of impacts to cultural resources

JOINT LAND USE STUDY, 2005, AND, MMR JOINT LAND USE UPDATE AND COMMUNITY- MILITARY PARTNERSHIPS STUDY 2013

The Joint Land Use Study was a partnership planning effort, based on a Department of Defense program, funded by the Department of Defense, Office of Economic Adjustment, with participation from the surrounding towns, and supported by the Cape Cod Commission. The stated goal of the 2005 MMR JLUS was to “develop a land-use plan in partnership

with MMR military officials for the areas adjacent to the MMR that minimizes conflicts of existing surrounding uses on military operations, avoids future land-use conflicts, and ensures that adequate infrastructure exists for future development within the study area, including future use of the cantonment area.”

Many of the key recommendations from the study were focused on safety within the airfield safety zones extending outside the MMR including control of properties that could have significant encroachment potential through fee-simple purchase, purchase of development rights, or restrictive use easements. In addition, it was recommended that the towns and Cape Cod Commission provide an opportunity for the commands to comment on proposed private and municipal development project and zoning changes within the airfield’s Accident Potential Zones and noise contours. Examples of those recommendations affecting the cantonment area include:

- Any new uses within the MMR or the JLUS study area that will result in a net increase in traffic should be offset by either purchase of vacant developable land within the study area (preferably residential land), or elimination of an existing use generating the same amount of traffic
- Future uses of the MMR should be connected to the MMR’s wastewater treatment facility
- The four Upper Cape towns should encourage implementation of the Army National Guard Base Consolidation Plan
- Exploring the feasibility of expanding capacity at the MMR’s wastewater treatment facility to improve water quality within the MMR JLUS study area, including establishment of a quasi-public state entity

The 2013 Update is considering new partnership concepts including the identification of opportunities for shared services between the communities and military in light of the 2005 plan of future growth of the Air National Guard at Otis and pre-BRAC and new federal budget priorities. The partnership focus of the 2013 Update is to recognize the new conditions and to, among other actions:

- Examine what comprises a community-military partnership
- Identify stakeholder roles, responsibilities and challenges of implementing military – community inter-municipal agreements
- Identify initial opportunities for shared service delivery to reduce costs and manage community growth through development of inter-governmental agreements

Recently recommended in the JLUS process were possible feasibility studies for possible shared programs, including:

- A regional wastewater facility
- A regional sludge/food waste processing facility
- Relocation of the regional fire training academy to MMR
- Public works and other administrative/maintenance services

Current and draft real property plans of the Joint Base Cape Cod commands, which are combined in this plan, are summarized in the next section.

Real Property Plans of the Joint Base Cape Cod Commands

Each of the three major commands has created drafts of master plans for their real property holdings with plans, policies and recommendations for future, and near-term changes. All of the plans follow similar policy lines:

- Promote and maintain the missions of the command, including the mission support systems, reduce non-mission-essential management requirements, and allow for mission changes
- Reduce and/or improve facilities that no longer meet authorizations and standards for assets and efficiencies, which have been identified as outdated, undersized and oversized facilities
- Improve the conditions of the infrastructure and reduce the maintenance requirements for personnel and budget items to service the infrastructure
- Maintain the existing form of the facilities in relation to mission and mission support; i.e. limit new construction to essential building programs and existing facilities, within areas of current mission
- Consolidation of facilities to reduce the management footprint, and increase sustainable design elements

Distinctions and differences include:

- U.S. Coast Guard goal to improve the quality of life for the base housing including the improvement and demolition of housing units in the family housing area
- Army National Guard goal to not only maintain but improve the training mission by adding facilities and properties deemed surplus by others, while also divesting non-essential facilities
- Air National Guard goal to divest responsibility as the Joint Base Cape Cod host organization and divest non-essential properties

CAMP EDWARDS SITE CONSOLIDATION PLAN (2005)

In 2005, the Massachusetts Army National Guard drafted a Site Improvement Plan that was titled the Site Consolidation Plan. The real property plan contained a recommended cantonment area Military Land Use Districts Master Plan, shown redrafted in Figure 3. The Military Land Use District descriptions associated with the Military Land Use Districts Master Plan are included in the supplemental information.

This plan was created with consultation from the Air National Guard and concurrence of the Coast Guard. The plan focused on Camp Edwards facilities, but fully mapped the military land uses in the cantonment area. In this plan the Coast Guard properties were not completely distinguished by type, with the exception of the cluster of MWR facilities and the golf course being identified as Family Support, and the Air National Guard and Air Force properties identified as the Airfield and Mission Support.

Important recommendations of the Military Land Use Plan were that:

- Specific areas were designated for existing and future field and classroom training activities. This included properties managed by all of the commands
- Consolidation of the Army National Guard facilities was to focus on the blocks between West Inner Road and Turpentine Road. This included the Camp Edwards Headquarters, which, while it has instead been moved to the renovated, original Headquarters on General's Blvd, allows other training and support facilities to be consolidated
- Areas without specific future military use or otherwise committed, such as the landfill and Volpe Center facility were designated as Environmental Management districts. This included land beside the airfield and property adjacent to the Bachelor Officers Quarters that are controlled by the Coast Guard

CAMP EDWARDS SITE CONSOLIDATION PLAN UPDATE 2012-2017 (DRAFT 2013)

The 2012-2017 Site Consolidation Plan is an update prepared in 2013. The plan includes proposals for all of Camp Edwards, including the northern training ranges as well as the activities and facilities in the cantonment area. The plan retains the Military Land Use Plan from the 2005 Site Consolidation Plan.

The Plan notes that the Joint Base Cape Cod is one of the premier government mission and training facilities in New England, one of the leading Army National Guard training sites, and a location for the latest communications technology. The following were reasons to illustrate the superiority of Joint Base Cape Cod as homeland security and military training facilities and their viable prospects for development, which includes the homeland defense training facility:

- Functions as a regional military and joint services training facility
- Co-locates Army National Guard, Army Aviation, Air National Guard, Air Force and US Coast Guard
- Includes full complement of training infrastructure
- Contains RTI and TSC headquarters
- Features a major airfield, which enhances regional access by training organization, as well as logistics, and provides for a variety of aviation-oriented training opportunities
- Benefits from the nearby location of the Massachusetts Maritime Academy and other port facilities, which support training functions
- Easily accesses major regional highways via direct four-lane, divided highway
- Holds the potential to tap over ten million people at major, nearby cities
- Presents multiple possible siting opportunities
- Includes excellent utilities - sewage treatment, water supply, power, fiberoptics, and natural gas
- Provides accommodation through both on-site and off-base housing facilities
- Involves established planning, development, and environmental protection professionals to manage project development



- Captures state and federal commitment as a major training site for military and civilian use
- Offers substantial on-site and off-base recreational opportunities and facilities.

Several important program concepts were presented in the plan for the cantonment area:

- Creation of a Campus Center around the 5200 area where the Regional Training Institute is proposed for expansion in conjunction with evolution of the Homeland Security Institute. The program includes improvements to the billets, classrooms, dining and parking facilities which are all connected with a pedestrian network. It also involves new partnerships with educational institutions.
- Maintaining the Integrity of Joint Base Cape Cod as a unique facility that is important for the Northeast region. This is accomplished by maintaining the missions of the commands, in particular for training and emergency response, and by ensuring the size of the facilities and properties is not further reduced without careful consideration of long-term mission requirements.
- Public-Private Partnerships where the partnerships meet several factors such as compatibility with mission training, operations, and environmental programs, reduced operating costs, while not impacting surrounding the communities by displacing the options for improving the local tax base and by ensuring compatibility with adjacent residential neighborhoods.
- Land Banking particularly for expansion of the Regional Training Institute and Homeland Security Institute in terms of facilities, curriculum and collaborations with outside institutions.
- Project Planning for those areas dedicated to new projects, consideration must be given to sizing for buildable areas, site orientation, parking consolidation, and walking distances.
- Net Zero Energy and Resource Initiative, following Executive Order 31514 requirements by reducing energy, water and waste and for the purposes of reducing costs, providing self-sufficiency, and ensuring security during emergencies.

OTIS AIR NATIONAL GUARD BASE LAND UTILIZATION (2013)

The Otis Air National Guard Base Land Utilization report noting that the 102d Fighter Wing was officially designated as the 102d Intelligence Wing in 2008, reviews the mission, organization, interests, and host utility responsibilities for tenants at Joint Base Cape Cod. The plan identified 3,600 acres of land that the Air National Guard currently has an interest, but noted that only 292 acres are used for mission purposes and 394 acres for mission support. This includes the properties set aside for mission support as utility infrastructure.

The breakdown of Air National Guard land use and tenancy within the cantonment area that are identified in the plan is shown in Table 5.

TABLE 5 AIR NATIONAL GUARD TENANCY AND LAND USE IN THE CANTONMENT AREA*

USE	ACRES
Mission	292
Mission Support (including WWTF and 253d Combat Communications Group)	394
Federal Land (including land permitted to the USCG and FAA)	958
State Land (including land permitted, licensed or consented to others)	1,672
Landfill	155
Total	3,471

* There are other land interests that lie outside the cantonment area.

The plan proposes the divestment of properties in response to the change in size of the mission which has been substantially reduced from the peak in the 1960's and 70's. The plan discusses recent and intermediate transfers and proposes a major divestment to facilitate transfer to the Commonwealth of Massachusetts whereupon the state could directly lease the properties to the other commands.

The plan identifies the properties and buildings proposed to be transferred to the other two commands as follows

- To the USCG, proposed is 2,111 acres of which 1,792 acres are associated with the state and federal fee in the airfield, and 203 acres within the family housing properties.
- To the Army National Guard, proposed is 558 acres of which 208 acres are the rights of way of the main roads into and through the cantonment area and the railroad and railhead area in the south-central portion, 150 acres currently permitted for the VOLPE site, and 81 acres around the renovated Headquarters site and EOD.

USCG AIR STATION CAPE COD MASTER PLAN: FINAL REGIONAL MASTER PLAN (DRAFT 2012)

The USCG prepared a master plan for Air Station Cape Cod in 2012. Within the plan are goals and criteria that were translated into a conceptual plan for the future Air Station Cape Cod. The Preferred Concept focuses on missions and flexibility for mission changes, while reducing facility maintenance through consolidation, divestiture and correction of deficiencies. The facilities associated with the Air Station were scrutinized and the overall facilities mix, including housing and MWR was found to be advantageous for the mission and presence, combined with the capital program. The over arching goal of the plan is to “effectively manage the property and facility resources to accomplish the CG’s mission in a cost-effective and sustainable manner.”

Highlights of the Preferred Concept include:

- Reduction of Runway 14-32
- Repurposing of Building 3172 for grounds equipment storage space
- Construction of a new air traffic control tower

CURRENT CONDITIONS

- Reuse of the Air National Guard alert hangars for snow removal and grounds maintenance equipment and the release of the hangar currently used for snow removal equipment back to the Air National Guard
- Relocating units in energy-inefficient and suboptimal buildings over to the East Wing of the existing UPH
- The master plan also evaluates the relocation of regional Coast Guard units to Air Station Cape Cod and Joint Base Cape Cod

In support of Coast Guard personnel, the Preferred Concept includes:

- Upgrades, demolition and new construction for the currently deficient family housing units
- A new Child Development Center

The implementation strategy was presented that met the following metrics:

- Correct high risk safety and code deficiencies
- Contribute to operations
- Reduce shore footprint through consolidation of units/facilities with divestiture and demolition
- Strive for the lowest life cycle cost of shore plant

A prioritized capital program spanning a 25 year planning horizon was proposed to implement the Preferred Concept. This included high priorities to construct a new Air Traffic Control Tower, and improve the housing area, and for the medium priority option to house the transfer of other regional Coast Guard units at Building 158. The last item is reportedly now of lower priority and Building 158 may be repurposed for other uses and users.

COORDINATED MASTER LAND USE PLAN

Given the information summarized in the previous sections, the next step in the planning process was to create a series of plans that combined the missions, operations and goals of the commands, while following the overall planning goals for a coordinated Master Land Use Plan. The actions were to combine and coordinate the real property plans of the commands and to prepare a single master land use plan for Joint Base Cape Cod.

Current and Future Tenancy Plan

This section summarizes the results of creating a current and future tenancy map that clarifies which command may assume responsibility for different blocks of the cantonment area.

Process

The first step was the creation of a current tenancy map that indicates parcel and building ownership as presently determined by permits, leases and licenses. This information is gathered from the GIS database of the 102nd Civil Engineering Squadron, as shown in Figure 4, and indicates the current distribution of tenancy. The pattern of ownership is under discussion for change based on new missions of the Air National Guard and Coast Guard, and mission needs for all the commands.

Proposed Future Tenancy

The second step was to create the proposed or future tenancy map to show the proposed redistribution of leases, licenses and permits for more efficient management based on the missions of the commands and how those missions have evolved.

Based on the combination of master plans from each of the commands in terms of proposed future tenancy creates the map shown in Figure 5. The differences between existing and proposed property tenancy indicated by the differences in the existing and future conditions are as shown in the following Table 6:



TABLE 6 LAND OWNERSHIP/RESPONSIBILITY

	CURRENT	FUTURE	DIFFERENCE	% CHANGE
US Coast Guard	3019	2993	-26	-1
US Air National Guard	1178	850	-328	-28
US Army National Guard	1012	1379	367	36
VA National Cemetery	729	729		0
Others	570	570		0
Total for the Commands	5209	5222		

The most significant differences are attributed to the transfers of land between the commands around the airfield and between the Coast Guard and Army National Guard adjacent to the golf course. In addition, a noted variation is the responsibility for Connery Avenue, the main access road into the installation from State Route 28.

Potential Transfer of Connery Avenue to Civilian Responsibility

Figure 5 indicates the transfer of maintenance responsibilities for Connery Avenue, from Otis Rotary up to the Main Gate, to a civilian entity. This is based on the potential for expansion of civilian use at the location of the Barnstable County Jail, where the increased use would be met with increased infrastructure maintenance responsibilities, or for another civilian use accessing Connery Avenue. This is based on an interview with the County Sheriff and requires further development for analysis.

The latter option of another public use was discussed during the public meeting that was part of the ongoing Joint Land Use Study. During the public session, the consideration for relocation of town facilities in the town of Bourne to new facilities at the Joint Base Cape Cod properties was raised as a consideration. Conversation with the town of Bourne has suggested this may be a lesser option for the town facilities in need of relocation at this time.

In the event that a civilian development concept is not brought forward, the currently planned transfer of Connery Avenue for maintenance is from the Air National Guard to the Army National Guard.

The combination of the master plans from each of the commands regarding proposed land use has been modified as a result of discussion with the commands as to their current considerations. However, the basic plan supports continued operations and missions of the commands at Joint Base Cape Cod.

Coordinated Master Land Use Plan, Detail

The next planning step was the creation of a coordinated Master Land Use Plan, which is intended to be a composite plan of existing and recommended military and civilian land use districts within the cantonment area. The concept is similar to, and an update of the Military Land Use Districts plan included in the Army National Guard Site Consolidation Plan,

from 2005 and including the 2012-2017 Update. It is remodified based on the input from all three commands as obtained from the individual master plans and a series of meetings.

The purpose of the Master Land Use Plan is to provide a common set of geographic criteria for guidance of joint land use and infrastructure planning decisions. The plan differentiates land areas by function according to the four different land use designations including three basic function areas and one for civilian uses:

- Mission – facilities and properties required for each of the three commands for their missions. This includes areas for new mission-related facilities
- Support – separated by the type of support facility, including specific mission support, administration, utility and other infrastructure, recreation, other MWR, and multifunctional areas. Also included are environmental management areas
- Housing – areas designated for family and transient housing
- Civilian - separately shown are the civilian functions, such as the National Cemetery and Barnstable County Jail

These were further divided into subdistricts according to the designated use as determined from the real property information for the commands. The subdistricts are:

- Mission, Air National Guard – for the areas designated as mission essential for the Air National Guard
- Mission, Coast Guard - for the areas designated as mission essential for the Coast Guard
- Mission, Army National Guard - for the areas designated as mission essential for the Army National Guard
- Support, Mission – for areas considered support to the mission of the commands and otherwise not classified, this includes land for the UTES and airfield management
- Support, Training – distinguished within the Camp Edwards training mission as areas for training support, logistics support and environmental management
- Support, Administration – for the administrative support functions including the previous headquarters and warehouse for Camp Edwards
- Support, Infrastructure/Utilities – for those areas designated for major utility infrastructure such as the wastewater treatment facility
- Support, Environmental – are areas designated for habitat management
- Support, MWR – for those areas with morale, welfare, and recreation facilities
- Housing, Permanent – for those areas used for family housing to distinguish it from temporary quarters used for billeting and dorms
- Housing, Transient – for those areas used for temporary quarters
- Civilian – for those areas with civilian uses currently or proposed

The resulting Master Land Use Plan is presented in Figure 6, with the table of uses and areas listed in Table 7.

TABLE 7 LAND USE AREAS PER SPECIFIC USES

MASTER PLAN	ACRES
<i>Mission (M)</i>	
Coast Guard	1,790
Air National Guard	231
Army National Guard	330
Subtotal	2,352
<i>Support (S)</i>	
Administration	33
Environmental	230
Facilities	253
Housing	81
Infrastructure / Utilities	326
Mission	562
MWR	152
Recreation	162
Training	405
Subtotal	2,207
<i>Housing (H)</i>	
Permanent	765
Subtotal	765
<i>Civilian (C)</i>	
Environmental	289
Facilities	855
Subtotal	1,145
<i>Total</i>	6,470

The plan as shown has proposed land uses based on several potential future projects:

- Use of the base landfill for a solar energy facility and a portion of the block for other uses
- A transfer to the Barnstable County Jail of the maintenance responsibility for Connery Avenue on the portion from Route 28 to the Main Gate for expansion of the functions within the existing footprint, discussed previously
- A transfer of land between the commands, principally the Air National Guard and the VA National Cemetery for an option to facilitate the privatization of the family housing

Possible Transfer of Land with the Veterans Administration

The Master Land Use Plan, as noted, includes a concept for transfer of land between the VA National Cemetery, the Air National Guard, and potentially the US Coast Guard. The potential exchange is about 150 acres of land shown on Figure 7 that involves two parcels linked by the family housing area and Connery Avenue:

- Land on the west side of the family housing area, most of which is identified as Air National Guard interests on State leased land
- Land under the former hospital grounds and additional frontage on the south side of Connery Avenue, which is currently part of the VA National Cemetery.

This would ultimately be an exchange of properties with equal value between the Veterans Administration and the Commonwealth of Massachusetts. According to the office of the Veterans Administration responsible for planning these types of transfers, 38 U.S.C. 2406 grants the Secretary of the Veterans Administration the authority to acquire additional lands for national cemeteries as needed. The authority to execute contracts for land donations, exchanges, or acquisitions is delegated to the Veterans Administration Director, Real Property Service (RPS). The delegation of authority is contingent upon receipt of a conceptual approval by the Secretary of the Veterans Administration.

Before the land can be acquired, both parties must complete due diligence investigations to determine its suitability for proposed use and associated environmental impacts. For the Veterans Administration, environmental due diligence studies include compliance with the National Environmental Policy Act (NEPA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and a Section 106 consultation pursuant to the National Historic Preservation Act (NHPA). For the Commonwealth, state laws and regulations would also apply.

The VA will only seek the acquisition of a fee simple title to land (all rights and interests in the land). The land should be free of use restrictions (conservation restrictions, maximum height restrictions, etc.) and free of restrictive covenants. The land should also be clear of legal encumbrances that would limit or restrict the use of the property for cemetery development. Examples of such encumbrances are easements for utilities, rights of way for public or private roads, railroads tracks, and canals. The most desirable land for cemetery expansion should be free and clear of structures and improvements. Under the National Historic Preservation Act, the Veterans Administration must consider the effect of acquisition and development on historic and cultural resources, including buildings, archaeological resources and historic landscapes, on the property and in the vicinity.

The Veterans Administration asks that the land be free of environmental contamination and concerns, including but not limited to toxic chemicals, hazardous waste, buried landfills and asbestos. The existence of the following conditions severely limits development and the Veterans Administration generally avoids lands with these conditions:

- Protected wetlands or floodplains
- Severe slopes (>15%)
- Rock outcrops or rock close to the surface
- Geologic features such as sinkholes
- The presence of endangered plant or animal species.

While a number of these conditions are issues on the Joint Base Cape Cod properties, the VA has preliminarily determined that the discussion of transfer could proceed based on a review of available information.

The purposes for this suggested transfer are that expansion of frontage on Connery Avenue allows the Joint Base Cape Cod to have flexibility in the level and design of security on Connery Avenue, and to maintain control over the development along Connery Avenue. It also increases flexibility for access to the family housing area for locations inside or outside the Main Security Gate on Connery Avenue, and thereby provides flexibility in planning a transfer to a future housing privatization partner. Housing privatization could proceed without the transfer. However, if the transfer is completed, it is projected that this would improve the value of the housing transaction to the privatization partner and to the base housing improvements.

CONCLUSIONS

The overall pattern of activities and facilities reinforces this particular distribution of land uses as a military installation evolved from the historic base development and modified by later changes in environmental conditions and requirements, budgets, and missions.

The suggested transfer of land between the State and the Veterans Administration, and the potential shift of management of Connery Avenue to a civilian public agency, currently suggested as the Barnstable County Sheriff, are two actions that require further action before committing the properties as proposed in the Master Land Use Plan.

The concentrations of buildings around the airfield, around the node of Lee Road and Turpentine Road, and around the node of West Outer Road and South Outer Road are indicative of the distribution and concentrations of buildings within the cantonment area. The linked training facilities and field areas across Turpentine Road are another indication of the current patterns of land use.

While the Master Land Use Plan provides a level of detail appropriate to show the intended commitment of the properties, it is less valuable to the longer term planning decisions for investments and improvements in the properties without modifications or reconsideration of the bases for the designation and allocation of land to specific functions. Consequently, a more simplified version of the Master Land Use Plan is proposed to work within the goals for flexibility in accommodating new missions for the commands. The next step was therefore to create a more simplified version of the Master Land Use Plan.

Master Land Use Plan

The simplified version of the Master Land Use Plan includes all of the above considerations but generalizes the land plan based on mission requirements, support services and other functions. The plan differentiates land areas only by function according to the four different land use designations, including the three basic installation function areas and one for civilian uses, again being:

- Mission –identifying the mission-essential properties for each of the commands
- Mission Support – including all of the subareas identified as support to the commands and their missions, with the exception of family housing
- Housing – covering the areas identified for family or permanent housing
- Civilian – covering those areas of civilian facilities and open space

The simplified, proposed Master Land Use Plan is presented in Figure 8. The land use areas are shown in Table 8, and the buildings within each district have been tallied in a supporting database supplemental to Table 9.

TABLE 8 MASTER LAND USE PLAN AREAS

CATEGORIES	ACRES
Mission	2352
Support	1395
Housing	766
Civilian	1137
Total	5650

Figure 9 identifies the major facilities within the cantonment area in relation to the simplified Master Land Use Plan. Again the concentrations and distributions of buildings support clustering of new buildings in several key nodes. However, to meet the goals of the commands for long-term flexibility, it is suggested that certain areas designated as Mission Support will be land banked to maintain a coherent facility and for any changes in mission requirements.

CONSIDERATIONS AND ALTERNATIVES

Options for Sharing Uses and Facilities

Existing facilities on Joint Base Cape Cod are currently shared by the commands to reduce operating and management costs and jointly benefit from space programmed for multiple purposes. Figure 10 shows the locations of currently shared facilities.

Figure 10 also indicates facilities that were considered for *potential* sharing because of commonalities between the commands. These potential shared facilities include recreation (MWR), vehicle maintenance, and storage facilities.

Meetings were held with representatives of the base commands to determine if these or other facilities may be options for shared use because they are types of facilities common to each command. In particular a request by was made to consider whether any of the vehicle maintenance and storage facilities were redundant and whether the MWR facilities could be shared.

It was determined that:

- The current distribution of vehicle storage is required to distribute maintenance and operations by the location of critical infrastructure:
 - * The airfield requires a significant commitment of ready maintenance; particularly snow clearing
 - * Other mission-required access ways and roads require concurrent maintenance
- The vehicle types are supported by specific federal budget lines that do not allow crossing of budget support:
 - * Training mission equipment at the UTES is funded as a military budget line separately from other government vehicles including certain vehicles funded as part of the General Service Administration fleet
- The facilities for vehicle maintenance and storage are not constructed consistently and so are not designed for all the current vehicle types:
 - * The Coast Guard is using temporary facilities for snow clearing equipment and is intending to trade the current hangar with the Ready units currently owned by the Air National Guard
 - * The UTES facility handles training equipment with non-standard-vehicle and truck dimensions
 - * The Air National Guard vehicle maintenance building is undersized by height of garage door opening

Multi-purpose use of buildings was determined as the best option to permit shared resources, particularly for the MWR facilities where a training function may be included in the programming of the space to permit funding support from different budget lines. As an example, improvements to the gymnasium were possible because it was repurposed for an intake facility that allows the compatible use of facility for recreational purposes when not being used for mission-related uses. Another example is the Theatre which may be programmed for training sessions while allowing performances during other periods.

ANALYSIS OF THE MASTER LAND USE PLAN

The result of the Master Land Use Plan composition is a picture of currently planned use of the whole cantonment area. To ensure this is a realistic master plan, the plan is analyzed for compliance to the requirements for safety in the airfield protection zones and Anti-Terrorism/Force Protection standards, capacities of the supporting infrastructure, such as roads and utilities, and the environmental resource management needs.

Airfield Protection Zones

The purpose of the Air Installation Compatible Use Zone [AICUZ] is to protect the health, safety and welfare of development around the airfield from noise and hazards. The Department of Defense program was instituted to reduce and eliminate conflicts with land development surrounding military air installations. It provides for the development and implementation of a plan to determine those land areas for which development should be managed because of the operations at the airfield. These districts are designated as the AICUZ for that installation. Noise attenuation, building height and land use restrictions,

and notifications are ways in which the properties within the AICUZ districts may be managed to protect the health, safety and welfare.

The AICUZ remains as previously designated for the airfield and is shown in Figure 11. This presentation of the AICUZ is based on a specific mix of aircraft that could utilize the airfield because of the dimensions and facilities at the airfield. To provide for compatible development, the Air Force previously acquired easements and fee simple ownership on lands in the noise and accident potential zones around the airfield. However, certain privately-held lands are still within the AICUZ designated areas.

The impact of the AICUZ districts is not significant to the Master Land Use plan for Joint Base Cape Cod, or to the potential privatization programs.

Anti-Terrorism/Force Protection Standards

The Department of Defense intends to protect and respond to terrorist actions against military installations. The Anti-Terrorism/Force Protection Standards may be found in Unified Facilities Criteria 4-010-01 published by the Department of Defense to ensure uniform application of protective measures. This publication specifies the assets to be protected, the threats to those assets, and the desired levels of protection.

Ensuring the ability to meet the standards of Anti-Terrorism/Force Protection was included in the Coast Guard, Air National Guard, and Army National real property master plans. The area available for adding Anti-Terrorism/Force Protection dimensional standards within the cantonment area has been confirmed in site planning current and proposed projects. New investments would be required to follow the same standards.

Environmental Resources

As previously noted, the cantonment area has been identified for water supply resources, habitat values, environmental remediation projects, and certain relatively-undisturbed open land. Considered of particular importance are the groundwater resources. Figure 12 shows the groundwater recharge areas for surface water bodies and the groundwater recharge areas for public water supply wells that pass under the cantonment area.

The dominant condition is that the majority of the cantonment area is in an area over groundwater that supplies public wells or recharges surface water bodies. However, this is not a limiting factor if the proper design elements are included in all future development. Several aspects of the combined Master Land Use Plan can be identified as achieving sustainable design principles. In specific applications of the applicable criteria, the following design standards would apply:

- Concentration of uses and future development in already developed areas
- Siting similar and related uses to reduce transportation between facilities
- Designation of land management areas to maintain habitat resources
- All uses would connect to the installation sewage treatment system
- Site improvements would meet Low Impact Design standards for reducing impacts

In addition, the family housing area along with much of the Coast Guard's MWR facilities have a limited impact on the identified water resource areas. This would allow for expansion of the housing and MWR without significant impact to these key natural resources.

Road System

The cantonment area road system has been classified by each of the commands defining preference for management. The commands have identified the roads that are of primary importance, most particularly for mission, and those of secondary importance. Included are those roads that meet some lower need and are classified as tertiary roads, and those roads that no longer have a value and are slated for demolition to reduce impervious surfaces within the cantonment area.

The combined, proposed road system classification is shown in Figure 13. This scheme allows for the continuous access to the mission and mission support areas, and links the different areas with the installation entrances and support services. There is no need for new roads. However, upgrading the roads based on required maintenance and improving walkability are still indicated as needed.

Utilities

Utilities at Joint Base Cape Cod are currently hosted by the 102d Intelligence Wing, which owns and maintains the electric distribution system including a 12,500 KVA substation, the water distribution system including a public water supply well, the sewage collection system including a waste water treatment plant, and the telephone system for all agencies. Each utility requires extensive staff and funding to maintain. The following three sub-sections on electric, water, and wastewater infrastructure have been paraphrased from the 2013 Otis Air National Guard Base Land Utilization report prepared by 102d Intelligence Wing.

Electric

The majority of the electric distribution system shown in Figure 14 was replaced in 2001. The system is shown The main transformer was replaced again in 2010 with an upgrade from 5,000 KVA to 7,500 KVA. The system is currently in good condition and the upgraded substation is operating at about 60% capacity. This situation provides room for growth for all the agencies at the Joint Base Cape Cod.

Water

The water distribution system shown in Figure 15 has excess capacity. The sources of the water are supply from a single public water supply well (J-Well) own by the 102d and purchase of untreated water from a wholesale provider (Upper Cape Water Co-op). All water from both sources is treated at a single location with sodium fluoride, potassium carbonate, and sodium hypochlorite. The permit allowance (from either J-Well or the Upper Cape Water Co-op) for Otis Air National Guard Base is 540,000 gallons per day. Only about half this amount is being used. Much of the 54 miles of distribution pipes at Joint Base Cape Cod was designed and built in the 1940s and 1950's to accommodate a population of 70,000 people. The system now only services about 3,000 people, leaving much of the infrastructure abandoned

or underutilized. Due to limited funding, the lack of a large scale maintenance program has left the system vulnerable to frequent maintenance emergencies.

Wastewater

The wastewater system is shown in Figure 16. The sewage collection system consists of about 36 miles of pipe and over 700 manholes. Most of the collection system was built from 1940 to 1955 and is in fair condition. The waste water treatment plant was constructed in 1995 and upgraded in 2001. The plant has a two-process train configuration. Only one train is operating to accommodate the current load and is alternated annually or during breakdowns. The plant has a permit capacity of 360,000 gallons per day of which only about half is used on average. Although the plant is permitted to take on average another 180,000 gallons per day, it would only take another 40,000 gallons per day to require both trains to be operated full-time at additional expense. After treatment, the effluent is pumped 11 miles north to infiltration basins near the Cape Cod Canal.

The intention of the 102d Intelligence Wing is to divest in all three utilities to another provider, and then purchase these services from the new owner. The aim is to reduce 102d IW's operating costs by only paying for the services it uses rather than owning and maintaining the infrastructure for the entire Joint Base Cape Cod.

New Utility Initiatives

The Brightfield Solar Project, proposed for the base's closed landfill, could provide renewable electrical power, thereby reducing the need for service from the existing commercial power supply. The contract may be a Power Purchase Agreement, where the land will be leased to a private developer who will install, own, and operate the system. The Coast Guard is considering a similar venture for a solar field below the family housing area.

The capacity of the Joint Base Cape Cod's wastewater treatment facility and site is being considered for processing wastewater and sludge/food waste generated within the region. However, as discussed, the Air National Guard is not interested in continuing, let alone increasing, their responsibility for management of the wastewater treatment facility. Therefore the additional waste streams for treatment should be considered as part of the value in the transfer of the facility to another agency.

Opportunities within Utility Capacities

In terms of opportunities and constraints, the utilities do not significantly restrict the current and potential facility development within the installation.

- The electric system is at about 60% capacity and alternative energy systems are being considered at the base
- The water supply system is at about 55% capacity, with 240,000 GPD of additional flow available
- The wastewater treatment system is running at about 60% capacity with an additional 150,000 GPD of treatment capacity available
- Natural gas is also available

One limiting factor is the capacity of the wastewater treatment facility where at different points it will reach certain levels where the treatment capacity would need to be upgraded or expanded. However, this would allow development of new facilities. Based on the 150,000 GPD available for additional flows this volume could provide approximately for an additional 330 single-family dwelling units or an additional 300,000 square feet of typical industrial buildings. These are significant in scope and, if permitted, would support the potential privatization alternatives described in this report.

Application of Facility Planning Standards

The design of each new facility would be in compliance with the applicable federal and state regulations. Additional design guidelines are recommended that are consistent with those regulations and standardized for the installation. In accordance with UFC 2-100-01, the following criteria are typical standards that could be applied to new development and facilities within the Joint Base Cape Cod, Master Land Use Plan:

- Mission Compatibility – support to the missions of the commands
- Sustainable Planning – energy efficient and low impact development
- Natural, Historic and Cultural Resource Management – careful maintenance of the natural and anthropogenic conditions found on the property
- Healthy Community Planning – walkable with healthy conditions
- Defensible Planning – force protection based on the level needed for the facilities
- Capacity Planning – where the infrastructure capacities are understood in relation to the facility program
- Area Development Planning – consideration for the regional influence of the facility because of uses and employees within the market
- Network Planning – linking the installation IT network to a broader, secure system
- Form-Based Planning – consistently applied architectural and site design principles
- Facility Standardization and Plan-Based Programming – utilizing a coordinated set of design guidelines for the facility and using the Master Plan as a basis for long term improvement and investment decisions

Also in accordance with UFC 2-100-01, a number of more specific design guidelines could be applied such as:

- Compact/Infill Development – Try to place new development within the nodes identified in the Master Land Use Plan
- Tree-lined and Shaded Streets – Plantings, consistent with the Cape Cod environment will improve the walkability and reduce environmental impacts
- Water-Efficient Landscaping – Choosing Cape Cod native species and reducing lawns
- Existing Building Reuse – While some buildings do not meet current military standards, the reuse of buildings typically lowers the costs of new facilities
- Historic Preservation - The reuse of the original Camp Edwards headquarters building is an example of successful building reuse that meets historic preservation guidelines

- Solar Orientation - Building orientation and solar gain is a design component that can be incorporated into new construction
- Heat Island Reduction – Reduction of parking lots and choices of the paving surface, together with choices of roofing materials to reduce solar heat gain
- On-Site Renewable Energy – This is being addressed with the wind and solar initiatives but could also be considered in new building projects.
- Close-in Training – This reinforces current soldier training which has been efficiently designed at Joint Base Cape Cod to physically link the sequential steps in training with the training areas
- Mixed Use Buildings – Shared use of buildings such as the Gymnasium and Theatre would be considered mixed use as well as multiple units in a single large building
- On-Installation Housing – Reducing travel times on area roads makes the base housing an important component in meeting goals for sustainability
- Access to Recreation Facilities – The location of MWR in relation to the family housing area and personnel supports this guideline
- Anti-Terrorism/Force Protection Compliance – The protection of the personnel and the ability to respond are consistent with military standards

Regarding the last point and the Joint Base Cape Cod family housing improvements is this excerpt from Unified Facilities Criteria 4-010-01; ‘Family housing with 12 units or fewer per building is exempt from all provisions of these standards’[section 1-9.2, Low Occupancy Family Housing]. This would not impact the Coast Guard’s plan for Right Size Housing, which is programmed for small multiplex and single-family housing units.

Conclusions

Based on analysis of the road infrastructure, environmental resources, utilities, and site planning and design standards, the long-term management of the installation consistent with the Master Land Use Plan will be compatible with the resources and resource capacities of the installation. A series of other planning studies has been completed that lays out options for alternative utility infrastructure construction and management. This includes alternative energy generation facilities, regional public-military partnership projects, and transferring utility management responsibility from the Air National Guard.



LONG-TERM LAND PLAN

The last step in this master planning effort is development of a concept with a series of alternatives that would significantly reduce demands placed on the commands for properties, facilities, and management responsibilities outside their missions. This does not include properties that are considered real property needs for current mission support but does include properties that are considered of less direct value to the current missions and real property that is potentially available for privatization or other partnerships and therefore provides operational cost reductions.

The Future Joint Base Cape Cod Concept, shown in Figure 17, is a proposal for the long-range planning vision, goals and objectives for the installation. The intent is to define the opportunities and constraints, and the resulting framework for development of the entire installation. Within the Future Joint Base Cape Cod Concept is the long-term plan for a joint base with certain changes and specific actions.

This Concept proposes a complex set of decisions and actions to accomplish in whole. However, the overall Concept is just one potential end point. It may be broken down into its suggested elements and acted on in incremental fashion. In particular, the housing privatization may be a desirable first step. Still, this should be considered in perspective of the long-term goal.

Within this Concept, the commands, facilities and missions at Joint Base Cape Cod are confirmed in their mission as previously generalized, below. This Concept allows for changes in the missions.

The goals of this Future Joint Base Cape Cod Concept are:

- An overall, combined military and civilian building and land use plan that confirms and builds on previous planning efforts
- The Joint Base Cape Cod commands will be supported to more effectively and efficiently act in their missions through cooperation and sharing of facilities
- The Joint Base Cape Cod is planned to improve operational and infrastructure efficiencies
- Existing, supporting uses will be improved and integrated into the facility plans in ways that reduce the financial burden on the military commands
- Non-military uses may be located within the Joint Base Cape Cod that are compatible with and support the continuation of the military presence
- Proposals for shared facility projects, which implement the improvements for efficiency and cross-supporting infrastructure are encouraged

- The plan proposes development and operations in ways that coordinate property management, control total management costs, and increase certainty when making land use decisions

Overview of the Future Concept

The Future Joint Base Cape Cod Concept suggests that, with certain decisions on privatization partnerships, the mission and mission support areas could be consolidated to the extent indicated by the revised boundary. This creates areas in the cantonment for land banking, future missions, supporting civilian uses and contractors, and environmental mitigation. Table 9 provides the acreages shown within the Concept as delineated.

TABLE 9 FUTURE JOINT BASE CAPE COD CONCEPT AREAS

AREA	SUBAREA (ACRES)	TOTAL AREA (ACRES)
Base Consolidation		3,973
Partnership Opportunities		1,449
Housing Privatization	1,103	
Economic Development	346	
Veterans Administration National Cemetery		749
Environmental Management Areas		299

The exact boundaries of the consolidated area may vary according to specific needs, but are generally intended to create a section for family housing and MWR area and a location for private commercial uses associated with the solid waste and wastewater infrastructure in the southern section of the cantonment area. The Concept includes:

- Transfer of the suggested land between the National Cemetery and the State to improve access options to the family housing area allowing an alternative entrance road from Conner Avenue into the family housing area and to the southern areas, as shown in Figure 18
- Construction of a new road parallel to Turpentine Road, also as shown in Figure 18, to move the main access road further from the Regional Training Institute so as to more easily meet AT/FP setbacks
- With the road construction, secondary, and continuous access outside the consolidated base would be made available to the potential privatized areas
- Moving the Bachelor Officers Quarters/transient housing currently in the 5500 block into the consolidated base and adjacent to the 5200 block to help reinforce the Regional Training Institute campus and open up the southern area, to allow upgrade of the housing and reduced maintenance requirements for the Army National Guard
- Improvement to the southern rail lines to allow for mobilization training, continued access for solid waste transfer, and link for potential private contractors
- Separation of the family housing area from the mission and mission support areas to allow privatization of the housing by fence line
- Linking of the MWR facilities including the existing golf course with the family housing area, to permit alternatives for the scope of the housing privatization plan

- Potentially moving certain Coast Guard offices and non-MWR facilities, from Lee Road out of the housing privatization area to allow the privatization partner to assume responsibility for the area. See Figure 19 for a detail of the facilities in this block

The ways in which the installation planning goals could be achieved within this Concept are included in the following objectives:

- New projects and improvements in the existing physical plant shall be in accordance with the concepts of mission-focused, necessary, and compatible
- New projects shall be consolidated and located within existing mission and mission support area boundaries when possible
- Existing infrastructure and buildings shall be utilized to the maximum extent possible
- Family housing shall be privatized to reduce the costs of demolition and improvement within the Coast Guard budget
- Supporting civilian commercial and defense contractor uses will be allowed within specific boundaries

CONSIDERATIONS AND ALTERNATIVES

There are a number of considerations and alternatives that may be incorporated into the implementation of the Future Joint Base Cape Cod Concept. This includes the housing privatization and partnership program elements that would make the Concept successful.

FAMILY HOUSING

There are three aspects to consider when planning future base housing. Firstly, there are different housing types; family housing, bachelor quarters, visitors quarters, and dorms. Secondly, the total number of units that are available for housing the base personnel and for privatization program development. Thirdly, the alternatives for a housing privatization program initiative should be considered in the planning.

The current stock of housing units is listed in Table 10.

TABLE 10 INSTALLATION HOUSING AS INCLUDED IN MASTER LAND USE PLAN HOUSING AREAS

BUILDING OWNER	BLDG SF	BLDG COUNT	AVG SF/BLDG
Housing Area Buildings	934,407	252	
US Coast Guard	477,767	218*	2191
Army National Guard	149,422	34	
Barracks	73,229	8	9,154
BOQs	76,193	26	2,931
Air National Guard Barracks	18,207	2	9,104

* ~50% of total 438 units reported

At one time the installation had over 1,000 housing units in the family housing area, supported with three schools managed by the town of Bourne. Currently, the Coast Guard

manages about 438 housing units, the Army National Guard manages 26 housing units in the 5500 block, and the Air National Guard currently is owner of 42 buildings in the family housing area.

Joint Base Cape Cod has sufficient billeting for about 2,500 personnel. The Army National Guard manages 1,872 billets in the 5200 block, and the Air National Guard is owner of two other dorm buildings in the 5200 block for another 288 billets. The Coast Guard manages the Wings Inn for transient housing. While the transient housing is not proposed for privatization under the military partnership programs, the billets must be improved to meet current military standards.

The Coast Guard has noted in the Final Regional Master Plan that the family housing units were constructed between 1951 and 1959, and are smaller in size than the surrounding private market. There is a demand for the 4-bedroom units that are reportedly not available in the regional Cape Cod market (personal communication; Paul Ruchinskis, Cape Cod Commission). The remaining housing is reportedly not in high demand because the Basic Housing Allowance (as an example, \$1572 for E-1 rank with dependents) permits choices off-base within the surrounding Upper Cape market. This lack of demand is indicated in the 40-50% vacancy rate that has reportedly gone as high as 60% within the Coast Guard units.

To reduce maintenance for the housing units and to meet current housing standards for dimensions and program, a proposed action in the Coast Guard master plan is to demolish multiplex units within the Coast Guard and Air National Guard areas and construct new single family housing on the northern side to meet current Coast Guard standards for size and program. These changes would ultimately result in the Coast Guard managing 281 family units, after demolishing 148 multiplex units and constructing 61 new, clustered single-family homes, which should be in conformance with UFC 2-100-01 criteria.

The estimated cost of the current Coast Guard 'Right Size Family Housing' plan is \$45,150,000. With housing privatization this money could be saved and reentered for other mission and mission support needs. However, the housing project needs are based on deferred maintenance and current standardization requirements and so should proceed apace to meet current needs. The following is a review of the Housing Privatization approach.

Public-Private Venture: Housing Privatization and Alternatives

The military in the Commonwealth of Massachusetts has had success in military housing privatization with two types of projects. The Hanscom Field Military Housing project managed by Hunt Military Community is an example of a single Air Force PPV with 784 housing units. Westover Air Reserve is another example of a different format for housing privatization. It was part of a larger package of military housing privatization projects (8,059 housing units) at installations in New York, South Carolina and North Carolina.

The larger, packaged housing privatization projects are typically used to combine weak housing market projects with projects in strong markets to allow both to be improved to equal, military standards and the contractor to be successful overall. At all privatized locations if occupancy falls below specified thresholds, policy allows other active duty military, Guard/

Reserve military and families, federal civil service employees, retired military and federal civil service, Defense contractors and eventually the general public to apply for and live in the privatized housing, thereby opening the units to the broader market to provide rents.

While Westover Air Reserve may have supported the military housing privatization projects package, Hanscom is within a strong housing market area of the State and provided the opportunity for the Hanscom Field Military Housing project to be successful as a stand-alone single project in advancing through the program. In addition, the Hanscom Field Military Housing project, managed by Hunt Military Community, lists the following amenities both within the housing area and on the base:

Basketball Half-Court	Commissary (Base)
Community Center	Elementary School (Base)
Maintenance Facility	Gas Station (Base)
Neighborhood Center	Food Court (Base)
Playgrounds	Dry Cleaners (Base)
Regular Resident Events	Hobby Shops for Wood, Photos (Base)
Tot Lots	Library (Base)
Welcome Center	Movie Theater (Base)
Outdoor Track (Base)	Post Exchange (Base)
Bank & Credit Union (Base)	9-Hole Golf Course (Base)
Camping Facility (Base)	Veterinary Clinic (Base)
Base Exchange (Base)	Post Office (Base)
Bowling Alley (Base)	Non-Denominational Chapel (Base)

Consequently, the opportunity for a successful housing privatization program at Joint Base Cape Cod should be preceded with a housing market and demand study specific for military housing at the installation, including the types of units and amenities that will make the privatization project successful.

The recommended priorities would be to meet the following goals:

- Privatize all the family housing
- Eliminate the command backlogs for demolition, construction and renovation
- Eliminate housing expenses for tenants beyond the Basic Allowance for Housing
- Create a smooth transition to accommodate existing housing tenants
- Ensure continued high quality services for residents
- Meet community needs for quality of life; well-located, safe, high quality finishes, energy efficient, well-managed, affordable for military families for long term use (50 years)
- Require best practices for asset management and property development found in the housing industry

The basis for a privatization agreement should include discussion on the following alternatives:

- Property – What property is to be relinquished for privatization that will reduce management requirements for the commands
- Number of Units – How many units and types of units would meet the installation needs and be a competitive value in the regional market;

- Infrastructure – What elements of the infrastructure could be transferred such as road maintenance;
- Amenities – Are there additional amenities, such as another 9 holes for the golf course, that could improve the viability of the transfer and success of the partnership;
- Support facilities – Are MWR and support facilities (Exchange, Community Center, Daycare, 3in1, Housing Office) kept separate or part of the transfer to improve the financial return;
- Utilities - How are utility payments structured to keep costs within the BAH limits and pay fees to the installation utilities managers;
- Emergency Services – While some emergency services are covered by the State agreement for the Otis Fire Station, what arrangements are needed for the Bourne Police Department to service the housing
- Costs – There are also options for utilities, furnishings, routine maintenance, change of occupancy, grounds care, and major repairs

Determining the desired outcomes and construction of the offering should be drafted in a process that answers these questions and creates a market-ready plan.

OTHER PUBLIC AND PRIVATE PARTNERSHIPS

Joint Base Cape Cod employs nearly 4,000 full and part-time military, federal and state civilian employees. The estimated economic impact of the installation was calculated at \$405 million for 2011. However, while this value is significant, it does not directly link to federal budget decisions on investments in the military installation. Consequently, other considerations are given to reducing the management and budget liabilities of the installation. A recommended consideration is the use of public and private partnerships for sharing costs with a partner and reducing costs for the installation.

Public Partnerships

In advancing the Joint Land Use Study, 2013 Update, the Cape Cod Commission produced a report that reviews a number of public partnership options between communities and the military, with examples from around the country. These are presented as options to reduce management requirements for a military installation. These management alternatives are dependent on state and federal laws and some require special legislation. Previous examples of municipal-military partnership agreements for Joint Base Cape Cod have been the regional solid waste transfer station and the regional water supply.

The possible shared programs for Joint Base Cape Cod were identified in the current JLUS report as:

- A regional wastewater facility
- A regional sludge/food waste processing facility
- Relocation of the regional fire training academy to Joint Base Cape Cod
- Public works and other administrative/maintenance services

The regional wastewater facility and sludge/food processing facility is of current interest. However, the Air National Guard does not want to continue, let alone increase, their responsibilities for management of the wastewater treatment facility. Therefore, the additional waste streams for treatment should be considered as part of the value in the transfer of the facility to another agency.

Private Contractors and Commercial Ventures

A privatization program could provide space on Joint Base Cape Cod as a unique regional and national opportunity for private contractors and commercial uses that cannot find other opportunities in the region, or, a unique national opportunity for those who may be closely aligned with the military and missions of the commands at Joint Base Cape Cod.

The federal program option, Enhanced Use Lease, allows the private contractor or commercial user of the installation property to contribute financially to the operation of the installation. In addition to rent for the facility, the new user could be expected to connect to and pay for use of installation utilities including the water supply, electricity, solid waste disposal and wastewater treatment. The benefits of such an arrangement would include a more efficient use of the installation property and could include the generation of new local and regional jobs. An example is the Enhanced Use Lease completed at Hanscom Air Force Base.

For privatization focused on commerce and jobs, including Enhanced Use Lease opportunities, the priorities are to:

- Attract industrial and commercial uses that do not compete directly with regional business and economic development
- Allow for expansions of regional businesses with supplemental and supporting uses, including those that might otherwise be incompatible with neighborhoods off-base
- Allow uses that pay for all services and infrastructure costs, and where possible, provide rents for use of the property

Here, again, greater demands on the utility system would mean greater demands on the 102nd Intelligence Wing as installation utility manager. Consequently, prior to or concurrent with new uses should be a change in the utility system management.

Privatization and Force Protection Compliance

Of particular importance to the Joint Base Cape Cod privatization effort is the following excerpt from Unified Facilities Criteria 4-010-01:

Enhanced Use Leases - 'Where facilities associated with enhanced use leases on DoD installations are completely outside installation controlled perimeters and where access to those facilities does not require access from within the controlled perimeter, those facilities are exempt from all provisions of these standards. This does not apply to buildings owned or leased by DoD within enhanced lease areas.' [section 1-9.5 Enhanced Use Leases]

The application of this standard would be dependent on the actual projects that may come forward.

FUTURE JOINT BASE CAPE COD CONCEPT ALTERNATIVES

Several options are included in the Future Joint Base Cape Cod Concept that would still permit the recommended partnership and privatization programs but would shift fewer elements into the public or private partners side of management responsibilities. These options are identified on Figure 20 and include the MWR facilities around Lee Road, the golf course, rail lines, and the Army National Guard's transient housing.

The Concept suggests that the management responsibilities for the MWR could be negotiated with the housing privatization partner and recommends these elements be part of the privatization planning decisions. However, not all MWR facilities are included in the area optioned for housing privatization. As an example MWR elements not directly linked include the theatre on Turpentine Road and the non-denominational chapel on South Inner Road. In addition, as previously noted, the Coast Guard facilities around Lee Road include installation-wide facilities. Consequently, the option is available to retain management responsibilities for the installation-wide and housing-related facilities.

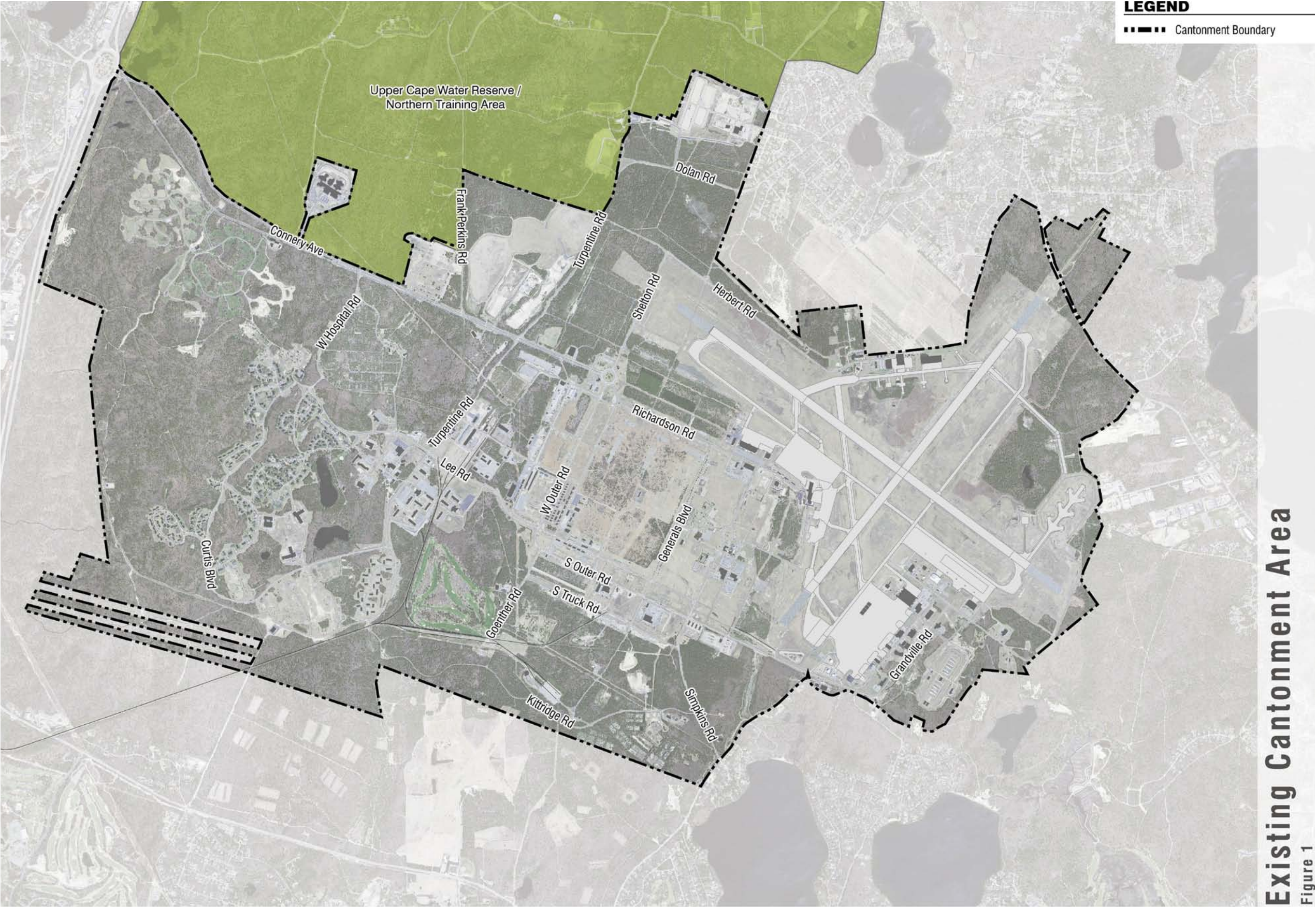
The Concept also offers that the Army National Guard's Bachelor Officers Quarters may not be replaced and moved in the near-term. This would make continuous, secondary access through the privatized areas more difficult to ensure Force Protection. Consequently, another option is presented to retain the Bachelor Officers Quarters as currently configured and include it within the consolidated installation.

Conclusions

The Future Joint Base Cape Cod Concept suggests a consideration of the present financial commitment to out-dated housing, utility management and properties with lower utilization that are not directly contributing to the current missions or are not foreseen as a future mission-required program option. It proposes taking advantage of privatization and partnership programs that allow non-mission essential operations and facilities to be taken from the direct responsibility of the commands. To accomplish this, the Concept sets aside a significant portion of the cantonment area furthest from the airfield and outside the consolidated Camp Edwards facilities for the purpose of providing flexibility to meet the goals of alternative means for privatization plans and partnership projects. This includes the family housing area and the southern infrastructure parcels that host the rail, solid waste and wastewater utilities.

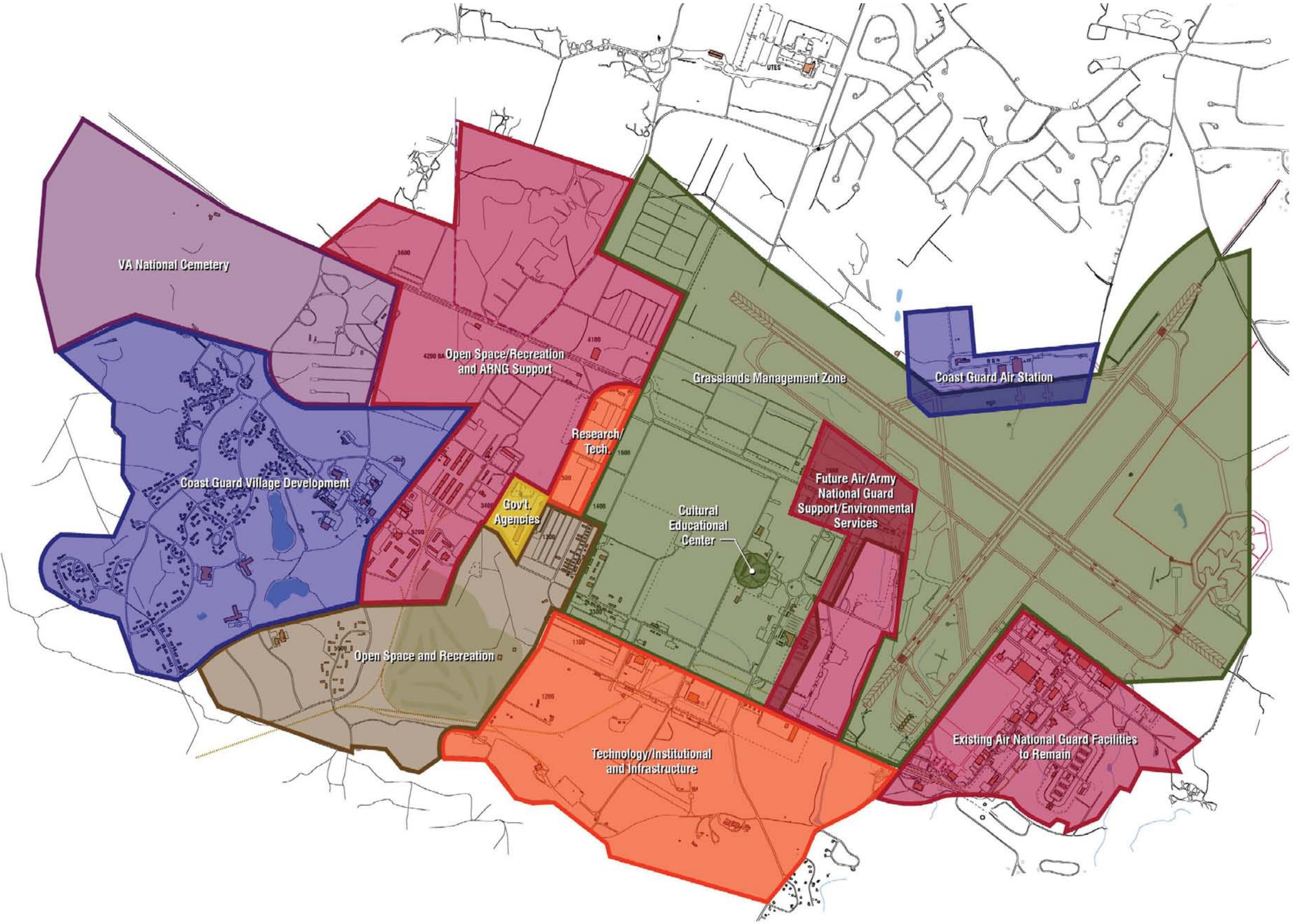
It is recommended that the commands proceed with current efforts to establish privatization and partnership projects. To confirm the desired outcomes, this plan recommends making decisions on the alternatives raised in this report. While further developing the program elements and the alternatives, the long-range plan should be kept as the goal for sustaining the installation.

Figure 1 Existing Cantonment Area



Existing Cantonment Area
Figure 1

Figure 2 1998 CWG Master Plan



1998 CWG Master Plan
Figure 2

Figure 3 2005 Military Land Use Districts

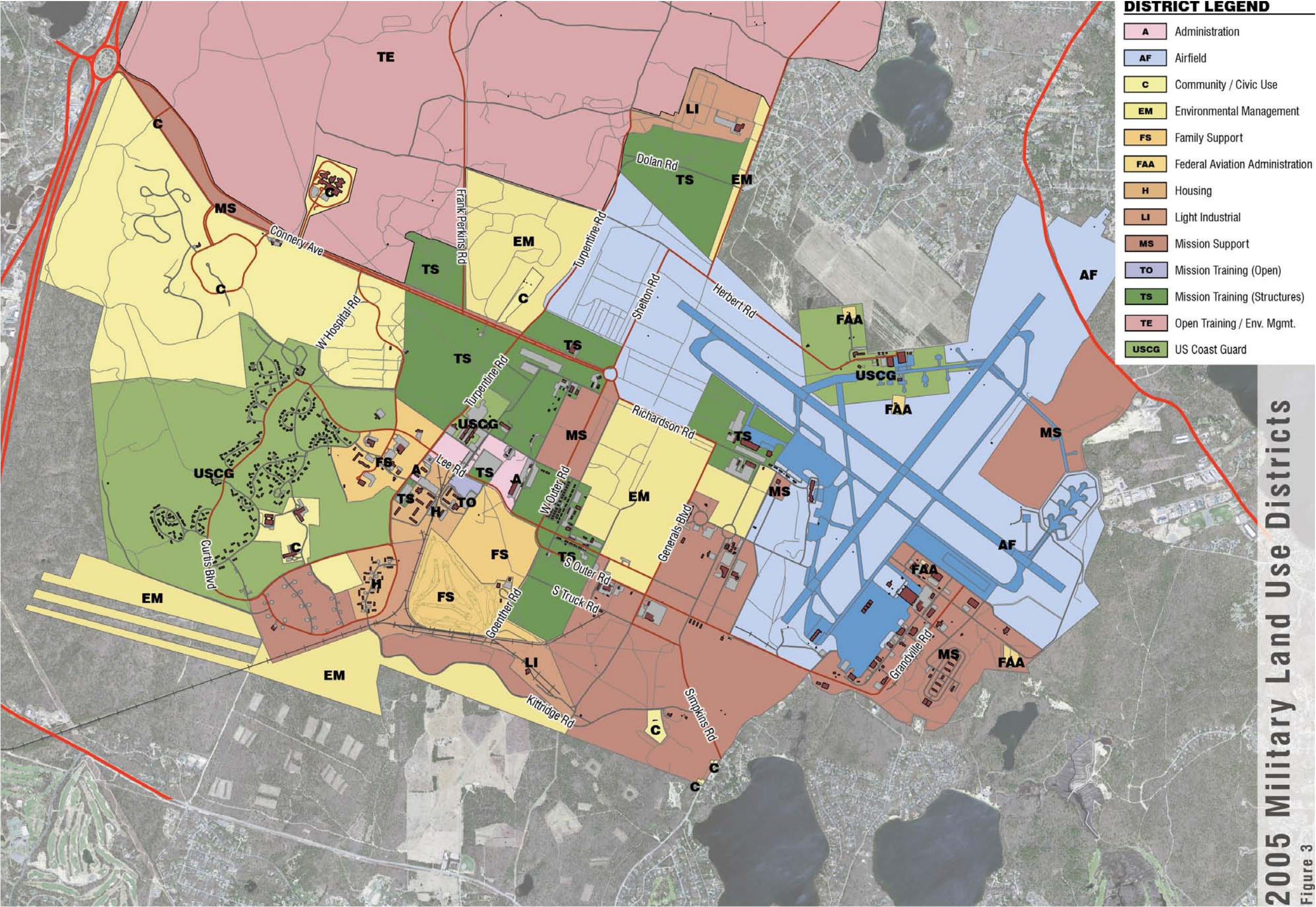


Figure 4 Current Parcel and Building Ownership

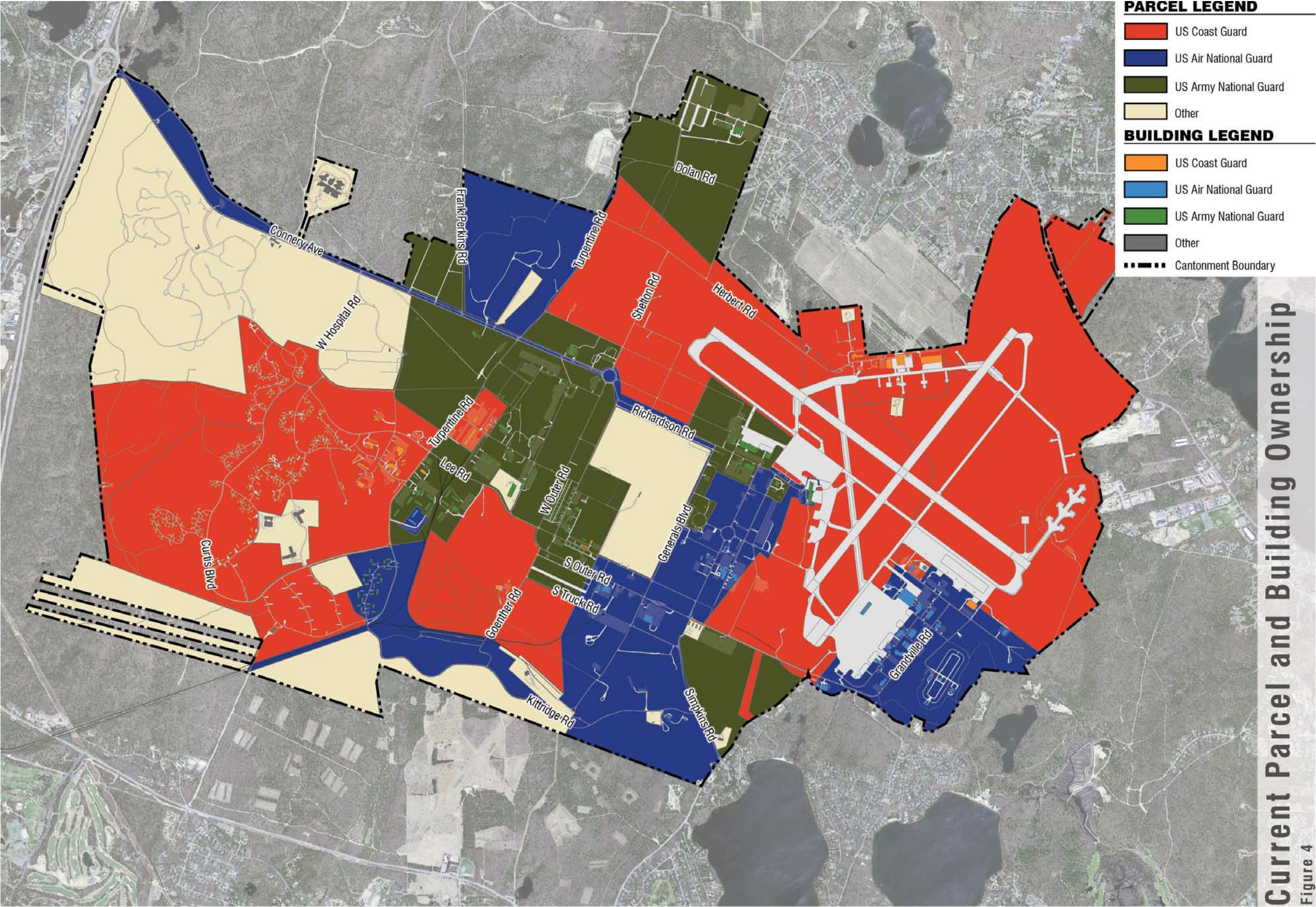


Figure 5 Future Parcel and Building Ownership

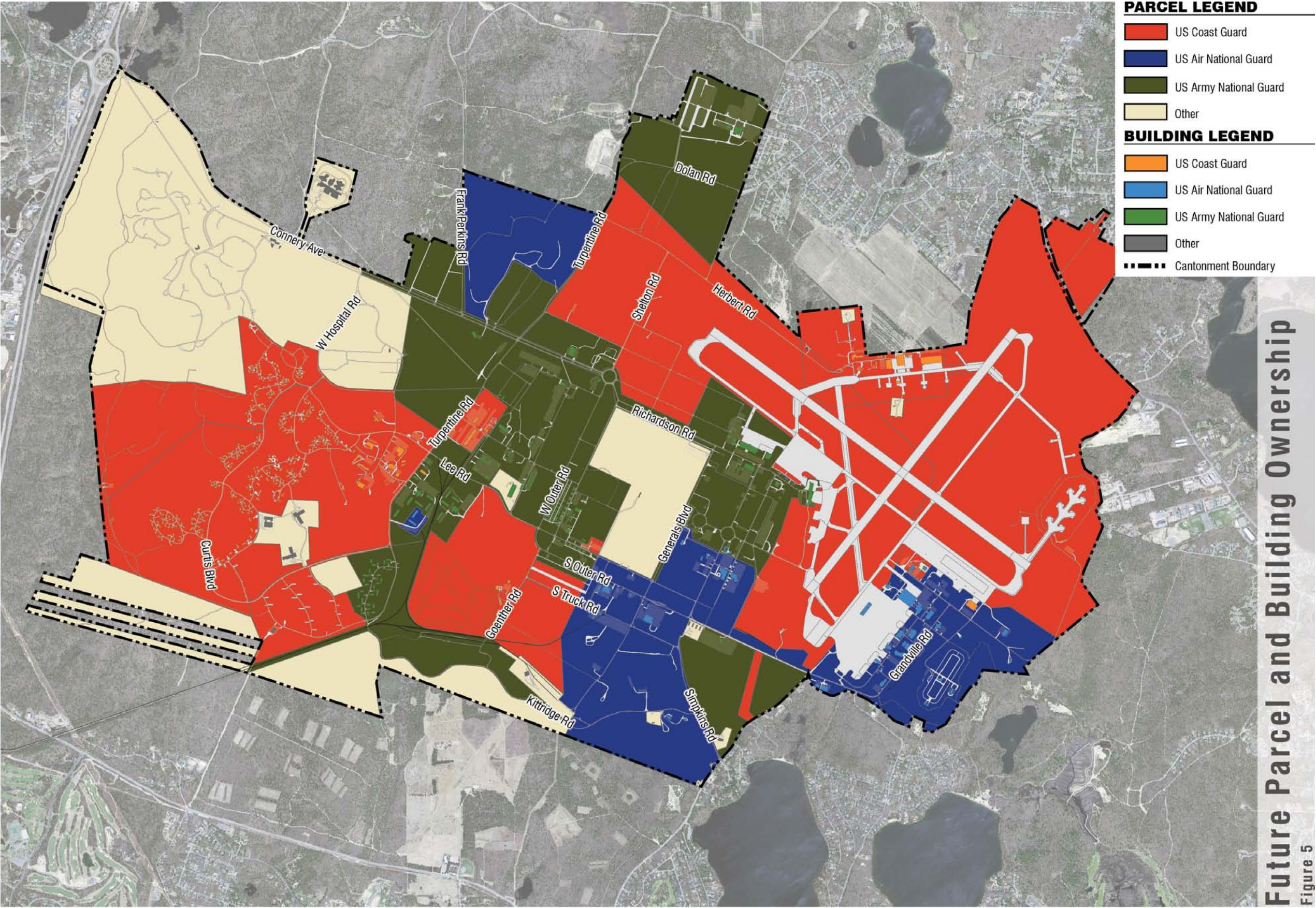


Figure 6 Proposed Master Land Use Plan, Detail

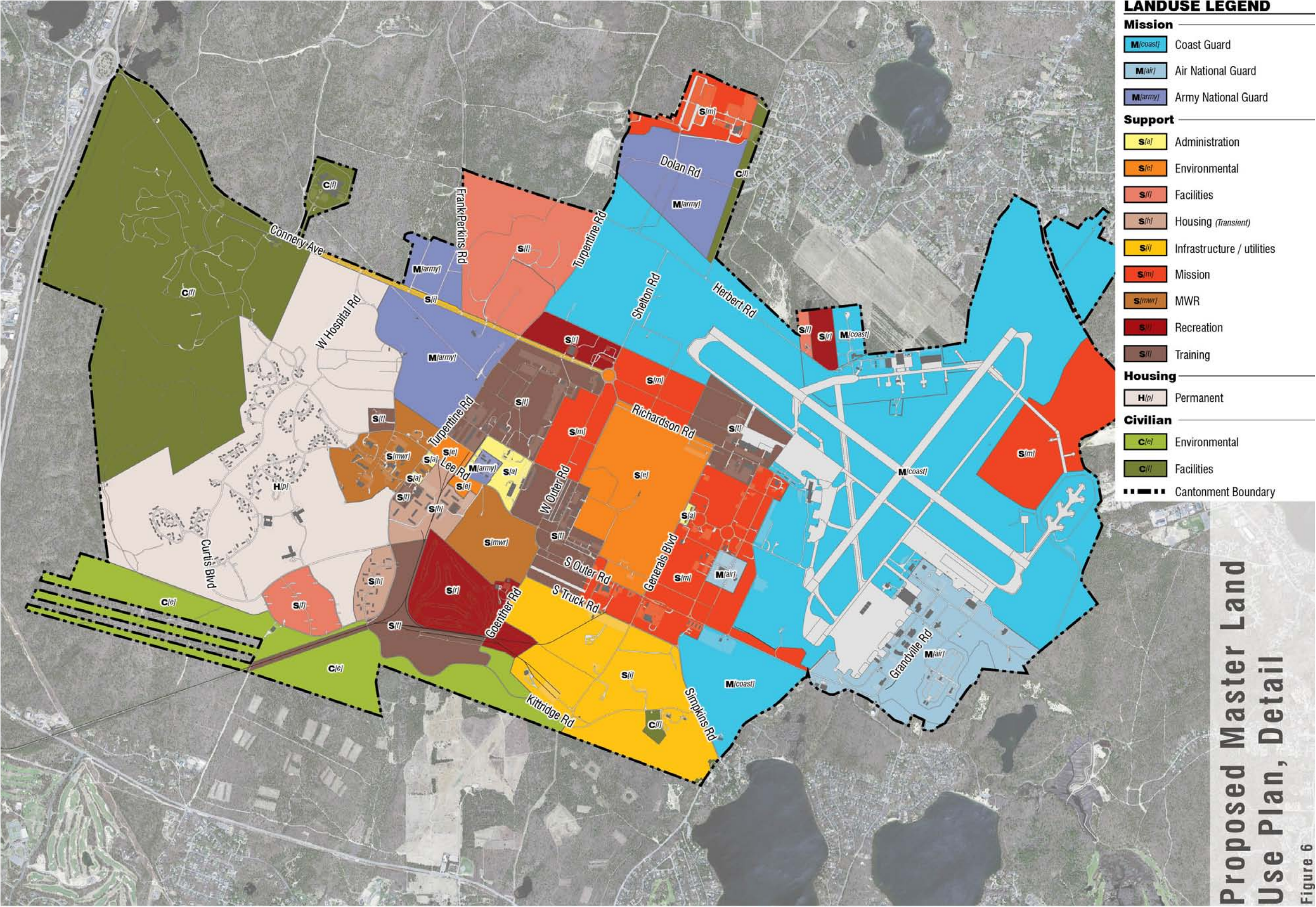


Figure 7 Land Swap Detail with Veterans Administration

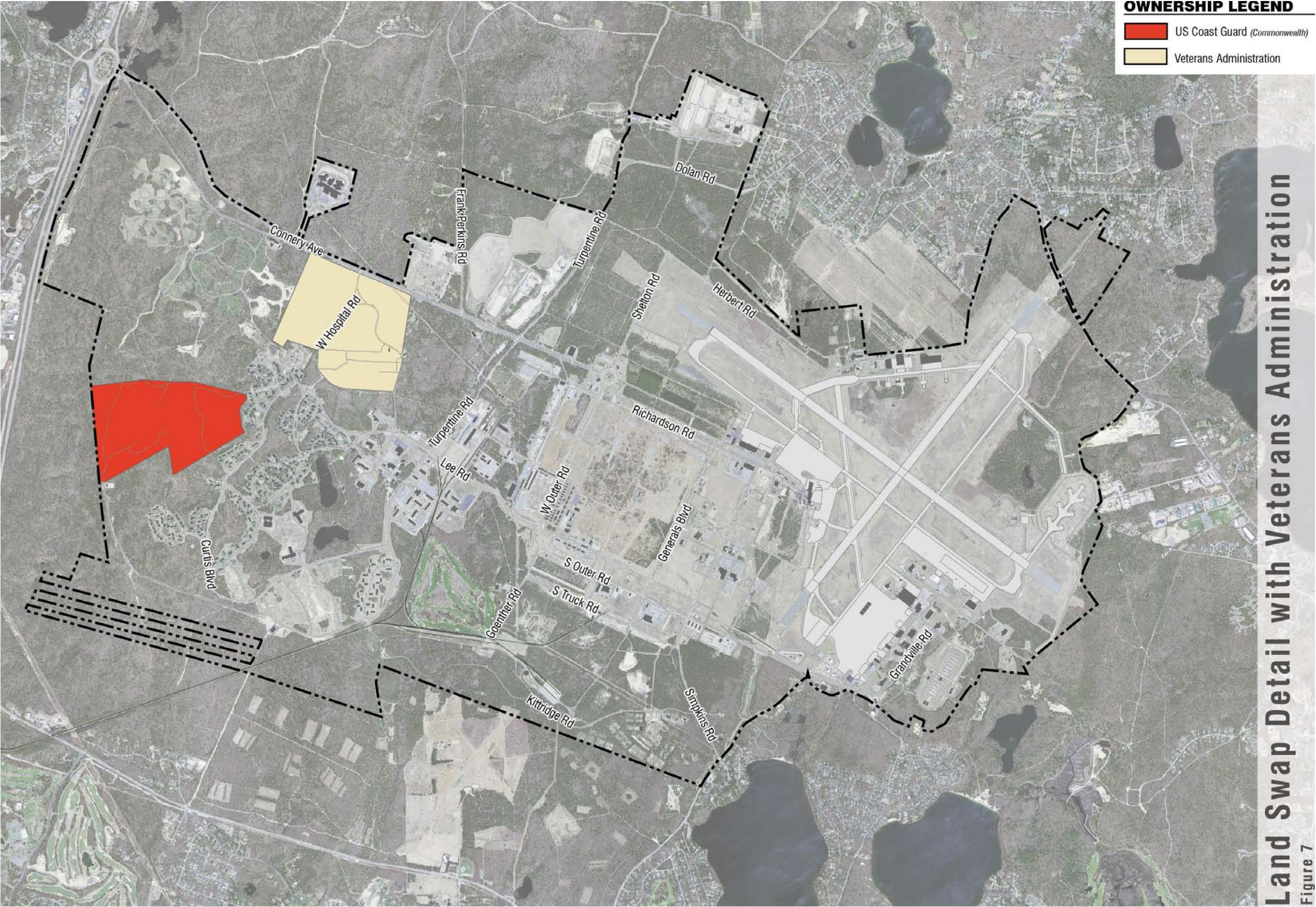


Figure 8 Proposed Master Land Use Plan

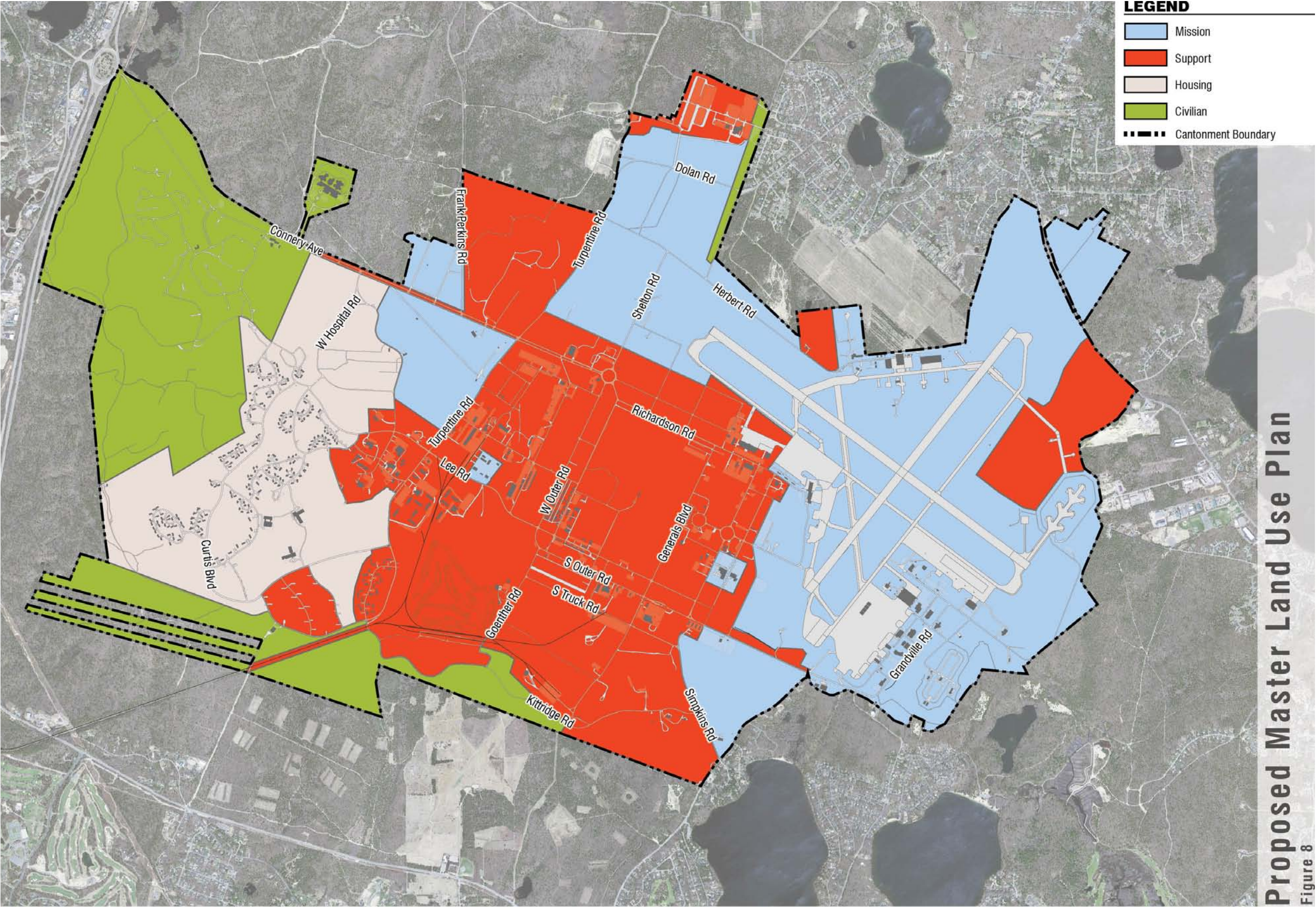


Figure 9 Cantonment Facilities

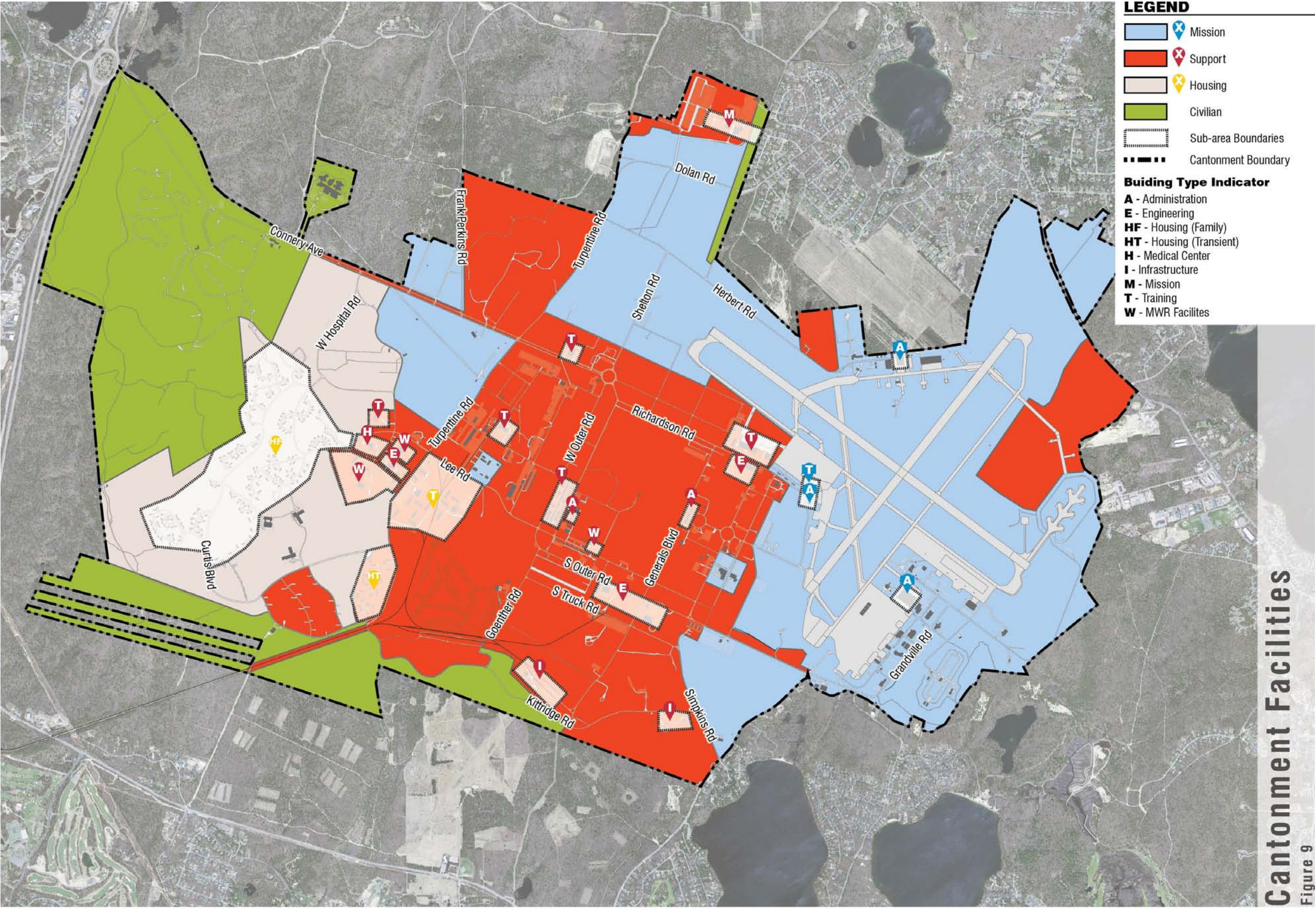


Figure 10 Shared Structures



Figure 11 Airfield Crash and Protection Zones



Figure 12 Groundwater Reserve Areas

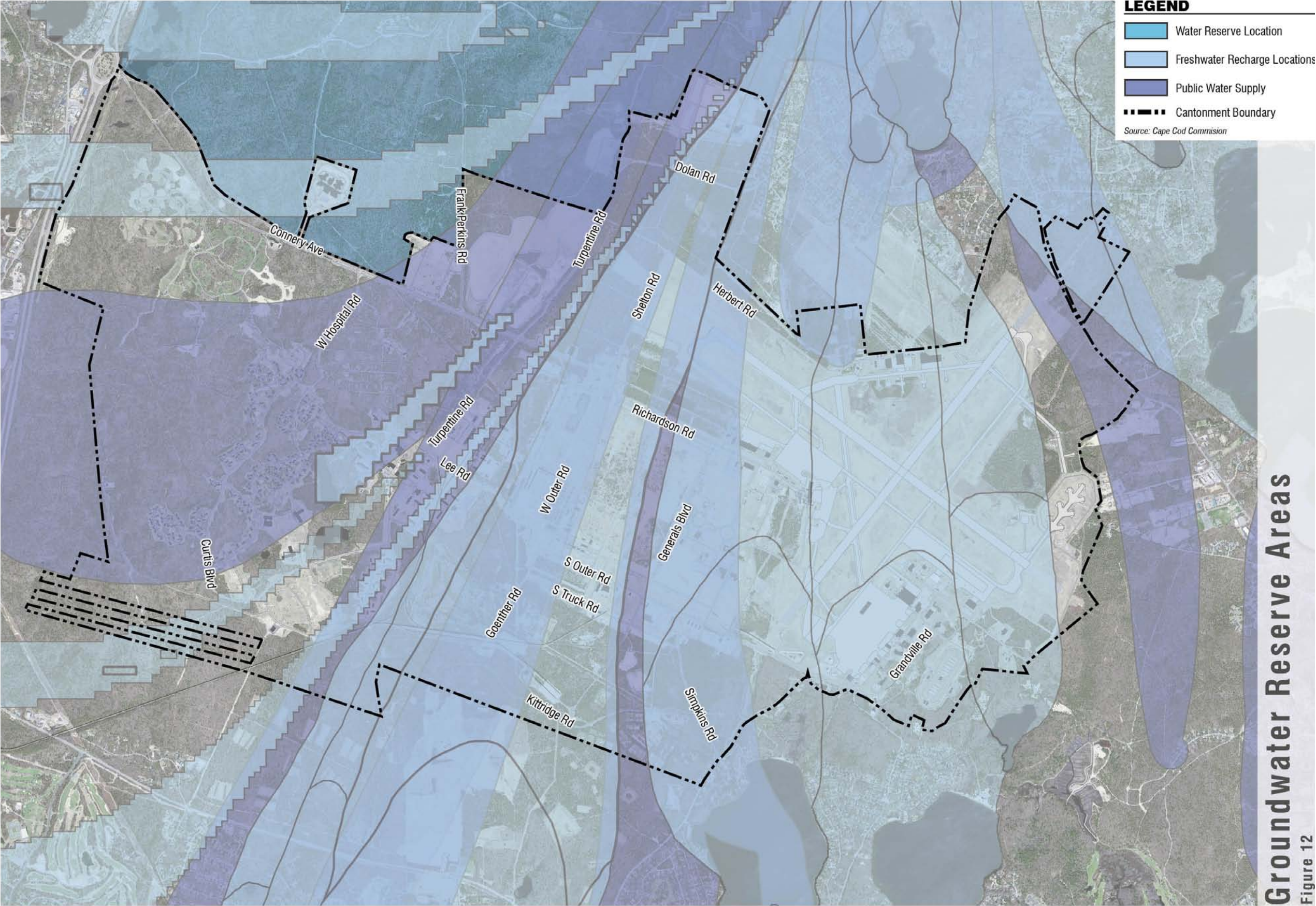


Figure 13 Proposed Road Classification

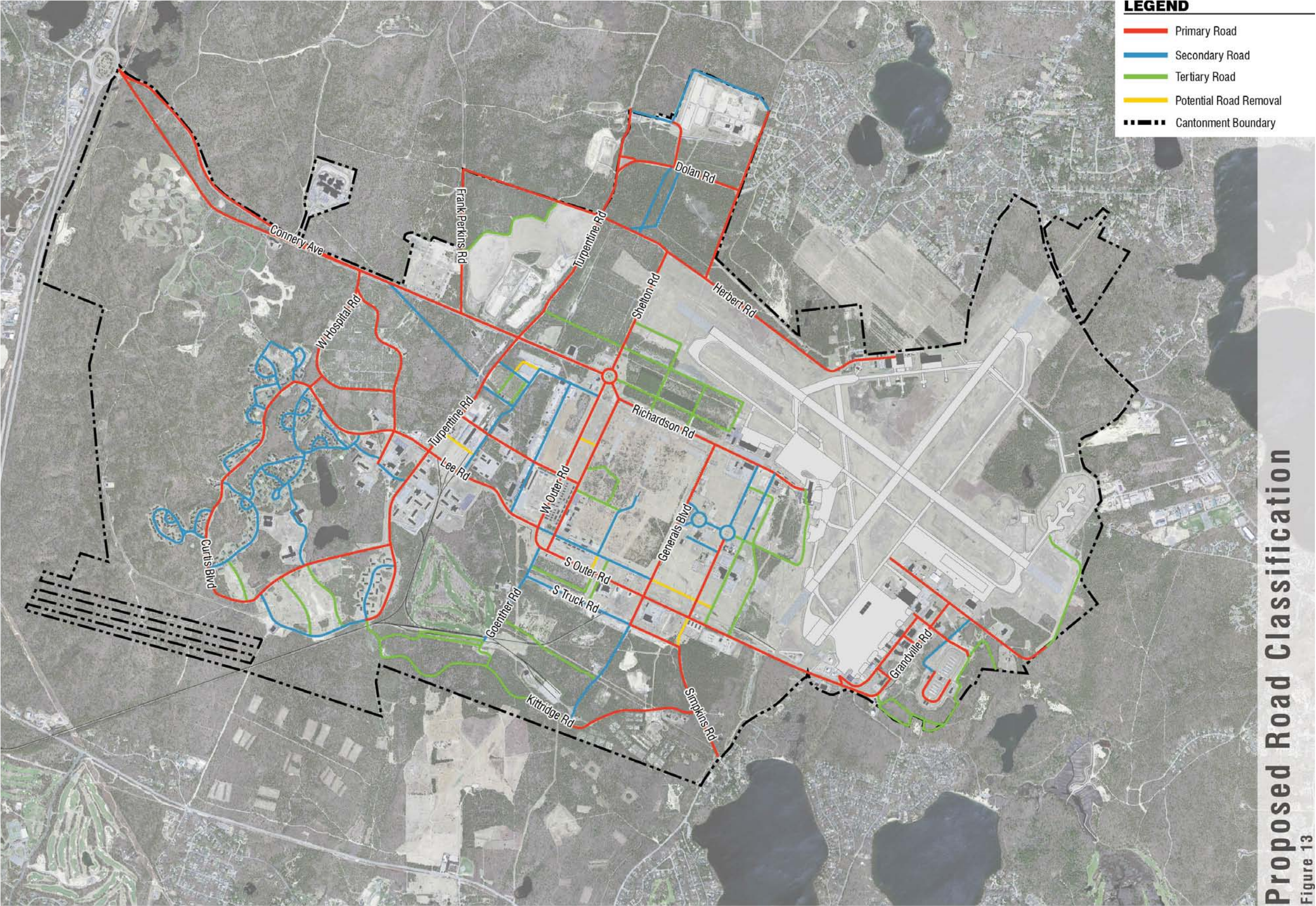


Figure 14 Existing Electric Utility Infrastructure



Figure 15 Existing Water Utility Infrastructure

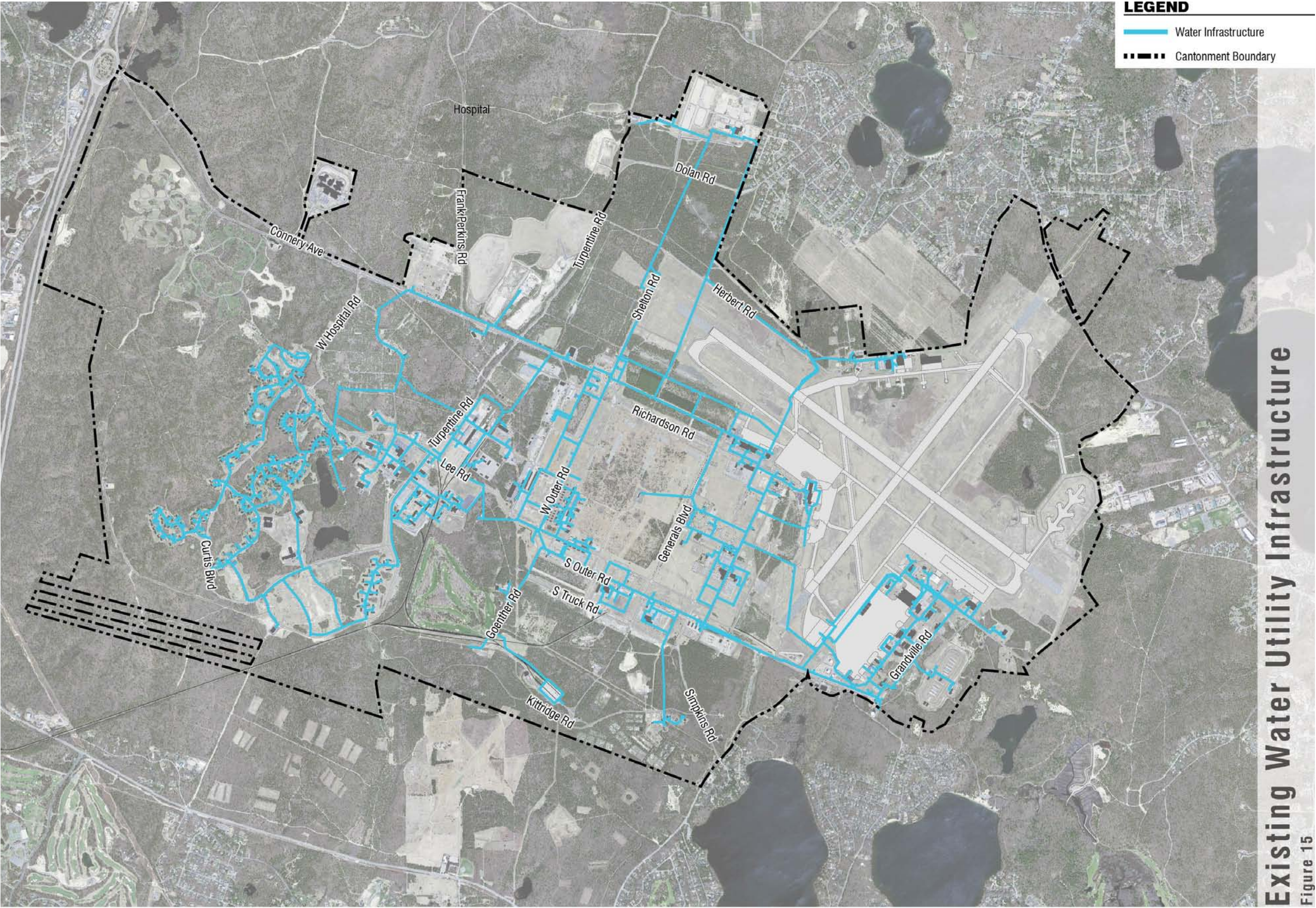


Figure 16 Existing Wastewater Utility Infrastructure



Figure 17 Future Joint Base Cape Cod Concept

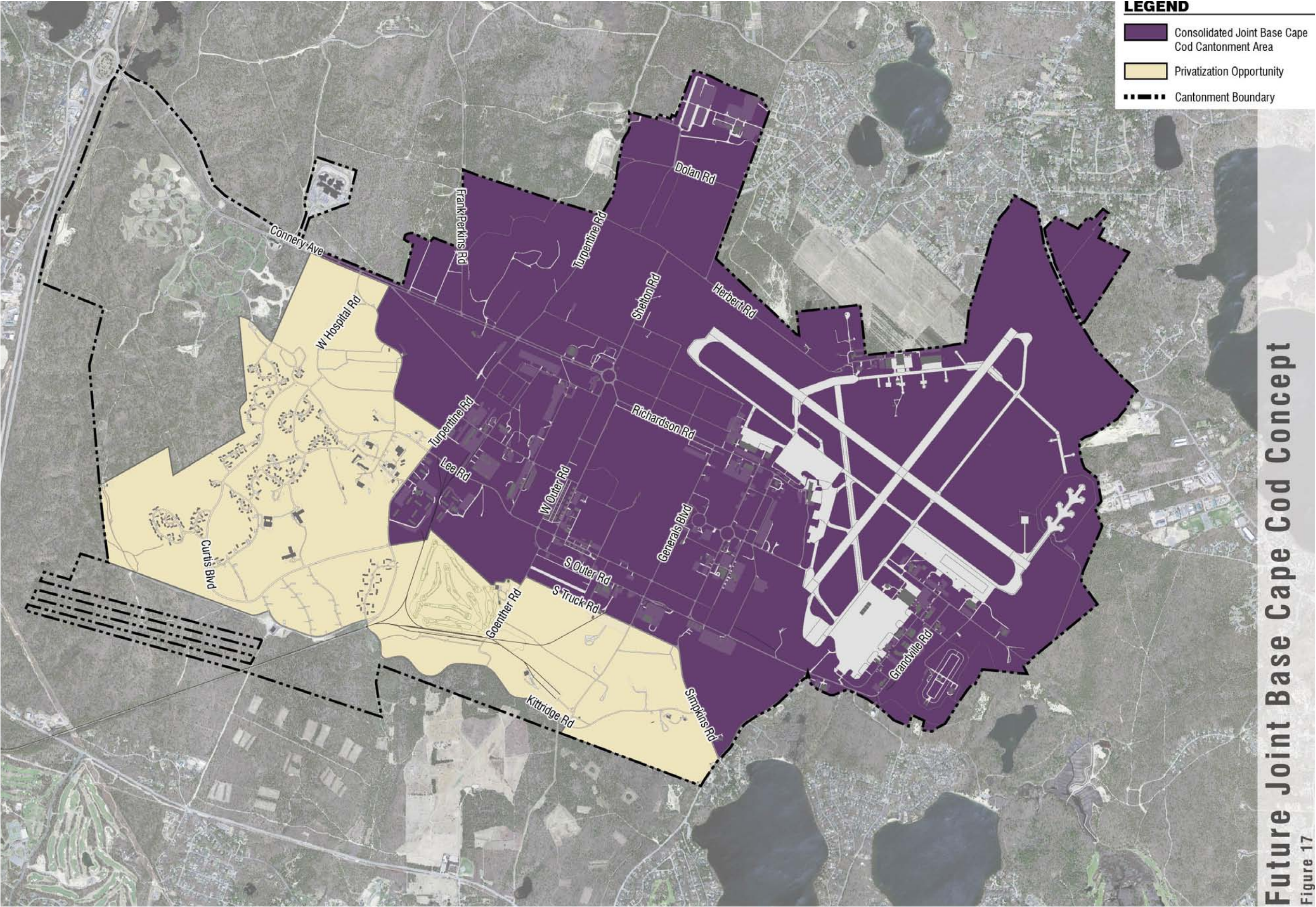


Figure 18 Future Joint Base Cape Cod Concept

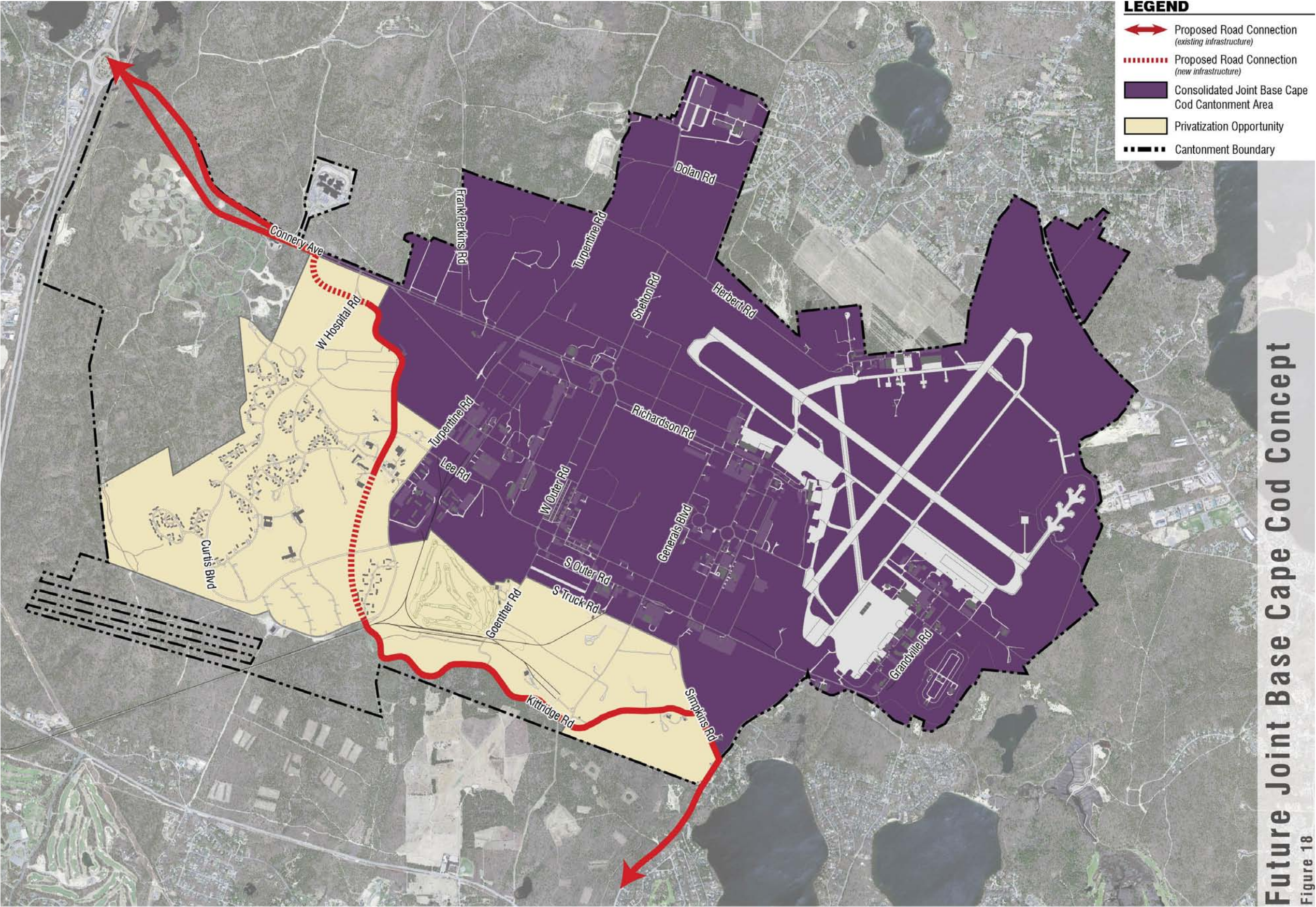


Figure 19 Coast Guard Facilities Detail

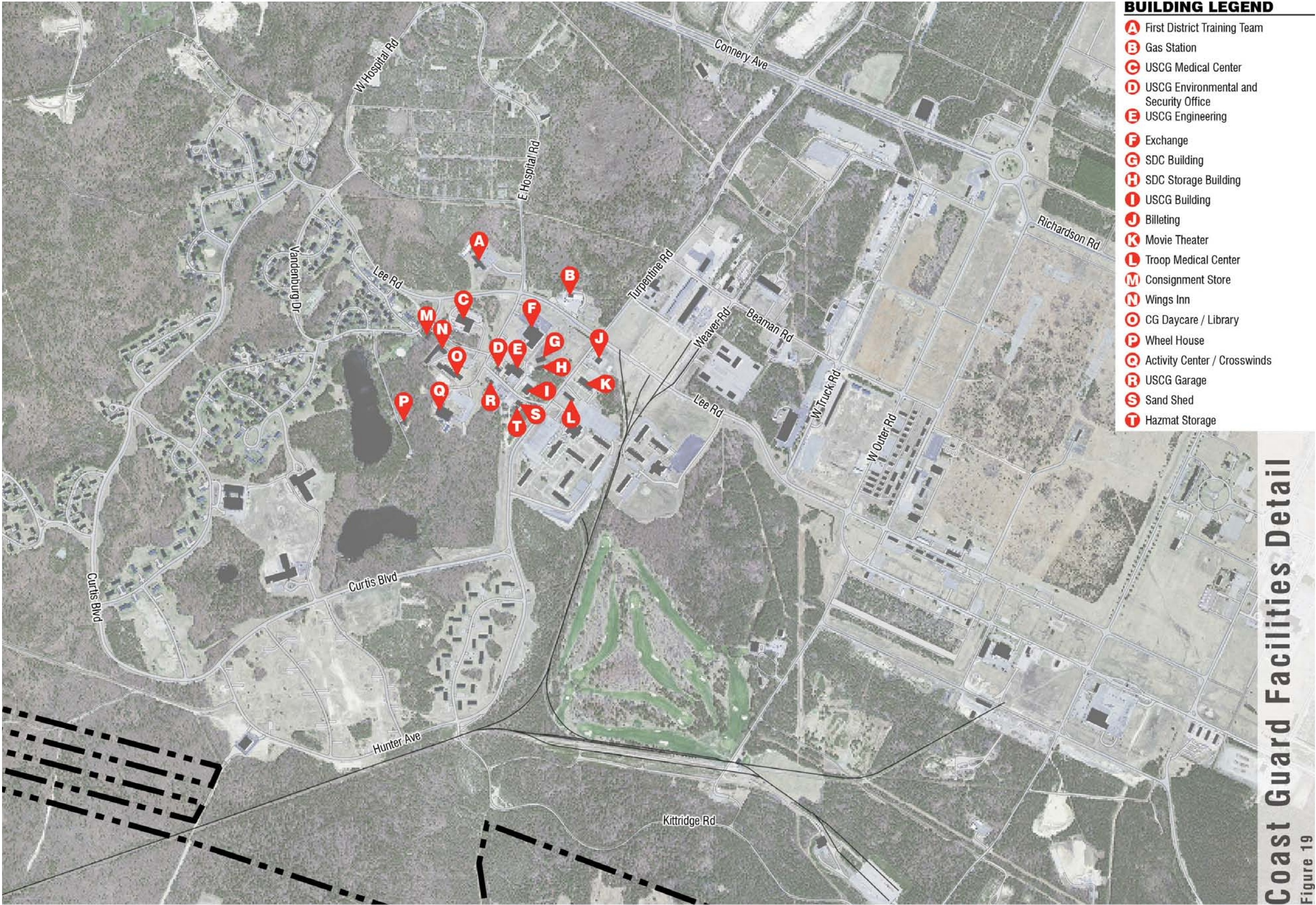


Figure 20 Future Concept Alternatives

